

**Project Engineering
Management**

Bharat Heavy Electricals Limited
(A Govt. of India undertaking)



Enquiry No. PE-LPE/432 dtd. 30/10/19

Due Date: 20/11/19 by 2:00 PM

Open Tender Enquiry

Subject: AMC & Operation of 2x120TR central AC system for 2 years w.e.f. 17/01/2020 for BHEL-PEM, Offices.

Dear Madam/ Sir,

Most competitive rates are invited from reputed Firm/Authorized Distributor/ Authorized dealer for AMC & Operation of 2x120TR central AC system for 2 years w.e.f. 17/01/2020 for BHEL-PEM, Offices (Refer Technical Terms & Conditions). Quotations are invited in two parts in sealed cover with Enquiry no., Enquiry date, Quotation due date & Time, Name/ Address of the Organisation whom submitting the offer legibly super-scribed on it, for the above-mentioned item so as to reach the undersigned before 2:00 P.M. on or before the above mentioned due date.

Scope of work: As per Clause no. 1 of Technical Terms & Conditions (Annexure- I).

Delivery: Bidder must be ready to provide the services of this Contract for two years w.e.f. 17/01/20 or within 7 days from Work Order date whichever is later.

Penalty: As per cl. no. VII of Technical Terms & Condition. (Annexure-I)

Payment Terms: As per clause no. IX of Technical Terms & Condition. (Annexure-I)

Evaluation Criteria: L1 shall be decided based on Total Price 'T' for 2 years as mentioned in the Price format. (Annexure-X)

EMD: Rs. 48,800/- (Rupees Fourty Eight Thousand Eight Hundred only) as per clause no 13 of Commercial Terms & Condition. (Annexure-II)

Security deposit: 5% of the Total Contract value as per clause no. 14 of Commercial Terms & Condition. (Annexure-II).

Technical Terms & Conditions and Detailed Specifications, Commercial Terms & Conditions, General Terms & Conditions, Details of Business, Acceptance Letter / No Deviation Certificate, Declaration, NEFT Application form, Check list & Price Format shall be as per enclosed Annexures - I to IX.

Tender and all correspondence thereof, shall be addressed to the undersigned by name & designation and sent at the following address:

Tender Room,
M/s Bharat Heavy Electricals Ltd.,
Project Engineering Management,
Power Project Engineering Institute,
HRDI & ESI Complex,
Plot No 25, Sector-16 A, Noida-201301 (U.P.)
Mob. No- 9911170053, Phone no. 0120-4213591
Thanking You,


नरेश चन्द्र शर्मा / Nareesh Chandra Sharma
ज्य. प्रबंधक (पी. एच. ई. एल.) / Dy. Manager (B.H.E.L.)
भारत हेवी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd.
पावर प्रोजेक्ट इंजीनियरिंग मैनेजमेंट, एच.आर.डी. & ए.सी. कॉम्प्लेक्स,
प्लॉट नं. 25, सेक्टर-16, नोएडा-201301 (उ.प्र.)
Power Project Engineering Institute, HRDI & ESI Complex,
Plot No 25, Sector-16 A, Noida-201301 (U.P.)
PPEI Bldg. 25, Sector-16 A, Noida-201301 (U.P.)
N C Sharma
Dy. Mgr./CMM

Operation & Maintenance of Central Air Conditioning System (2X120TR)

i. Scope of Work

1. The scope of works for the tender is broadly defined as follows:

- a. AMC of Central AC plant System
- b. Operation and routine maintenance of Central AC plant system

2. **Period of contract:** Two years from w.e.f. 17.01.2020 or effective date of commencement of contract as per work order whichever is later.

3. **Duties and Responsibilities of the Contractor:** The duties and responsibilities under the contract shall be for services (i.e. regular operation, routine checkups, corrective, preventive and predictive maintenance, repairing, testing etc. as required), in respect of Central AC Plant system. Liability shall also include deployment of necessary resources including manpower, tools and tackles etc. as may be required in order to ensure safe, efficient and smooth operation and maintenance of the said system and duties/responsibilities shall include all activities as may be required but not limited to the following.

- Safe, efficient and reliable operation of the Central AC Plant System
- Starting and Stopping of plant & accessories in proper sequence or as per requirements
- Maintaining daily log to record observations of various parameters under the services of the contract in prescribed format. Each of the equipment's like compressors, Heat Exchangers, Pumps, Cooling towers, Motors, Electrical Panels & other associated items etc. shall be serially numbered and proper record shall be maintained by the contractor in respect of the same.
- Continuous monitoring, recording and maintaining of parameters on daily basis.
- Taking all necessary precautions to ensure safety of the personnel and equipment.
- Preventive maintenance services(PMS) of all the major equipment's will be carried out by the party on quarterly basis. During PMS the party will check the systems in accordance with the Annexures- A to D.
- All the necessary tools, tackles and measuring instruments etc. required during operation and maintenance/servicing will be arranged by the contractor at no extra cost.
- Party should maintain inventory of day to day maintenance parts required at site so as to reduce the breakdown time and for smooth & uninterrupted services.

4. Detail scope of work is covered in subsequent clauses of the specification.

II. Description of System

A. Details of the major equipment's covered under central AC system are as,

S.No	Description	Nos.
i.	2x120TR Chiller Plant	01
ii.	Air Handling Units (AHUs)	11
iii.	Cooling Towers	02
iv.	Chilled Water Pumps	03
v.	Condenser Water Pumps	03
vi.	Hot Water Generating System	01
vii.	Main Electrical Panel	01

B. CHILLERS

- Maintenance of the Chillers throughout the contract period.
- To Check for proper operation of expansion valves every year or as and when required and set the same.
- To Carry out the proper functioning of microprocessor and take the control test on regular basis.
- To check / calibrate the proper functioning of flow switch.
- To check the antifreeze and setting of the same every quarterly or as and when required.
- To check LP / HP cut out switches & to replace the same if found defective.
- To attend to all the break downs including compressor failure.
- To check the filter drier core and changing of the same if found necessary.
- To clean the electrical panel of the m/c every quarterly with air blower.
- Rewinding/repairing of the fan motor and compressor motor.
- To check the leakages of refrigerant from the chilling units and rectify/ repair the same.
- To change compressor oil and oil filters as per requirement.
- To descale the condenser of machine as per requirement or at least once in a year.
- Checking of sensors, control valves, control's equipment & cleaning of strainers.
- To calibrate control instruments - Transducers, sensors & motor current, if possible.
- The refrigerant system shall be checked for any leakage of gas and lubrication oil and the same will be charged/topped up as and when required. The lubrication oil shall be replaced with new oil at least once in a year.

C. PUMPS

- To maintain the pumps connecting to the system as per requirement
- To replace damaged gland packing with new one as per the requirement at site.
- To replace bearing of Pumps and Motors if necessary.
- To lubricate bearings for pumps and motors from time to time.
- To clean the Strainer as and when required.
- To make proper alignment of the pump, if necessary.
- To replace the operation safeties in case of damage to the same.
- Rewinding/repairing of the motor, if required.

D. AIR HANDLING UNITS (AHUs)

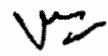
- To clean the filters of Air Handling Unit every 15 days or as and when required.
- To clean the cooling coils quarterly during preventive maintenance service (PMS).
- To check the belt tension & replace the same, if necessary.
- To check and rectify blower pulley and motor pulley alignment as required at site.
- To lubricate motor and blower shaft's bearings from time to time.
- To replace defective bearings of blower or motor.
- To replace/ repair defective control equipment such as thermometers, modulating motors, pressure gauges, valves etc.
- To clean the drain lines every quarterly.

E. COOLING TOWER

- To clean the spray nozzles, if found choked.
- Checking of water level in cooling towers and expansion tank.
- To clean the fills after every month or as and when required.
- To clean the spray chamber / tank every quarterly (during PMS).
- To check and rectify the motor and blower alignment.
- To lubricate the motor and blower shaft bearing as and when required.
- To replace motor and blower bearings, if found defective.

F. Hot Water Generating System

- To check hot water generator control, electric circuit and immersion heaters and rectify/replace the same if needed.
- To check temperature meters and rectify/replace the same if needed.

G. ELECTRICAL PANEL

- To clean the electrical panel quarterly.
- To tighten the electrical components related to the air conditioning system once in a month.
- To replace and rectify the defective electric components of main AC Panel and other distribution boards timely. This includes main incomer ACB of 1250A and various switches specifically for central AC Plant Systems.
- To check the electrical circuits of air conditioning plants & rectify the same as and when necessary.

III. Replacement/Repair of following equipment's are covered under the contract over and above mentioned elsewhere

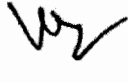
- Refrigerant Gas, compressor oil, lubricants etc.
- Spares for AHUs like Heaters, Actuators, Bearings, Belts, Plummer block etc. including repair/rewinding of pumps and motor & pulley.
- Cooling tower sprinklers, blower and motor.
- Cooling tower Fins.

IV. Replacement of following Equipment's are not covered under the contract

- Compressors/Chillers
- Condensers, Air Handling Units (AHUs)
- Pump motors
- Cooling Towers
- Chiller Water Pipelines
- Ducts & Insulation
- Filter of AHUs
- Repair and replacement due to natural calamities like earthquake, flood etc.

V. Efficiency of the system: The following test shall be conducted for the plants during the contract period as and when required/desired by BHEL.

- Efficiency Test
- Air Flow Test
- Percentage of Fresh Air
- Sound Level of the plant
- Vibration Level

VI. Time Schedule (Response Time) for attending/ rectification of problems

Main Chiller Units

Response Time

- Minor defects (mechanical & Electrical Nature)
- Major Electrical parts, Starter SFU and control circuit etc.

3-4 hours
1-2 days

Compressor Breakdown

- Leakage testing, gas charging & putting back in operation after rectification of the same
- If compressor has to be opened due to any fault, putting the same back in operation

0-1 Day
2-3 Days

Pumps

- Changing of Pump glands
- Changing of coupling
- Changing of bearing of Pumps/motors
- Rectification/changing of motors
- Rewinding of motor

3-4 hours
4-5 hours
0-1 day
1-2 day
2-3 days

Air Handling Units/FCUs

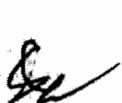
- Belt Alignment
- Cleaning of Filter
- Blower Balancing
- Damper repairing/replacement

2-3 hours
3-4 hours
0-1 day
1-2 day

Cooling Towers

- Sprinklers repair/replacement
- Motor/blower alignment
- Blower/motor rewinding/repairing

0-1 day
0-1 day
2-3 days

VII. Penalty Clauses :

- a. Non attendance and rectification of the faults of the Central AC Plant System and equipment's as a whole within a reasonable period as specified above (Section-IV) will attract penalty, subject to maximum of 10% of contract value during the entire contract period. If the time taken for rectification exceeds the time period allowed/approved, the penalty shall be imposed on the contractor as follows,

Rs. 2000/- Per day for non-functioning of each Chilling Unit (including compressor) beyond the approved time for such rectification

Rs 1000/- Per day for non-functioning of each AHU beyond the approved time for such Rectification

Rs 500/- Per day for non-functioning of each Cooling (Condenser) water pump beyond the approved time for such rectification

Rs 500/- Per day for non-functioning of each Chilled water pump beyond the approved time for such rectification

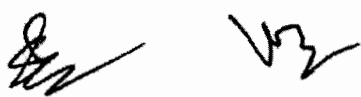
Rs 500/- Per day for non-functioning of each cooling tower beyond the approved time for such rectification

Rs 2000/- Per day for absence of operator during working days.

Rs 2000/- Plant not working for any other reason than those mentioned above but covered under the scope of the vendor e.g problem in the electric panel (used for central plant system only) etc.

- b. At a time only one penalty which has more value shall be applicable

- c. If any equipment/parts found broken/damaged due to negligence of contractors work/worker and or damages the property of BHEL deliberately, the same shall be replaced/repared by the contractor. If the contractor fails to repair/replace the same the cost for repair/replacement along with 30% of the cost as overhead charges shall be recovered from the contractor



VIII. BHEL PS-PEM working hours and Operator deployment

- Our office hours are 09:00AM to 5:30PM. Office is open on all days except 2nd & last Saturday of every month, Sunday and National Holidays.
- The operator availability shall be generally from 08:30Am to 5:00PM on all working days. Operator may be required on holidays/beyond office timings on some days on account of any function or exigency at no extra cost.
- Trained operator/AC mechanic shall be deployed by the contractor for the operation and routine maintenance of AC Plant system.
- Operator will report to duty with uniform issued by the contractor.
- The operational parameters such as temperature, humidity etc. shall be monitored continuously and the same shall be entered in the log book on daily basis during operation.
- The contractor will provide the operator with handbook for day to day operation and maintenance of the AC System and the operator will have to follow the procedures.
- The contractor will provide all the safety equipments/kits/emergency light/ First Aid box etc. to each operator
- In case of absenteeism, the contractor will have to make alternative arrangement and advance information to be given to engineer in-charge.
- The contractor/vendor shall abide at all times by all labour laws, regulations, rules, Acts, ESI, PF etc.

IX. Payment Terms: Payments will be made as follows,

- For 'AMC of Central AC plant System', payment will be made on quarterly basis based on satisfactory services certified by HR-GAX. The party will submit bill after end of every quarter and the same will be processed provided the bill/invoice submitted is complete in all respect and in order and in Compliance with GST.
- For 'Operation and routine maintenance of Central AC plant system', payment will be made on monthly basis based on satisfactory services certified by HR-GAX. The party will submit bill after end of every month and the same will be processed provided the bill/invoice submitted is complete in all respect and in order and in Compliance with GST.

X. Special Conditions:

- All risk of loss or damage to physical property and of personal injury and death, which arises during/in consequence of the performance of the contract, other than expected risks, are the responsibility of the contractor.
- The onus of compliance of all statutory requirements including labour laws, PF, ESI etc shall be on the contractor only.
- The bidder shall visit the site to acquaint himself regarding all site features and existing system condition etc. Any claim by the bidder of any ignorance, whatsoever in this regard will not be entertained by BHEL at later stage.



Annexure-A

Preventive Maintenance Service Report
Water Cooled Packaged Chillers / Condensing Units (Reciprocal or Scroll)

PMS DUE DATE:		PMS DONE ON:		
Site Address		BHEL PS-PEM, PPEI Building, Plot No-25, Sec-16A, Noida-201301 (UP)		
S.No	Description of work	Observation/Status		Remark
		Unit-1	Unit-2	
1	Clean the equipment's externally			
2	Check foundation bolts			
3	Check oil level (as applicable)			
4	Check oil condition (as applicable)			
5	Check oil seal (as applicable)			
6	Check V-Belts/Couplings and alignment			
7	Check solenoid valves			
8	Check pressure gauges			
9	Check ref. piping for vibrations			
10	Check ref. piping for signs of oil leaks			
11	Ensure tightness of all connections and fittings			
12	Ensure crankcase heater operation			
13	Ensure proper contact of expansion valve bulb			
14	Check cond. relief valve			
15	Check operation of USR/RSV/-Th.Stats, H.P., O.P.,			
16	L.P. Anti-freeze & O/L Relays (as applicable)			
17	Check motor bearings (If applicable)			
18	Check motor connections			
19	For Slipring motors (as applicable)			
a	Check carbon brushes			
b	Check slipring			
c	Check contact between slipring & brushes			
20	Check starter connections			
21	Check starter contacts			
22	Check starter operation			
23	Check condition of oil for oil-immersed starters			
24	Check tightness of all electrical connections and fuse links			
25	Check setting of anti-freeze thermostat			

Preventive Maintenance Service Report
Water Cooled Packaged Chillers / Condensing Units (Reciprocal or Scroll)

S.No	Description of work	Observation/Status		Remark
		Unit-1	Unit-2	
26	Suction Pressure			
27	Discharge Pressure			
28	Oil pressure			
29	Condenser water 'IN' - Pressure / Temperature			
30	Condenser water 'OUT' - Pressure			
31	Condenser water 'OUT' - Temperature			
32	Chilled water 'IN' - Pressure			
33	Chilled water 'IN' - Temperature			
34	Chilled water 'OUT' - Pressure / Temperature			
35	H.P. Setting			
36	L.P. Setting			
37	O.P. Setting			
38	Motor O/L Relay setting in Amperes			
39	Take the following observations once every 6 months :			
40	USV 1 Thermostat setting(as applicable)			
41	RSV Thermostat setting(as applicable)			

Contractors/Vendors Remark:

Contractors/Vendors Signature:

BHEL's Remark:

BHEL's Signature:

Annexure-B

Preventive Maintenance Service Report
COOLING TOWERS

PMS DUE DATE:		PMS DONE ON:		
Site Address		BHEL PS-PEM, PPEI Building, Plot No-25, Sec-16A, Noida-201301 (UP)		
S.No	Description of work	Observation/Status		Remarks
		Unit-1	Unit-2	
1.	Clean the surroundings			
2	Check the pump in general			
3	Check for signs of water leaks from pipes			
4	Check the excessive spray (water) locks			
5	Run and check for undue vibration and noise			
6	Check and record the TDS of the sump water in ppm (once a year)			
7	Clean/remove algae and other sludge from all surfaces			
8	Clean the cooling water sump			
9	Clean the spray nozzles			
10	Check the sump outlet strainer			
11	Check if all the louvers are in position			
12	Check for structure stability			
13	Clean and lubricate all the control valves			
14	Check for proper position of the float valve			
15	Check the driver motor			
16	Ensure the terminal box is dry			
17	Lubricate motor bearings			
18	Check fan blades and their fasteners			
19	Check the V-grooves of the drive pulleys			
20	Check the condition of drive belts			
21	Check/adjust the tension of drive belts			
22	Check the gearbox lubricant level (if applicable)			
23	Check for the shaft seals in the drive gearbox (if applicable)			
24	Check the coupling bolts and alignment (if applicable)			

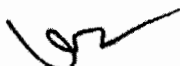
 

Preventive Maintenance Service Report
COOLING TOWERS

S.No	Description of work	Observation/Status		Remark
		Unit-1	Unit-2	
25	Check the sprinkler RPM and record (if applicable)			
26	Check the honeycomb for scales and sludge			
27	Check electrical cables and terminations			
28	Check proper operation of electrical starter			
29	Ensure that fan motor is connected in proper sequence with plant operation			
30	Check and record the slump water			
31	Check and record the ambient dry and wet bulb			
32	Check and record the motor current in Amperes			

Contractors/Vendors Remark:	
Contractors/Vendors Signature:	

BHEL's Remark:	
BHEL's Signature:	

Preventive Maintenance Service Report
Air Handling Units (AHUs)

PMS DUE DATE:		PMS DONE ON:		
Site Address		BHEL PS-PEM, PPEI Building, Plot No-25, Sec-16A, Noida-201301 (UP)		
S.No	Description of work	Observation/Status		Remark
		AHU-10	AHU-11	
1	Check and Clean the Unit in general			
2	Run and check for undue vibration and noise			
3	Clean air Filters			
4	Clean the Cooling Coil			
5	Check and clean the condensate drain tray and piles			
6	Check the drive motor			
7	Lubricate Motor Bearings			
8	Check the V-grooves of the drive pulleys			
9	Check the condition of driven Belts			
10	Check and adjust the tension of driven Belts			
11	Check for Proper drive alignment			
12	Check the Coupling Bolts and Alignment			
13	Check the Starter for Proper Working			
14	Check the contractors for Proper Working			
15	Check the OL Relay Setting and Record the setting Position			
16	Check for Proper Terminations			
17	Check Canvas Connection			
18	Lubricate Damper Pins			
19	Check and Lubricate mixing valves			
20	Run unit and ensure proper working			
21	Ensure all Inspection doors are refitted properly			



Preventive Maintenance Service Report
Air Handling Units (AHUs)

S.No	Description of work	Observation/Status		Remark
		AHU-10	AHU-11	
22	Motor Current in Amps			
23	Air Temperature at the canvas connection (deg)			
24	Return Air Temperature (deg)			
25	Chilled Water Inlet Temperature (deg)			
26	Chilled water Outlet Temperature (deg)			
27	Do the following checks once every 6 months			
28	Check operation of strip heaters			
29	Check operation of thermostat Hum. Stat			
30	Check operation of mix valve/ bypass damper			
31	Check water valves are holding			
32	Do the following checks once every 12 months			
33	Clean evaporator coil with suitable cleaning agent			
34	Inspect blower shaft, bearings, scroll & wheels			
35	Clean blower wheels and scroll			
36	Inspect absolute Filter			
37	Check operation of Condensate Pump(if applicable)			

Contractors/Vendors Remark:	
Contractors/Vendors Signature:	

BHEL's Remark:	
BHEL's Signature:	




Preventive Maintenance Service Report
Air Handling Units (AHUs)

PMS DUE DATE:		PMS DONE ON:			
Site Address		BHEL PS-PEM, PPEI Building, Plot No-25, Sec-16A, Noida-201301 (UP)			
S.No	Description of work	Observation/Status			Remark
		AHU-7	AHU-8	AHU-9	
1	Check and Clean the Unit in general				
2	Run and check for undue vibration and noise				
3	Clean air Filters				
4	Clean the Cooling Coil				
5	Check and clean the condensate drain tray and piles				
6	Check the drive motor				
7	Lubricate Motor Bearings				
8	Check the V-grooves of the drive pulleys				
9	Check the condition of driven Belts				
10	Check and adjust the tension of driven Belts				
11	Check for Proper drive alignment				
12	Check the Coupling Bolts and Alignment				
13	Check the Starter for Proper Working				
14	Check the contractors for Proper Working				
15	Check the OL Relay Setting and Record the setting Position				
16	Check for Proper Terminations				
17	Check Canvas Connection				
18	Lubricate Damper Pins				
19	Check and Lubricate mixing valves				
20	Run unit and ensure proper working				
21	Ensure all Inspection doors are refitted properly				

Preventive Maintenance Service Report
Air Handling Units (AHUs)

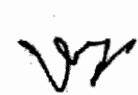
S.No	Description of work	Observation/Status			Remark
		AHU-7	AHU-8	AHU-9	
22	Motor Current in Amps				
23	Air Temperature at the canvas connection (deg)				
24	Return Air Temperature (deg)				
25	Chilled Water Inlet Temperature (deg)				
26	Chilled water Outlet Temperature (deg)				
27	Do the following checks once every 6 months				
28	Check operation of strip heaters				
29	Check operation of thermostat Hum. Stat				
30	Check operation of mix valve/ bypass damper				
31	Check water valves are holding				
32	Do the following checks once every 12 months				
33	Clean evaporator coil with suitable cleaning agent				
34	Inspect blower shaft, bearings, scroll & wheels				
35	Clean blower wheels and scroll				
36	Inspect absolute Filter				
37	Check operation of Condensate Pump(if applicable)				

Contractors/Vendors Remark:

Contractors/Vendors Signature:

BHEL's Remark:

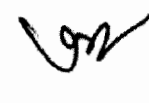
BHEL's Signature:

Annexure-C

Preventive Maintenance Service Report
Air Handling Units (AHUs)

PMS DUE DATE:		PMS DONE ON:			
Site Address		BHEL PS-PEM, PPEI Building, Plot No-25, Sec-16A, Noida-201301 (UP)			
S.No	Description of work	Observation/Status			Remark
		AHU-1	AHU-2	AHU-3	
1	Check and Clean the Unit in general				
2	Run and check for undue vibration and noise				
3	Clean air Filters				
4	Clean the Cooling Coil				
5	Check and clean the condensate drain tray and piles				
6	Check the drive motor				
7	Lubricate Motor Bearings				
8	Check the V-grooves of the drive pulleys				
9	Check the condition of driven Belts				
10	Check and adjust the tension of driven Belts				
11	Check for Proper drive alignment				
12	Check the Coupling Bolts and Alignment				
13	Check the Starter for Proper Working				
14	Check the contractors for Proper Working				
15	Check the OL Relay Setting and Record the setting Position				
16	Check for Proper Terminations				
17	Check Canvas Connection				
18	Lubricate Damper Pins				
19	Check and Lubricate mixing valves				
20	Run unit and ensure proper working				
21	Ensure all Inspection doors are refitted properly				

Preventive Maintenance Service Report
Air Handling Units (AHUs)

S.No	Description of work	Observation/Status			Remark
		AHU-1	AHU-2	AHU-3	
22	Motor Current in Amps				
23	Air Temperature at the canvas connection (deg)				
24	Return Air Temperature (deg)				
25	Chilled Water Inlet Temperature (deg)				
26	Chilled water Outlet Temperature (deg)				
27	Do the following checks once every 6 months				
28	Check operation of strip heaters				
29	Check operation of thermostat Hum. Stat				
30	Check operation of mix valve/ bypass damper				
31	Check water valves are holding				
32	Do the following checks once every 12 months				
33	Clean evaporator coil with suitable cleaning agent				
34	Inspect blower shaft, bearings, scroll & wheels				
35	Clean blower wheels and scroll				
36	Inspect absolute Filter				
37	Check operation of Condensate Pump(if applicable)				

Contractors/Vendors Remark:	
Contractors/Vendors Signature:	

BHEL's Remark:	
BHEL's Signature:	




Preventive Maintenance Service Report
Air Handling Units (AHUs)

PMS DUE DATE:		PMS DONE ON:			
Site Address		BHEL PS-PEM, PPEI Building, Plot No-25, Sec-16A, Noida-201301 (UP)			
S.No	Description of work	Observation/Status			Remark
		AHU-4	AHU-5	AHU-6	
1	Check and Clean the Unit in general				
2	Run and check for undue vibration and noise				
3	Clean air Filters				
4	Clean the Cooling Coil				
5	Check and clean the condensate drain tray and pipes				
6	Check the drive motor				
7	Lubricate Motor Bearings				
8	Check the V-grooves of the drive pulleys				
9	Check the condition of driven Belts				
10	Check and adjust the tension of driven Belts				
11	Check for Proper drive alignment				
12	Check the Coupling Bolts and Alignment				
13	Check the Starter for Proper Working				
14	Check the contractors for Proper Working				
15	Check the OL Relay Setting and Record the setting Position				
16	Check for Proper Terminations				
17	Check Canvas Connection				
18	Lubricate Damper Pins				
19	Check and Lubricate mixing valves				
20	Run unit and ensure proper working				
21	Ensure all Inspection doors are refitted properly				



Preventive Maintenance Service Report
Air Handling Units (AHUs)

S.No	Description of work	Observation/Status			Remark
		AHU-4	AHU-5	AHU-6	
22	Motor Current in Amps				
23	Air Temperature at the canvas connection (deg)				
24	Return Air Temperature (deg)				
25	Chilled Water Inlet Temperature (deg)				
26	Chilled water Outlet Temperature (deg)				
27	Do the following checks once every 6 months				
28	Check operation of strip heaters				
29	Check operation of thermostat Hum. Stat				
30	Check operation of mix valve/ bypass damper				
31	Check water valves are holding				
32	Do the following checks once every 12 months				
33	Clean evaporator coil with suitable cleaning agent				
34	Inspect blower shaft, bearings, scroll & wheels				
35	Clean blower wheels and scroll				
36	Inspect absolute Filter				
37	Check operation of Condensate Pump(if applicable)				

Contractors/Vendors Remark:	
Contractors/Vendors Signature:	

BHEL's Remark:	
BHEL's Signature:	




Annexure-D

Preventive Maintenance Service Report
PUMPS

PMS DUE DATE:		PMS DONE ON:			
Site Address		BHEL PS-PEM, PPEI Building, Plot No-25, Sec-16A, Noida-201301 (UP)			
S.No	Description of work	Observation/Status			Remark
		Unit-1	Unit-2	Unit-3	
1	Clean the surroundings				
2	Check the pump in general				
3	Check for signs of water leaks				
4	Check the base for proper strength				
5	Run and check for undue vibration and noise				
6	Clean / remove sludge & rust from all surfaces				
7	Clean the pump strainers				
8	Clean & lubricate all the control valves				
9	Check for proper 'holding' of valves				
10	Check for proper function of the non-return valve				
11	Check the drive motor				
12	Ensure the terminal box is dry				
13	Lubricate motor bearings				
14	Check electrical cables and terminations				
15	Check proper operation of electrical starter				
16	Check the contactors for proper working				



Preventive Maintenance Service Report

PUMPS

S.No	Description of work	Observation/Status			Remark
		Unit-1	Unit-2	Unit-3	
17	Check the relay setting and record the setting position				
18	Check and tighten the pump glands				
19	Ensure that the gland drain pipe is in position and clean				
20	Ensure pump bearings are greased				
21	Check pump alignment - couplings / foundation bolts				
22	Check and record the motor current in Amperes				
23	Record the pressure at the inlet of the pump				
24	Record the pressure at the outlet of the pump				

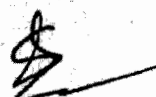
Contractors/Vendors Remark:	
Contractors/Vendors Signature:	

BHEL's Remark:	
BHEL's Signature:	

Annexure-D

Preventive Maintenance Service Report
PUMPS

PMS DUE DATE:		PMS DONE ON:			
Site Address		BHEL PS-PEM, PPEI Building, Plot No-25, Sec-16A, Noida-201301 (UP)			
S.No	Description of work	Observation/Status			Remark
		Unit-4	Unit-5	Unit-6	
1	Clean the surroundings				
2	Check the pump in general				
3	Check for signs of water leaks				
4	Check the base for proper strength				
5	Run and check for undue vibration and noise				
6	Clean / remove sludge & rust from all surfaces				
7	Clean the pump strainers				
8	Clean & lubricate all the control valves				
9	Check for proper 'holding' of valves				
10	Check for proper function of the non-return valve				
11	Check the drive motor				
12	Ensure the terminal box is dry				
13	Lubricate motor bearings				
14	Check electrical cables and terminations				
15	Check proper operation of electrical starter				
16	Check the contactors for proper working				




Preventive Maintenance Service Report

PUMPS

S.No	Description of work	Observation/Status			Remark
		Unit-4	Unit-5	Unit-6	
17	Check the relay setting and record the setting position				
18	Check and tighten the pump glands				
19	Ensure that the gland drain pipe is in position and clean				
20	Ensure pump bearings are greased				
21	Check pump alignment - couplings / foundation bolts				
22	Check and record the motor current in Amperes				
23	Record the pressure at the inlet of the pump				
24	Record the pressure at the outlet of the pump				

Contractors/Vendors Remark:	
Contractors/Vendors Signature:	

BHEL's Remark:	
BHEL's Signature:	




Annexure- II

COMMERCIAL TERMS AND CONDITIONS

1. **BID SUBMISSION**

Bids shall be submitted latest by on or before the due date i.e. **20/11/19 by 2:00 PM** in two parts as follows:

PART-1: TECHNO-COMMERCIAL BID

This part shall contain the following:

- a) Technical Specification & other scope of work
- b) Commercial terms and conditions, General terms and conditions
- c) Unpriced copy of the price bid with all amounts/figures/ percentages wherever quoted in the price bid being replaced with the word 'Quoted' or 'Q'.
- d) Supporting document/ information to be enclosed as per NIT.

This part shall be submitted in duplicate in two separate Sealed Covers with bidder's distinctive Seal super scribed with correct Enquiry No., Item of supply, due date of opening and '**part-1 : techno-commercial bid**'.

Complete tender in all respects duly signed & stamped on each and every page by the authorized signatory of the bidder as a token of acceptance of all the terms and conditions of tender.

PART -2: PRICE BID

This part shall contain Prices only and should not contain any technical details and/or Commercial Terms & Conditions. Any technical details and/or Commercial Terms & Conditions, if found in this part shall be ignored as the same are supposed to be contained in PART-I only as indicated above.

This part shall be submitted in a separate Sealed Cover with bidder's distinctive Seal super scribed with correct Enquiry No., Item of supply, due date of opening and '**part -2: price bid**'.

Tenders and all correspondence thereof, shall be addressed to the undersigned by name & designation and sent at the following address:

Kind Attn: Sh Naresh Chandra Sharma / Dy.Manager (MM) & Sh I P Singh/ DGM (MM)

Tender Room,

M/s Bharat Heavy Electricals Ltd.,

Project Engineering Management,

Power Project Engineering Institute,

HRD & ESI Complex,

Plot No 25, Sector-16 A, Noida-201301 (U.P.)

e-mail: ncsharma@bhel.in

Mob. No- 9911170053, 9818989654 Phone no. 0120-4213591, 4368749



2. **BID OPENING**

PART- I (Techno-Commercial Bids) will be opened at **3:00 PM** on the due date **20/11/19** in the presence of bidder who may like to be present. Date and time of opening of Part - II (Price Bids) shall be communicated separately.

3. The bid shall remain valid for a period of 90 days from the date of opening of offers. No revision of prices shall be entertained after bids have been opened. Bidder shall not be entitled during this period to revoke or vary the content of bid or any terms thereof. In case of any unsolicited variation subsequent to bid opening, the bid shall be treated as "Rejected".
4. No revision of prices shall be entertained after bids have been opened.
5. Prices shall remain firm without any variation till completion of contract.
6. Illustrative leaflets giving technical details of items offered should be enclosed, wherever necessary.
7. BHEL shall be under no obligation to accept the bid and shall have the right to accept or reject bid in part or in full without assigning any reason whatsoever.
8. Late tenders will be rejected.
9. Contract value means total contract value including all taxes.
10. **SUBMISSION OF INVOICE:** GST compliant invoice by the vendor shall be submitted in duplicate, to HR-GAX Dep't. Of BHEL/PEM, BHEL, PPEI, NOIDA-201301.
11. **RISK PURCHASE:** Purchaser will have the option to terminate the contract and purchase from elsewhere at the risk and cost of the Vendor, either the whole or part of the goods which the Vendor has failed to deliver or despatch within the stipulated delivery period or if the same were not available, the best and the nearest available substitute thereof. The Vendor would be liable to compensate the Purchaser for any loss which the Purchaser may sustain by reason of such risk purchase, in addition to Liquidated Damages (Penalty Clause) at the rate mentioned above.

Risk and Cost against Balance Work:

Risk & Cost Amount= $[(A-B) + (A \times H/100)]$

Where,

A= Value of Balance scope of Work/ Supply (*) as per rates of new contract

B= Value of Balance scope of Work/ Supply (*) as per rates of old contract being paid to the contractor/supplier at the time of termination of contract i.e. inclusive of PVC & ORC, if any.

H = Overhead Factor to be taken as 5

In case (A-B) is less than 0 (zero), value of (A-B) shall be taken as 0 (zero).

12. **PRICE DISCREPENCY:**

- a) If, in the price structure quoted for the required goods/services/works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price the quantity), the unit price shall prevail and the total price will be corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price., in which case the total price as quoted shall govern and the unit price will be corrected accordingly.
- b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and



- c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in the words is related to an arithmetic error, in which case the amount in figures shall prevail subject of (a) and (b) above.
- d) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date up to which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.
- e) Taxes and duties if not specified clearly as extra shall be considered as included in the basis price and, therefore, shall not be reimbursed separately.

13. EARNEST MONEY DEPOSIT (EMD):

EMD of Rs 48,800/- (Rupees Fourty Eight Thousand Eight Hundred only)

The EMD may be accepted only in the following forms:

- a) Electronic Fund Transfer credited in BHEL account (before tender opening).

Bank details are as under:

BANK NAME	BANK ACCOUNT NO	IFSC	Address
HDFC Bank	00030350015809	HDFC0000003	IST,FLOOR KAILASH BUILDING 26 K G MARG NEW DELHI 110001

- b) Banker's cheque/ Pay order/Demand draft in favour of BHEL (along with offer).
- c) Fixed Deposit Receipt(FDR) issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL).

No interest shall be payable by BHEL on EMD amount.

The EMD shall be forfeited in case of:

- i) After opening the tender and within the offer validity period, the tenderer revokes his tender or makes any modification in his tender which is not acceptable to BHEL.
- ii) The Contractor fails to deposit the required Security deposit or commence the work within the period as per LOI/ Contract.
- iii) EMD by the tenderer shall be withheld in case any action on the tenderer is envisaged under the provisions of extant "Guidelines on Suspension of business dealings with suppliers/ contractors" and forfeited/ released based on the action as determined under these guidelines.
- iv) If operations of the contract are not commenced from the date indicated in the award of contract.

13.1 Forfeiture of EMD

- a) Withdrawal of bid or increase in rates or change in bid conditions after opening of the tender (Part 1 Bid).
- b) Refusal to enter into a contract after the award of contract.
- c) If operations of the contract are not commenced from the date indicated in the award of contract.
- d) The Contractor fails to deposit the required Security deposit or commence the work within the period as per LOI/ LOA/ Contract.

13.2 EMD shall not carry any interest.

13.3 EMD of successful tenderer will be retained as part of Security Deposit.

- 14. **SECURITY DEPOSIT:** - Security Deposit of 5% of the contract value may be accepted in the following forms: -

i) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL.

ii) Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc.

(held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL).

iii) Bank Guarantee from Scheduled Banks/ Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format for Security Deposit shall be in the prescribed formats.

iv) Fixed Deposit Receipt issued by Scheduled Banks/ Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL).

14.1 Security deposit can also be recovered at the rate of 10% of the gross amount progressively from each of the running bills of the contractor till the total amount of the required security deposit is collected. However, in such cases at least 50% of the required Security Deposit, including the EMD, should be deposited in any form as prescribed before start of the work and the balance 50% may be recovered from the running bills as described above.

14.2 The Security Deposit shall not carry any interest.

14.3 **Validity of the Performance Security Deposit:** will be up to three months after expiry of the contract

15. BHEL shall be under no obligation to accept the bid and shall have the right to accept or reject bid in part or in full without assigning any reason whatsoever. BHEL also reserves the right to reject quotation without assigning any reason whatsoever. Quotation of the party which have been black-listed / debarred / banned by PSUs / kept on hold by any office of Delhi-based Divisions of BHEL during the last three years will be rejected. Late tenders will be rejected.

16. For this procurement, Public Procurement (Preference to Make in India), order 2017 dated 15.06.2017 & 28.05.2018 and subsequent orders issued by the respective Nodal ministry shall be applicable even if issued after issue of this NIT but before finalization of contract/PO/WO against this NIT. In the event of any Nodal Ministry prescribing higher or lower percentage of purchase preference and/ or local content in respect of this procurement, same shall be applicable.

17. TAX DEDUCTION AT SOURCE:

Tax shall be deducted at source from the running bills as per applicable Income Tax Rules and other statutory requirements.

18. TERMINATION OF CONTRACT:

If at any time during the currency of contract, the Contractor defaults in performance of the work with due diligence and continues to do so or commit any default in complying any of the tender terms and conditions even after the notice (in writing) is given to him, BHEL may, without prejudice to any other, has right to remedy which shall have accrued or shall accrue thereafter to BHEL, to terminate the contract.

19. **FORCE MAJEURE:** Seller/Contractor shall not be responsible for delay in delivery resulting from acts/events beyond his control provided notice of the happening of any such act/event is given by the Seller/Contractor to the purchaser within 15 days from the date of its occurrence. Such acts/events shall include but not be limited to acts of God, war, floods, earthquakes, strikes, lockouts, epidemics, riots, fire or Governmental regulations superimposed after the date of order/contract.

20. SHORT CLOSURE OF CONTRACT:

BHEL reserves the right to short close the contract with 15 days' notice without assigning any reason.

21. In case of any act of default/ omission/ pilferage/ prejudice to any interest of BHEL, BHEL may take action against Contractor as per company guidelines in addition to the penalty & action explicitly mentioned in this tender document.



GENERAL TERMS AND CONDITIONS

Annexure- III

22. ARBITRATION

In the event of any dispute or difference arising out of the execution of the Order/Contract or the respective rights and liabilities of the parties or in relation to interpretation of any provision between BHEL & Service Provider in any manner touching upon the Order/Contract, such dispute or difference shall (except as to any matters, the decision of which is specifically provided for therein) be referred to the arbitration of the person appointed by the competent authority of BHEL.

Subject to as aforesaid, the provisions of Arbitration and Conciliation Act, 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause. The venue of arbitration shall be at Noida.

23. LAWS GOVERNING THE CONTRACT

The Order/Contract shall be executed and governed by the laws of India and the courts of India alone shall have jurisdiction in respect of any matter arising under or in connection with the Order/Contract. Extant regulations of Govt. of India will be applicable. Law of land will supersede any condition given in tender enquiry, in case of any contradiction.

24. SETTLEMENT OF DISPUTES

- The purchaser and the supplier shall make every effort to resolve any disagreement or dispute, arising between them under or in connection with the contract, amicably by direct negotiation.
- Dispute if any, arising out of or in respect of the contract(s) to which these conditions are applicable, is subject to the jurisdiction of the Delhi courts only.

DISPUTE RESOLUTION THROUGH BHEL CONCILIATION SCHEME 2018

- BHEL has framed the 'Conciliation Scheme 2018' shall broadly be governed by Part-III of the Arbitration and Conciliation Act 1996. The conventional methods of dispute resolution are often time consuming and costly.
- A copy of the said scheme made available on BHEL web site http://www.bhel.com/pdf/Brief_Procedure_under_BHEL_Conciliation_Scheme%202018.pdf
- Except as otherwise specifically provided in the Order/Contract, all disputes concerning questions of the facts arising under the Order/Contract, shall be decided by the purchaser, subject to written appeal by the Seller/Contractor to the purchaser, whose decision shall be final to the parties hereto.
- Any disputes or differences shall be to the extent possible settled amicably between the parties hereto, failing which the disputed issues shall be settled through arbitration.
- However, the Seller/Contractor shall continue to perform the Order/Contract, pending settlement of dispute(s).

25. STATUTORY VARIATION:

- i) Statutory variation for CGST/SGST/UGST/IGST is applicable based on the Govt. Notifications on the date of service.
- ii) No other variations such as on minimum wages, prices of controlled commodities, any other input etc. shall be payable by the purchaser.

26. The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendor/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL web site <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud as soon as it comes to their notice.

NOTE:

It is presumed that the bidder has accepted all the instructions, Terms and conditions and Technical Specifications covered in this Tender Enquiry.

-----X-----


DETAILS OF BUSINESS

The vendor shall furnish the following information along with Part-1 bid.

1.0	Name of the firm		
2.0	Address for communication		
3.0	Registered Office, if any :		
	Telephone No. (Office) (Res) (Mobile) (Fax) (Email)		
4.0	Name of proprietor / partner / Director(s)		
5.0	Name of Bankers		
6.0	Copy of PAN Card to be enclosed		
7.0	Any other information		
8.0	Copy of GST certificate		



Acceptance Letter / No Deviation Certificate

Notwithstanding anything mentioned in our bid, we hereby accept all terms and conditions of the above tender.

Or

We hereby accept all terms and conditions of the above tender except the following:

(Give reference to Clause Nos. of Terms & Conditions which are not acceptable)

- 1.
- 2.
- 3.
- 4.
- 5.

Note: Any deviation specified elsewhere in the tender shall not be considered. Deviations may or may not be accepted by BHEL.

(Signature & seal of the contractor)

A handwritten signature in black ink, consisting of a stylized 'A' followed by a checkmark-like stroke.

DECLARATION

I/ We hereby declare that I / we have not been banned or de-listed by any PSU / Government Department / Financial Institute / Court and no case is pending with the police / court against our firm/ partner or the company.

(Signature & seal of the contractor)

A handwritten signature in black ink, consisting of a stylized 'A' followed by a series of loops and a long horizontal stroke extending to the right.

NEFT Application Form

**Name of the firm/Authorized
Distributor/Authorized:**

Name of the Bank:

Address Of the Bank:

Company's A/c no:

Type of A/c:

IFSC CODE:

RTGS CODE:

Company's E-MAIL ADDRESS:

Company PAN No.:

Authorized Signature

Company Seal

THE ABOVE DETAILS ARE TO BE SUBMITTED EITHER ATTESTED BY YOUR BANKERS OR CHEQUE LEAF DULY CANCELLED
WITH IFSC CODE & A/C NO.PRINTED ON IT MAY BE ENCLOSED.

Accompanying documents :

Cancelled cheque leaf for A/C no. & IFSC confirmation



CHECK-LIST (Part-I Bid)

SUMMARY OF COMPLIANCE TO REQUIREMENT OF TENDER

Sl. No.	Description of requirement	Yes/ No / NA	Page No(s)
1	Copy of the PAN card.		
2	GST Registration		
3	Commercial Terms and Conditions (Annexure-"II").		
4	General Terms & Conditions (Annexure-"III").		
5	Unprice Bid Format (Annexure-"X")		
6	Details Of Business (Annexure –"IV")		
7	Acceptance Letter / No Deviation Certificate (Annexure-"V")		
8	Declaration (Annexure-"VI")		
9	Technical Details (Annexure-"I")		
10	NEFT Format Duly Certified by Bank OR Cancelled Cheque with sign & seal of bidder (Annexure-"VII")		
11	Check List (Annexure-"VIII")		
12	Technical PQR (Annexure-"IX")		



Operation & Maintenance of Central Air Conditioning System (2X120TR)

Technical Pre-qualification Criteria:

1. Experience of having successfully completed similar works during last 7 years as on 30th September, 2019 and should be either of the following: -

a. Three similar completed works costing not less than Rs. 9.75 lakhs

OR

b. Two similar completed works costing not less than Rs. 12.19 lakhs

OR

c. One similar completed work costing not less than Rs. 19.50 lakhs

Similar works means operation & maintenance of centralized Air conditioning system.



Price Format for AMC and Operation of Central AC Plant System(2X120TR) in BHEL PS-PEM

ANNEXURE-X										
Sl. No.	Description	Qty	UOM	HSN Code/ Service Activity No.	Unit Prices per Month excluding taxes (INR)	GST Rate	Type of GST (IGST/CGST + SGST/UTGST)	GST Amount on Total Prices Per Month (INR)	Total Amount Per Month Incl. All Taxes	Total Prices for 2 Years (24 Months) (INR)
				A	B	C	D	E = D% X B	F = B + E	G = F X 24
1	Comprehensive AMC of Central AC Plant System (2X120TR)	1	Nos.	995469	Derived 'X' = (50% of 'T')	18%		Derived	Derived	Derived
2	Operation of Central AC Plant System (2X120TR)	1	Nos.	995469	Derived 'Y' = (50% of 'T')	18%		Derived	Derived	Derived
Total Price 'T' = ('X' + 'Y') =					T =					Derived
Prices In Words			Total Price per month = 'T' = Rupees							

Notes:

- Bidder has to quote Total Value 'T' (in figures & words) & fill values in col. B above also. Based on this price, Unit Price, Total price Per Month Incl. All Taxes and Total Prices for 2 Years shall be derived by BHEL as per formula indicated above.
- Evaluation Criteria: L1 shall be decided based on Total Price ('T') (at column B) for One Month.
- For any clarification please refer Technical Terms & Conditions.
- Prices shall remain firm during contract execution.

