

## SECTION – II

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## SCOPE OF WORK

Following activities shall be carried out by the vendor for efficient Operations and maintenance of Data Center:

### **1. Operation and Maintenance Scope of work**

- 1.1. Active monitoring of non-IT infrastructure like Chiller and indoor HVAC Systems, Electrical LT Systems, UPS, PAC, BMS on 24X 7 Basis.
- 1.2. Operation and maintenance of Installed Physical security systems etc.
- 1.3. Provide access card to visitors / Vendors for accessing the Data Centre area in consultation with the respective user departments.
- 1.4. Proactive monitoring of the entire basic infrastructure installed at the IPR through DCIM Software.
- 1.5. Submission of daily, weekly and monthly service performance reports in the format specified as per the requirement of the infrastructure facilities at the premises.
- 1.6. Co-ordination & supervision for all maintenance activities carried out by OEMs for minor, major jobs at site. Any low workmanship by OEM/ Vendor (wherever possible to detect) which may lead to site disruption will be highlighted to IPR IT team to get it rectified as early as possible.
- 1.7. Vendor/OEM Management for the infrastructure component to ensure that problem is resolved.
- 1.8. Co-ordination with OEMs/ Vendors for Preventive Maintenance of non-IT infrastructure equipment like UPS, PAC, physical security system, Electrical Infrastructure for Data Center.
- 1.9. Detailed MIS on Incidents and corrective actions taken, vendor Performance reports, monthly, quarterly reviews to ascertain corrective actions.
- 1.10. Monitoring and controlling Fire access system (Fire access panel) i.e. Fire detection and suppression system (Gas release panels), hooters, smoke detectors and sounders
- 1.11. Monitoring Water leakage detection system - WLD
- 1.12. Checking of all fire extinguishers on a bi-monthly basis
- 1.13. Managing & Monitoring Power distribution units and electrical units within the DC
- 1.14. Periodic drills every quarter/ half yearly to check the functionality of all BMS related systems along with testing of fire detection system every month.
- 1.15. In case, of any emergency in DC (power failure, HVAC failure, etc.) O&M operator shall inform IT team of IPR and intimate the shutting down the Servers (in the night) if required.
- 1.16. Air Conditioning System – Monitoring of the Comfort AC installed NOC room, Server Room, UPS Room and Utility Room.
- 1.17. Team will be responsible for close follow up with OEMs for any component (non- IT equipment installed at the time of commissioning) that is reported to be faulty / non-functional on a given date. This is to help ensure that the same is either fully repaired or replaced with temporary substitute (of equivalent configuration) by Vendor or OEMs within the time frame agreed upon in the Service Level Agreement (SLA) of IPR with OEM/ Vendors.

- 1.18. O&M team will keep track of the spares available at site and inform IPR team in case additional spares required if any.
- 1.19. Fire & Power Drill: Fire & Power Drill shall be carried out on a periodically basis for the facility in co-ordination with Site supervisor, BMS operator and IPR IT Team. Vendor shall make arrangements with OEM for their presence during the activity and to provide required support & demonstrate emergency situation handling methods to team at site.

## **2. Daily Activities:**

The brief list of monitoring activities by O&M operator that would be done under operations and maintenance on daily basis are as follows:

Scope of Service includes Monitoring of the following systems: -

- 2.1. Electrical Systems
  - 2.1.1. UPS and Batteries
  - 2.1.2. PDUs
  - 2.1.3. All Electrical panels and Equipment's.
- 2.2. Cooling Equipment
  - 2.2.1. In-Rack Rittal LCP Units
  - 2.2.2. Chillers
  - 2.2.3. Pumps
  - 2.2.4. CAC Units of the Data Centre Area like NOC UPS room and server hall area
  - 2.2.5. Water Leakage Detection System
- 2.3. CCTV
- 2.4. Fire Alarm System
- 2.5. Access Control System
- 2.6. DCIM (Rittal RiZone)

## **3. DAILY CHECKS:**

- 3.1. Access Control System:
  - 3.1.1. 24x 7 checking of Access System for alert and alarms.
  - 3.1.2. Monitoring of Status.
  - 3.1.3. Abnormality of System / errors
  - 3.1.4. Access Card Activity
  - 3.1.5. Report of Access to Data Centre
  - 3.1.6. Report of Forceful Access (Invalid Access)
  - 3.1.7. Generation of Logs / reports and submission to IPR for review and necessary action/s if any
  - 3.1.8. Checking power supply to the system
- 3.2. CCTV:
  - 3.2.1. Daily Checking of DVR/NVR System & Cameras
  - 3.2.2. Suspicious Action Report
  - 3.2.3. Abnormality of System
  - 3.2.4. Generation of Logs / reports and submission to FM Manager for review and necessary action/s Maintenance of reports
  - 3.2.5. Checking Power supply to the system
- 3.3. Fire Alarm System:
  - 3.3.1. Daily Checking of FAS Panel
  - 3.3.2. Immediate Action to Alarm Generated  Monitoring of MCP Generation of Logs / reports and submission to FM Manager for review and necessary action/s Maintenance of reports
- 3.4. Water Leak Detection (WLD):
  - 3.4.1. Status of Panel.
  - 3.4.2. Monitoring of Alarms.
  - 3.4.3. action/s Maintenance of reports

#### 4. List of Checklist

Below are the list of system checklist perform during operation and maintenance of Data Center:

- 4.1. LCP BASED AIR CONDITIONING List of Inclusions:
  - 4.1.1. Check overall condition of unit
  - 4.1.2. Check for unusual noise and vibration
  - 4.1.3. Check with appropriate customer representative for operational deficiencies
  - 4.1.4. Checking of all electrical components for loose connections and tightening if necessary
  - 4.1.5. Checking of chilled water piping for leakages
  - 4.1.6. Checking of refrigeration system and pressure readings.
  - 4.1.7. Checking of temperature readings.
  - 4.1.8. Checking of Microprocessor controllers for operation.
  - 4.1.9. Check and record parameters.
  
- 4.2. CHILLED WATER SYSTEM List of Inclusions:
  - 4.2.1. Check overall condition of unit
  - 4.2.2. Check for unusual noise and vibration (Chiller, Pump and other related equipment)
  - 4.2.3. Check with appropriate OEM representative for operational deficiencies
  - 4.2.4. Checking of all electrical components for loose connections and tightening if necessary
  - 4.2.5. Checking of temperature readings.
  - 4.2.6. Check for proper chilled water flow
  - 4.2.7. Checking of refrigeration piping for gas leakages
  - 4.2.8. Checking of refrigeration system and pressure readings.
  - 4.2.9. Verify oil heater operation, inspect condenser fan contactors for wear, Perform preventative procedures to flow proving devices,
  - 4.2.10. Check and record parameters.
  - 4.2.11. Check refrigerant charge (sight glass), Check oil separator level (sight glass), Check for proper capacity control operation, Check for proper oil temperature and pressure, Check for proper condenser fan operation
  
- 4.3. Comfort Air conditioning unit List of Inclusions:
  - 4.3.1. Check overall condition of unit
  - 4.3.2. Check for unusual noise and vibration
  - 4.3.3. Check with appropriate customer representative for operational deficiencies
  - 4.3.4. Checking of all electrical components for loose connections and tightening if necessary
  - 4.3.5. Checking of refrigeration piping for gas leakages 6) Checking of temperature readings.
  
- 4.4. ELECTRICALS SYSTEM List of Inclusions:
  - 4.4.1. Scope of electrical maintenance are started from maintaining LT setup from HPC Main LT Panel onward.
  - 4.4.2. Vendor shall ensure smooth operations of electrical Switchgears.
  - 4.4.3. Vendor shall be responsible for availability of requisite power at each utility point
  - 4.4.4. Replacing of fused bulbs, sockets, switches etc.
  - 4.4.5. All sockets to be tested every six months for the voltage level & Earthing
  - 4.4.6. Maintain all the necessary logbooks, registers & records for any future checks & audits
  - 4.4.7. History of maintenance to be maintained for each equipment
  
- 4.5. UNINTERRUPTED POWER SUPPLY (UPS) List of Inclusions:
  - 4.5.1. Check overall condition of unit
  - 4.5.2. Check with appropriate customer representative for operational deficiencies
  - 4.5.3. Checking of all electrical components for loose connections and tightening if necessary. Including Battery Terminal Tightness.
  - 4.5.4. Check and record unit parameters.
  - 4.5.5. Check and record Battery performance parameter.
  - 4.5.6. Check and record UPS DC Bus Voltage and UPS Load.

- 4.6. Physical Security Systems List of Inclusions:
  - 4.6.1. Checking the functionality and the performance of the system.
  - 4.6.2. Checking the servers, controllers & software for identifying & providing the hardware/software support, if required.
  - 4.6.3. Checking & providing the required maintenance for the readers, locks and other accessories.
  - 4.6.4. Checking the communication between readers, locks & other accessories to the controller.
  - 4.6.5. Checking the backup of the database.
  - 4.6.6. Checking all power sources and outlets used in the system.
- 4.7. Fire Alarm System Scope includes:
  - 4.7.1. Check the following documents (Job Specific) & Manuals and report deficiencies>
  - 4.7.2. Checkout and Test manual/Operator manual/catalogues of B/O if required  Service Report/format
  - 4.7.3. Earlier Service Report (Check if any points pending)

## **5. Call Logging Process with OEM/Vendors**

The onsite team will get alerts on any issue in the equipment's which are part of support function and under maintenance contract with Vendor. The onsite team will identify the area of problem and define problem severity into minor or major call. Call severity will be decided on basis of unit under suspect and impact on functions inside Data Centre like – electrical power in DB, racks, cooling efficiency. Based on this, on site team will either manage to close the problem in case of minor alerts/alarms or In case of major alarms the team will raise an alarm over phone and email to OEM/Vendor with information to IPR's designated team and O&M in charge. O&M team will follow the Escalation matrix. The OEM will identify problem area and will work towards resolution of problem keeping SLA in consideration.

Once the call is completed the Operations team will record this log into the call register and update in daily monitoring report. Depending upon the severity of call and impact of business caused due to the call the Uptime will be calculated.

An incident report will be generated by Operations team and will be flashed within 24 hours of the time incident was reported with a preventive and corrective action description. This report will be flashed after Operations in-charge scrutinizes the problem and provides concurrence to the Incident report.

The action against preventive action will be tracked by Operations in-charge till its closure and approved by IPR.

## **6. Reporting Approach**

- 6.1. Daily Reports:
  - 6.1.1. UPS/CAC/PAC & concerned System
  - 6.1.2. Reports of Energy /meter reading of all meters.
  - 6.1.3. Readings of main LTA Panel.
  - 6.1.4. Immediate response to electrical complaints by any Working staff.
  - 6.1.5. Generation and maintenance of Logs / reports and submission to Supervisor for review and necessary action.
- 6.2. Weekly Reports:
  - 6.2.1. All Electrical Systems Health Check Report
  - 6.2.2. Vendor call tracking until closure
  - 6.2.3. UPS: On load Report.
  - 6.2.4. Fire Alarm System: Reports of False Alarm.
  - 6.2.5. Access System: Data Backup.

- 6.2.6.CCTV: Backup of DVR Status.
- 6.2.7.WLD: Test of Water Leak Detection Sensor Cable.
- 6.2.8. All System Health Report.

6.3. Monthly Reports:

- 6.3.1. Report of pending calls/problems if any.
- 6.3.2.MIS (Management Information System) Report Presentation for Each Month

**7. Operation & Maintenance Resource Structure**

7.1. Typical recommended Operating Timings and Procedure is as below:

Resource Category	No of resources	General Timing	1 <sup>st</sup> Shift *	2 <sup>nd</sup> Shift*	3 <sup>rd</sup> Shift*
Program Manager (Offsite)	1 No	Off-site			
Data Center O&M Engineer (6 Days working)-Onsite	1 No	9:00-18:00			
Data Center Network cum BMS Engineer (6 Days working)-Onsite	1 No	9:00-18:00			
Data Center Multitasking technician / engineer Onsite	4 Nos (3 shift+ 1 reliever)		07:00 - 15:30	14:30 - 23:00	23:00 - 07:00

Note: \*Shift timing shall be discussed during contracting

7.2. Onsite manpower minimum experience required

- 7.2.1. Multitasking Technician: ITI technicians with 3 Years of relevant experience
- 7.2.2.O&M Engineer: Diploma in Engineering with 4 years of experience in handling Data Center O&M activity
- 7.2.3.Network Engineer cum BMS Operator: 3 Years of relevant experience in networking.

7.3. Roles and Responsibilities

7.3.1. Program Manager (Offsite)

- 7.3.1.1. The Program Manager is responsible, on behalf of Vendor, for successful delivery of O & M at IPR Infrastructure. The role requires the effective co-ordination at the O&M Site and inter-dependencies, and any risks and other issues that may arise and he will be responsible for governance of this program.
- 7.3.1.2. Program Manager is an individual who directs the operation of several Sites running under him.
- 7.3.1.3. Monitors both the staff and the work, offering supportive supervision at all times.
- 7.3.1.4. The program manager will be held accountable for work done by his team at site.
- 7.3.1.5. The program manager acts as the link between IPR and the onsite team besides he keeps track of team members' assignment of tasks.
- 7.3.1.6. Responsible to work with Site supervisors on all engagements
- 7.3.1.7. Managing the onsite / offshore ratio
- 7.3.1.8. Managing the issues / escalations at middle level customer base
- 7.3.1.9. Responsible for submission of invoices, and follow up on PO's.
- 7.3.1.10. Manage the relationship with respective OEMS/ vendors

7.3.2. Data Center O&M ENGINEER (Onsite)

- 7.3.2.1. Monitor, control and maintain the operations of the UPS, Electricals, HVAC, Rittal LCP, system and proactively provide intervention to diagnosis, probable faults and interruptions to service.
- 7.3.2.2. Plan & Schedule preventive maintenance activity for various equipment
- 7.3.2.3. Maintain all site & equipment related documents.
- 7.3.2.4. Provide access to vendors during preventive maintenance activity

7.3.2.5. Assisting IPR Officer-in-Charge in Data Center related work

7.3.3. Data Center Network Engineer cum BMS TECHNICIAN (Onsite)

7.3.3.1. Monitor and maintain the network operations of the Data Center. Basic networking, configuration, Cisco Router, switches and firewall monitoring.

7.3.3.2. Monitor, control and maintain the operations of the Data Center Access Control, CCTV, WLD system and proactively provide intervention to diagnosis, probable faults and interruptions to service.

7.3.3.3. Plan & Schedule preventive maintenance activity for various equipment

7.3.3.4. Maintain all site & equipment related documents.

7.3.3.5. Provide access to vendors during preventive maintenance activity

7.3.3.6. Assisting IPR Officer-in-Charge in Data Center related work

7.3.4. MULTI-TASKING TECHNICIAN (Onsite)

7.3.4.1. Responsible for manual reading of Electrical panels/ Air conditioning Parameter and UPS and DC power plant /rectifier Parameters.

7.3.4.2. Small scale repair at site, like replacement of light fittings, Breakers etc.

7.3.4.3. Escort OEM representative and present during any kind of maintenance activities.

7.3.4.4. Maintaining the shift reports

7.3.4.5. Proper handover to the next shift In-charge

7.4. Escalation Matrix

Vendor shall submit the Escalation Matrix / Procedures to IPR will to establish a “Problem Escalation Process”

**Contact Persons at IPR for pre-bid queries and to co-ordinate Data Center site visits:**

**Mr. Govind Lokhande (Scientific Officer)**

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**Please note :**

- 1) Site visit is compulsory for the bidding.
- 2) For Site-Visit kindly send request(s) through email.
- 3) Site visit will be allowed till tender due date only.