Data Center Energy Performance Report

Site: Test

Reporting Period: 24 hours

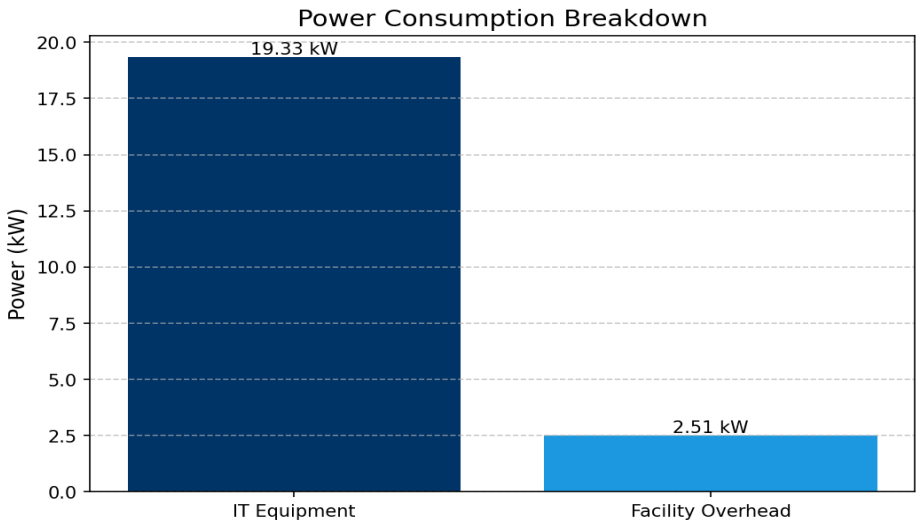
This comprehensive report provides detailed insights into the energy consumption patterns and efficiency metrics for **Test**,which comprises of 5 onboarded devices, 1 vendor, and 0 racks.The data covers the specified reporting period, highlighting key performance indicators and offering actionable insights.

EXECUTIVE SUMMARY

The datacenter PUE(Power Usage Effectiveness) is **1.13**, classified as Excellent based on industry benchmarks. The EER(Energy Efficiency Ratio) is **0.88**, indicating underutilization of recovered energy and improvement opportunities. Daily CO2 emissions are high at **8.83** kg/day, raising concerns about carbon footprint. While the data center demonstrates strengths in certain areas, targeted improvements, especially in energy reuse, are needed to enhance overall performance.

POWER CONSUMPTION BREAKDOWN

This analysis highlights the distribution of total power consumption between core IT operations and facility overhead. It assesses how effectively the data center directs energy toward computing infrastructure versus ancillary systems like cooling, lighting, and power backup.

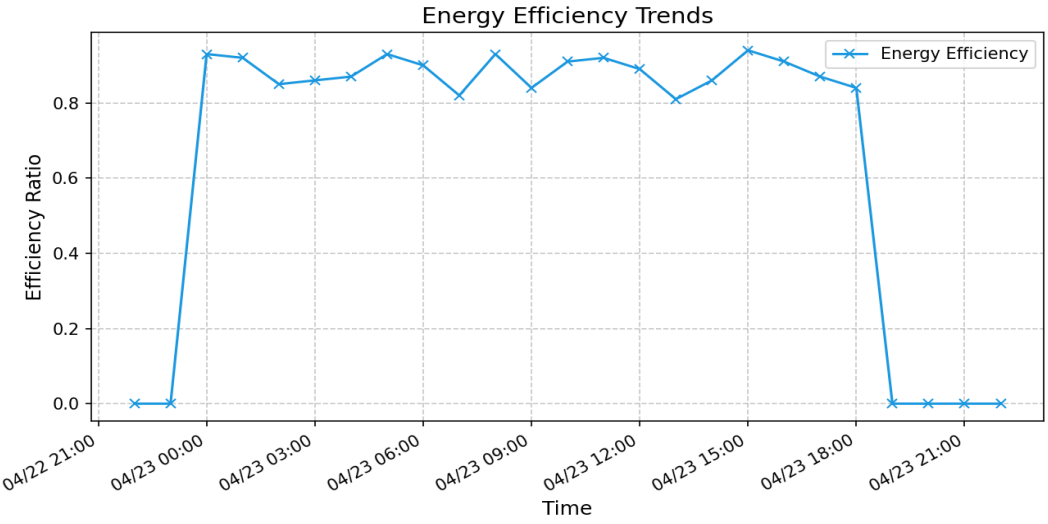


Consumption Analysis:
- IT Equipment consumes **19.33 kW**
- Facility overhead (cooling, power distribution, etc.) consumes **2.51 kW**
- Total facility power draw is **21.84 kW**

The data center demonstrates strong energy prioritization toward IT operations (88.5% IT load), with minimal losses to facility overhead (11.5%), reflecting efficient infrastructure design.

Energy Efficiency Over Time

The Energy Efficiency Ratio (EER) indicates the ratio of cooling output to the electrical energy input. Higher EER values signify better energy efficiency. Below is the trend of EER over the reporting period.

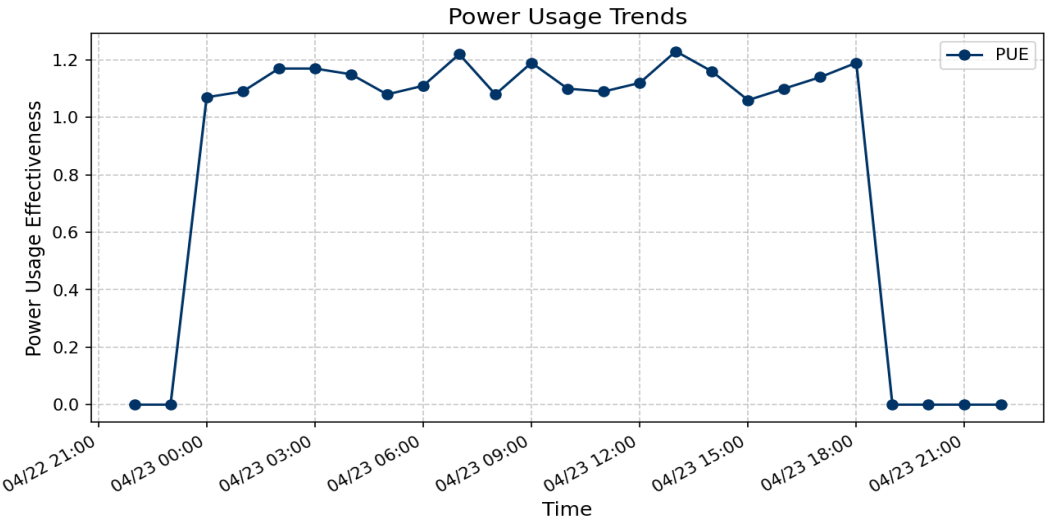


Energy Efficiency Analysis:
- The lowest energy efficiency observed was **0.00** at **2025-04-22 22:00**.
- The highest energy efficiency observed was **0.94** at **2025-04-23 15:00**.
- The average energy efficiency across the period was approximately **0.67**.

The energy efficiency fluctuated significantly, indicating potential instability or system inefficiencies requiring further review.

Power Usage Over Time

Power Usage Effectiveness (PUE) measures the total energy consumption compared to the energy used solely by IT equipment. Lower PUE values represent more efficient energy use. The graph below shows the PUE trend over the reporting period24 hours:



PUE Analysis:
- The lowest PUE recorded was **0.00** at **2025-04-22 22:00**.
- The highest PUE recorded was **1.23** at **2025-04-23 13:00**.
- The average PUE during the monitoring period was approximately **0.86**.

Significant fluctuations were observed in PUE, highlighting potential inefficiencies or inconsistent infrastructure performance.

TOP POWER-CONSUMING DEVICES

The table below highlights the top devices based on their power consumption,data traffic,Co2 emmission, and overall efficiency metrics. These devices play a critical role in the site's energy consumption profile, and understanding their performance can help identify areas for optimization and efficiency improvements.

Device Name	IP Address	Total Power	Traffic Speed	PCR	CO2 Emissions
SULY-ELEF-CI-COM-302	172.8.144.83	7.27 kW	856.88 GPS	8.49	2.94 kgs
SULY-ELEF-CI-COM-305	172.8.160.72	7.35 kW	945.17 GPS	7.78	2.97 kgs
SULY-ELEF-CI-COM-319	172.8.16.65	7.3 kW	978.72 GPS	7.46	2.95 kgs
SULY-ELEF-CI-COM-424	172.8.160.74	7.19 kW	996.62 GPS	7.21	2.91 kgs
SULY-ELEF-CI-COM-448	172.8.144.78	7.31 kW	1029.34 GPS	7.1	2.95 kgs

Device Analysis:
These devices typically offer the greatest opportunities for optimization through:
- Right-sizing or virtualization
- Firmware updates for power management features
- Potential replacement with more efficient models

RECOMMENDATIONS

1. Cooling System Maintenance:
- Perform routine maintenance on existing cooling systems
- Monitor for subtle optimization opportunities

2. Power System Maintenance:
- Continue regular power system maintenance
- Monitor for incremental improvement opportunities

3. IT Equipment Optimization:
- Target top consumers first: SULY-ELEF-CI-COM-302, SULY-ELEF-CI-COM-305, SULY-ELEF-CI-COM-319
- Conduct virtualization assessment (potential 5:1 consolidation)
- Implement power management policies on all devices
- Schedule refresh of oldest 3-5 high-consumption devices

4. Enhanced Monitoring:
- Implement real-time PUE monitoring with alerts
- Establish quarterly benchmarking against similar facilities
- Create automated reports for key efficiency metrics

FINAL ASSESSMENT

Overall Assessment:
The Test data center shows **good** energy efficiency with a PUE of 1.13 and EER of 0.88. The facility performs well with identified opportunities for targeted improvements.

Optimization Priorities:
- Address the 11.5% facility overhead through cooling and power improvements
- Focus on top 3 energy-consuming devices
- Implement monitoring enhancements for continuous improvement

Next Steps:
1. Conduct detailed thermal assessment within next 30 days
2. Develop implementation plan for priority recommendations
3. Schedule executive review of energy efficiency program

Estimated Potential Savings:

- Energy costs: **$396/year** (15% overhead reduction at $0.12/kWh)
- CO2 emissions: **1.3 kg/year** reduction potential

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