



Optimizing energy efficiency in data centers: performance, security, and cost reduction

At the heart of the digital transformation, data centers play a critical strategic role. They support cloud computing, artificial intelligence, e-commerce, government services, and large-scale data storage. In the US, their growth is accelerating, driven by increasing demand for digital capacity and hosted services.

However, this expansion comes with a major challenge: extremely high energy consumption. Between servers, cooling systems, backup power supplies, and lighting, energy costs can account for 30 to 50% of total operating expenses.

Optimizing electrical management is no longer just an advantage—it has become an economic, operational, and environmental necessity.

LOVATO Electric, a trusted partner for data center energy efficiency

With over 100 years of expertise in electrical solutions, LOVATO Electric supports data centers in modernizing and optimizing their critical infrastructures. Our products comply with international standards (IEC, cULus, CSA) and are designed to ensure safety,

reliability, and energy efficiency, even in demanding environments where power continuity is vital.

Lovato Electric offers:

- complete solutions covering energy protection, distribution, control, and monitoring
- tailored support based on each data center's configuration and objectives
- connected technologies enabling automation, continuous optimization, and remote monitoring

The energy challenge of data centers

1. Massive energy consumption

A data center consumes 80 to 200 times more energy than a conventional commercial building. Electricity is both the fuel and the lifeline of the infrastructure. In many facilities, energy costs represent nearly half of the operational budget, making energy optimization a strategic priority.

2. Critical environmental constraints

To operate properly, a data center must maintain absolute stability:

- controlled temperature
- constant humidity
- calibrated airflow
- pressurization
- electrical redundancy

Any deviation can affect performance or lead to costly outages

3. Increasing regulatory pressure

With rising environmental requirements, energy efficiency standards continue to become more strict. Operators must demonstrate rigorous energy management and actively reduce their carbon footprint.

Why optimize energy consumption in a data center?

Better control of operating costs

Every kilowatt saved results in a direct reduction in energy bills. More precise control of electrical distribution and cooling systems helps limit and stabilize energy expenses.

Ensuring service continuity

Power outages are among the most costly incidents in the digital industry. A reliable electrical infrastructure significantly reduces:

- downtime risks
- data loss
- service interruptions for customers

Optimizing cooling systems

Cooling can account for up to 40% of total energy consumption. Intelligent energy control makes it possible to:

- better regulate thermal loads
- anticipate overheating
- extend server lifespan

Meeting environmental objectives

Improving energy efficiency directly contributes to reducing carbon emissions. This represents a strategic advantage for organizations committed to environmental and social responsibility and sustainability certifications.

Lovato Electric solutions for data centers

Lovato Electric offers a complete range of electrical solutions designed to meet the performance, safety, and monitoring requirements of modern data centers.

1. Electrical protection and distribution systems

- **P5ME Series MCCBs (UL 489)**: reliable protection against overloads and short circuits in critical installations
- **P1MB Series MCBs (UL 489 / UL 1077)**: ideal for secondary circuits

- [GA / GL switch disconnectors](#): safe maintenance and electrical isolation

2. Load control and management

- [Power contactors \(BG / BF\)](#): management of generators, ventilation systems, and auxiliary equipment
- [Motor protection circuit breakers](#): proactive motor protection
- [Soft starters ADXL, ADXN, ADXT](#): smooth equipment startup, reduced mechanical and electrical stress

3. Energy monitoring and analysis

- [DMG Power Analyzers](#): real-time measurements, anomaly detection, continuous optimization
- [Easy Branch Systems](#): reduced wiring, intelligent data centralization, simplified installation
- [Monitoring software](#): dashboards, alarms, trend analysis, and automated reports to reduce energy waste

4. Signaling and safety

- Signal towers: fast visual alerts in case of failure
- BFS safety contactors: emergency stop management and critical applications

5. Communication and supervision

- [RS485 / Modbus-RTU / Ethernet / Modbus-TCP modules](#): easy integration into existing monitoring systems
- [ATL automatic transfer controllers / motorized changeover switches](#): power supply control directly managed by the ATL

Tangible benefits for data center operators

By implementing Lovato Electric solutions, operators benefit from:

- measurable reductions in energy costs
- improved service continuity
- enhanced visibility through precise energy monitoring

- extended equipment lifespan
- simplified compliance with North American standards

The impact on the MRO market

For distributors, integrators, and service providers supporting data centers, the expansion of the MRO market represents a growing opportunity to deliver value-added solutions focused on reliability, energy efficiency, and operational continuity.

Energy monitoring and intelligent control solutions also help MRO professionals optimize maintenance schedules, reduce emergency service calls, and extend the lifespan of critical infrastructure such as motors, cooling systems, generators, and power distribution equipment. In highly competitive environments where even minor outages can result in substantial financial losses, proactive maintenance strategies are becoming essential.

As energy demands increase, MRO teams are under growing pressure to improve operational efficiency while minimizing downtime risks. This has led to greater demand for high-quality electrical protection devices, monitoring systems, automation components, and predictive maintenance technologies that can identify issues before failures occur.

The rapid growth of data centers is also creating significant opportunities and challenges within the MRO (Maintenance, Repair, and Operations) market. Because data centers operate continuously and rely on uninterrupted power availability, facility operators must prioritize preventive maintenance, rapid replacement of critical components, and long-term reliability planning.

Investing in the future of data centers in the US

As digital demand continues to grow, data centers must control their energy consumption to remain efficient, reliable, and competitive. Every data center that optimizes its energy management improves profitability while strengthening operational resilience.

Lovato Electric is here to provide complete, certified electrical solutions designed to enhance efficiency, safety, and sustainability in critical infrastructures.