



BETTER DECISIONS FOR ENERGY MANAGEMENT
WITH ABB ABILITY™ ENERGY MANAGER

Smart energy management



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Aggressive energy standards and new initiatives tightly regulating sustainability reporting are advancing in tandem with the digitalization revolution. The result is real-time data-driven energy management solutions.

With its vast number of electric assets and around-the-clock energy requirements, the industrial sector is the global energy management market value leader – valued at an estimated USD 12.3 billion in 2021, it is forecasted to grow and reach USD 17.4 billion by 2030 [1].

Organizations that recognize the significance of energy management, will benefit by visualizing their energy consumption, tracking and reducing it. ABB Ability™ Energy Manager – whether cloud-based or on-site, provides any organization with the ability to do just that.

Defining energy management

“Energy management” viewed as a buzzword, summarizes the competences required to understand energy flows and performance actions necessary for improvement. However, upon examination, this broad term describes smaller, inter-linked functions that are a critical part of a stepwise digitalization transformation.

The ability to gather accurate, real-time data, leveraging digital technologies, supports the implementation of energy management initiatives and enables companies to make faster decisions.



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ABB designates five functional stages that constitute essential best practices for energy management, where digital tools play a fundamental role: detect, monitor, analyze, optimize and control [2].

Through detection, facility owners and managers use data from utility bills and available building information to benchmark, virtually disaggregating the energy costs to identify areas of excess energy consumption. Large datasets and Artificial Intelligence (AI) algorithms support this process.

Once a benchmark is set, monitoring follows. By leveraging device connectivity to visualize the historical and real-time energy data of key assets, facility owners and managers build a clearer picture of the issues to be resolved. Products, eg, circuit breakers, meters, relays, EV-chargers, inverters and sensors, linked to an on-site connectivity infrastructure or dashboard with widgets, are critical.

Once gathered, data is analyzed – especially for Key Performance Indicators (KPIs) and output reports are created; enabling saving actions aligned with benchmark targets. Energy forecasting analytics make this stage easier and more accurate.

Next, asset setpoint scheduling is used to optimize targeted KPIs. Here, smart connected products, power quality converters, uninterrupted power supplies (UPS), transfer switching and advanced relays, feed into an optimization engine, enabling those charged with delivering energy reductions to improve outcomes.



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01 Screenshot of
analyzed data for
connected products

With energy management systems and processes in place, control allows the asset setpoint to be carefully adjusted for energy efficiency or service continuity strategies. Pre-engineered reference architectures with Edge controllers and smart connected products, plus on-site distribution energy resources, microgrids, BESS and renewable technologies, should be considered. By following these stages, organizations can continuously improve energy efficiency practices.

Energy management benefits

With the need to manage and lower energy usage across the industrial landscape more regulated now than ever (the basis for IEC 60364-8-1 and ISO 50001 for Energy Management Systems – Requirements with Guidance for Use) [3], compliance and avoidance of penalties for non-compliance is paramount. Nevertheless, energy management should be embraced, not out of necessity, but because it demonstrates a company's willingness for accountability.

Today's market-leading EMS solutions, such as ABB Ability™ Energy Manager, simplify this process as engineering requirements are minimal and system commissioning is quick (usually within one day). Available as Software-as-a-Service, it is ready-to-use.

Energy management monitoring helps industrial facilities fulfill sustainability targets, thereby reducing CO₂ emissions and unlocking further energy savings more easily than systems without digital capabilities; savings can lead to ISO 50001- and LEED certification.

Additionally, operating expenses (OPEX) can be reduced. Data insights help forecast energy usage, thereby increasing efficiency by up to 30 percent and reducing costs. ABB Ability™ Energy Manager delivers a potential payback in less than three years.

Getting started

Organizations, single- and multi-site facilities, that want to initiate steps toward energy management benefit from a concise assessment of energy usage. Energy service companies (ESCOs) typically perform audits and start creating actionable reports. Enlisting the support of an

expert service provider, such as ABB, early on can pay dividends by maximizing energy management rapidly. Usually, all available historical site data is requested, data from facility utility bills, building information systems and field sensors.

ABB's Energy Manager, with add-on and premium service available, has provided valuable data-driven insights to a variety of industrial facilities →01 [1-4]. Recently, ABB Ability™ Energy Manager helped an international food facility

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control electricity costs and reduce emissions while maintaining reliability and efficiency. By analyzing energy consumption, production costs could be optimized – the facility could save 30 tons of carbon by making additional use of ABB's EKip digital controllers to deliver power peak shaving [1].

In 2021, ABB initiated an EMS solution for a technology campus with multiple facilities and buildings. By monitoring power equipment in real-time and sending alarms via mobile devices, ABB Ability™ Energy Manager has helped this campus reduce energy consumption by 20 percent. In these ways, ABB demonstrates their ability to help an organization of any size roll out their energy management initiatives and secure their energy and cost targets [1-4]. •

Footnote

¹ Global energy management market size by sector 2025 Statista

References

[1] ABB white paper, "The Growing Impact of EMS Solutions", *Guided Insights*, 2021, p. 20.

[2] ABB website, Available: <https://new.abb.com/about/our-businesses/electrification/abb-ability-energy-and-asset-manager/abb-ability-energy-manager> [Accessed March 21, 2022].

[3] ABB case study website, "State of the art solution for CO₂-neutral and energy self-sufficient factory", Available: <https://abb-casestudies.com/#/39> [Accessed March 21, 2022].

[4] ABB case study website, "Largest Swiss rice mill monitors energy distribution digitally", Available: <https://abb-casestudies.com/#/171> [Accessed March 21, 2022].