ABB Ability™ Energy Management System for industries


- Create transparency
- Identify weak spots
- Save up to 15% of energy costs
- Reduce carbon emissions
Ability™ Energy Management System (EnMS) for industries helps energy-intensive companies effectively manage changing market conditions, energy & environment risks and deliver on their Sustainability targets. It is proven to dramatically reduce reporting time, facilitate ISO 50001 certification, actively manage, predict, and optimize the use of electricity, steam, compressed air, fuel sources, water and understand their impact on carbon footprint.

We have extensive experience helping pulp & paper, metals, mining, cement, and other manufacturing plants cut their electricity and utilities bills and identify opportunities to adopt energy-saving technologies, including those that do not necessarily require high capital investment.
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Deliver on your sustainability commitments and maximize energy cost savings with a flexible, industrial-scale EnMS

Energy-intensive industrial companies are not functioning at their full potential due to insufficient transparency into emissions, energy purchase, generation, storage, trading, consumption and performance of specific equipment, departments, production areas and sites. ABB helps you set up a robust, configurable platform with time-series data from process monitoring, automation and production planning systems, the information from your energy suppliers, weather data providers and other partners available centrally, on-line and in real time. Adopting an EnMS will not only reduce costs and energy consumption, but also facilitate your regulatory compliance, continuous improvement in energy efficiency, and certification to ISO 50001.

### Industrial energy efficiency: more efforts needed

Various sector’s full potential remains unexploited.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Green-house gas emissions</th>
<th>Energy % of EBIT</th>
<th>Energy saving target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron &amp; Steel</td>
<td>7.2%</td>
<td>97%</td>
<td>10-15%</td>
</tr>
<tr>
<td>Cement &amp; Glass</td>
<td>5.2%</td>
<td>159%</td>
<td>8-10%</td>
</tr>
<tr>
<td>Pulp &amp; Paper</td>
<td>0.6%</td>
<td>78%</td>
<td>15%</td>
</tr>
<tr>
<td>F&amp;B</td>
<td>1%</td>
<td>19%</td>
<td>15%</td>
</tr>
<tr>
<td>Mining</td>
<td>4-7%</td>
<td>15%</td>
<td>8-10%</td>
</tr>
<tr>
<td>Data Centers</td>
<td>2%</td>
<td>12%</td>
<td>20%</td>
</tr>
<tr>
<td>Discrete</td>
<td>7.2%</td>
<td>12%</td>
<td>5-8%</td>
</tr>
</tbody>
</table>

Adopt modern digital technologies and start improving energy efficiency on an industrial scale

- Create transparency
- Identify weak spots
- Reduce carbon emissions
- Maximize profitability
### EnMS modules that adapt to your business goals, industry-specific production processes, local energy markets and regulations

ABB Ability™ Energy Management System for industries is the best fit for customers who want to leverage spot price volatility, reduce their use of energy from traditional providers in favor of own sources, move towards all-electric and make data-driven decisions about environmental, financial, operational, and cost/benefit trade-offs.

<table>
<thead>
<tr>
<th>Focus areas</th>
<th>Energy use cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring &amp; reporting</td>
<td>Real-time energy and emissions monitoring and reporting (Extension to utilities with WAGES1 monitoring)</td>
</tr>
<tr>
<td>Forecasting &amp; planning</td>
<td>Energy demand forecasting &amp; planning (various time intervals 15-30-60 min, intra-day and day/week ahead planning, grid trading communication)</td>
</tr>
<tr>
<td>Energy Optimization</td>
<td>Optimal use of energy resources to meet loads at minimum total cost (Grid, On-site co-generation, Renewables, energy storage)</td>
</tr>
<tr>
<td>Power supply forecasting</td>
<td>Power supply forecasting (based on inhouse power generation units, e.g., co-generation, renewables)</td>
</tr>
<tr>
<td>Energy efficiency continuous improvement program</td>
<td>Energy efficiency continuous improvement program (Energy efficiency analysis based on historical records)</td>
</tr>
</tbody>
</table>

### ISO 50001 certification as a systematic method for continuous improvement of energy performance

All major process topics of the standard are supported by ABB Ability™ EnMS for industries.

Adopting ABB Ability™ EnMS will help you gain or maintain ISO 50001 certification. Our system has been assessed in conformance with ISO 50001 since 2013. Your company will not only save energy and lower costs, but also benefit from an environmentally responsible image as a major contributor to the sustainability programs and governmental incentives.

### Multiple site collector-application layer single/redundant

- **Single site/layer single**
- **Single site/layer redundant**
- **Small light**
- **Large scale**
- **High availability**

### ABB Ability™ EnMS for industries is scalable from a single facility energy reporting application up to a multi-facility companywide system serving hundreds of users as they manage reporting, energy efficiency, planning and procurement for your corporation.

### Empower more people to contribute to your ESG targets and implement better processes every day.
Establish an integrated system for all data related to regulatory compliance, energy mix, consumption, conversion, and trading

Designing, deploying, and maintaining the optimal site-wide or enterprise-wide energy management and emission control strategy is a large engineering and operational challenge. This requires a wide span of competencies, engineering tools, architecture approaches and service capabilities to identify the most performing and cost-effective solution for each process area and site.

Typical steps and modular approach for deploying a digital solution for industrial energy management are:

- **Measure and Monitor**: Monitoring energy usage at plant and process level with real-time visual displays and data
- **Identify and Alarm**: Identify best performance of process areas and opportunities for improvement
- **Report and Analyze**: Report energy consumption patterns of process areas and production lines
- **Analyze and Optimize**: Analyze inefficiencies in plant and process areas

- **Alarm**: Alarm capabilities – enable corrective measures to be taken immediately
- **Forecast**: Forecast energy consumption schedules for process areas based on production plans and measured consumption
- **Optimize**: Solve economic real-time optimization problems consisting of own generation, trading and using of energy in industrial plants and power plants

Energy management itself is far from new, but the objectives and optimization models are changing fast. There is the need to import and integrate data from many areas, not just from the site or a company’s own systems, but also from external systems, such as energy CO2 certificate trading platforms, resource markets, weather data and customer data.

You can really start using that data for holistic optimization.
Monitoring and reporting

Improve energy efficiency, ESG compliance and productivity

An online platform for monitoring, automated reporting against targets and decision support to:

- Bring transparency over energy consumption and sustainability performance
- Influence organization and routines around continuous improvement of energy efficiency
- Achieve and maintain ISO 50001 certification

Covers multiple energy types and emission monitoring
Sets benchmarks following your process areas & asset hierarchies
Triggers alarms for non-intuitive consumption patterns (AI/ML)
Makes improvement potential visible in real time

“The initial system payback was only a few months”

LARGE INTERNATIONAL PAPERMAKER
Forecasting and planning

Avoid energy demand and supply risks, price peaks, and penalty charges

Planning tools that forecast energy consumption & calculate the corresponding energy supply schedule to:
- Purchase the right level of power in liberalized power market and minimize costs
- Predict complex/variable energy demand with temporary peaks more accurately
- Design the most effective production plan given power/energy constraints

Predicts energy consumption patterns for each consumer
Supports multiple energy types & forecasting methods
Adapts to grade / rate / cyclical profiles, rule-based
15-30-60 min or day-ahead balancing, strategic planning over months/years

“ABB experts know which levers to pull for greatest effect”

ASIAN CEMENT MANUFACTURER
Energy optimization

Utilize energy price volatility and process flexibility for optimal production scenarios

Holistic energy supply & demand optimization depending on your business objectives:
- Minimize the total energy cost, reduce emission levels or maximize the total profit of the operations
- Leverage process flexibility for peak shaving, load shedding, shifting production when energy is cheaper
- Leverage flexibility in energy sources to enable effective energy procurement strategy

Supports multiple energy types and optimization scenarios
Optimizes energy generation, procurement, trading
Shifts consumption to off-peak hours
Provides decision support & APC set points for optimal startup / operation

“There is no other supplier with an equivalent industrial-scale product”

EUROPEAN STEELMAKER
Increase value by connecting EnMS with your digital ecosystem

Interoperability – Can connect to 3rd party DCS, energy meters and other systems, including AI/ML and data analytics using open communication protocols

Scalability – Architecture based on data collector nodes to read data from local system nodes to plant wide edge servers to enterprise cloud platform

High performance and availability database – Uninterrupted service and enabling continuous operation during system updates and hardware maintenance

Cyber secure data collection and transfer from site’s automation systems to corporate level with data buffering and automatic backfill of data

Identifying goals and adopting an impact measurement framework will reveal opportunities for successful solutions across untapped areas.
Why ABB?

Main reasons to choose ABB Ability™ Energy Management System for industries:

1. **Beyond energy monitoring**
   A comprehensive integrated solution from monitoring, to forecasting and optimization of process flexibilities

2. **Common platform**
   Complete sustainability metrics, to provide awareness/benefits across an organization from EE engineers, to sustainability champions, management and executives

3. **Digital convergence**
   Ability to connect to above and below automation layers enabling DCS, APC, MES convergence

4. **Purpose-built for your site**
   Open and configurable to exploits your specific processes, energy mix, local electricity market constraints

5. **Robust, reliable and flexible**
   High performance, industrial time-series platform with embedded cyber security for mission-critical systems, with various deployment models (site to enterprise level)

6. **Track record across verticals**

ABB offers global support across Americas, Europe and AMEA regions. We also conduct industrial energy performance assessments / energy audits - comprehensive, on-site evaluations of manufacturing systems to identify inefficiencies & opportunities for improvement and uncover the causes of current or potential problems. We analyze and provide recommendations that will be most effective in achieving your objectives.

Sources:
https://ourworldindata.org/emissions-by-sector
https://www.sustainabilitymatters.net.au/content/energy/white-paper/energy-management-is-no-longer-just-for-power-hogs-1013185433/download

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**Contact us**