OPTIMAX® for Industrials, Commercials and Virtual Power Plants

Turning disruption into opportunities

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How electricity is generated, transmitted, and consumed has been changed forever.

OPTIMAX® helps our customers thrive, given new opportunities presented by the bi-directional flow of energy and information.

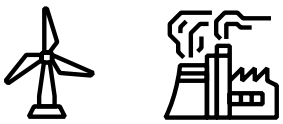
It’s part of ABB Ability™, a unified, cross-industry digital offering — extending from device to edge to cloud — with devices, systems, solutions, services and a platform that enable our customers to know more, do more, do better, together

Turning disruption into opportunities

Technological innovations, cost reductions, new business models, and enabling policies are accelerating the transformation of the traditional electricity grid into a decentralized grid — with both energy and information flowing both ways.

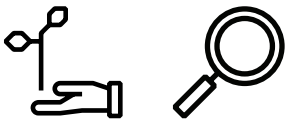
The challenge is how to turn the potentially disruptive effects of multi-source, distributed energy into an efficient and profitable way of doing business.

Industry challenges



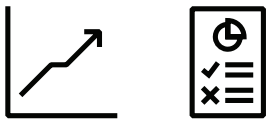
Decentralized energy resources need to be collected, coordinated and optimized

How do you fully leverage your lowest-cost resources at a given moment — and optimally shape demand?



Mandates to reduce energy costs and emissions

How do you fully utilize intermittent renewables while automatically monitoring energy savings and emissions reductions?



New revenue opportunities and business models

How do you most favorably sell your surplus energy (or energy as a subscription service)?

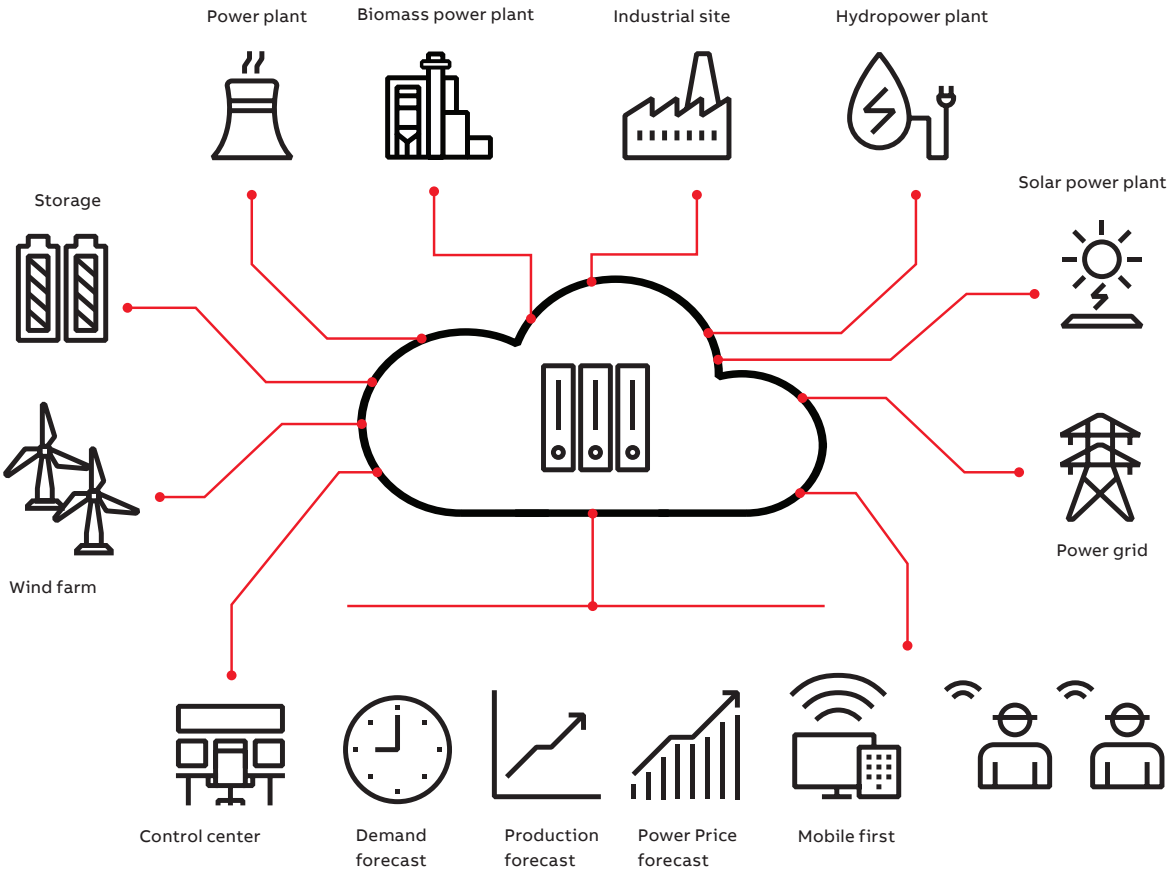
Aggregate decentralized energy resources
Increase revenue through virtual power plants

OPTIMAX® for Virtual Power Plants aggregates and optimizes decentralized energy resources into a virtual power plant. You can then buy or sell in wholesale energy markets, or provide energy as a subscription service.

Decentralized energy resources can range from dozens to many thousands of units, from micro-sites (kW) to utility scale (MW), and be spread over a large geographic area.

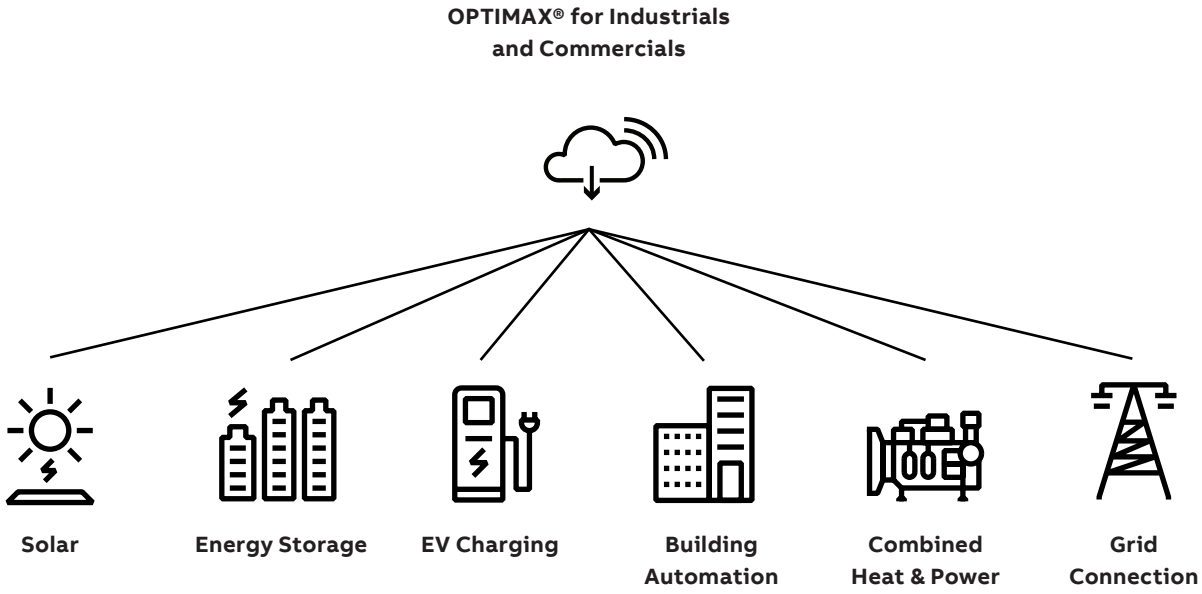
Suppliers, brokers and aggregators can optimize production and respond quickly and flexibly to changing power markets by operating internally as a virtual power plant.

Vertically integrated municipal utilities and smart cities can balance energy production with consumption across all of their services (water, district heating, combined heat & power) using powerful day-ahead and intra-day planning based on weather and load forecasts.



Reduce energy costs by 5% to 10%
Optimize a single industrial or commercial site or, microgrid and actively participate in energy markets

OPTIMAX® for Industrials and Commercials enables industrial, commercial, island and other microgrids to cut energy costs by 5% to 10% without impacting operations.



OPTIMAX® for Industrials and Commercials provides day-ahead optimization based on weather and load forecasts. It then coordinates your energy resources — in real time — to balance supply and demand using dynamic load shedding.

With optimized supply and demand, industrial sites and microgrids can readily add low-cost but intermittent renewables without risk to grid reliability or stability.

And when favorable pricing/production conditions exist, the sites and microgrids can even sell surplus energy production and capacity.

Why aggregate and optimize with ABB?

Reliability → Numerous proven installations in all sizes, with long-term support from the world's leading control system company

Scalability → Easy to operate and easy to scale without disruptions to the grid; reduce labor costs while improving energy savings and adding new revenues

Flexibility → **You're in control:** together we'll adapt the systems to your business model and objectives

Integrating 5,400 units in 8 countries

In just 8 years, Next Kraftwerke, a German virtual power plant start-up, has grown from 20 to 5,400 producing and consuming units. It manages 4,500 MW of capacity: mostly renewables, ranging in size from a few kilowatts of solar to 20 MW from a biomass plant.

Next Kraftwerke automatically optimizes its pool operations using OPTIMAX® for Virtual Power Plants. New customers and generating units are continuously added without interrupting operations. It's a win-win-win for Next Kraftwerke, their thousands of small and medium-sized energy producers and consumers, and the grid transmission operators.

Managing multiple municipal energy sources

Stadtwerke Trier (Germany) supplies electricity, gas, drinking water, district heating, wastewater treatment and public transportation. Electricity sources include wind, solar, biomass, and combined heat and power (both large-scale conventional and micro CHP). The energy network has distributed battery storage and electric vehicle chargers, with a 300 MW pumped water storage plant coming online in 2020.

Their OPTIMAX® Virtual Power Plant maximizes both grid reliability and renewable use by optimizing production and matching it with consumption, using tools that include weather and load forecasting and intra-day trading. The fully scalable virtual power plant seamlessly integrates new generation units, storage devices, and vehicle charging stations without grid disruption. By using digitalization to integrate and manage diverse municipal assets and services, Trier has become a recognized world leader in smart city development.

Making a Caribbean island grid fossil-fuel free

WEB Aruba supplies the island with electricity and drinking water, using 134 MW capacity produced by thermal (fuel oil), wind, and solar plants. By 2020, WEB Aruba plans to generate half its energy from renewables and half from alternative fuels.

WEB Aruba selected ABB due to its extensive microgrid experience and microgrid portfolio. The ABB solution maximizes the use of renewables while minimizing the consumption of fuel oil. With day-ahead optimization based on weather and load forecasts, real-time optimization to balance fluctuations in supply and demand, and dynamic load shedding to ensure grid stability, the system readily accommodates the intermittency of wind and solar — and the goals of its fossil fuel-free future.

Help us meet your energy management needs

Aggregators and vertically integrated utilities

1. Is your control system ready for the bidirectional flow of energy and information?

   O Yes O No O Not sure

2. Are you facing limits with your current control system when adding intermittent renewables? Or other decentralized energy resources? Or controllable demand? Or distributed storage?

   O Yes O No O Not sure

3. Do you need a better way to fully optimize and leverage decentralized energy resources for increased revenue and grid stability?

   O Yes O No O Not sure

Campuses, industrial sites, and microgrids

1. Are you looking for innovative ways to reduce your energy costs?

   O Yes O No

2. Do you want to explore new revenue streams from your existing energy assets?

   O Yes O No O Not sure

3. Do you need a way to optimize future installations of renewables and energy storage?

   O Yes O No O Not sure

4. Do you have a green mandate to reduce carbon emissions but want to avoid paying a premium for renewables?

   O Yes O No O Not sure

5. Are you optimizing your controllable loads for the greatest economic benefit?

   O Yes O No O Not sure

6. Do you need an automatic reporting system showing real-time reductions in energy use and carbon emissions?

   O Yes O No O Not sure

Find out how ABB will help you implement and sustain your energy management.

Aggregate and optimize your energy production and consumption
To get started or learn more, please contact
your local ABB sales representative or visit:

abb.com
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