

ABB Ability Energy Management for Sites

# **OPTIMAX<sup>®</sup> for Industrial and Commercial Businesses**

Turn disruption into opportunities



# — Agenda

1. Two drivers of global energy transformation
2. Three challenges to optimizing power consumption
3. The OPTIMAX® solution for Industrials and Commercials
4. Built with Azure
5. Case study: Bavarian smart farm participates in the national energy trading market
6. Customer solution summary
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# Two drivers of global energy transformation

## Climate change and the need for sustainable growth

**\$7.7T**

worth of energy tied to today's polluting energy technologies\*

**50%**

share of gross electricity consumption will come from renewables by 2050\*

**\$3-7 USD**

Payoff for every \$1 spent for energy transition between now and 2050\*

# Three challenges to optimizing power consumption

## Lack of visibility

Without visibility into operations, it's impossible to plan, predict, and comply with government green mandates that require control and reporting functions.

## High energy costs

Inefficiencies in single or multi-site operations waste money and undercut the goal of sustainable practices.

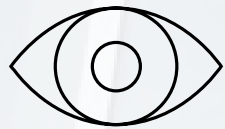
## Failure to maximize earnings

Not being able to participate in competitive wholesale energy markets means that selling excess energy at the most favorable rates is difficult.

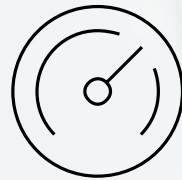


# The OPTIMAX® solution for Industrials and Commercials

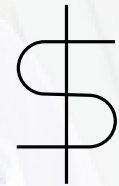
Maximize operational savings through increased visibility, minimize environmental emissions, comply with reporting functions and optionally create new revenue opportunities



**Increase  
visibility**



**Optimize  
performance**



**Add revenue  
opportunities**



# Increase visibility

Reduce energy costs and site emissions by increasing data visibility for better operational and regulatory control.



Enable industrial and commercial sites to cut their energy costs by up to ten percent without impacting operations.

Enable industrial and commercial sites to integrate more renewables and minimize CO<sub>2</sub>-emitting fossil fuel and risk to grid.

Provide operations managers and others with improved data visibility and data consolidation for your site and across multiple sites.



# Optimize performance

Single site businesses or enterprises can optimize how they generate and use energy, including renewable weather-based sources.



Benchmark sites against each other for improved performance based on data analytics.

Participate in energy markets as part of a power aggregator or local utilities trading and billing systems.

Maximize the consumption of energy that is generated on-site or acquired from other sources.

With the ability to forecast energy consumption, on-site generation, controllable loads and grid purchases can be optimized—without impacting day-to-day operations.





# Add revenue opportunities

Participate optionally in competitive wholesale energy markets.



Enable distributed energy providers to seamlessly integrate, optimize and trade production from thousands of small-scale generators across large geographic areas.

Participate in energy markets as part of a power aggregator or local utilities trading and billing systems.

Maximize how energy is consumed whether it is generated or acquired from other sources.



# Built with Azure

Optimize power consumption with the Microsoft Cloud



**Productivity**



**Scalability**



**Data and  
intelligence**



**Security and  
management**

# Bavarian smart farm participates in the national energy trading market



In the mountainous Allgäu region of Bavaria, southern Germany, ABB and utility Allgäuer Überland-werke (AÜW) GmbH are piloting an energy management system (EMS) powered by ABB Ability™ Energy Optimization. The EMS will be housed on a smart farm, where traditional agriculture and digital technologies meet and which is a pilot project for a German Government-supported initiative – called 3connect – to promote the closer integration of the energy, mobility, information and communications technology sectors. In other words, it brings together smart farms, smart grids and smart mobility.

## **INCORPORATE NEW ENERGY SOURCES**

The modern organic farm with dairy cattle supports several new energy sources that have entered the market in recent years as well as innovative sustainable farm energy concepts: photovoltaic solar panels, power to heat units, battery storage and electric vehicle charging stations, and even a John Deere hybrid tractor prototype. The e-tractor, for example, can exchange data with the EMS on its energy requirements, its use and its charging needs.

## **OPTIMIZE ENERGY OUTPUT AND DEMAND**

Due to this increase in new energy sources, there is a growing requirement to optimize the farm's energy output and demand, both locally in terms of its own consumption and with wider consideration for energy trading forecasts and grid connection. This is achieved using the ABB Ability™ Energy Optimization solution.





# Next steps

- We'll connect you with the sales team for ABB OPTIMAX for Industrial and Commercial:  
[us-energyindustries.communication@abb.com](mailto:us-energyindustries.communication@abb.com)
- Learn more about ABB OPTIMAX for Industrial and Commercial at:  
<https://new.abb.com/power-generation/service/advanced-services/energy-management/industrials-and-commercials>





# Industrial/Commercial Energy Asset Mgmt.

## ABB OPTIMAX Reference Architecture



**System Integration**  
Our solution integrates operational data from all your energy assets and power loads and analyzes it against your power plan and goals.

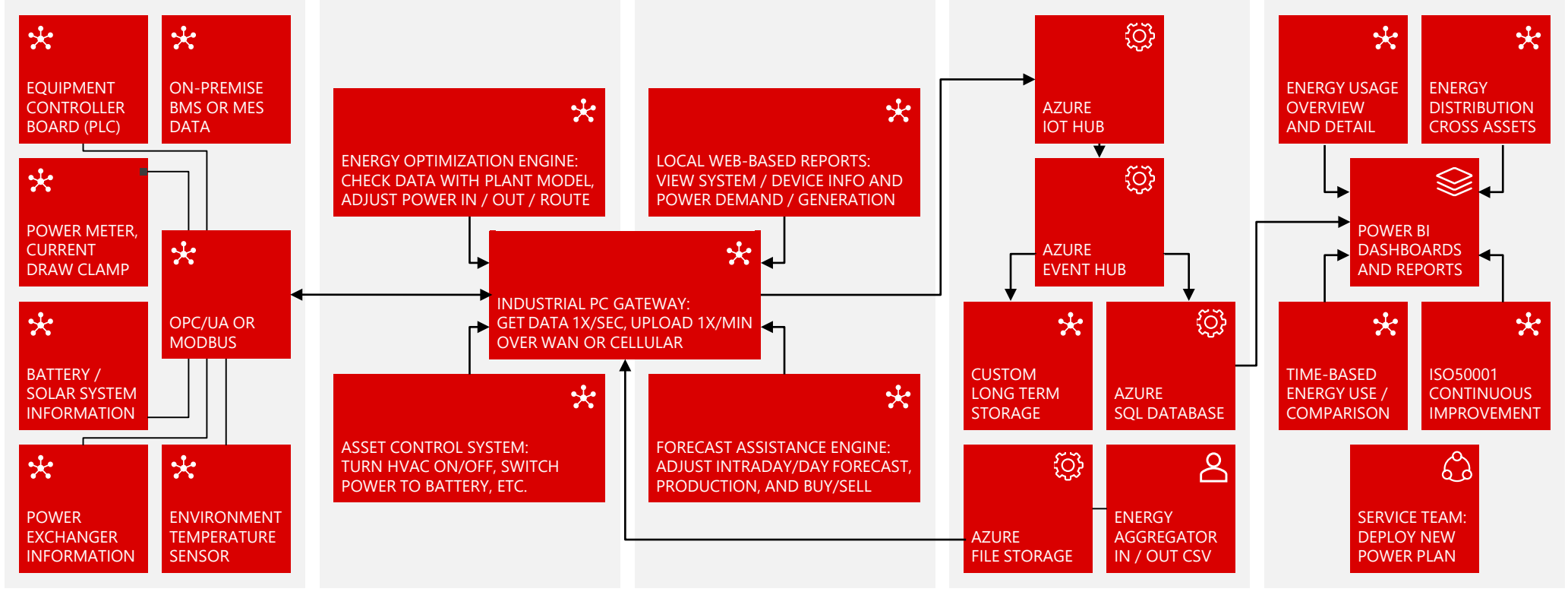
**Energy Optimization**  
Energy optimization algorithms review each asset against the plan and come up with recommended changes to loads and planning.

**Energy Forecasting**  
Production/use data is merged with info from aggregators in reports that help you accurately adjust intraday and day forecasts.

**Cloud Services**  
Microsoft's Azure cloud provides a scalable, resilient, secure platform for your operational data and for our solution components.

**Mgmt. Experience**  
Your team uses Power BI to review energy assets and production, improve efficiencies and meet continuous improvement req's.

- CHP/GENERATOR
- SOLAR SYSTEM
- OTHER ENERGY ASSETS
- BUILDING SYSTEMS (HVAC, BMS, ...)
- OTHER POWER LOADS



- FACILITY / PLANT MANAGER
- RENEWABLE ENERGY MGR
- ENERGY BUYER / SELLER
- OPERATIONS MANAGER

Partner component   
 Solution Builder component   
 Azure service   
 Microsoft product   
 Customer component