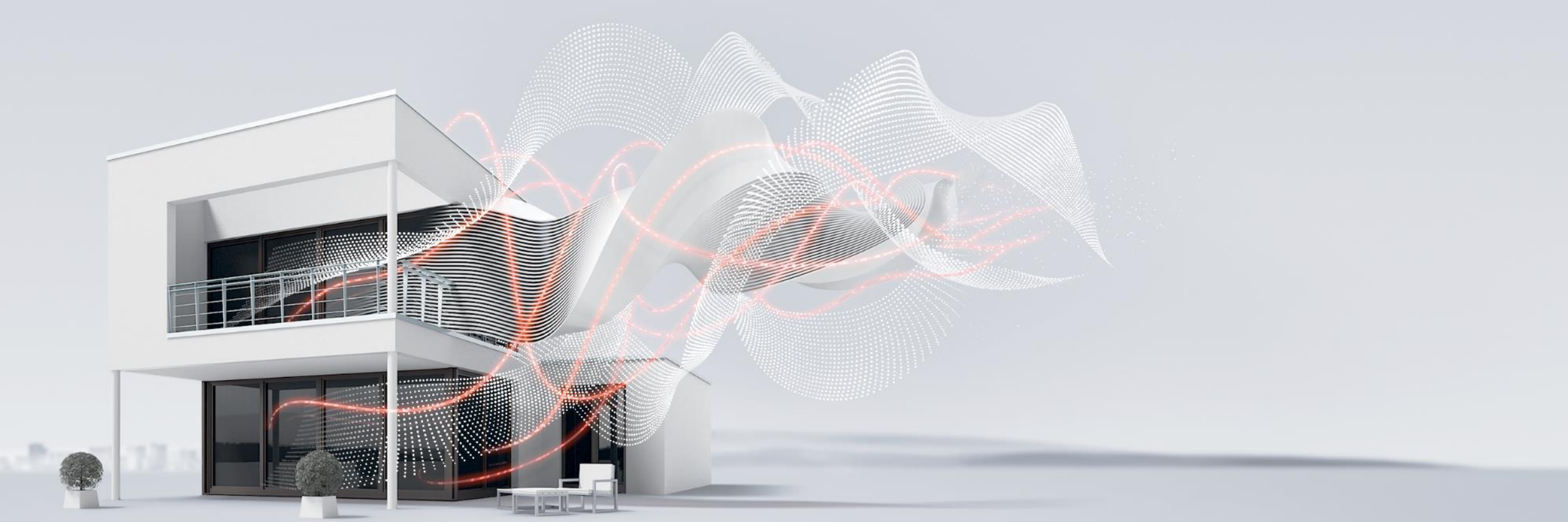


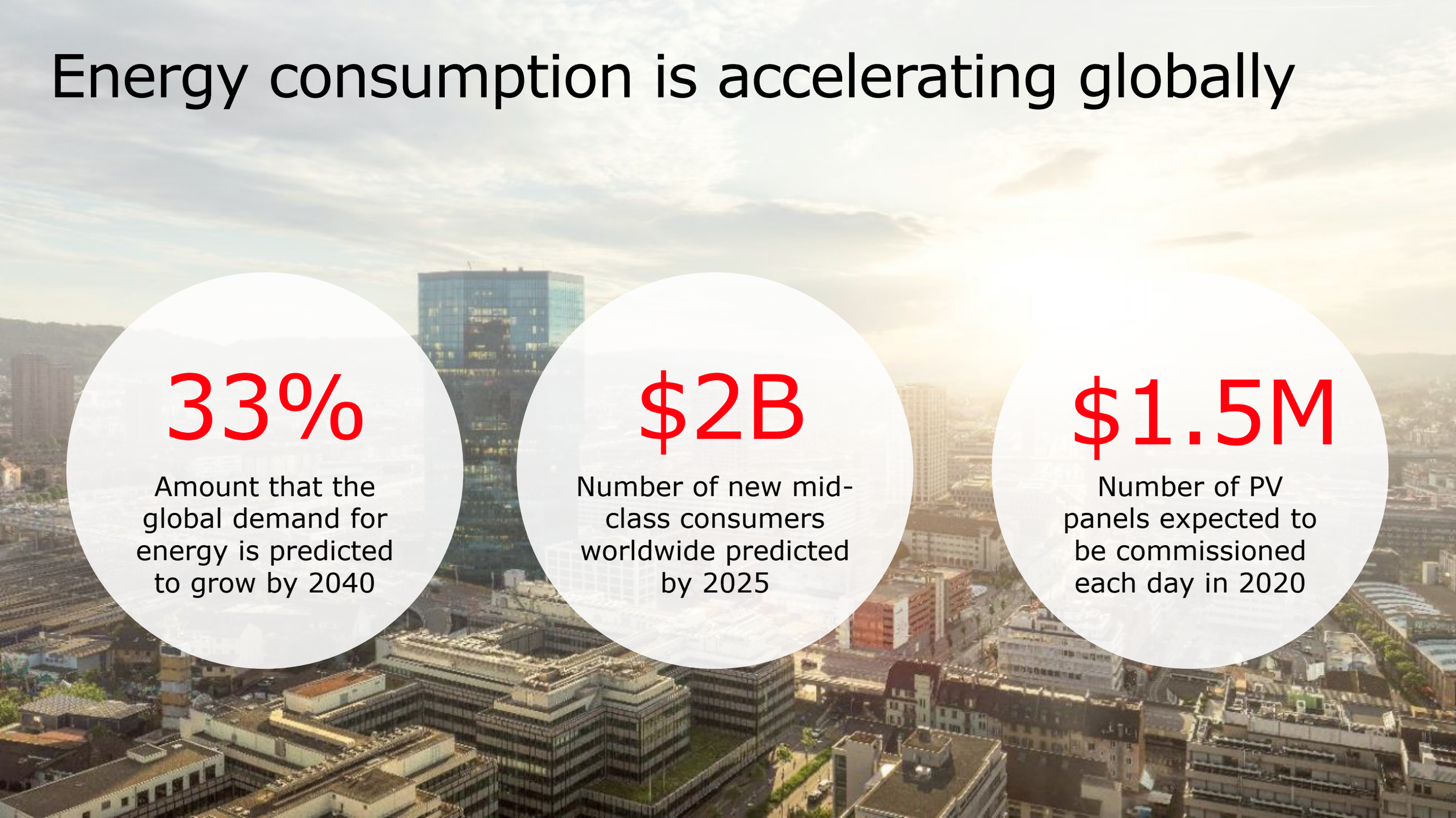
ABB ABILITY™ Electrical Distribution Control System (EDCS)

Smart energy and asset management for commercial and industrial sites

Agenda

1. Growing energy demands are changing manufacturing
2. Challenges to efficient energy consumption
3. How ABB ECDS optimizes energy consumption and asset management
4. Customer success stories
5. Reference architecture
6. Next steps

Energy consumption is accelerating globally



33%

Amount that the global demand for energy is predicted to grow by 2040

$2B

Number of new mid-class consumers worldwide predicted by 2025

$1.5M

Number of PV panels expected to be commissioned each day in 2020

Energy management challenges

Energy generation and consumption issues affect operating costs

Unnecessary increases in operating costs occur when production assets are not configured for optimal energy consumption.

Ensure site availability and productivity

Energy outages in manufacturing environments mean wasted man hours, late production schedules, and potentially dissatisfied customers. For commercial buildings, an outage can result in poor tenant and customer satisfaction.

High energy demand processes need to be monitored

A wide range of variables need to be accurately monitored, measured, and analyzed to effectively predict and manage energy consumption.

Energy management requirements by use case

Industry needs

- Ensure factory availability and productivity
- Electricity is one of the most critical assets
- Need for smart energy distribution
- Operations are often running 24/7
- High-energy-demand processes increase operating costs
- Production downtime is costly

Commercial building needs

- Optimize multi-site energy management and control cost for maintenance of chain stores, apartment complexes, and more
- Keep a close eye on energy costs - electricity, water, gas
- Meet growing demand for eco-friendly and sustainable energy consumption practices
- Low CAPEX to deploy a monitoring solution
- Big cost share (as well as significant room for cost reduction) is allocated to multi-site management

ABB Ability™ Electrical Distribution Control System (EDCS) is a scalable solution for organizations that need to proactively monitor and analyze their energy usage in real time so they can make informed decisions that reduce costs. The solution adds value by not only cutting energy and maintenance bills by up to 30%, it also provides easy-to-use tools that allow facilities to more effortlessly comply with energy efficiency standards.

Monitor

Comprehensively monitor plant performance at any time, from anywhere.

Intuitive user interface offers immediate access to critical energy performance data across every facet of your facility.

Single or multi-site information is processed to display energy consumption and on-site power generation trends.

Get load knowledge at a glance - from the main feeder all the way down to the lowest consumption branch of the electrical system.

Acquire a deep knowledge of the electrical performance through supervision of real-time power demand, peak trends, and power factor and power quality information.

Optimize

Inform critical energy consumption decisions with real-time data access.

Easily access all relevant energy consumption information at a glance to maximize reliability and efficiency.

Use energy performance data to set effective benchmarks and align operations with best practices.

Simplifies and enhances the analyses of power factor compensation, energy management, and cost allocation.

Leverage a comprehensive collection of data at the single- or multi-site level, to more easily inform decisions around energy performance.

Predict

Implement predictive maintenance strategies that maximize energy performance.

Move from a routine, schedule-based program to real, needs-based maintenance practices.

Control maintenance costs with predictive analysis.

Analyze key factors: Number of mechanical operations, nominal current, overloads, and short circuits, as well as environmental conditions such as humidity, temperature, vibration, and corrosion.

Cloud-based solution significantly reduces risk of unplanned shutdowns, maximizing service continuity, making management simpler, and cutting investment costs.

Control

Remotely control power peak, energy management, and demand-response applications.

The **Power Controller** feature makes load management simple, accurate, and remote.

Remotely set the power demand you want to target with a weekly, daily, or hourly resolution.

Help ensure savings and avoid penalties by minimizing demand through a non-priority load shedding / reinsertion routine.

Easily customize alert settings to suit your specific requirements and prompt key personnel to take action at a moment’s notice.

Built on Azure

ABB Ability™ EDCS is built on state-of-the-art cloud architecture for secure data collection, processing, and storage that grows with you.

Scalability

Data collection

Analytics

Security and reliability

ABB Ability™ EDCS helps water utility reduce operational costs by 30%

In a pilot implementation, ABB Ability™ EDCS helped Italian public water company Consorzio di Bonifica Veronese (CBV) significantly reduce plant maintenance time and lower operational costs at one of their facilities. Thanks to EDCS, CBV expects to reduce plant operating costs by up to 30% and maintenance time by up to 40% when the solution is fully implemented at their other locations. CBV water pumping stations ensure supply from reservoirs for farms during dry periods. ABB's solution was retrofitted to enable facility managers to collect data on plant performance and monitor energy efficiency and costs online.

ROI
It took less than 3 months for CBV to recoup their investment.

Meeting efficiency goals
CBV was granted € 24.000 due to Energy Efficiency Incentives

Savings
30% Savings on annual operation costs:

- Remote proactive alerts to prevent downtimes and quickly restore normal operations after faults
- Optimized maintenance schedule
- Personnel cost reduction (less commuting, better decision making and data-driven actions)
- Decrease of power quality penalties due to utility

CONSORZIO DI BONIFICA VERONESE

A win for water quality and plant efficiency

"ABB Ability Electrical Distribution Control System enabled us to connect our existing hardware to the cloud allowing us to manage our plant more effectively. The availability of this data made us eligible for energy efficiency certificates worth €24,000, without the time and expense of independent external auditing. We will deploy this solution across dozens more water distribution facilities and estimate reduction on operational costs by around 30%."

— Consorzio di Bonifica Veronese

CONSORZIO DI BONIFICA VERONESE

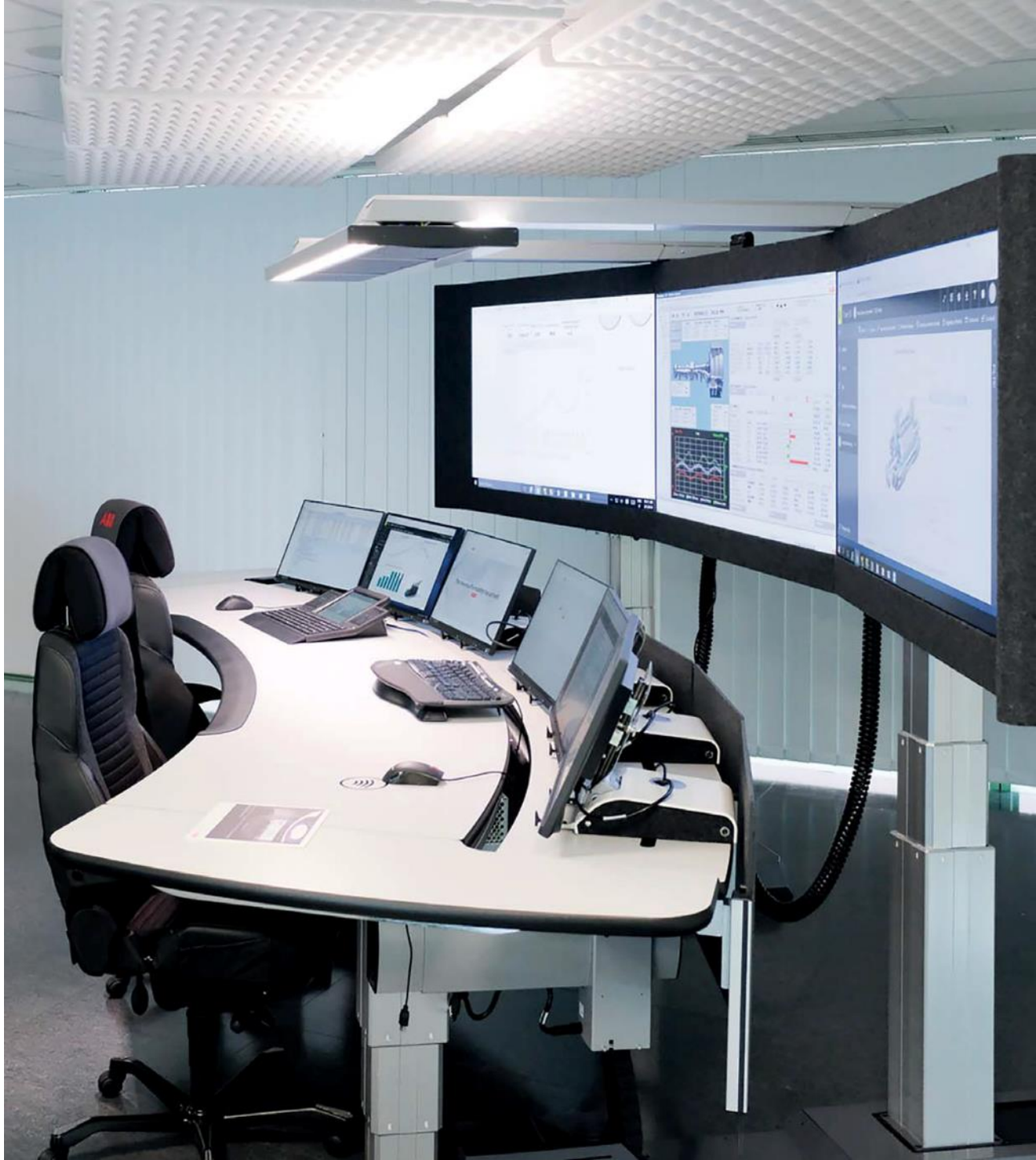


ABB Ability™ Electrical Distribution Control System for Solar Rooftop management and optimization

Challenge

Better ROI estimation for roof projects using data analytics

Big Data to calculate "customers' solar potential" and promote through app

Solution

ABB Ability™ EDCS connects the ABB Dubai **315 kilowatt (kW) solar rooftop** part of the Shams Dubai initiative from **DEWA** Dubai Energy and Water Authority.

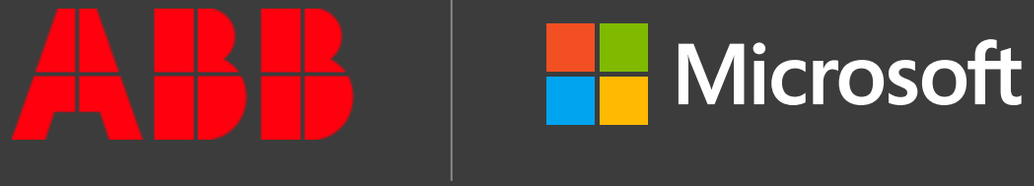
Benefits

4% savings on project's CAPEX

«**ABB Ability ™ Electrical Distribution Control System** support energy production forecasting of the plant.»
Read the press release

Next steps

- We'll connect you with the sales team for ABB Ability™ EDCS: davide.baio@it.abb.com and IT-ability.edcs@abb.com
- Learn more about ABB Ability™ EDCS at: https://new.abb.com/low-voltage/launches/abb-ability-edcs
- https://www.youtube.com/watch?v=aB-p_IV4N-M



High level Architecture

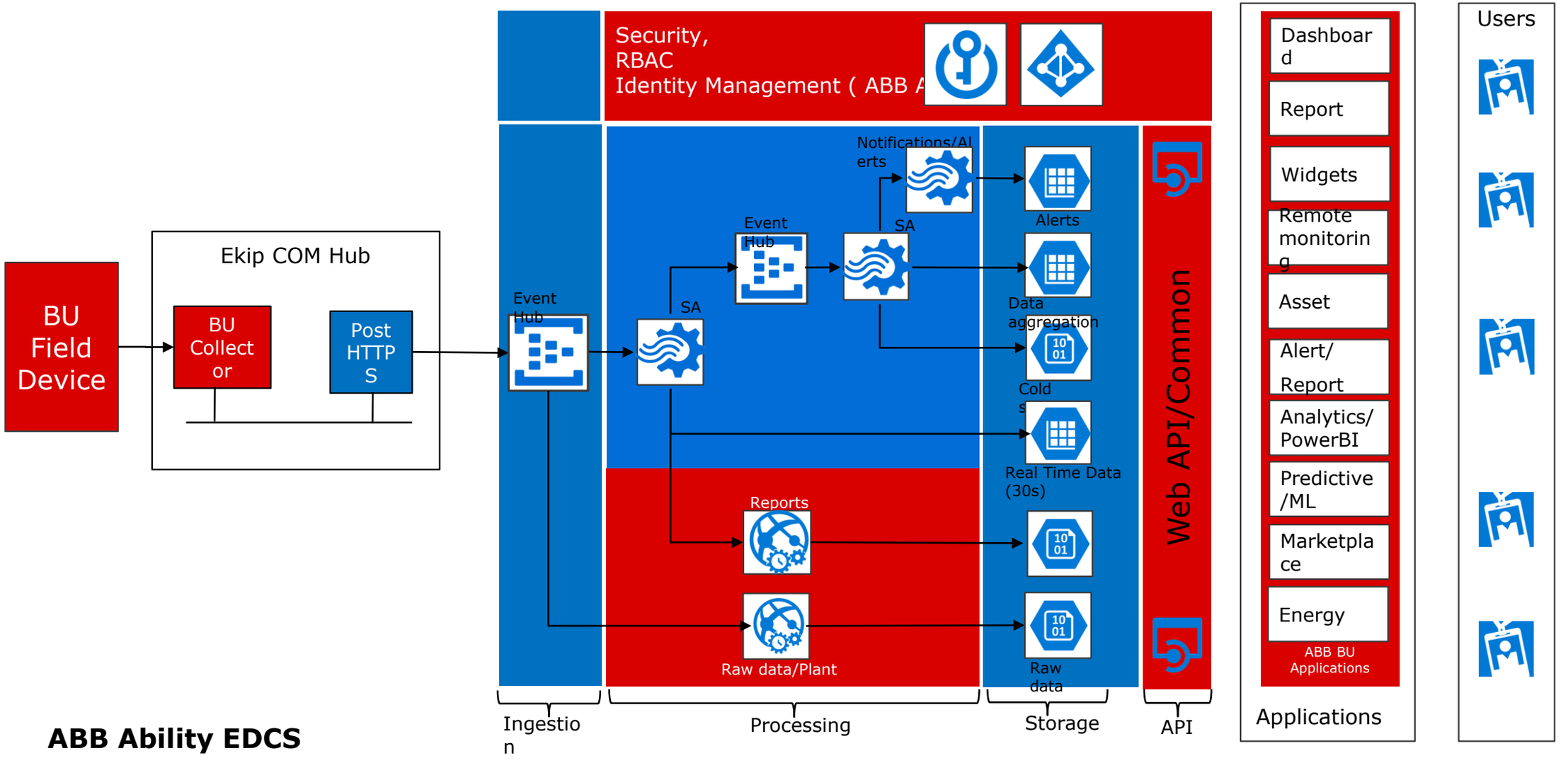


ABB Ability EDCS