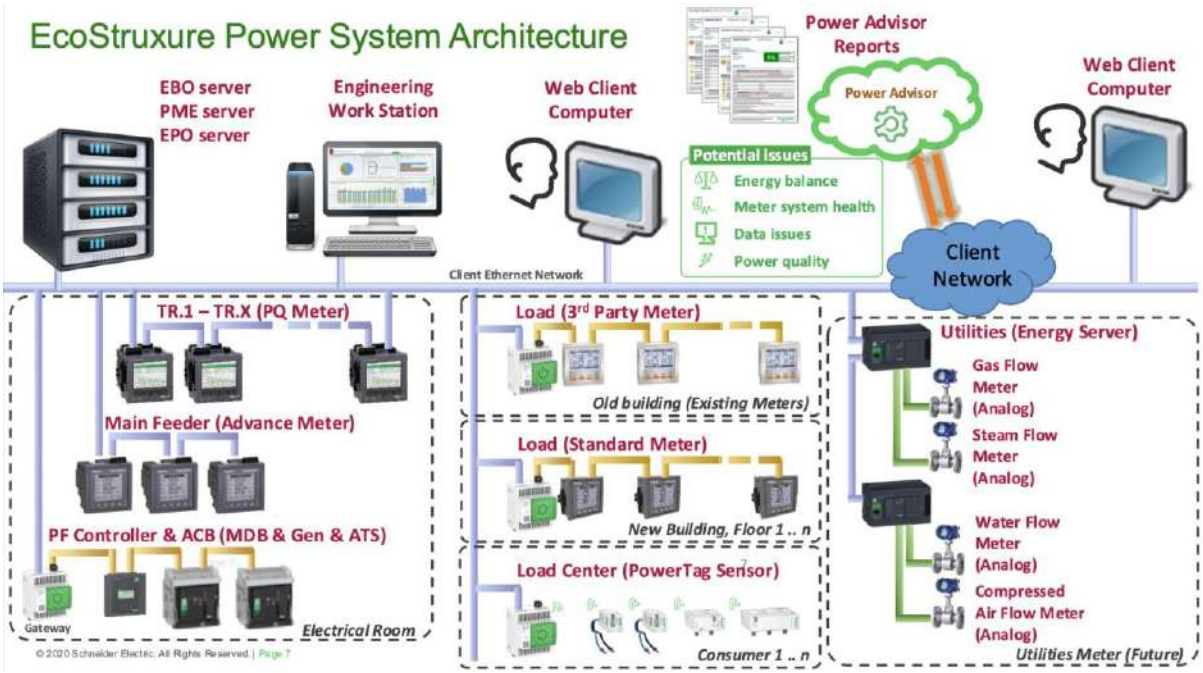
Digitizing Power Distribution by Schneider Electric's EcoStruxure Power

is a connected and open IoT-enabled platform for power management. It's designed to digitize and automate electrical distribution systems, enhancing efficiency, reliability, and safety for buildings, industrial plants, data centers, and infrastructure.

Here's a summary of its key features and benefits:

- **Connected Products:** A range of connected devices, from smart circuit breakers and power meters to protective relays and sensors, providing real-time data and control.
- **Edge Control:** On-site control and automation capabilities, enabling faster response to events and reducing reliance on cloud connectivity.
- **Apps, Analytics & Services:** Software applications, analytics tools, and services that provide insights into power consumption, equipment performance, and potential risks. This facilitates predictive maintenance, energy efficiency optimization, and improved power quality.
- **Cybersecurity:** Embedded cybersecurity features throughout the platform, protecting against cyber threats and ensuring data integrity.
- **Open and Interoperable:** The platform is designed to be open and interoperable, allowing integration with other systems and platforms.



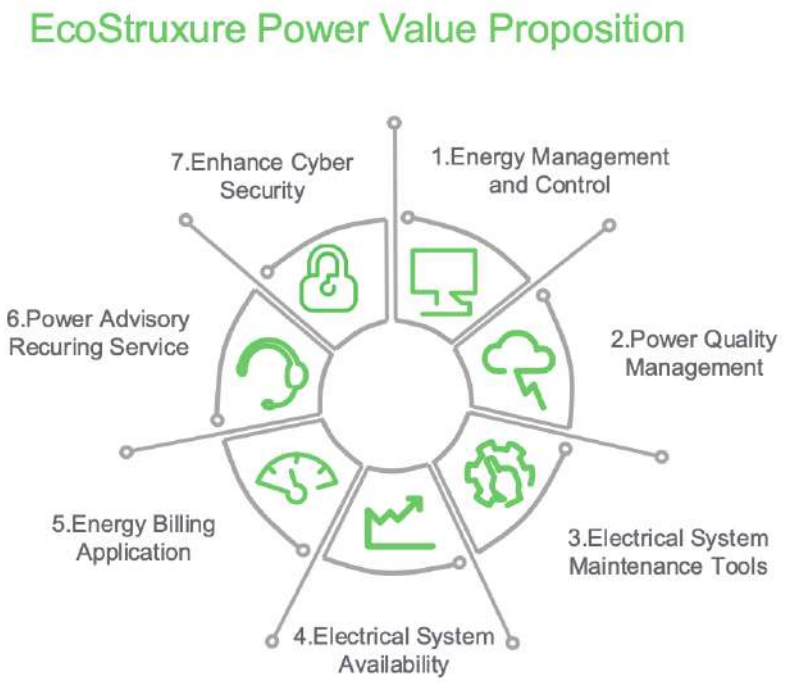
Key Benefits:

- **Improved Power Reliability and Availability:** Real-time monitoring, predictive maintenance, and faster fault detection minimize downtime and ensure business continuity.
- **Enhanced Safety:** Arc flash mitigation, proactive safety alerts, and remote monitoring reduce risks to personnel and equipment.
- **Optimized Energy Efficiency:** Data-driven insights and automation capabilities enable energy optimization, reducing costs and carbon footprint.
- **Simplified Operations and Maintenance:** Centralized monitoring and control simplify operations, reduce maintenance costs, and improve asset lifespan.
- **Improved Power Quality:** Real-time monitoring and control help maintain a stable power supply and minimize disruptions to sensitive equipment.

Target Applications:

- **Buildings:** Optimizing energy consumption, improving occupant comfort, and ensuring power reliability for critical systems.
- **Industrial Plants:** Improving power availability for production processes, reducing energy costs, and enhancing safety.
- **Data Centers:** Ensuring a reliable and efficient power supply for critical IT infrastructure.
- **Infrastructure:** Improving grid resilience, optimizing power distribution, and integrating renewable energy sources.

In essence, EcoStruxure Power provides a comprehensive digital platform for managing electrical distribution systems, offering a range of benefits that contribute to increased efficiency, safety, and sustainability.

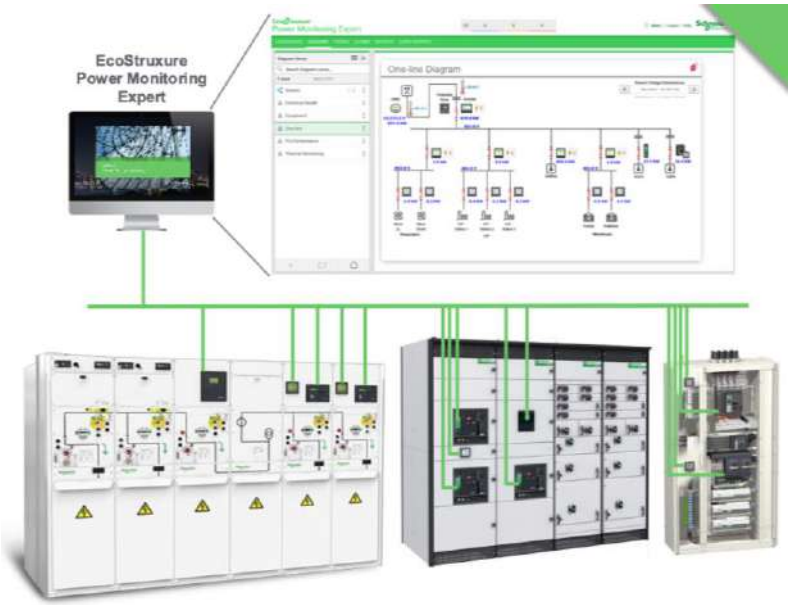


1. Energy Management and Control

Monitoring of MV-LV networks for reliability & operation efficiency

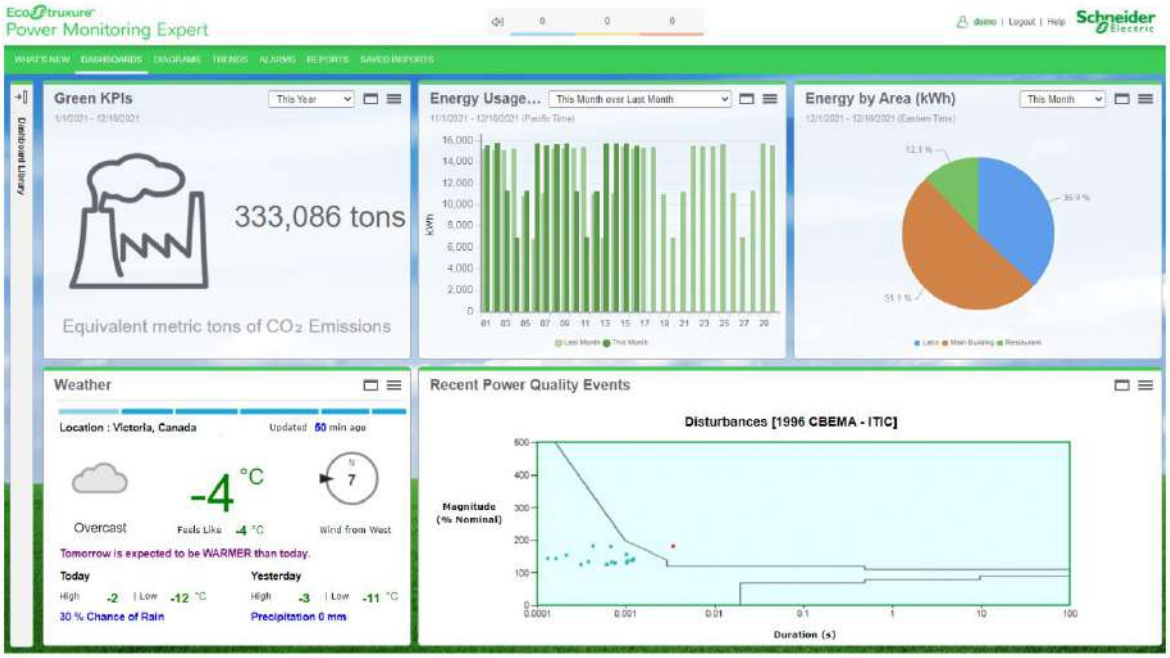
PME (Power Monitoring Expert)

- PME helps the facilities team in large and power critical facilities analyze, troubleshoot, and make informed decisions about their electrical distribution systems. It automatically collects data from your facility's electrical network and presents it as meaningful,actionable information via intuitive web interface.
- PME is designed to complement the functionality of a BMS or process SCADA and natively integrates with Schneider Electric's EcoStruxure Building Operation (EBO) and Wonderware System Platform (WSP).

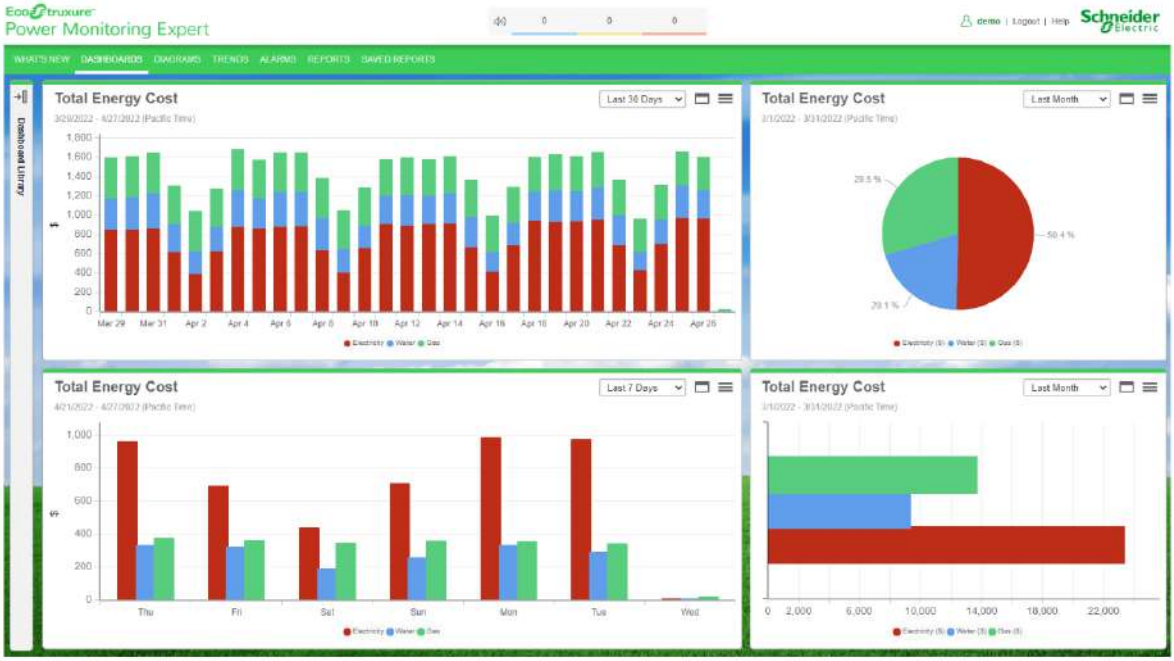


Power Monitoring Expert-Dashboards

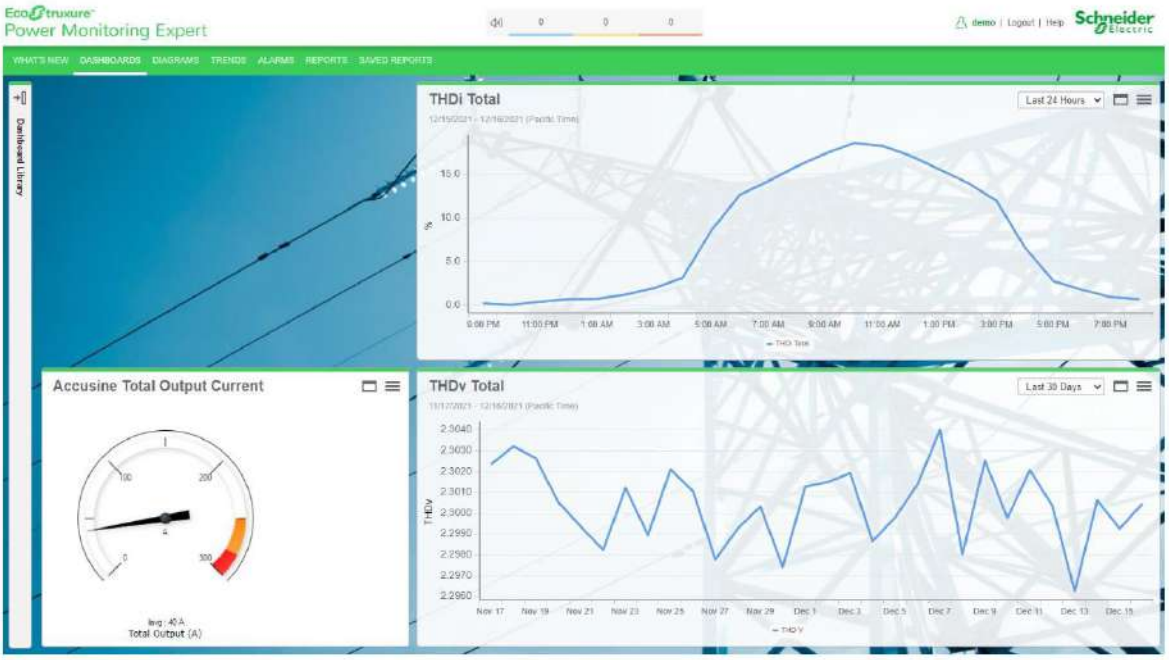
Dashboards – Home Page – Site Overview (Level 1)



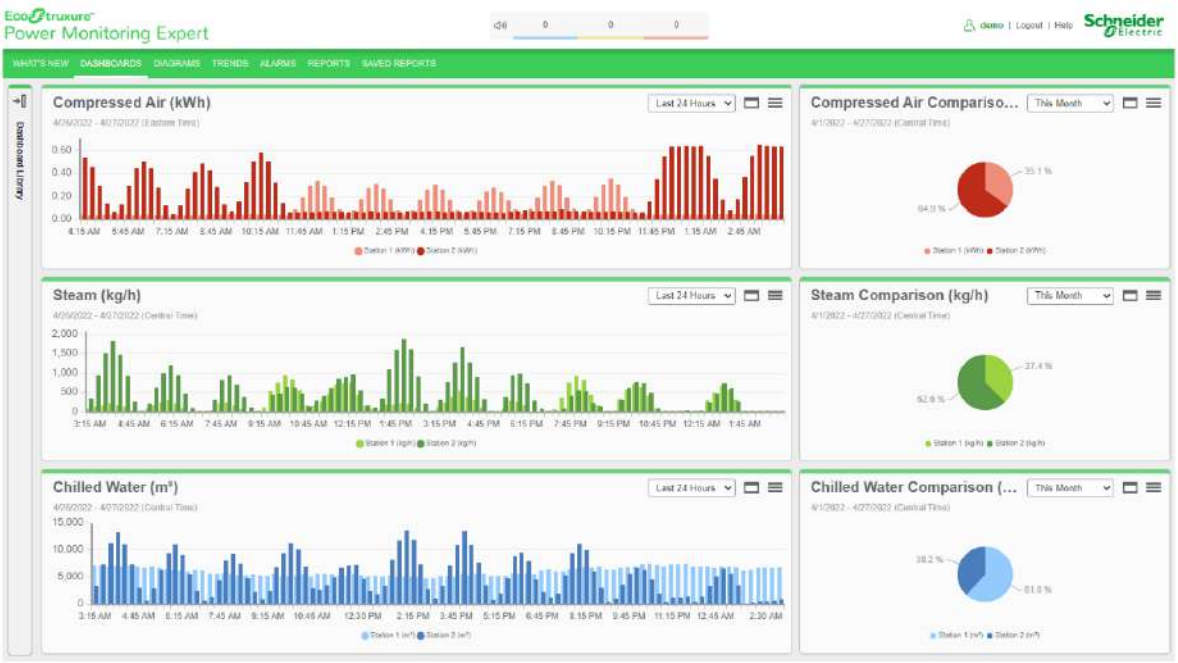
Dashboards - Energy Consumption – Site Overview (Level 1)



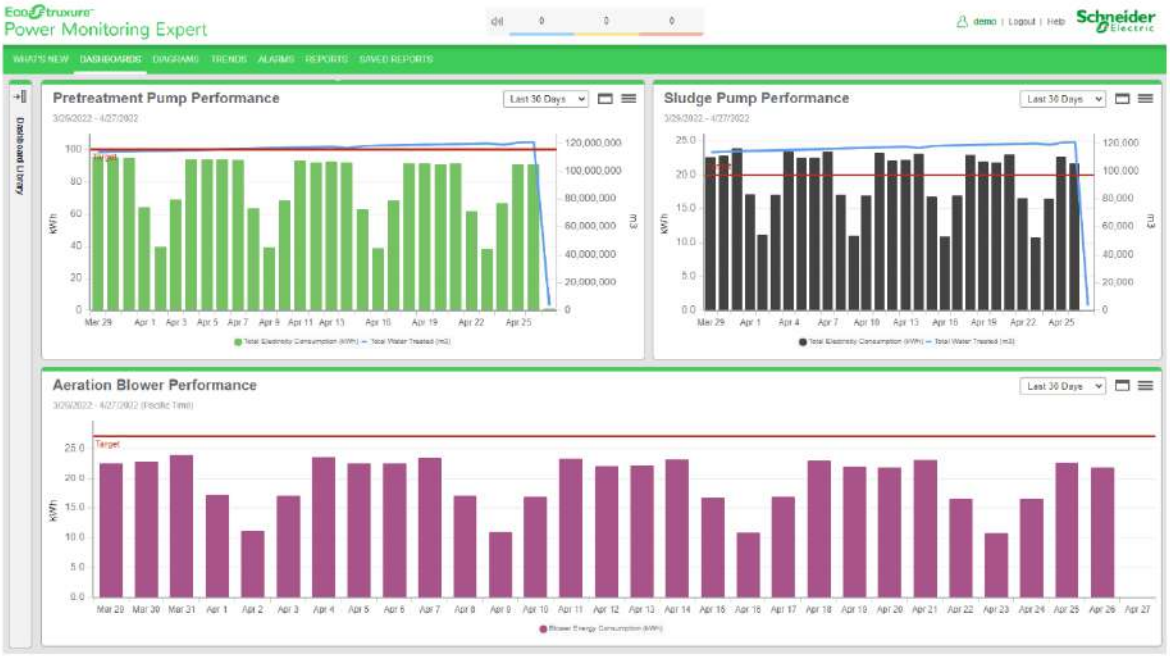
Dashboards – Power Quality – Site Overview (Level 1)



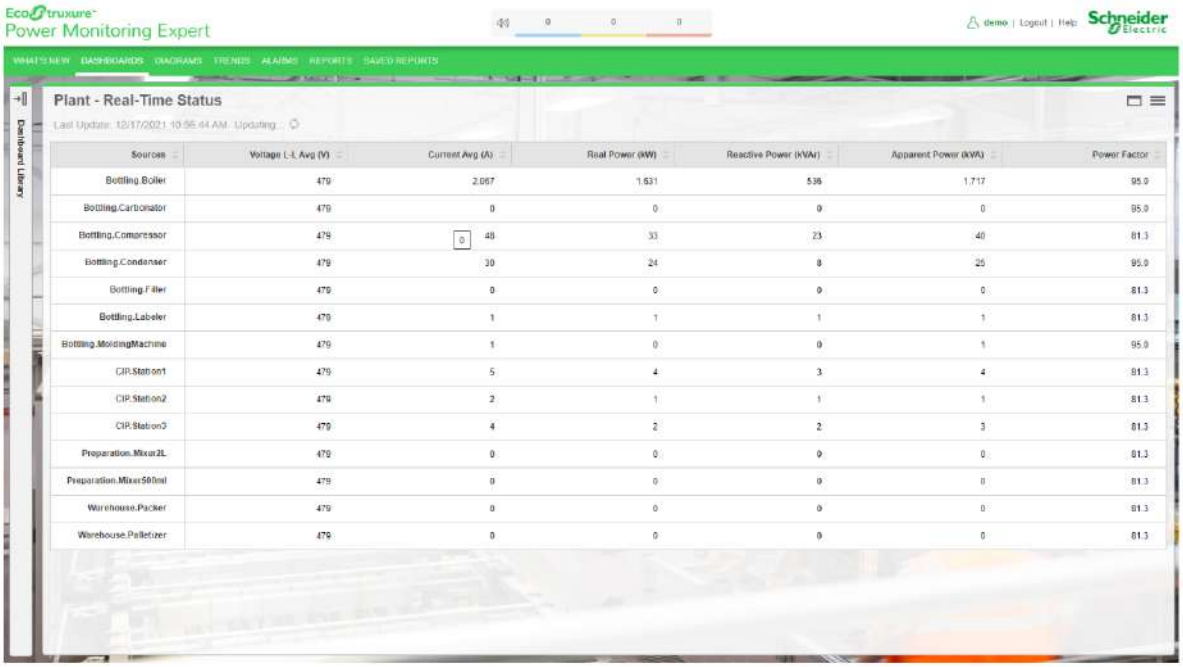
Dashboards – Energy Breakdown – by Area or DB or System (Level 2)



Dashboards – Cost (or Energy) Breakdown by Machine (Level 3)

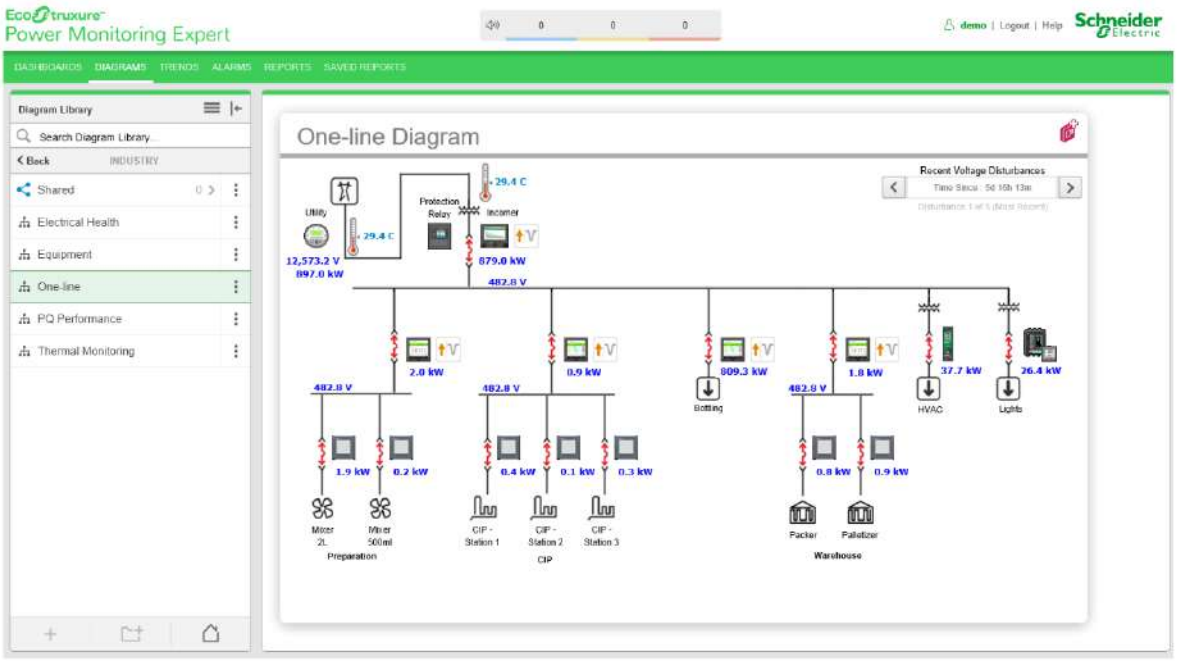


Dashboards – Summary Table – Critical or Essential Load (Level 4)

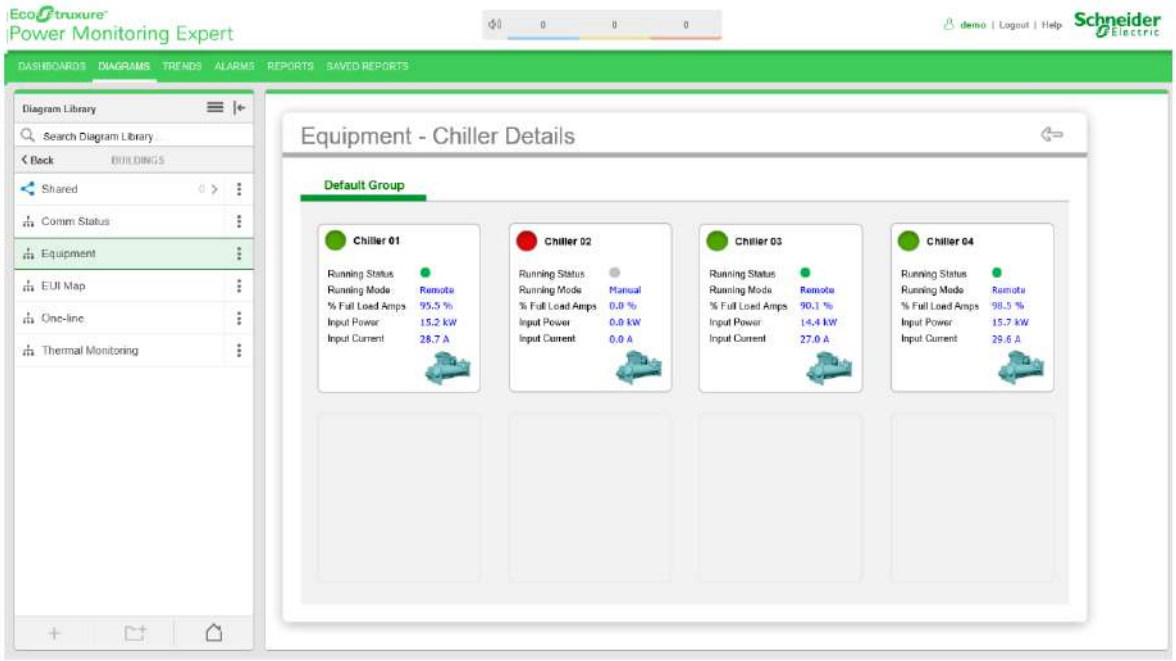


Sources	Voltage L-L Avg (V)	Current Avg (A)	Real Power (kW)	Reactive Power (kVAr)	Apparent Power (kVA)	Power Factor
Bottling.Boiler	479	2.067	1.631	536	1.717	95.0
Bottling.Carbonator	479	0	0	0	0	95.0
Bottling.Compressor	479	48	33	23	40	81.3
Bottling.Condenser	479	30	24	8	25	95.0
Bottling.Filler	479	0	0	0	0	81.3
Bottling.Labeler	479	1	1	1	1	81.3
Bottling.MoldingMachine	479	1	0	0	1	95.0
CIP.Station1	479	5	4	3	4	81.3
CIP.Station2	479	2	1	1	1	81.3
CIP.Station3	479	4	2	2	3	81.3
Preparation.Mixer2L	479	0	0	0	0	81.3
Preparation.Mixer500ml	479	0	0	0	0	81.3
Warehouse.Packer	479	0	0	0	0	81.3
Warehouse.Palletizer	479	0	0	0	0	81.3

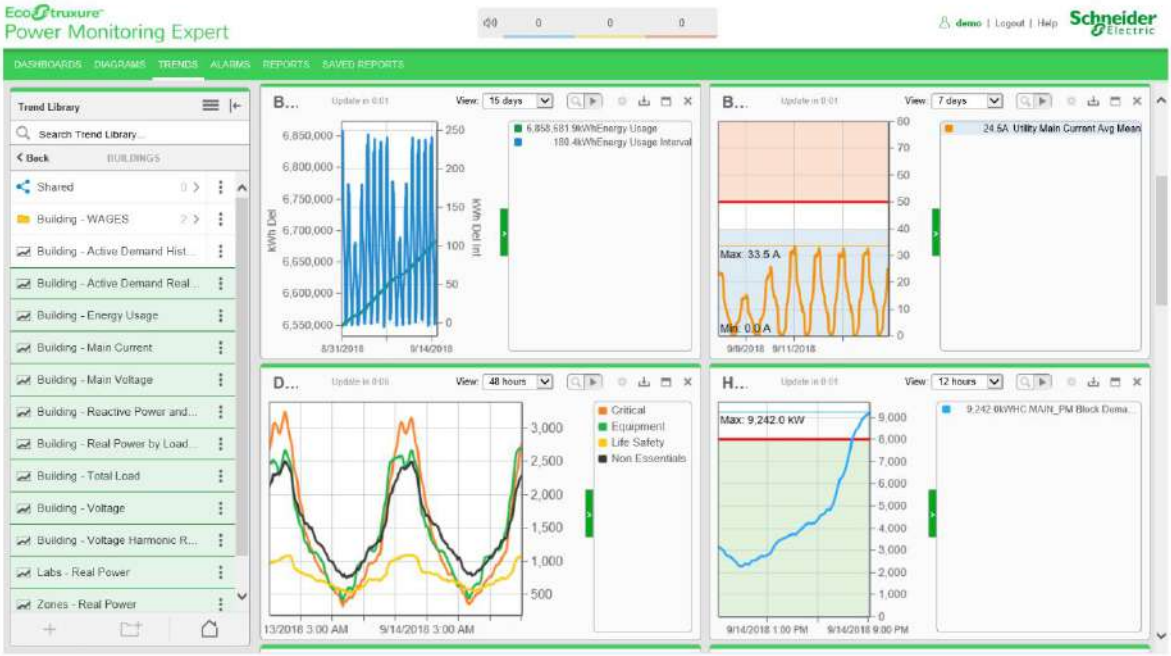
Real-time monitoring



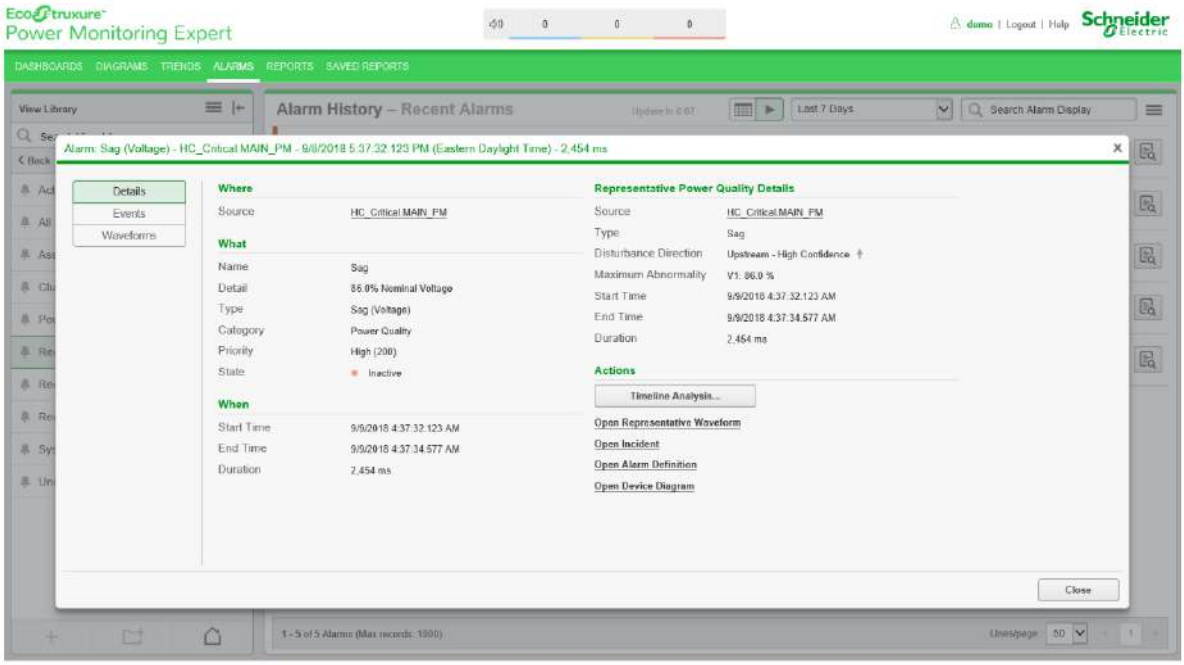
Equipment monitoring



Trend analysis

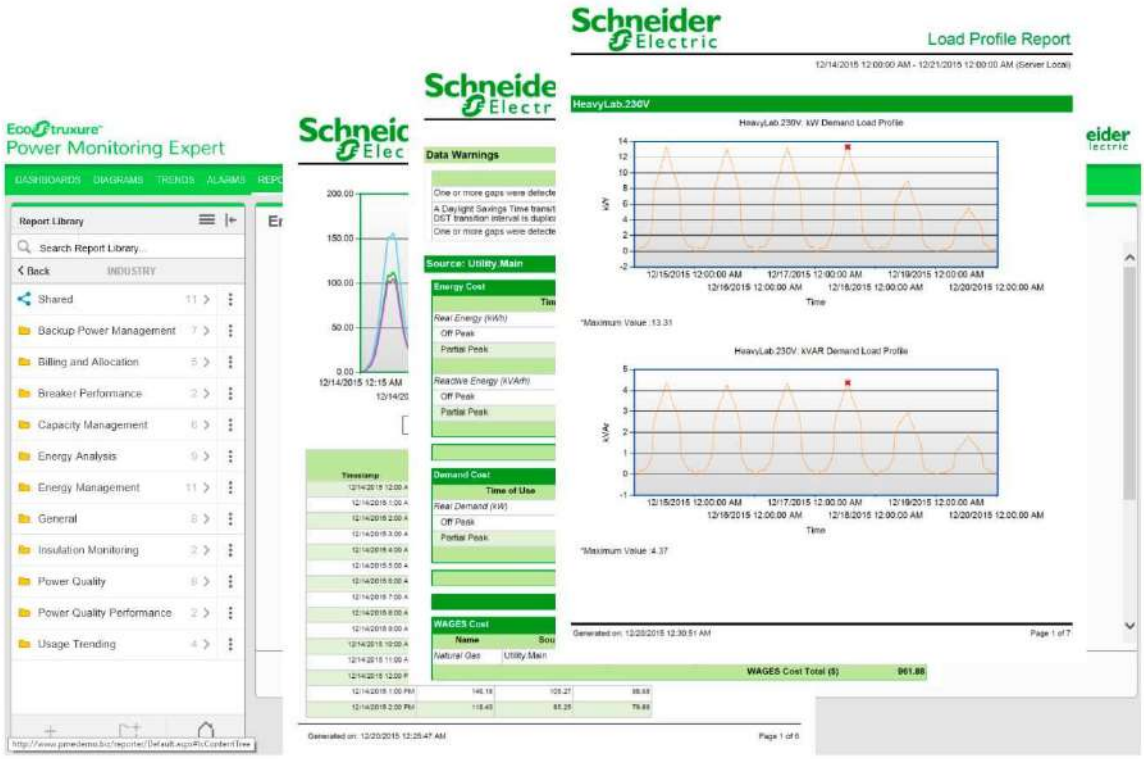


Alarms and events

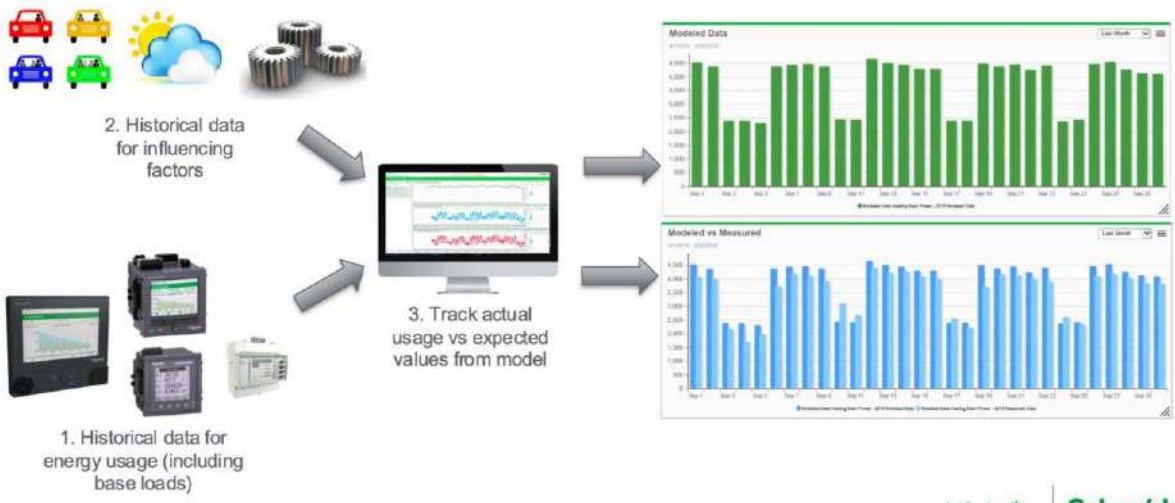


Power quality analysis

Reporting



How is an Energy Model Created?



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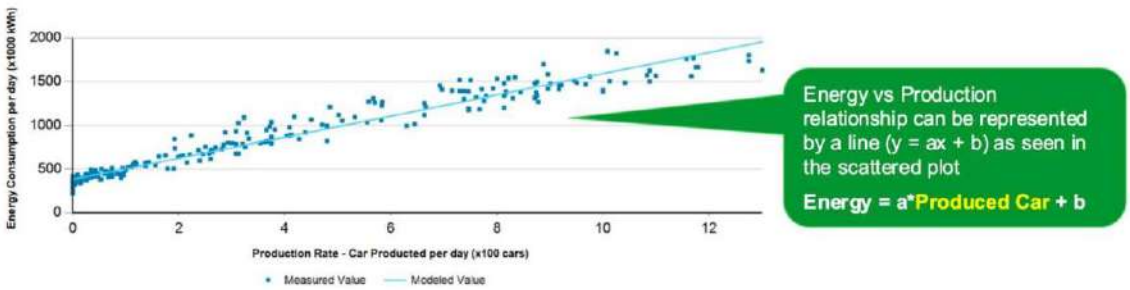
How is an Energy Model Created? (cont.)

Let's consider just 1 influencing factor (Produced Car)



Great ! But, is not that simple…What about the scheduling influence?
Is the energy vs production the same every time?

In this case we have 4 sub-models, to represent the energy vs production relationship. The system takes care of all the statistical analysis, the user just needs to tweak the parameters and select the best model.

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I have an Energy Model, Now What?