Efficient Facilities

EcoStruxure™ manage safer, more available and greener resources for Food & Beverage, Household and Personal Care production environments.
Our mission is to be your digital partner for Sustainability and Efficiency
Rethinking next generation industries: business resilience and sustainability performance for lifecycle integrated management
We help on every step of the value chain

Efficient facilities
Safer, more available, and greener resources

Resilient supply chain
Manage complexity and improve visibility

Agile manufacturing
Boost manufacturing flexibility & efficiency
… leveraging transversal digital transformation capabilities

Food Safety & Traceability
Ensure compliance and increase trust across the whole value chain

Energy & Sustainability
Reduce environmental footprint and meet sustainability goals

Asset Performance
Maximize return on asset investment

Workforce Empowerment
Take teams efficiency to the next level

Digital Engineering
Cut time, cost and risks of capital project engineering
Efficient Facilities
Safer, more available and greener resources

Power Safety & Availability
Standardization, site assessment, and predictive maintenance for safe and available power

Building management
Effective and efficient use of utilities for your manufacturing operations

Server Rooms management
Provide self contained and secure computing environment for your on-premise applications

Renewable Energies & Microgrid
Manage complex energy mix to optimize cost and carbon footprint.
Power Safety and Availability
Minimize your risks, production downtime and Total Cost of Ownership

Safety of people and assets cannot be compromised

After natural disasters, fire is the 1st* cause of corporate insurance claims. Electrical fire contributes to greater than $200M** in property damage cost.

22%* of workplace fires are electrical in origin.

25%** of electrical fires are due to faulty or loose connections.

5 to 10 arc flash incidents per day in USA.

Power is essential to ensure business continuity in the digital age

Power outages cost the US Economy about 110B USD and the EU economy 150B EUR each year.

Electrical interruptions caused by extreme weather have doubled* since 2003 in the US.

Industrial plants can lose anywhere from 100k Euro up to nearly half a million per hour.

Poorly maintained switchgear/circuit breakers are 62%* more likely to fail than those under a proper maintenance program.

Cybersecurity planning is essential, not optional

Thirty-one percent of organizations have experienced cyber attacks on operational technology infrastructure.

IoT security costs will rise to 20% of the IT budget of a company by 2020 compared to just 1% in 2015.

2015 2020

BERKELEY NATIONAL LAB CONSEQUENCES OF POOR POWER QUALITY – AN OVERVIEW 2011

IEEE 493
Power Safety and Availability
Building specific and comprehensive solutions to energize your plants

- **Safe** for people, asset & data
- **Available** with dedicated architectures
- **Efficient** with native digital communication to integrate asset and energy management.
- **Open** to comply with all Process system
- **Tested & Validated** Architecture for easy implementation & limit risks
Power Safety and Availability

Building specific and comprehensive solutions to energize your plants

• EcoStruxure Power helps achieving business outcomes
  • **Improve electrical safety** with safety-by-design circuit and load protection, fast tripping to mitigate impact of arc events, continuous monitoring of temperature, alarming, and predictive analytics
  • **Increase power reliability and availability** with operational intelligence, power quality monitoring, enhanced diagnostics and fast restoration, asset management and control
  • **Manage energy performance** with energy accounting, compliance reporting and performance analysis
Power Safety and Availability
Potentially delivered via ready to use modules

- Electrical MV/LV Substation fully assembled and pre-commissioned at factory

- A new step in standardization and modular design of plant

- Plug & Play Solution to reduce site work and site costs
- Withstand to harsh environments
- Safety for people and assets
- Compliance with international standards and local regulations
- Reliable & low maintenance equipment
- Benefits
  - Reduce time to market
  - Reduce cost and risks
  - Improve Quality
Power Safety and Availability

Possible safety issues in existing plant

**People**
- Right Safety Competency?
  - Expertise of your electrical staff?
  - Ready to respond safely to unexpected events?
  - Non-electrical staff electrical safety awareness?

**Systems**
- Good System Understanding?
  - Diverse installed base and uncertain history?
  - System expansions managed strategically or ad hoc?
  - Are fire risks identified and managed?

**Equipment**
- Equipment status visibility?
  - Potential failure and fire risk due to ageing assets?
  - Maintenance appropriate to avoid disruptive failure?
  - Equipment correctly documented and identified?
  - Arc flash and fault rating risk identified and managed?

**Operations**
- Compliant Safety Procedures?
  - Documentation management?
  - Periodic review and validation of safety procedures?
  - Corporate versus local regulations & standards?
  - Are procedures understood and correctly followed?
Power Safety and Availability
How can we help mitigate the risks?

People
Test, Train & Monitor Safety Competences
• Expert trainers in our 96 worldwide technical training centres or on site
• 24/7 multi-language e-Learning & “Serious Games”
• Haptic Virtual Reality to test safety behaviour

Systems
Audit your electrical system
• Technical studies & audit to identify and mitigate risks
• Take the first corrective actions

Equipment
Safely maintain, connect & monitor your equipment
• Manufacturer maintenance
• Monitor the health of your critical assets
• Use analytics to optimise maintenance and predict failure

Operations
Secure your operations
• Step-by step guidance with Augmented Reality solution
• Digitize and simplify documentation management process
Power Safety and Availability

Test, train and monitor safety competencies

• **eLearning**
  - Comprehensive catalogue for electrical and non-electrical staff available on a global basis

• **Virtual Training**
  - VR lab with MV and LV equipment allowing trainee to acquire new competencies in operation & maintenance

• **In class training**
  - 96 training centers in the world using of modern technologies such as Augmented reality
Power Safety and Availability
Audit your Electrical systems

- MPS-Enterprise arms you with four distinct areas of planning and recommendations so that you can expertly manage your electrical distribution

- Arc flash study will assess the incident energy of an Arc Flash, recommend protection settings and define the labelling and PPE requirements
Power Safety and Availability
Safely maintain, connect and monitor your equipment

- Advantage Service Plan
  - Preventive maintenance for your electrical distribution assets, connected or not
  - Scheduled on-site diagnosis (ASP Diag)
  - Tailored corrective maintenance (Asset Connect)
- EcoStruxure Asset Advisor
  - Cloud based asset management of your connected critical equipment

- Field services expertise - for your peace of mind
- Proprietary diagnosis - based on 25+ years manufacturer experience
- Emergency on-site intervention and spare parts delivery
- 24/7 Service Bureau support and critical connected asset health monitoring
- Operational and financial optimization (by reducing risks of failure, optimizing asset lifetime and ensuring maintenance budget controls)

Contract Service Plan

Condition based maintenance using online monitoring and predictive analytics

= ASP CONNECT

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Power Safety and Availability
Secure your operations with Augmented Reality solutions

- Increase Safety procedure compliance thanks to step-by-step digital check list
- Reduce human error and speed up operation and maintenance
- Manage much more easily documentation process
- Get extra information, with invisible parts shown and remote mentoring and support

Pilot mode
They trust us

• 400 sites audited in a Food & Beverage company.

• 120 Life Science company sites audited, 2000+ electrical staff tested and trained on electrical safety.

• 35 000 pharmaceutical company employees trained thanks to our solution, and their 70 sites audited.

• 24/7 continuous remote asset monitoring, with predictive assets maintenance in all packaged goods company Mexican sites.
Customer Challenge
• Increase Darfield plant with a new Dryer
• Process additional 4.4 million liter of milk a day
• Produce about 30 tons/hour of whole milk powder
• Maintain product quality
• Reduce operation cost

The Solution
• EcoStruxure Power: holistic Power management system
• MV drives
• Harmonic mitigation
• Energy and Quality monitoring

Customer Benefits
• Delivery on time, on budget
• With very high quality

The Results: Life is On with ... Fantastic health and safety performance

"Fonterra is pushing the limits on scale and this requires a lot of technology and knowledge. Schneider Electric’s role is understanding how to control and provide enough energy into the plant."

Glen Sullivan,
Group Manager of Electrical Engineering,
Fonterra

Pushing performance and safety to the limits with EcoStruxure™ Power
Customer Challenge
• Electrical problems and power outages during peak production time (winter)
• Ageing electrical infrastructure struggling to cope with ongoing demands of expanding factory

The Solution
• Altivar Speed Drives
• VARSET Power Factor Correction Unit
• 80 kW Solar system

Customer Benefits
• Additional power capacity provided
• Reduction of Greenhouse Gas Emissions by 30,000 kg
• Payback in less than 5 years
• Improved reliability of the solution provided

The Results: Life is On with... $28,000 savings per year in energy consumption
Efficient Facilities:
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## EcoStruxure for Food & Beverage / CPG

### Agile manufacturing
- Boost manufacturing flexibility and efficiency
  - Manufacturing Operation Management
  - Industrial Information Management
  - Process Control System
  - HMI and data Integration
  - Process Automation
  - Packaging Automation

### Efficient facilities
- Safer, more available, and greener resources
  - Smart Building Management
  - Power Safety & Availability
  - Power Quality & efficiency
  - Renewable Energy & Microgrids
  - IT Infrastructure Management

### Resilient supply chain
- Manage complexity and reduce logistics costs
  - Agriculture Efficiency & Sustainability
  - Suppliers Management
  - Supply Chain Optimization
  - Cold Chain Monitoring
  - Product Information Management

### Food Safety & Traceability
- Ensure compliance and trust across the product life cycle
  - Food Defense
  - Cybersecurity Services
  - Digital Calibration
  - Raw material traceability
  - Production traceability
  - Product Identification & Tracking

### Energy & Sustainability
- Reduce footprint and meet sustainability goals
  - Sustainability Consulting
  - Energy Demand Services
  - Strategic Energy Sourcing
  - Enterprise data management
  - Energy as a Service

### Asset Performance
- Maximize return on capital expenditure
  - Assessment and Consulting
  - Enterprise Asset Management
  - Condition Monitoring
  - Predictive Analytics
  - Line & Process Optimization
  - Modernization services

### Workforce Empowerment
- Improve staff knowledge, productivity and collaboration
  - Operator Training Simulator
  - Augmented & Virtual Reality
  - Workflow Management
  - Staff Schedule Management
  - Operator Knowledge Sharing

### Digital Engineering
- Cut time, cost and risks of capital project engineering
  - Electrical CAD
  - Building Information Modelling
  - Integrated Engineering-Design
  - Digital Asset Visualization

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**Life Is On**

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Let’s talk about it.