



RESILIENT

Microgrid Solutions

Case Studies www.schneider-electric.us/microgrid

MCAS Miramar

Innovative Resiliency Solution



Customer Challenge

- Ensure resilient power at the base to support over 100 mission critical buildings and the flight line

The Solution

- Construct a system to power mission-critical and support facilities throughout Marine Corps Air Station Miramar in the event of an outage.
- Manage electricity use at the base during peak times when the system is connected to a utility grid thru use of diverse energy sources including 3.2MW landfill gas, 1.6 MW solar photovoltaic, and energy storage systems

Customer Benefits

- Provide support services to the central grid
- Manage overall energy load
- Enhance renewable energy deployment
- Bolster cybersecurity practices base-wide
- Help the installation reduce its utility demand charges
- Facilitate demand response programs

“Partnering with Schneider Electric will help us deliver a sustainable energy solution to enhance energy security for MCAS Miramar mission.”

Bill Van Dyke, President of Special Projects for Black & Veatch

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New system to **power mission-critical facilities** in the event of outage

EcoStruxure™
Innovation At Every Level

Apps,
analytics,
and services

EcoStruxure
ADMS



Edge
control

OsSys SCADA



Power Control
System
Microgrid
Control



Connected
products

Storage



12Kv MV Metal
Clad Switchgear

Power Logic
Meters



BLACK & VEATCH

Life Is On

Schneider
Electric



Ameren

Customer Challenge

Easily manage the integration of distributed energy resources (DER), including a mix of solar, wind, natural gas generation and battery storage.

The Solution

Provides real-time tariff management, demand response requests, peak shaving, CO2 tracking and storm hardening.

Customer Benefits

Enables collection, forecasting and automatic optimization of distributed energy resources for enhanced sustainability.

"By integrating microgrids into our system, we're taking a critical step in providing a cleaner and more resilient grid for our customers. Working with innovative providers like Schneider Electric gives us a foundation to achieve our vision of developing a smarter energy infrastructure."

*Ron Pate,
Senior Vice President, Ameren Illinois*

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Apps,
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EcoStruxure
Microgrid
Advisor



Edge
control

EcoStruxure
Microgrid
Operation



Connected
products

Metering Equipment



Life Is On



Montgomery County, Maryland

Innovative Resiliency solution for
Public Facilities



Customer Challenge

Aging infrastructure, aggressive resiliency and sustainability goals.

The Solution

Microgrid-as-a-Service project at Duke Energy Renewables to improve reliable power supply for Montgomery County Public Safety HQ & Correction Facility.

Customer Benefits

- Secure resiliency of public services
- Infrastructure upgrade – reduced capex
- Protect critical operations during power outage
- Mitigate risk of escalating energy prices
- Reduce greenhouse gas and other emissions

The Results: Life is On with...

No-money down microgrid providing greater operational reliability and ensure resiliency during severe weather and other incidents.

“We’re making significant strides in our key priorities—sustainability, safety and security. Upgrades to critical facilities improve the County’s resiliency, so we can keep residents safe and provide needed services even in the event of prolonged power outages.”

Isiah Leggett, MD County Executive, Montgomery County

[Download Link](#)

[Video Link](#)

[Stakeholder Video Link](#)

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One of the first “No-Money Down” microgrids helping protecting Washington D.C. area citizens

First US GCI PEER Certified Campus microgrid

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Apps,
analytics,
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EcoStruxure
Microgrid
Advisor



Edge
control

EcoStruxure
Microgrid
Controller



Connected
products

Smart
LV/MV
Switchgear



Inverters



Life Is On

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Town of Fairfield, CT



Customer Challenge

- After Superstorm Sandy pummeled Fairfield, CT the town knew they needed to find a way to increase the towns resilience and energy security.

The Solution

- Develop multiple microgrids under the nation's first-ever microgrid grant program with the goal to harden energy infrastructure against severe weather and other threats.
 - Public Safety Microgrid including police and fire stations, emergency communications center, cell phone tower, public shelter
 - Wastewater Treatment Plant Microgrid

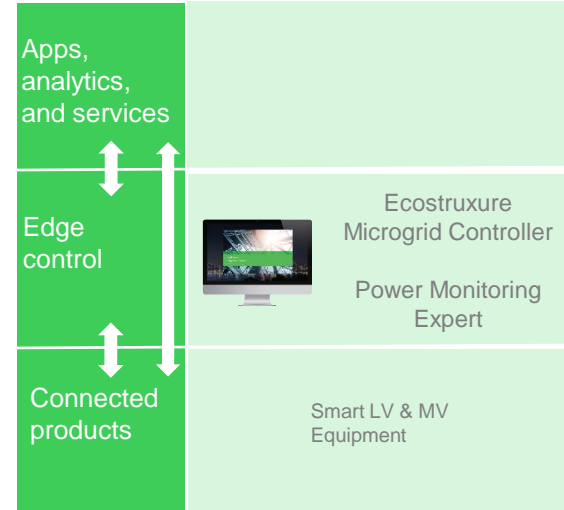
Customer Benefits

- Ensures 365/24/7 operations at the Public Safety Police and Fire Headquarters, emergency and cell communications towers, and homeless shelter
- Keeps its residents safer
- Protects vital services
- Increases its renewable energy supply

The Results: Life is On with...

"All of the projects do a number of things. They're holistic. You are bettering the environment, cleaning the air, and helping public health."
Ed Boman, Fairfield, CT, Assistant Director of Public Works

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Life Is On



Middle Tennessee Electric Membership Corporation Headquarters & Network Operations Center



Customer Challenge

- MTEMC wanted to use renewable energy to run its critical utility operations at their office in Tennessee
- Ensure that solar would be available in the event of a grid outage
- Reduce the use of diesel at the facility

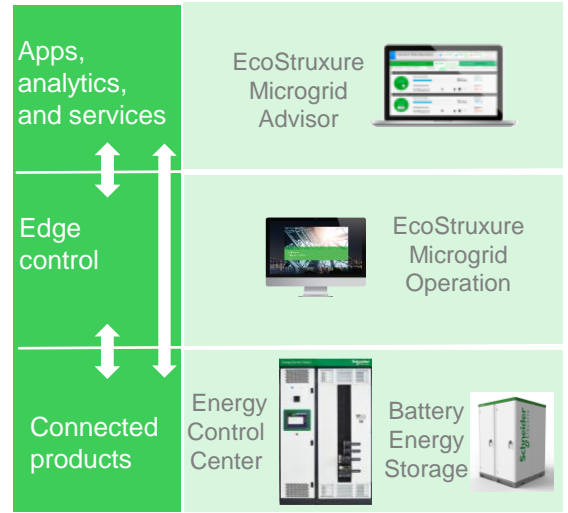
The Solution

Schneider Electric delivered an Energy Control Center (ECC) based microgrid solution with a 250 kW / 1 hour Battery Energy Storage System.

- The system can isolate from the grid during an outage scenario, protecting their vital Network Operation Center (NOC) from which they control their larger grid operations.
- Ability to use renewable technology in islanded mode when power outages occur.
- Utilization of EcoStruxure Microgrid Advisor, a cloud-based optimization platform, so the site can utilize the solar and battery for the greatest economic return.

Customer Benefits

- Resilient operations for utility dispatch center
- Minimize reliance on genset during an extended outage
- Optimize solar and battery during grid-connected mode



City of Milford USA



Customer Challenge

- Offer power resiliency during inclement weather, at a time when the US Department of Energy's 2017 Grid Reliability Study includes microgrids as a way to provide necessary resilience.

The Solution

- EcoStruxure for Grid will offer Milford cost savings by reducing electricity consumption at four city buildings and heating fuel consumption at the Parsons Government Center

Customer Benefits

- Main objective is increased resiliency of electrical network
- +20% efficiency in energy & heat ;
- It will allow the city to use Virtual Net Metering Credits to reduce electricity costs at its other facilities.
- 15%-30% annual savings on energy spend
- The microgrid will be powered by a clean and efficient combined heat and power system, which generates electricity and heat more efficiently than traditional generation. The microgrid will be solar-ready, with infrastructure installed so that solar PV panels may be added in the future for additional cost savings and sustainability, and will use a battery energy storage system to reduce peak power consumption from the local energy grid. These solutions will combine to make Milford's energy consumption more sustainable.

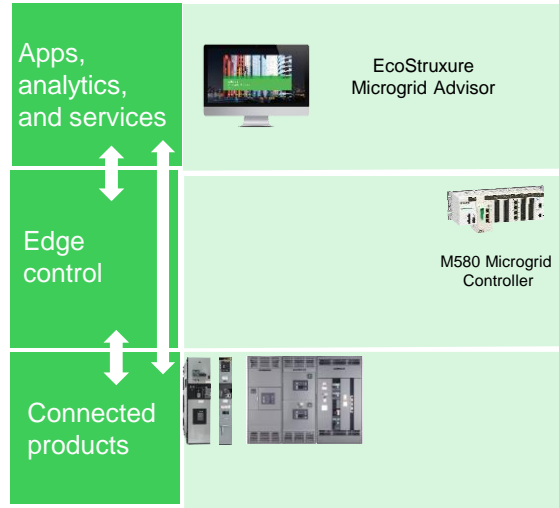
"When [power] goes down, lights at five buildings will stay on: The senior center, Toulson building, Parsons, City Hall and Harborside"
Ben Blake, City Mayor

www.schneider-electric.us/microgrid

15%-30%

annual savings on energy spend

EcoStruxure™ Grid
 Innovation At Every Level





Dependable Hawaiian Express

Customer Challenge

- Build an environmentally friendly logistics facility.
- When the word "Dependable" is in your name, your power system better be.
- Ensure business continuity even during a power outage, via an emissions-free solution.

The Solution

- The installation of 360 solar panels providing 133 kW of PV
- 222kWhr battery energy storage system
- An Energy Control Center (ECC) that provides the microgrid controller and the power distribution in a factory tested solution.

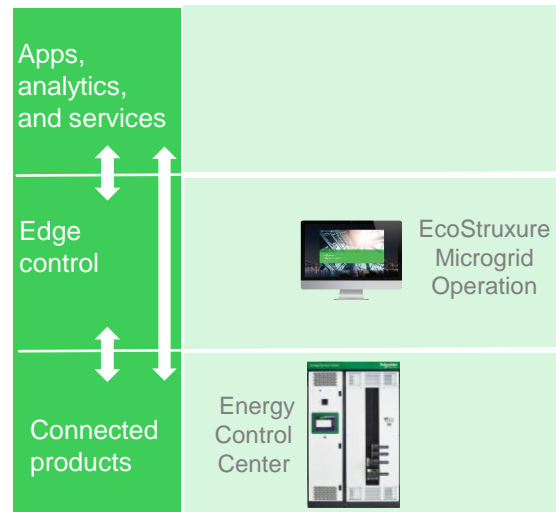
Customer Benefits

- Greater reliability and business continuity
- Elimination of 152 metric tons of CO2 emissions annually.
- Remote manufacturer commissioning of the microgrid that allowed the project to proceed through COVID-19

“Still, my commitment to going green isn’t just about reliable energy and saving money. I have a granddaughter who is 7, and it’s as much about saving the planet for her future..”

— Brad Dechter, President of DHX

A Microgrid that makes Solar Smarter in Hawaii. Emission free reliability.



Port of Long Beach

Zero Emissions Future



Customer Challenge

- Port-wide electrical load is expected to quadruple.
- Increased reliance on electricity adds risk to marine terminal operations in that a single point of failure—the utility grid—could result in millions of dollars per day of damage to the economy in lost work hours and perished cargoes.

The Solution

- Design, engineer and build a new microgrid enabling critical energy resilience
- Robust microgrid to add zero emission DERs with grid services capabilities to the JCCC.
- Microgrid's DERs include new solar photovoltaic (PV), stationary battery storage, mobile battery storage, and peak shaving and demand response.
- Use of mobile battery storage will allow for the JCCC to extend the “range” of the renewable microgrid to a variety of distributed assets that would otherwise be cost-prohibitive to hardwire into a microgrid.

Customer Benefits

- Greater reliability and business continuity
- Increase safety
- Environmental benefits
- Energy security
- 100% resilient energy for critical infrastructure

“Ensuring a stable supply of energy is crucial to the zero-emissions future the Harbor Commission envisions for the Port of Long Beach. We welcome this microgrid technology demonstration in Long Beach.”

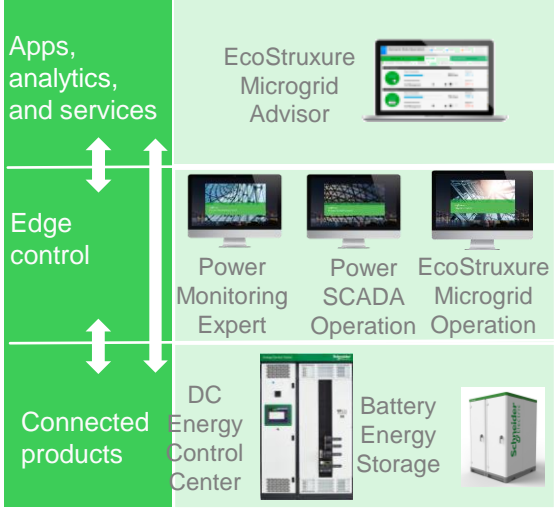
— Tracy Egoscue, Long Beach Board of Harbor Commissioners President

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Microgrid at Critical Response Command and Control Center

EcoStruxure®
Innovation At Every Level

Grid



Life Is On



Bubolz Nature Preserve



Customer Challenge

Integrate and easily manage multiple onsite distributed energy resources (DER) at the Bubolz Nature Preserve

The Solution

The configurable equipment combined with the autonomous and dynamic platform provides real-time tariff management, demand response requests, peak shaving, CO2 tracking and storm hardening across numerous generation assets.

Customer Benefits

With microgrid solutions from Schneider Electric and installation support from Faith Technologies, the Bubolz Nature Center will easily optimize resources and maximize facility performance.

The Results: Life is On with...

- First DER Project of the Year
- 100% savings in the Utility energy cost
- Reduced storm related outages by 100% (six / year)
- Microgrid generating net positive clean energy to the site

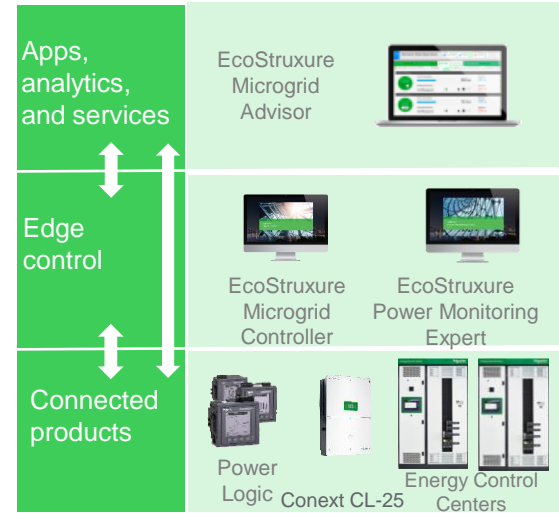
"This project represents a forward-looking use case of energy systems that aim to establish a more resilient, efficient, economic and cleaner grid. The advanced control features integrated with Bubolz Nature Preserve's microgrid will benefit the facility and local community, supporting the development of a more intelligent and sustainable energy system."

- Mike Jansen, CEO of Faith Technologies

[Download Link](#)
[Video Link](#)
www.schneider-electric.us/microgrid

One of the largest, most advanced microgrid in the Midwest

First DER Project of the Year from POWER Magazine



Life Is On



Hunt Electric

Customer Challenge

A new company Headquarters was in need not only of a functional microgrid, but also the ability to offer microgrid demos to customers.

The Solution

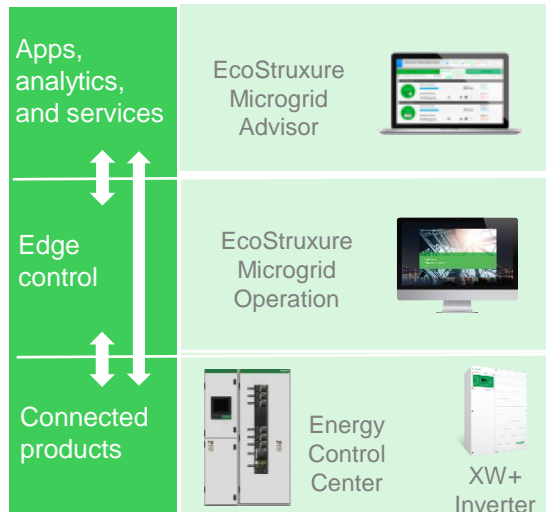
Incorporating multiple distributed energy resources (DER), Schneider Electric's Energy Control Center (ECC) allows Hunt Electric to island their entire facility in the event of a power outage or intentional islanding event. A local user interface brings microgrid operations to life for site visitors.

Customer Benefits

While connected to the utility, the ECC optimizes DER assets to maximize site financial performance. In islanded mode, the ECC maintains power stability at the site while keeping operations running smoothly.

The Results: Life is On with...

- Increased resilience, sustainability and operational efficiency
- Active demonstration of the advanced microgrid's technical capabilities





Andover R&D Center

Customer Challenge

Schneider Electric's new headquarters experienced utility-related outages.

The Solution

Pre-configured microgrid solutions with site optimization platform owned and operated by third-party capital partners.

Customer Benefits

Greater electrical reliability, resiliency, demand-side efficiency, and sustainability at no upfront cost.

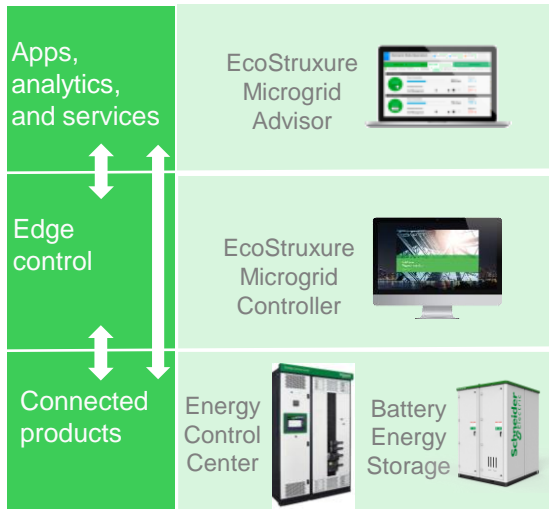
The Results: Life is On with...

When we collaborate with partners to develop real-world solutions that enhance the electric reliability, boost use of clean energy, and manage energy economically—all while sparing customers from paying any upfront capital costs.

"The sustainability aspects of the microgrid create savings, and equipment upgrades can be funded by those savings.."
Mark Feasel,
Vice President Smart Grid, Schneider Electric

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In **partnership** with Duke Energy Renewables and REC Solar, the Schneider Electric built a **microgrid to power critical operations.**





Lidl Finland Logistics Center

Customer Challenge

- To build a flexible, future-proof, environmentally friendly and energy-efficient new logistics center in Finland
- Ability to optimize heating and cooling and to participate in demand response markets for energy with a microgrid solution for solar energy
- BREEAM excellence award for the building

Solutions

- EcoStruxure Microgrid Advisor and PPC
- EcoStruxure Building Operation
- eValvomo (cloud service for remote monitoring)

Customer Benefits

- 100% renewable energy sources. CO2 emissions cut by 40%, the logistics center uses 50% less energy than current two operational centers
- A lifecycle optimized solution for future expansion

Life Is On when...

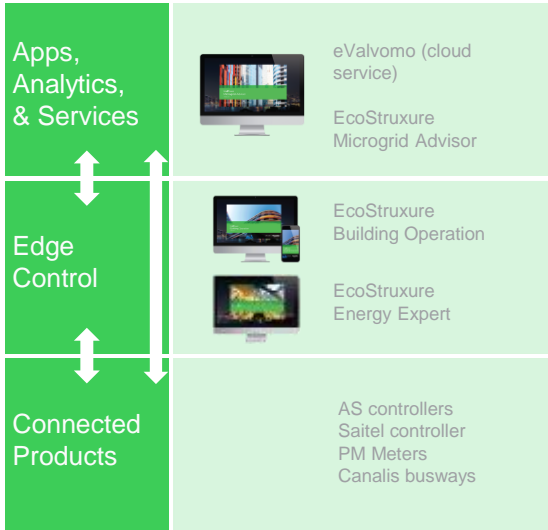
We understand customer's needs early, and can plan and communicate what and how we can deliver to the customer. We demonstrate that we can draw benefits from a cross-BU expertise for the most optimal solution.

"We value the fact that Schneider Electric can offer an energy efficient and flexible solution that integrates our many facilities into one integrated system that serves us throughout the lifecycle of the buildings"

[Press release](#) (in Finnish)
www.schneider-electric.us/microgrid

Simo Siitonen,
Lidl Energy Sourcing

Lidl is one of the **biggest grocery store chains** in Europe. In Finland Lidl has currently over **170 stores** and more than **5200 employees**.



Planet Ark Power

Advanced Microgrid Solution

Challenge

Schneider Electric and Planet Ark Power awarded \$1.95m South Australia State Government grant towards a \$13.8m solar photovoltaic (PV) and battery microgrid project

The Solution

The first project of its kind in Australia, it combines solar power and battery technology optimised by a Schneider Electric led microgrid management system integrated with an Advanced Distribution Management System to deliver more secure and reliable energy back to the grid.

Customer Benefits

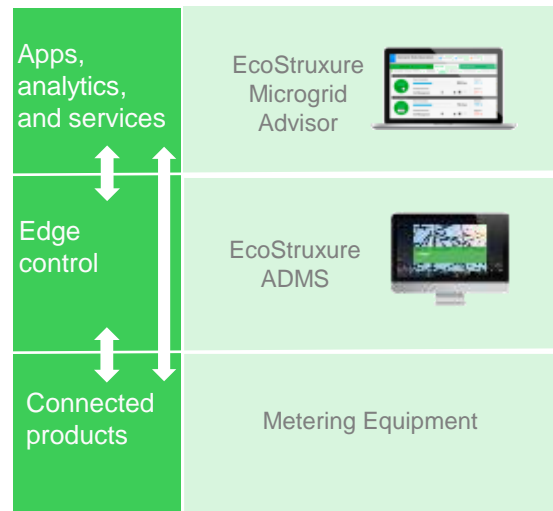
The South Australian Government leads the way with its vision for renewable energy generation, and this project is a significant stepping stone towards a future where the whole of Australia has reliable and affordable sources of renewable energy

Life is On when...

The project will include a grid-connected microgrid with 2.9MWh of smart battery storage, demand management, new network integration technology and up to 6MW of rooftop solar power.

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Innovation At Every Level



PLANET ARK
Power™ Life Is On

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