POWER FORWARD

NYSERDA On-site Resilient Power Conference
June 27, 2019

Presented by: Shaun Hoskinson,
VP Engineering & Operations

Regarding NYS Marketplace

What we bring to the effort for NYS marketplace:

Pre-Analytics to determine Size-mix of Technologies	Solar Equipment & Installation	Storage Equipment & Installation	CHP Equipment & Installation	Controls Equipment & Installation	Dispatching Algorithm, Signaling, Monitoring	Systemwide Responsibility (Interface to Customer)
★				★	★	

Audience-members we want to connect with to form a team in NYS:

Pre-Analytics to determine Size-mix of Technologies	Solar Equipment & Installation	Storage Equipment & Installation	CHP Equipment & Installation	Controls Equipment & Installation	Dispatching Algorithm, Signaling, Monitoring	Systemwide Responsibility (Interface to Customer)
★	★	★	★		★	★

Summary Overview

Company Legacy
Unique Capabilities
Global Recognition
Industry-Leading Products
Microgrid Market Global Domination
World Class Customers
Storied Case Studies

Energy Tech Foundation

History

Founded 1992

New generation of distributed energy system-level control

Venture capital funded 1992-2006

Investment

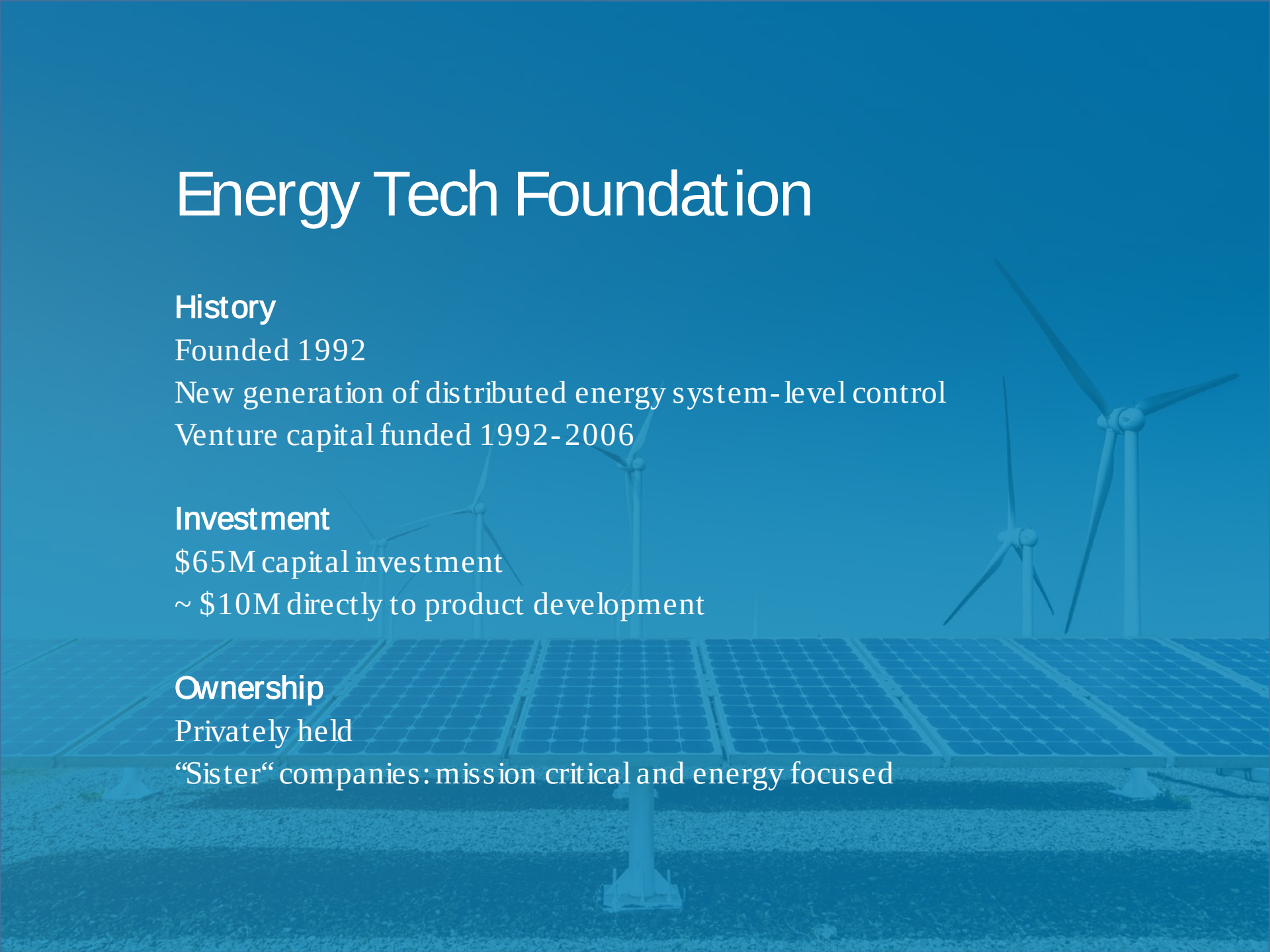
$65M capital investment

~ $10M directly to product development

Ownership

Privately held

“Sister“ companies: mission critical and energy focused



Our Difference: Combining IT & Power

Distributed Generation System Expertise – Professional Engineering, Energy Savings Analysis & Reporting

Control – Real-Time / Remote, Single- and Multiple-Engine Generator Aggregation & Control

Communication – Full Two-Way Communication, Wireless / Web-based Capabilities

Monitoring / Data Collection – Remote Monitoring and Alarming, Secure Data Hosting

System Experience – 1000+ MW Controlled

Prime Mover Experience –

200 MW	160 MW	80 MW	65 MW	50 MW	60 MW	150+ MW
CAT	Waukesha	Cummins / Onan	Deutz	Wartsilla	GE / Jenbacher	Other

Interconnection – Coordination & Protective Relaying; Full Parallel with Utility, IEEE P1547 Compliant

Device Interface / Integration – Utility (electric/gas) and Generator Metering, SCADA, Emissions Monitors, PLCs, Protective Relaying

Applications – Prime Power, CHP, Methane Fuel / Biomass, Demand Response

Markets – Data Centers, Healthcare / Hospitals, Education, Military

Global Recognition

Microgrid Controller Ranked 3rd Globally
Navigant Consulting, GreenTech Media, etc

Finalist, Most Innovative Commercial Technology
Microgrid Secure™, Platts/ BusinessWeek global energy competition

Deloitte Fast 50 and Fast 500 Technology Rankings
Ranked 2nd Colorado Technology; 206th Fast 500 North America

Project of the Year: Chowchilla & Red Bluff 50MW Power Plants
Pennwell & Power Engineering Magazine, Power-Gen International

BusinessWeek, Chicago Tribune and industry articles

Vast Experience

1,000+

MW Controlled by Encorp Systems

400+

Installations: Microgrid, CHP & Demand Response

1,500+

Gold Boxes Shipped

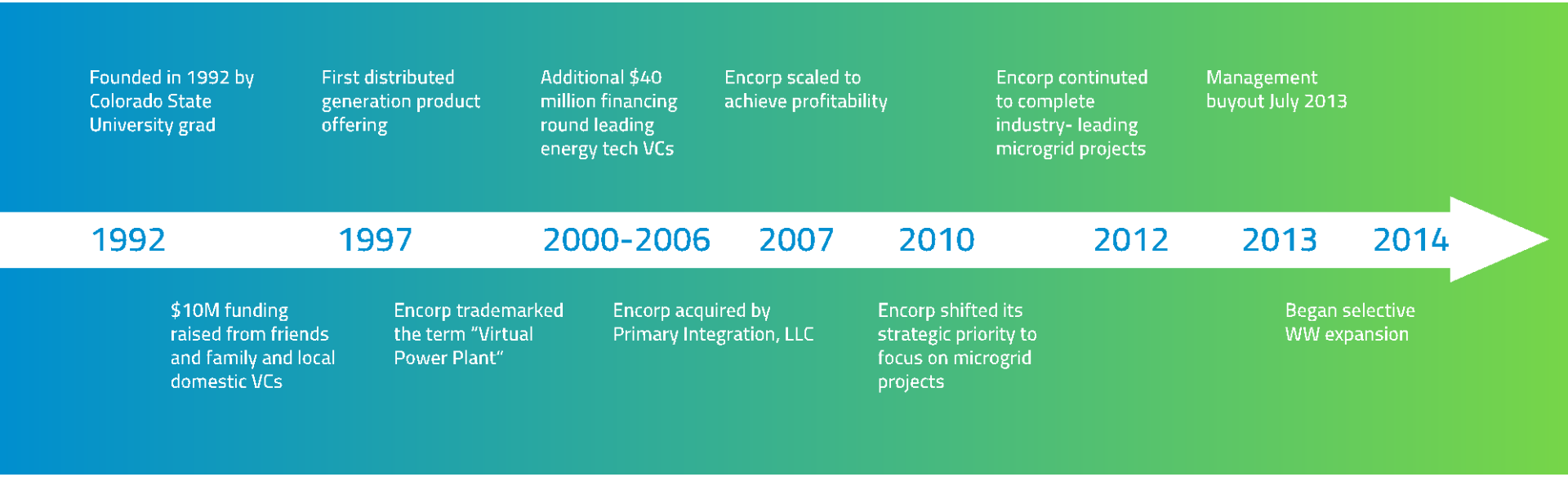
300+

Customers

95%

Projects Grid Interconnected

Encorp Evolution – Microgriding since before they were called microgrids…

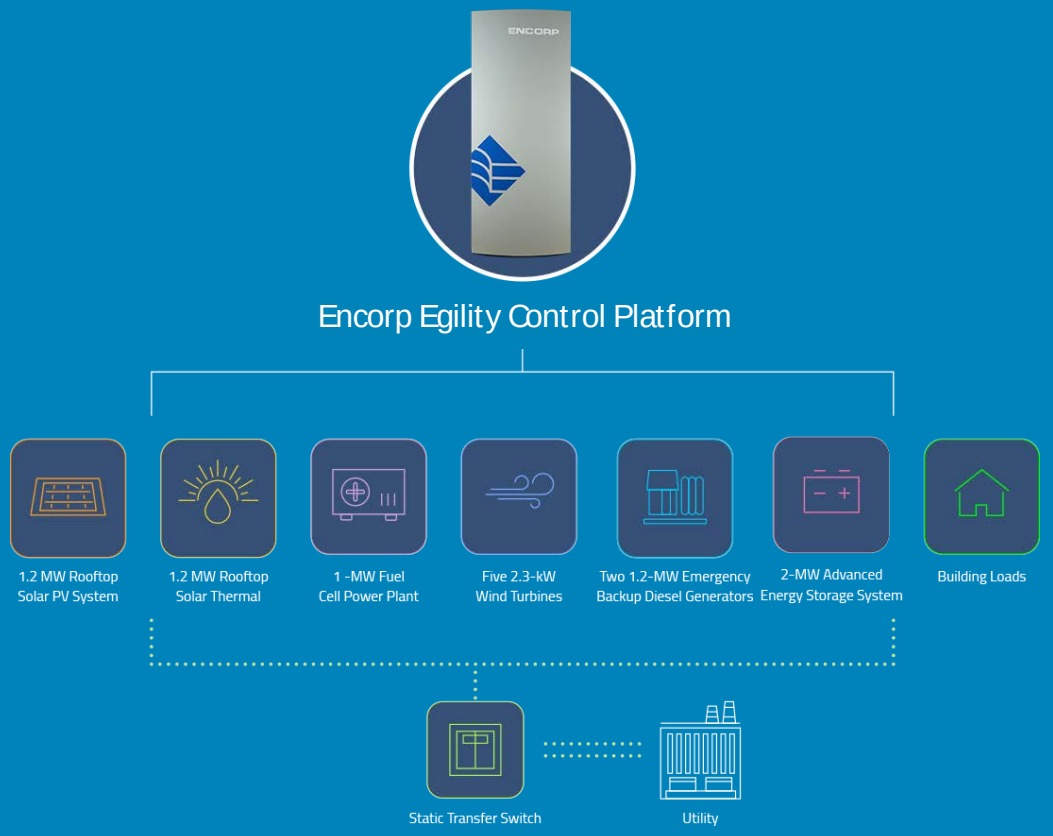


Leading the Global Microgrid Control Sector

Navigant Research Leaderboard: Microgrid Controls

Encorp: Industry-Proven Control Platforms

Distributed energy resources are integrated energy systems consisting of multiple electrical generation sources operating either independently of - or in parallel with - a utility grid to power buildings in campus-like environments: C&I and military.



Gold Box™: A World First

World's first system-level distributed energy controller

Gold Box™ functionality

Controls generating assets

Combines synchronous & inverter-based resources

IEEE 1547 grid interconnection compliant

Open protocol communication interface

Grid-Interconnection Systems

Low & medium voltage switchgear

IEEE 1547-compliant Gold Box™ replaces electromechanical and multi-function solid state relays

Expanded functionality when combined with software application suite – monitor, control & aggregate **renewable and traditional energy resources**

Next Generation Global Product: Encorp Egility

Encorp Egility Control Platform Features

Microgrid, CHP & Demand Response

2017 R&D effort leverages 30-years experience

Advanced functionality

Remote diagnostic, monitoring & programming

Three interrelated computing hardware devices

Modular hardware design for rapid deployment

Updated physical aesthetic

Economic optimization software

Introduced at a Puerto Rico Pharma in 2018

Microgrid Encorp Market Approach

Feature-rich, Attractively-Price Egility Product Offering
Leverage legacy and newly-developed IP

Participate in Additional Value Chain Components
Limit the complexity of project development and related EPC activities

Concurrent Multiple Channel Engagement
ESCOs, RE Distributors, Electrical & General Contractors, End-user Assoc.

Create New Microgrid Markets & Customers
Leverage Egility features with very select technical and commercial partner(s)

Egility Provides Rapid Rollout, Partner-assisted Commissioning
Leverage modular Egility hardware and modular software configuration

Representative Customers

TESLA
4 Projects; $200K

e·on
1 Project; $150K

LARSEN & TOUBRO
3 Projects; $500K

FAIRBANKS MORSE
AN ENPRO INDUSTRIES COMPANY

Chevron
Energy Solutions
1 Project; $350K

NORTHROP GRUMMAN
1 Project; $300K

FORT BRAGG
N.C.
1 Project; $250K

JPMorganChase
1 Project; $1.5M

ENERNOC
9 Projects; $3M

POLICE
CITY OF CHICAGO
INCORPORATED 4th MARCH 1837
3 Projects; $1M

Level (3)
COMMUNICATIONS
3 Projects; $500K

SIEMENS
5 Projects; $2M

U.S. AIR FORCE
4 Projects; $2M

MAUI PINEAPPLE COMPANY
1 Project; $150K

Microsoft
1 Project; $100K

Equity Office
8 Projects; $3M

Washington Gas
3 Projects; $2.5M

AMERESCO
Green • Clean • Sustainable
3 Projects; $1.25M

DEPARTMENT OF THE NAVY
UNITED STATES OF AMERICA
4 Projects; $9M

Qwest
4 Projects; $750K

DTE Energy
1 Project; $150K

verizon
3 Projects; $4M

Honeywell
1 Project; $350K

EATON
Powering Business Worldwide
20 Projects; $750K

CUPERTINO ELECTRIC INC
1 Project; $100K

Shaw
1 Project; $600K

COUNTY OF ALAMEDA
CALIFORNIA
1 Project; $400K

Carolinas HealthCare System
3 Projects; $5M

Worldwide Projects with World Class Customers

IOLA & MCC Campus (Siemens Building Technologies)

Verizon Data Centers

Larson & Toubro: Chennai, India

City of Chicago

Miami International Airport

Bangor Navy Nuclear Sub Base

Fairbanks Morse: Puerto Rico

Carolina Medical Center

Fort Bragg Army Base

Washington Gas Utility

E.ON: Simris, Sweden

Microgrids Around the World

Stewart Air National Guard – New York, US

Extended renewable energy supply – completely inverter based islanding system

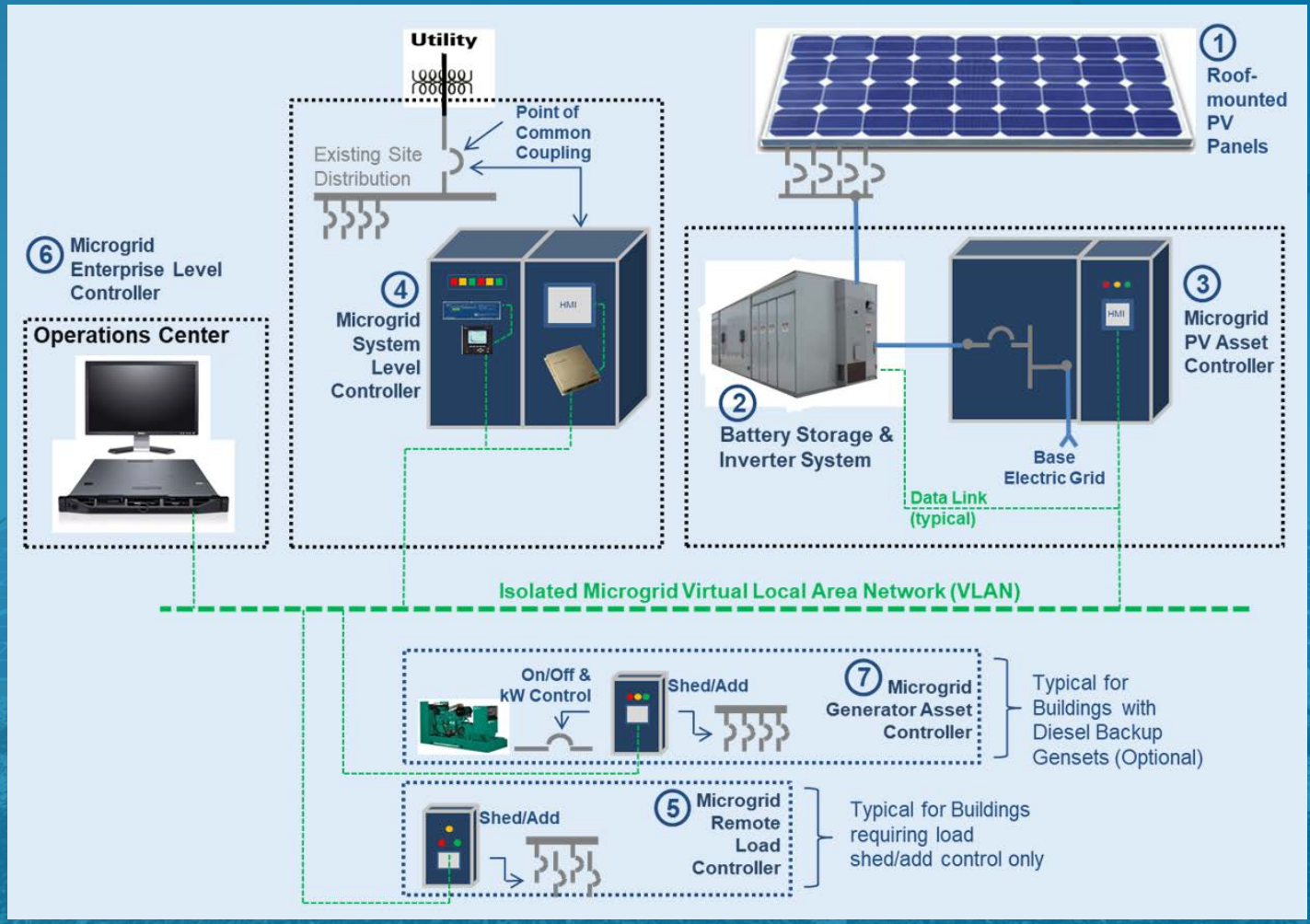
E.ON Local Energy System – Simris, Sweden

Platform for multiple use case evaluations

Santa Rita Jail Microgrid – Alameda County, California

Multiple renewable+fossil generation sources with BESS

Stewart Air National Guard Microgrid in New York



Stewart Air National Guard Base
Orange County, New York (COD 2015)

FEATURES

160 kW rooftop solar PV system

120 kWhr Li-ion BESS

AFRL Requirement: All-inverter based system – No synchronous sources allowed within the microgrid (mobile diesel gens connected manually)

Automatic, seamless islanding&reconnect capability

Overarching two-way communications backbone

Cyber security (NIST, NERC, FERC for CIP, etc.)

Physical attack protection

Self-healing capabilities

Weather protection – active and passive

E.ON Local Energy System in Simris, Sweden

E.ON Local Energy System
Simris, Sweden (COD 2017)

FEATURES

440 kW rooftop solar PV system

330 kWhr Li-Ion BESS

500 kW wind turbine generators

Automatic, seamless islanding&reconnect capability

Self-healing capabilities

Weather protection – active and passive

Live link to site: https://les.eon.se/

Santa Rita Jail Microgrid in California

Power Surety

Multiple sources of power for secure electricity 24/7 for 1M sq.ft. facility

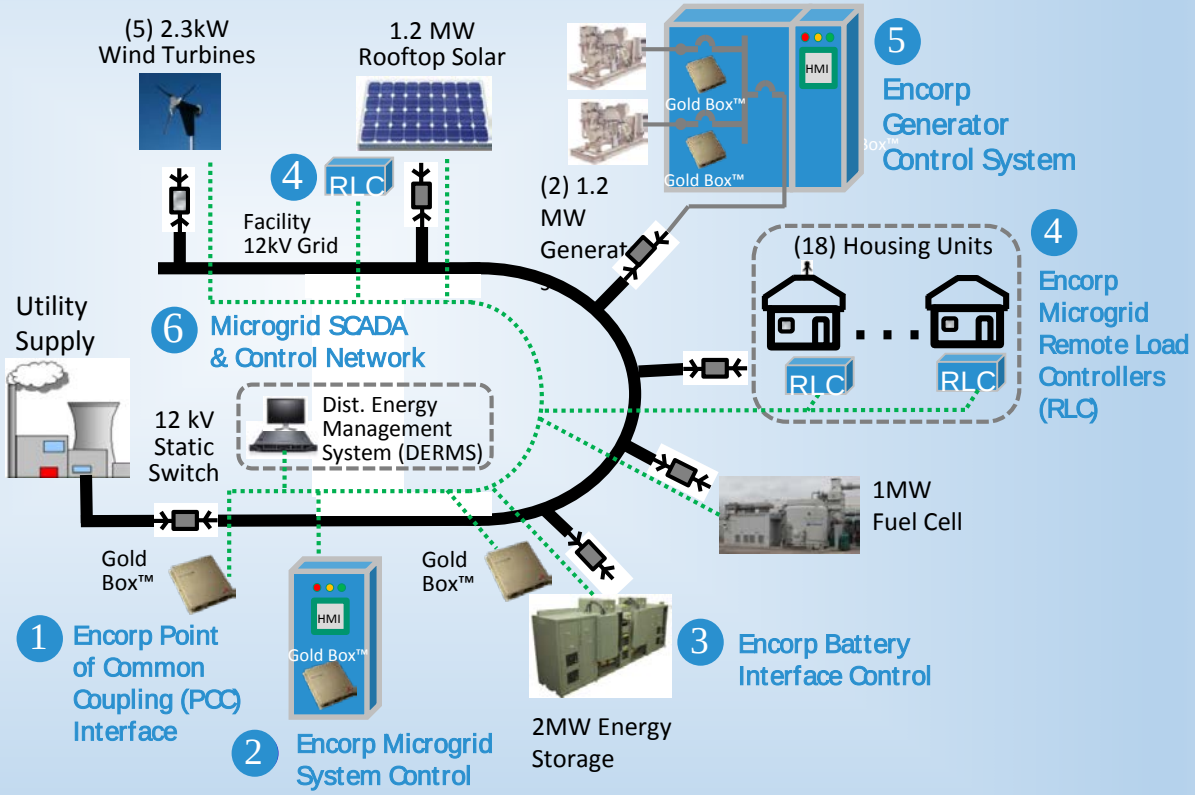
Seamless connection and disconnection from the utility supply with no impact on site loads or activities

Economics

Load shifting for economic benefit (power import during low rates, zero import or export during peak rates)

Environmental

Helping Alameda County meet it's renewable energy goals



Santa Rita Jail Microgrid
Alameda County, California (COD 2011)

FEATURES

1.2 MW rooftop solar PV system

1 MW fuel cell power plant with heat recovery for facility hot water and space heating

Five 2.3 kW wind turbines

Two 1.2 MW emergency backup diesel generators

2 MW advanced energy storage system

12 kV sub-cycle static disconnect switch

Automatic, seamless islanding&reconnect capability

Electric power export and import capability

CERTS smart grid control logic

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