
IDEA2021
Powering the Future: District Energy/CHP/Microgrids
Sept. 27-29 | Austin Convention Center | Austin, Texas

Princeton Resilient Campus –Defining the Future of Energy with a Resilient, Carbon Neutral Campus

Chris Davidson, Siemens Smart Infrastructure
Xiaofan Wu, Siemens Technology

IDEA 2021 || Sept. 27-29 || Austin Convention Center, Austin, Texas

SIEMENS

Bring It all together

PV 836kWp photo-voltaic
BESS 1,000kWh energy storage

MAC4DES

Digital Grid
Microgrid Control – a SICAM application

Transfer Pair and Paralleling Switchgear 480V

Desigo CC
Building Automation

Futuregrid EV charging | VersiCharge Level 2 (x6)

Siemens Cogeneration
600kW SFGLD360
(Future)

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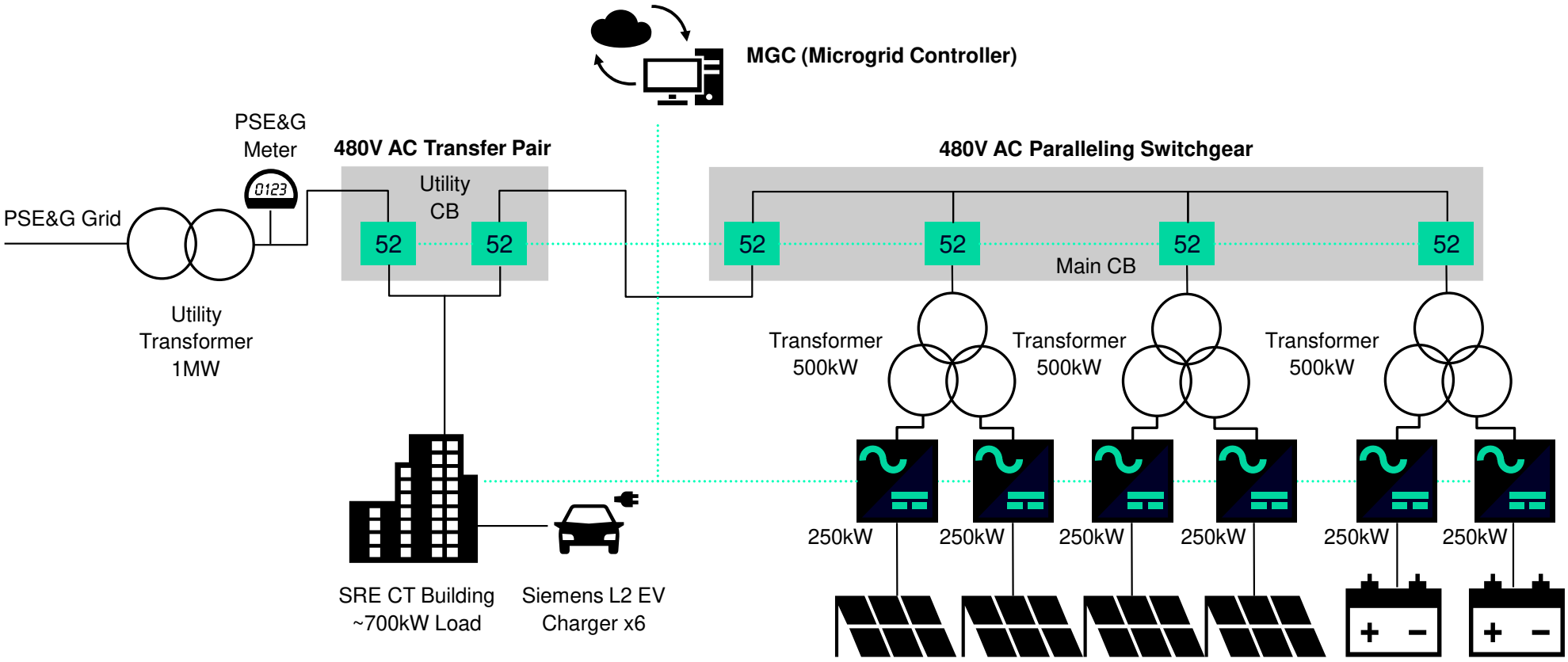
SRE Princeton NJ – Microgrid Project
PV+BESS+MGC+EV Simplified Project Single Line Diagram



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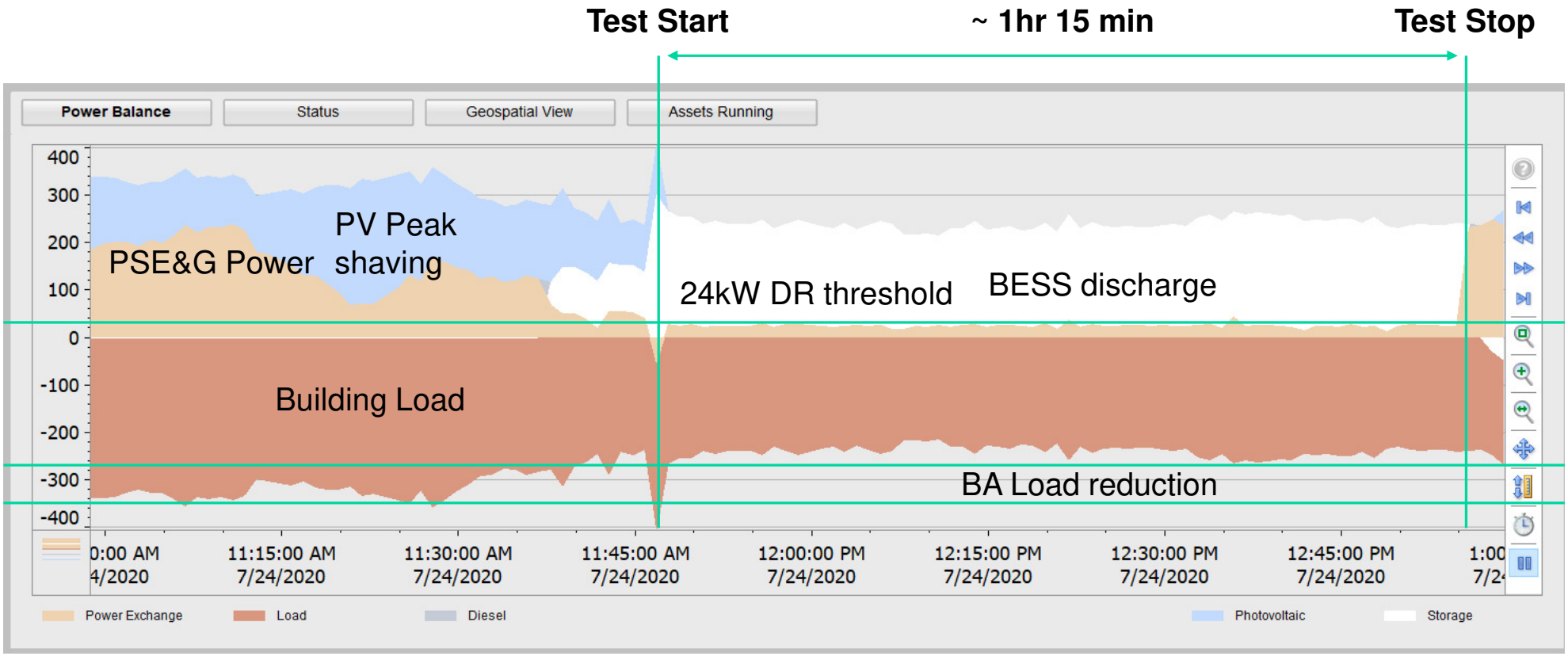
Princeton Demand Response Test



SIEMENS

The Princeton Island Grid contributes to Siemens CO_2 footprint to become carbon neutral by 2030

Strategies for CO_2-neutral Siemens

Drive Energy Efficiency Program

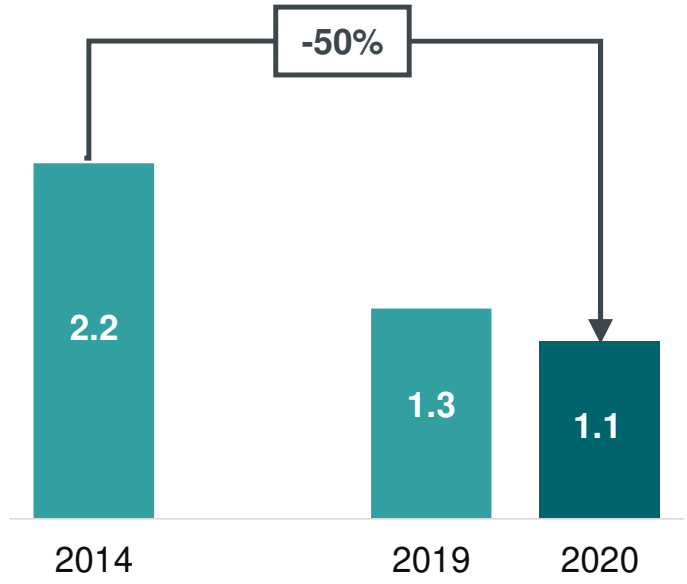
Renewable Energy

Reduce Fleet emissions

Carbon Offsets Program

Siemens Global CO_2-reduction for CO_2-neutral operations by 2030

Annual CO_2 footprint in million metric tons



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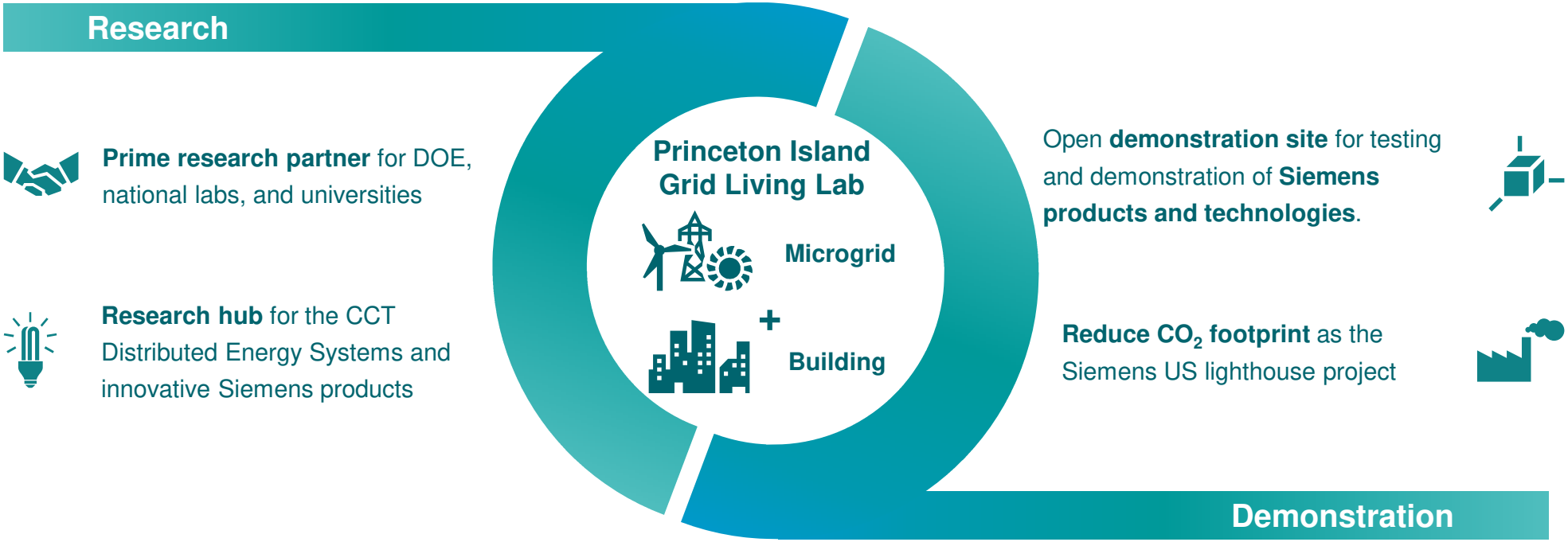
Princeton Island Grid – a living lab to serve as a platform for researching and demonstrating new technology for commercial building and microgrid operation



SIEMENS

We are driving innovation in resilience and sustainability for the US energy systems

Rocky Mountains

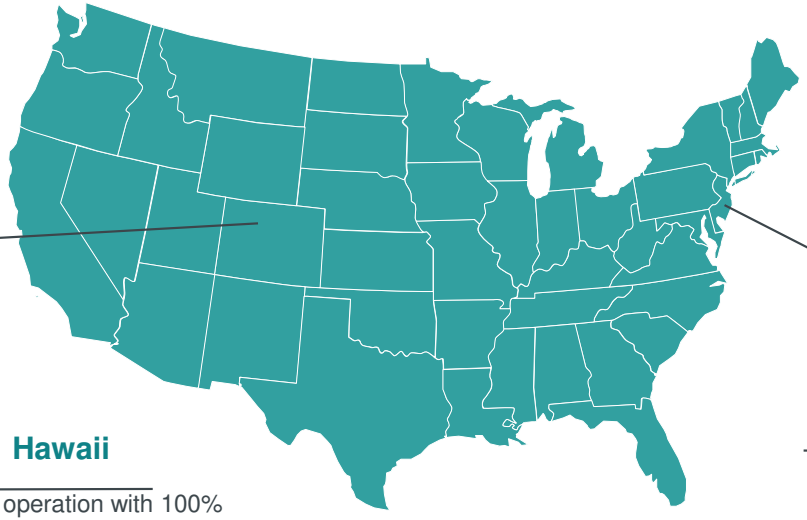
Autonomous blackstart with 25 parallel grid-forming inverters (lab test)

Hawaii

Resilient operation with 100% renewable generation (real-time simulation)

Galapagos

N-1 resilient operation with 100% renewable generation since 2018



Princeton

Microgrid with zero-inertia islanding capability

Wildpoldsried, Bavaria

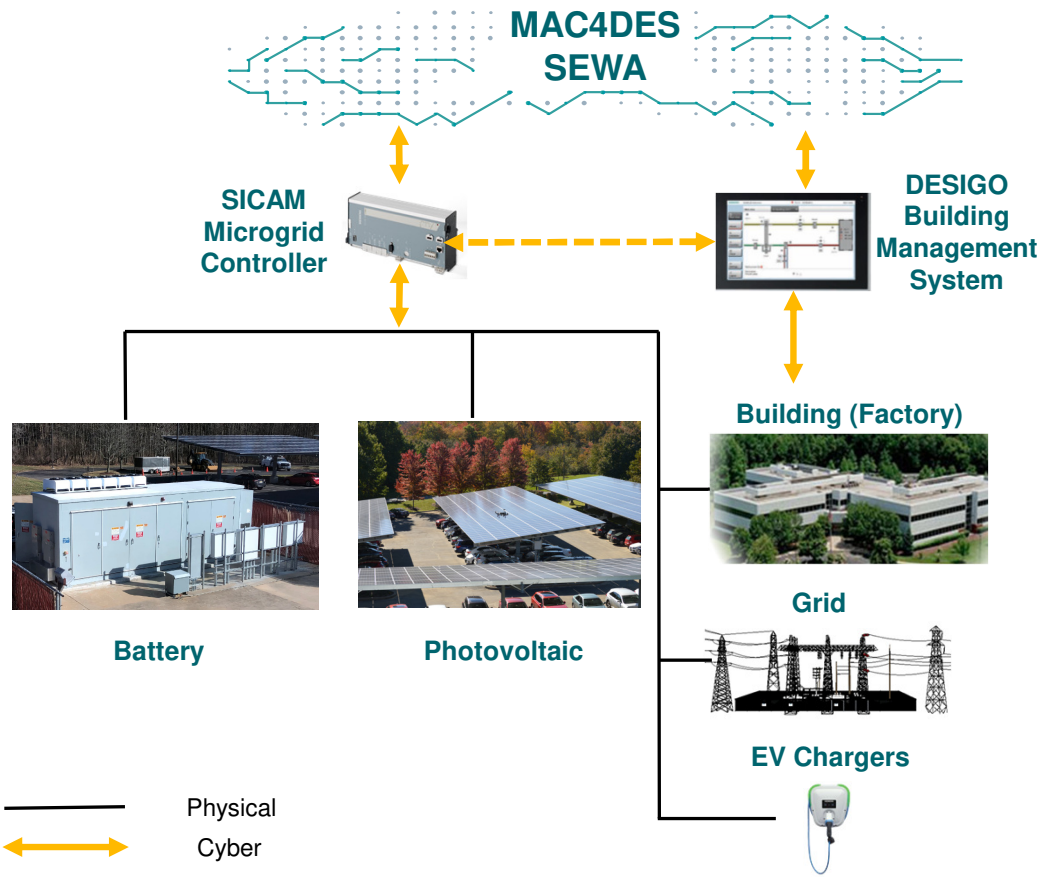
Zero-inertia customer field test with 6 commercial parallel grid-forming inverters

Naval Station Guantanamo Bay

N-1 resilient operation with high renewable integration

SIEMENS

Princeton Island Grid – A living lab to drive innovation and sustainability



Components

- **Siemens Building Management System DESIGO CC**
- **Siemens Microgrid Controller (MGC)**
- **Siemens Battery Storage System:** 1MWh/500kW
- **Photovoltaic System:** 836 kWp
- **Siemens VersiCharger for electric vehicles**: 6x7.2kW

Research Focus

Optimal Microgrid and Building Operation

Internet of Things

Performance Monitoring and Analytics

Simulation and Digital Twins

Cyber Security

MAC4DES: Mindsphere Application Center for Distributed Energy Systems
SEWA: Siemens Energy Workplace for Analysts

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Princeton Island Grid – What does it look like?

Solar Panels

E-house (Batteries, inverters)

Transfer Switches (for islanding)

EV chargers

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