



International District Energy Association IDEA

Microgrids: Resilience and Refuge Strategy

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Problem Statement

1

**Challenges brought by
pursuing sustainability programs**

2

**The need for infrastructure hardening
and resilience after natural disasters**

3

**The need to sustain competitive
advantage through grid modernization**



REGULATIO FERC Ener

By ENERCO

New York Plans \$40M in Prizes for Storm-Resilient Microgrids



Can \$40 million bootstrap more than ten community microgrid projects across the state?

Jeff St. John
January 9, 2014

New York governor Andrew Cuomo has put \$40 million in prize money behind his push to bolster the state's post-Hurricane Sandy storm resilience with community microgrids. But will that be enough to overcome the regulatory and economic barriers that have challenged efforts to create microgrids in the Empire State?

That's the question facing would-be contenders for the NY Prize competition. As part of a much broader \$17 billion storm preparedness plan unveiled Tuesday by Gov. Cuomo and Vice President Joe Biden, NY Prize is a \$40 million competition aimed at jump-starting at least ten "independent, community-based electric distributions systems" across the state.

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On July 1

The projects are meant to support communities of about 40,000 residents and to operate in conjunction with the grid most of the time. But during emergencies, the microgrids will be able to disconnect from the grid and power themselves, providing islands of stable power for hospitals, police department, fire stations, gas stations and other critical systems.

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Campuses are a natural fit for deployment

Addresses need for improved resilience and provides economic value

IDEA and its members are in a unique position to lead the charge

Assists communities' preparation for natural disasters by offering a place of refuge



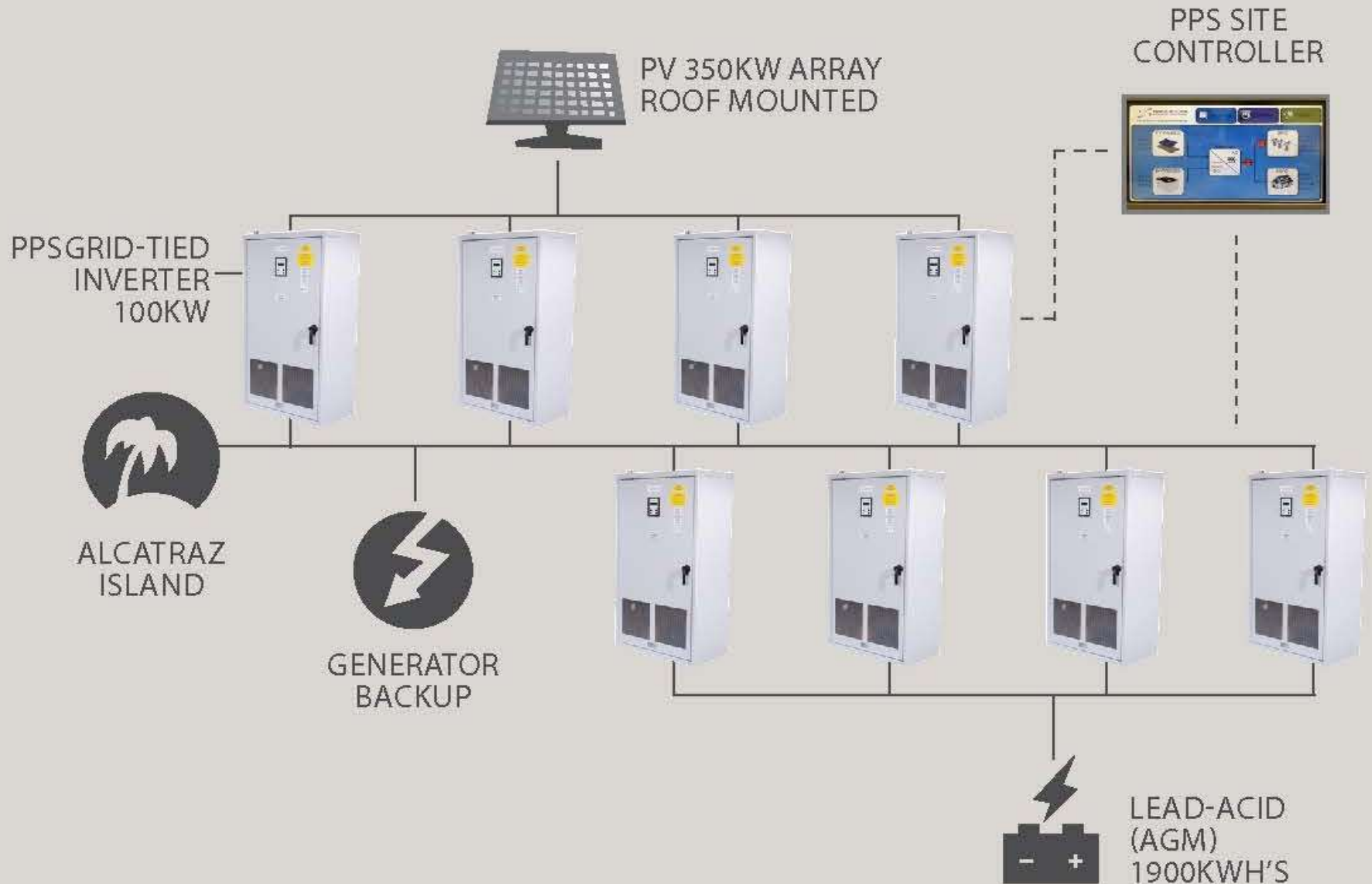
DARREN HAMMELL

Alcatraz Island - San Francisco, CA | Microgrids



NPS /
Roland Greenberg

Alcatraz Island - San Francisco, CA | System Technology



Capabilities & Benefits

The system functions as an independent energy source.

The micro-grid system reduces fuel costs, meeting San Francisco emissions standards.

The system allows the generators to transition from on to off seamlessly.

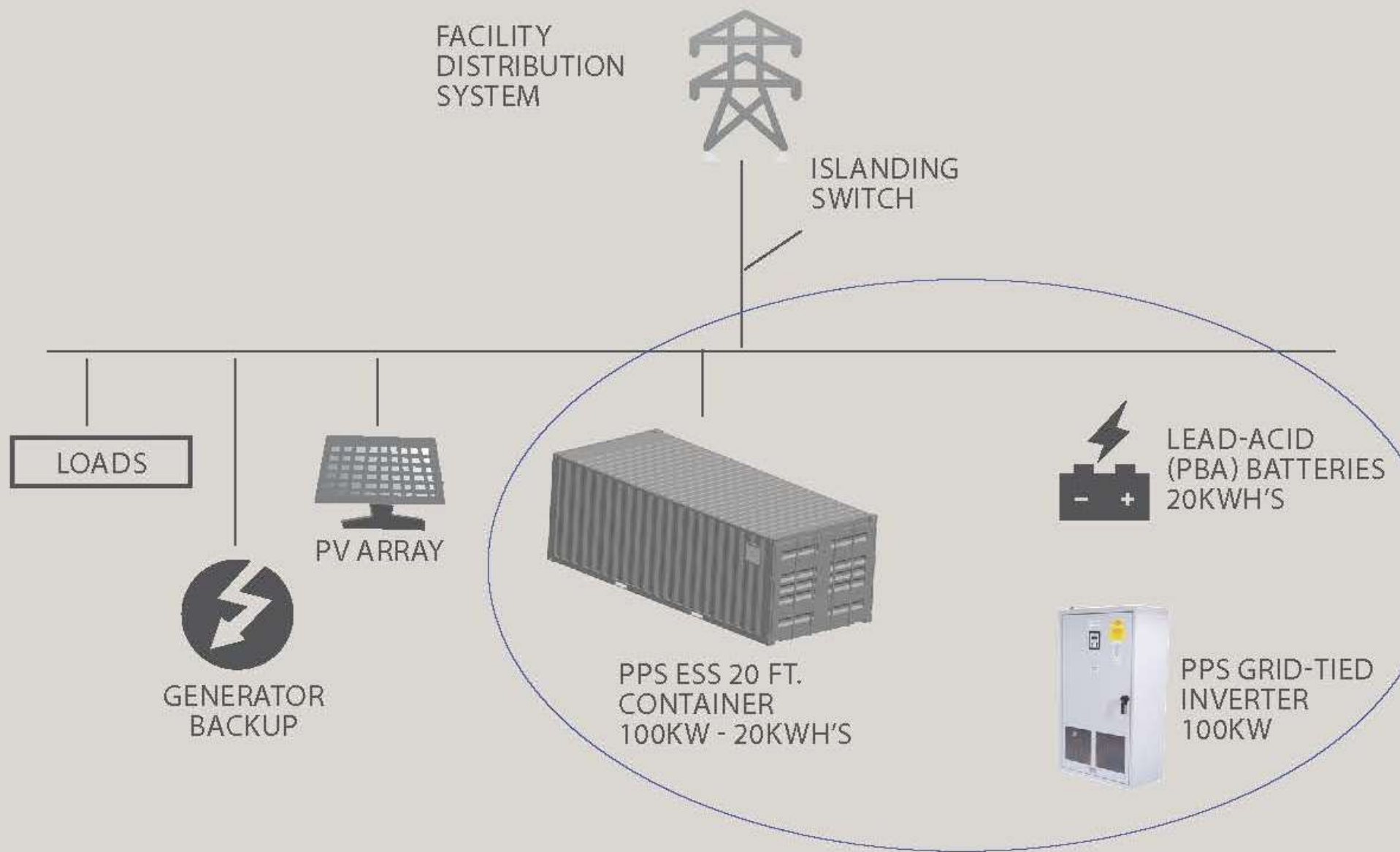
GTIB inverters condition the power and are AC coupled to create a micro-grid.

Site controller coordinates and communicates with all components as well as provides real-time monitoring and data collection.

Fort Bliss, TX | Energy Storage System



Fort Bliss, TX | System Technology



Capabilities & Benefits

ESS provides enough energy to power the micro grid loads through a seamless transition, while the generator turns on to support the loads indefinitely.

The micro grid demonstrates how RE can be integrated with the electric grid to provide increased reliability, security, and operational capabilities.

While connected to the electric grid, the ESS can provide services such as VAR support and frequency regulation.

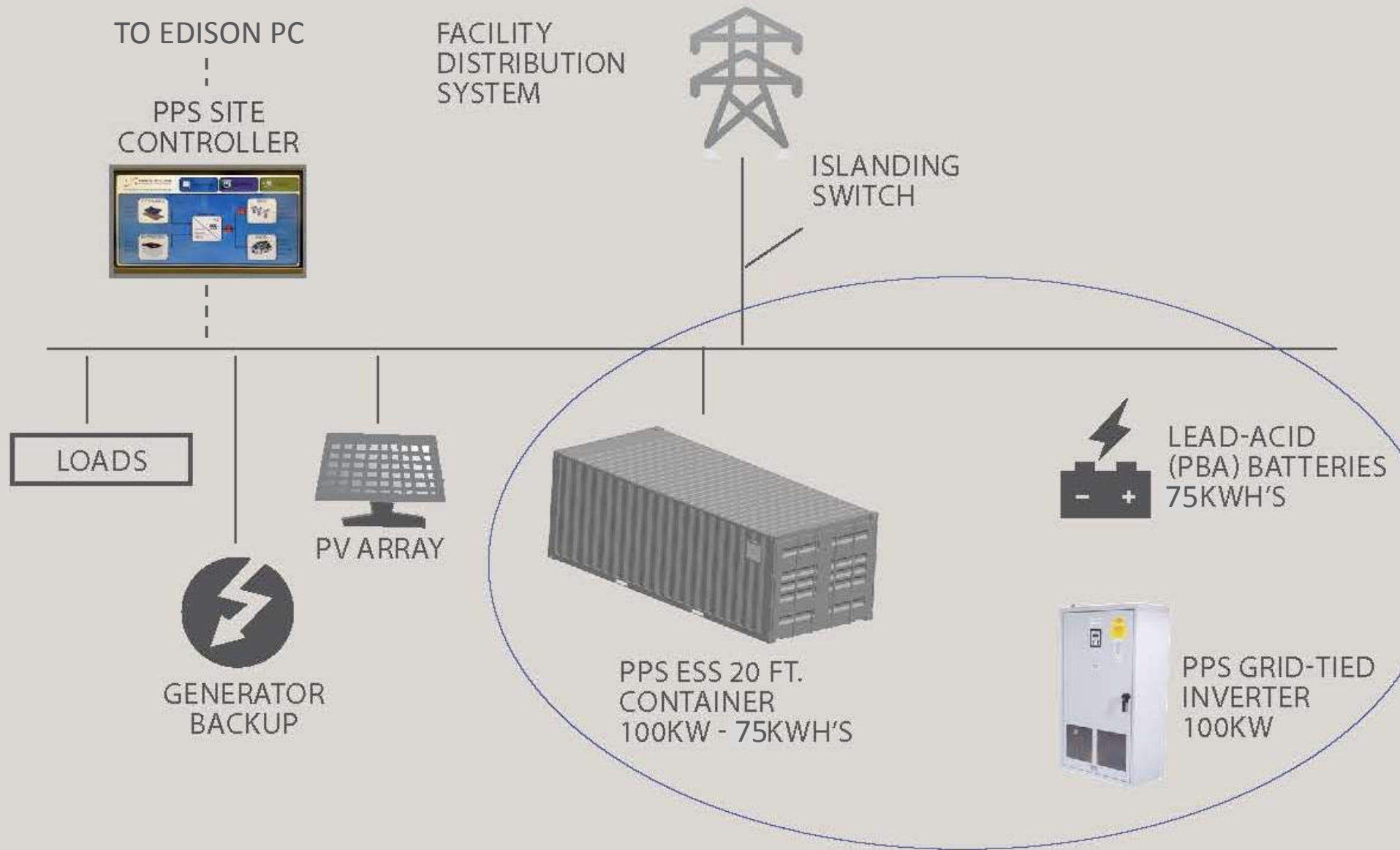
The Energy Storage System (ESS) provides a back-up energy source in case of grid failure or intentional “islanding”.

The ESS 20 ft. container consists of (1) Princeton Power Systems 100kW grid-tied Inverter and multiple Advanced Lead-Acid (PbA) battery racks.

LaGuardia Community College | Energy Storage System



LaGuardia Community College | System Technology



Capabilities & Benefits

Dispatchable peak-shaving photovoltaic (PV) project designed to:

Demonstrate how EES can be used for renewable electrical capacity firming

Demonstrate the potential for improved grid reliability through the commercialization and widespread deployment of dispatchable, peak-shaving PV

Demonstrate how dispatchable PV can be used to manage demand charges

Demonstrate the potential for frequency regulation and voltage support ancillary services

Call to Action

**Technology
exists**

**Start
small**

**Learn from
demonstrations**

**Make it scalable
and flexible**

**Develop your
own vision**

**The time is now...
for IDEA**

ISLANDING DISPATCH EMERGENCY ANCILLARY

International District Energy Association | IDEA

Reference: <http://www.districtenergy.org/>

THANK YOU

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