



Delivering a Microgrid for Energy Resilience to the Nation's Greenest Port

A Port of Long Beach Case Study

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Port of Long Beach



- **Second largest US seaport**
- **3,200 Acres**
- **25 miles of waterfront**
- **80 berths**
- **Generates \$100B in trade**
- **Supports \$2.6M US jobs**
- **Landlord – builds and leases**
- **Tenants are separately metered by SCE**



A fully electric terminal tractor sits on display at the civic center in Long Beach on Wednesday, Oct. 2, 2019. As part of California Clean Air Day, the Port of Long Beach displayed five electric and alternative fuel vehicles that they have in their fleet. (Photo by Scott Varley, Daily Breeze/SCNG)

Energy Use and Resilience

- Clean Air Action Plan
- Demand will quadruple
- Outages are very costly
- Resilience by design

Port-Related Sources of Air Emissions



Ships



Trucks



Harbor Craft



**Cargo-Handling
Equipment**

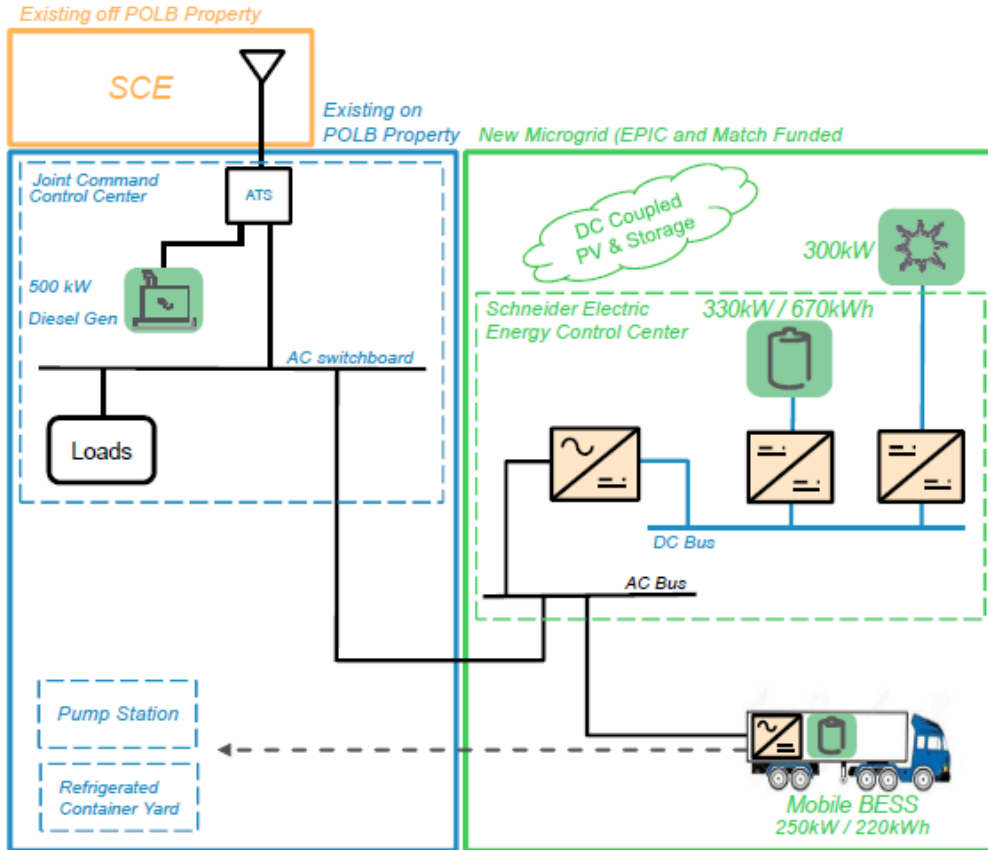


Locomotives



POLB Microgrid

- **At Joint Command and Control Center**
- **\$5M state grant**
- **Completion early 2023**



POLB Microgrid

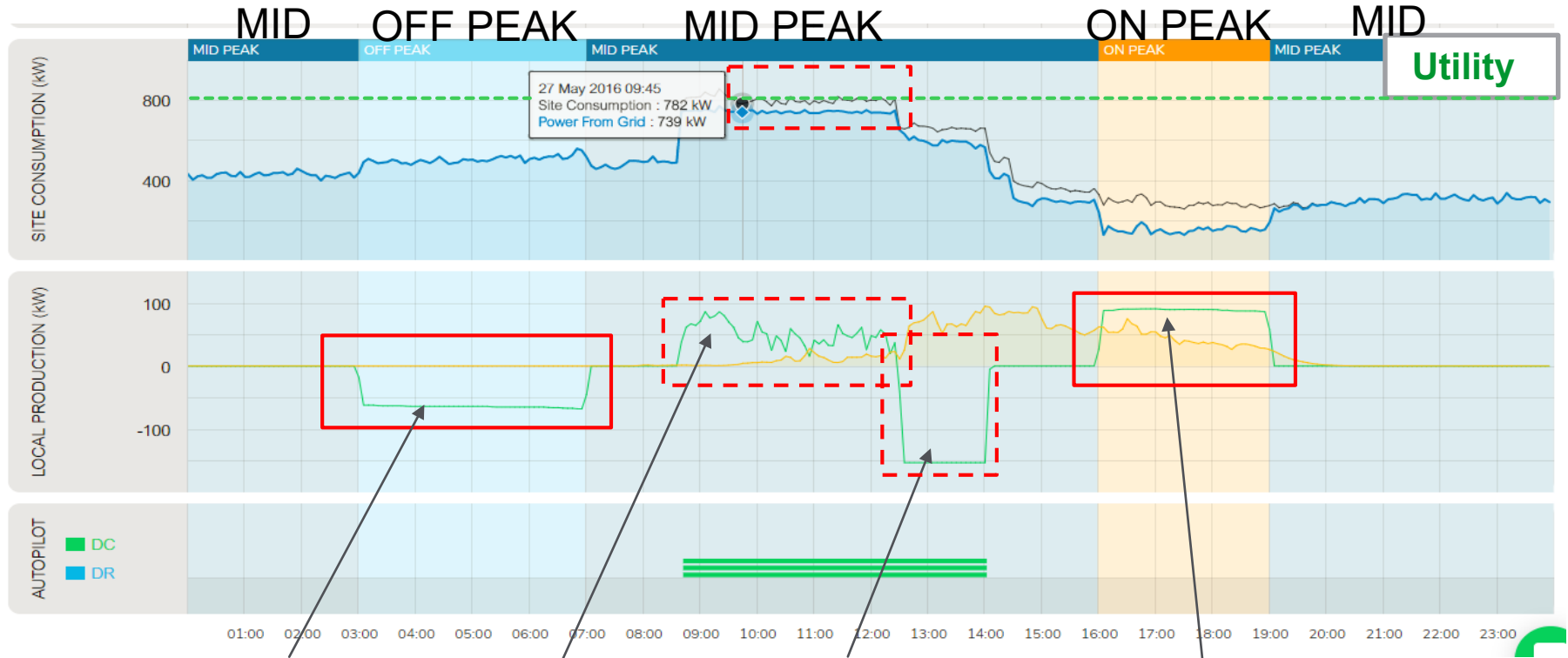
- 300KW Solar Carport
- 330kW/670kWh stationary BESS
- 250kW/220kWh mobile BESS
- Energy Control Center

POLB/SE Partnership



- **History of successful projects with Schneider Electric including shore power**
- **Mutual commitment during the application process**

Optimization Example with Solar and Battery



Charging the BESS

Discharge the BESS

Charging the BESS

Discharge the BESS

WHAT QUESTIONS DO YOU HAVE?

THANK YOU

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Please reference Campus Energy 2020

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