Microgrid Fact Sheet

Overview

- 47 MW Peak Load
- 45,000 Students and Faculty
- Self-Generates on an annual basis 85% of its electricity and 95% of heating and cooling
- 1,200 acre campus
- 30 MW of natural gas fired generation (Two 13.5 MW gas turbines, and one 3 MW steam turbine)
- 5.8 MW of renewable generation (3 MW of PV, 2.8 MW Bio-gas Fuel Cell)
- "Living Laboratory"

Jacobs School *of* Engineering **Research & Demonstration Projects**

Microgrid Controller Development
- Power Analytics – Paladin real time control

Data Acquisition and analytics SCADA –
- Power System control, Schneider power sys, Johnson Controls

Phasor Measurement Units
- 6 PMUs being installed at interconnection point with utility

Fuel Cell
- 2.8 MW – Operated as base load generation resource
- Utilizes Bio-gas from City of San Diego waste facility
- 350 ton Absorption Chiller added as CHP

Photovoltaic Generation
- 2.2 MW on campus roof top
- 0.8 MW off campus roof top
- Nearly total utilization of architecturally suitable rooftops

Thermal Energy Storage
- 3.8 Million gallons of chilled water storage
- 2 x 1.2 Million gallon thermal energy storage east campus
- Reduces on-peak air conditioning load

Energy Storage
- 2.5 MW / 5 MWhr BYD Energy Storage
- Maxwell Labs Ultracapacitors, 26 kW
- ARPA-E DOE Testing of New Battery Chemistries
- 250 kW/500 kWh NZE Warehouse PV solar/energy storage

EV Battery Testing for 2nd Use Applications
- Funded by DOE /NREL, 120 kW, 65 kWh
- BMW 108 kW/ 180 kWh, Li-ion Mini E Second Life EV
- Cycling simulates stationary storage loading applications

EVgo Solar, Advanced EV Charging, V2 G
- Funded by NRG Research Grant
- PV Solar powered Advanced DC Fast Charging, Smart Inverters, Energy Storage 30 kw/ 50 kWh
- Vehicle to Grid, bi-directional charging, 7 sites, 9 cars