COMMUNITY MICROGRIDS & SMART CITIES

Willdan Energy Solutions (Willdan) founded in 1964 and headquartered in Anaheim, is a leading nationwide provider of value-added professional technical and consulting services.

The Robert W. Galvin Center for Electricity Innovation at Illinois Institute of Technology is a major university initiative for introducing practical technologies that can improve the resilience, reliability, security, efficiency, and sustainability of the nation's electrical grid and overcome obstacles to the effective adoption and implementation of the Smart Grid.

"The teams have been collaborating since 2008 on a number of exciting research and implementation projects."

Dr. Shahidehpour,
Director, Galvin Center

PROJECT COLLABORATIONS

NYSERDA NY Prize Projects

- Competitively selected for nine community microgrid studies
- Municipal and Investor owned utility participation
- Example results by Willdan/IIT Team
  - Bath NY, municipal electric, over its NYPA Allocation
  - Install 2.3 MW of NG fed Combined Heat and Power
  - Add 700 kW capacity of Anaerobic Digestion
  - Relieve $2 Million in NYPA Excess with 1.1 ROI

IIT Microgrid in Chicago

- DOE/funded $14 million world-class microgrid
- Willdan team developed master controller
  - Connects and optimizes DER and buildings
  - 1 MW Solar, 8 MW NG Turbine, 10 kW Wind, 500 kW Flow battery
  - Building control and grid reconfiguration

For more information, please contact:

SmartCities@willdan.com

Mehdi Ganji
Mehdi.Ganji@willdan.com

Patrick Burgess
PBurgess@willdan.com

Michelle Villa
MVilla@willdan.com

WILLDAN

PROJECT COLLABORATIONS, CONTINUED


IIT Smart Streetlight Pilot (HPS left, LED right)

Intelligent LED Streetlight Pilot with ComEd

- Smart Grid connected light fixtures
- LED for half the power
- Integrated into campus SCADA/Controls
- Smart Control enables
  - Single and group lighting reconfiguration
  - Remote Maintenance Alerts
  - Emergency call button integration

Hybrid Solar Canopy and Electric Vehicle Charging

- DC fast charger able to charge an EV in 15-20 minutes
- Nine Level 2 chargers charge an EV in 5 to 6 hours
- Four chargers used for car sharing service
- Very low cost for campus commuters
- 30 kW solar canopy provides shade for charging EVs
- Remotely monitored for usage and maintenance


Hybrid Solar Canopy and Electric Vehicle Charging

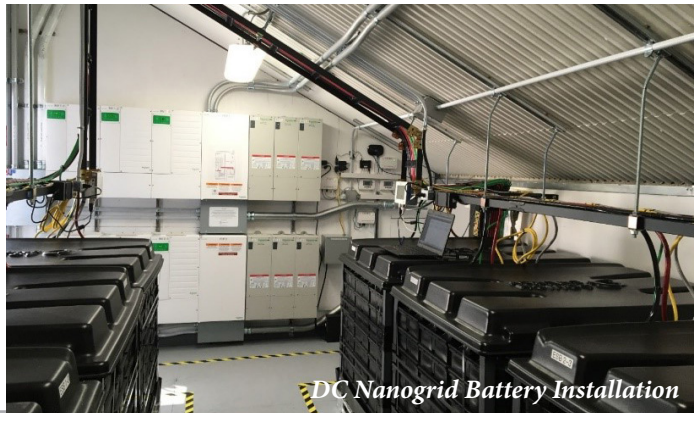
Aris Wind at IIT Chicago

Aris Wind at IIT Chicago

- Installed and Connected four off-grid RPUs
- Integrated Solar, Wind, Battery
- Cell Phone Charging and smart controls
- Developing Smart Grid connection
- Testing for remote off-grid applications
- Located at IIT's DC nanogrid

Keating Hall DC Nanogrid

- Gym facility with 200 kW rooftop solar
- LED light upgrade in two basketball courts
- Battery and DC Bus Installation
- Emergency call button integration
- Building can island and self-power for 8 hours
- Entire system designed and built in house
- Integrated into Campus Control system


DC Nanogrid Battery Installation