

CREA

Energy Innovations Summit

10.28.19

Panasonic Microgrid

Community Partner

Benefit = Back-up Power



Rooftop Solar Array



Panasonic Facility



Building Controls

Xcel Energy

Benefit =
Grid Services

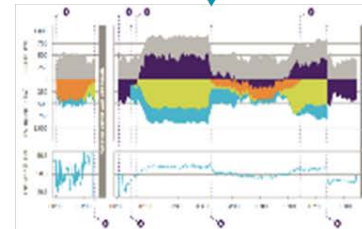


1MW / 2MWh Li-ion

Colorado's First Battery Storage Microgrid



Control Center

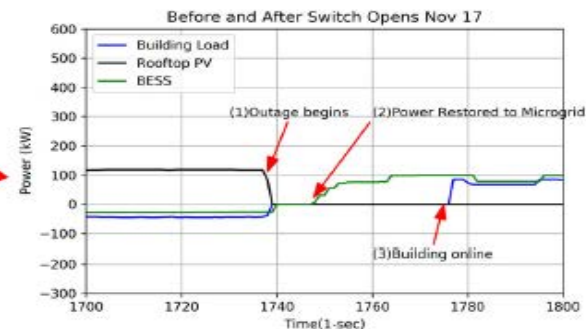
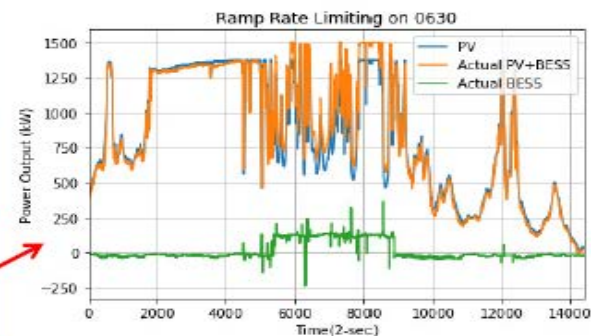
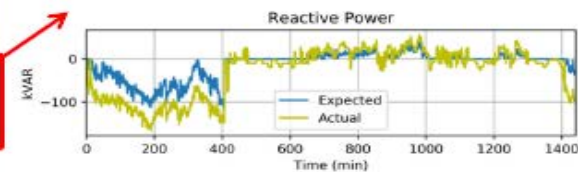
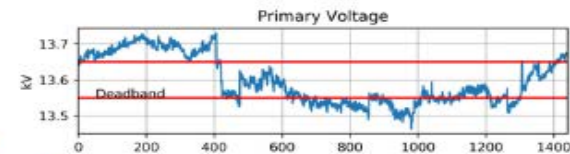


Management Software



Panasonic Testing Results

Operation	Performance	Impact on Grid
Voltage Regulation	Good	Minimal
Peak Demand Reduction	Good	Moderate
Energy Arbitrage	In testing stage	
PV Ramp Rate Limiting	Good	Moderate
Frequency Response	In testing stage	
Microgrid	Good	Extensive



Detailed results can be found in the 2018 Semi-Annual Report to the Colorado Public Utilities Commission Regarding the Innovative Clean Technology Program Proceeding No. 09A-015E

Community Resiliency Initiative

Solar plus Storage based microgrids to support community resiliency

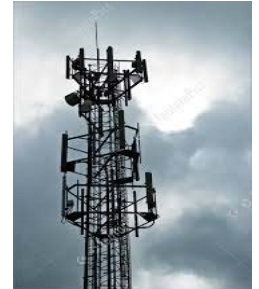
- Community partner defines “critical” infrastructure
- Xcel Energy brings battery storage and islanding capability
- Solar and other generation provided by the site

Benefits:

- Improves resiliency
- Supports Xcel Energy’s clean energy transition
- Provides grid benefits
- Provides clean energy jobs

Enabling Legislation:

- HB18-1270 (<http://leg.colorado.gov/bills/hb18-1270>)





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