Energy Storage Deployment and Evaluation with the Electric Power Board (EPB)

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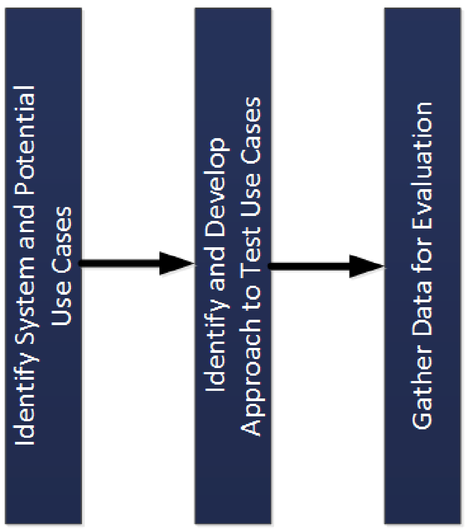
Introduction

- Project goal is to deploy and economically evaluate a 100kW/400kWh UET flow battery energy storage system with the Electric Power Board (EPB) of Chattanooga
- EPB is a municipally-owned distribution utility serving 175,000 homes and businesses in Chattanooga, TN
- EPB has installed 1.3MW of PV, which was commissioned in summer 2017

Approach

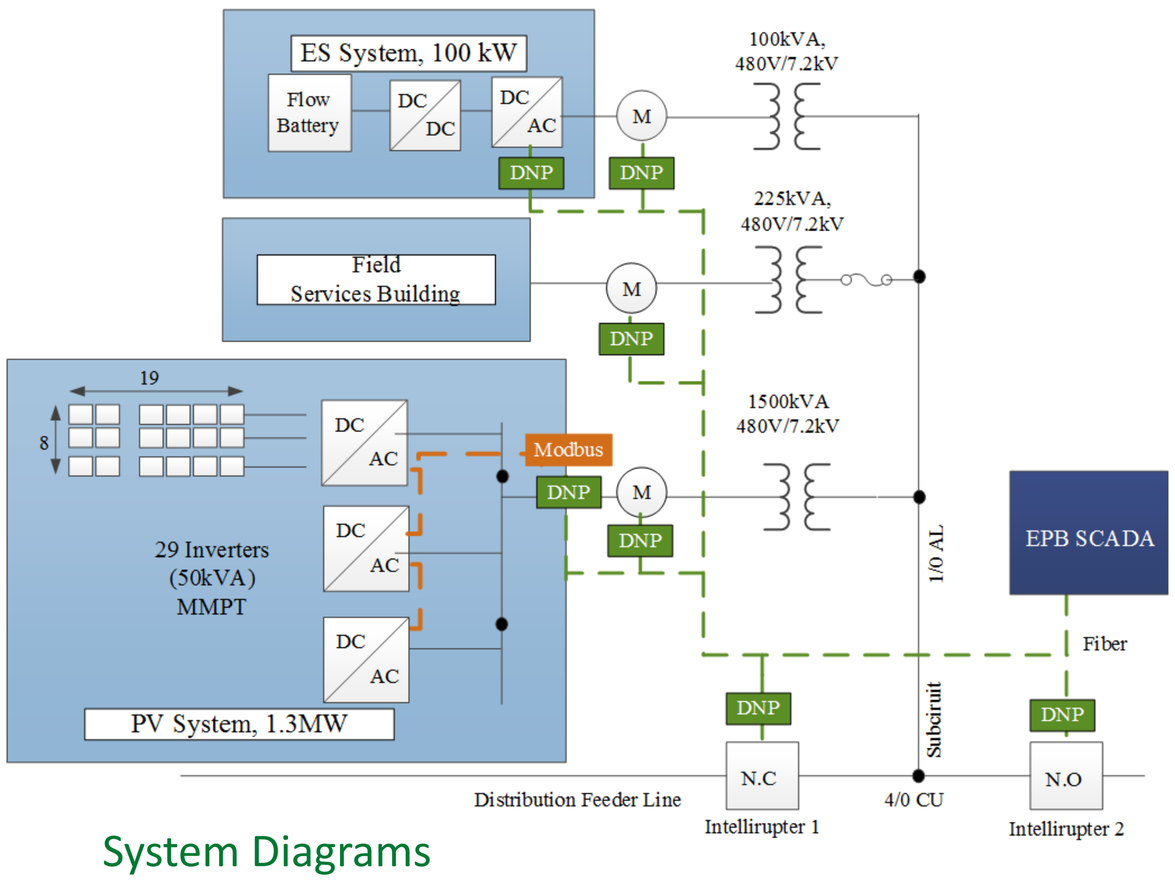


Methodology

- The objective is to demonstrate economically viability via data collection and evaluation.
- Use cases must be defined and tested under common protocol.
- Methods to implement the use cases through EPB system must be identified and developed.
- Data is needed to demonstrate use cases.

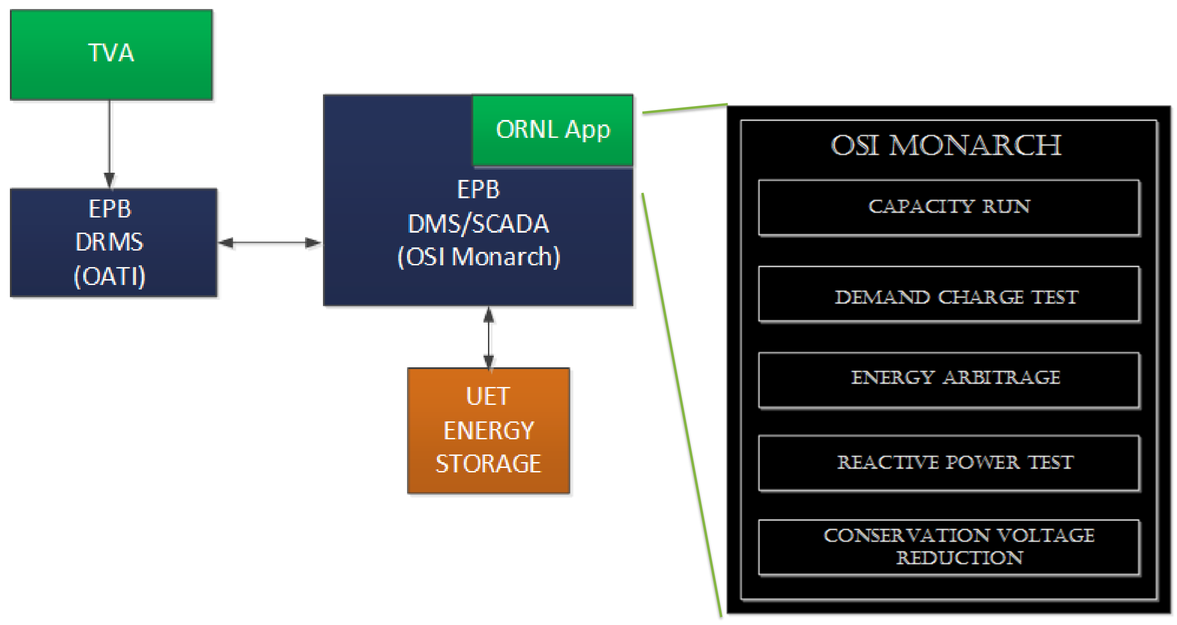
Results

- EPB System examined for use cases and several were found:
  - Demand Charge Reduction
  - Energy Arbitrage
  - Reactive Power and Voltage Support
  - Microgrid Field Services Building
- Others still being investigated:
  - TVA transmission services and Demand Response Program



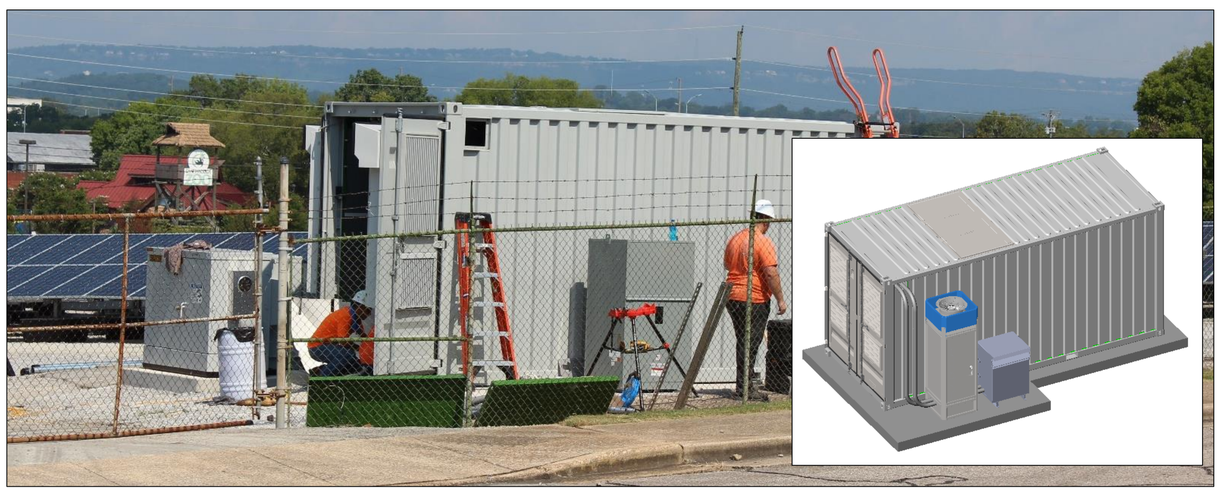
System Diagrams

- Approach to Integration Identified:
  - Directly code applications into EPB OSI Monarch System



System Interfaces

- Applications are being programmed to match PNNL-20220.
- Results will be compared with Sandia National Laboratory data collection on similar testing of energy storage system.



System Commissioned: Sep. 22nd, 2017

- System currently undergoing battery conditioning and remote testing by UET.
- Expected to initiate interface and testing in late October.

Future Work

- Finish Integrating protocols into EPB SCADA application.
- Test protocols functionality on EPB SCADA test harness
- Run Energy storage using test protocols and collect data
- Run Energy storage on optimized use cases
- Evaluate the data and examine Final Economic Potential of System

Acknowledgements

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