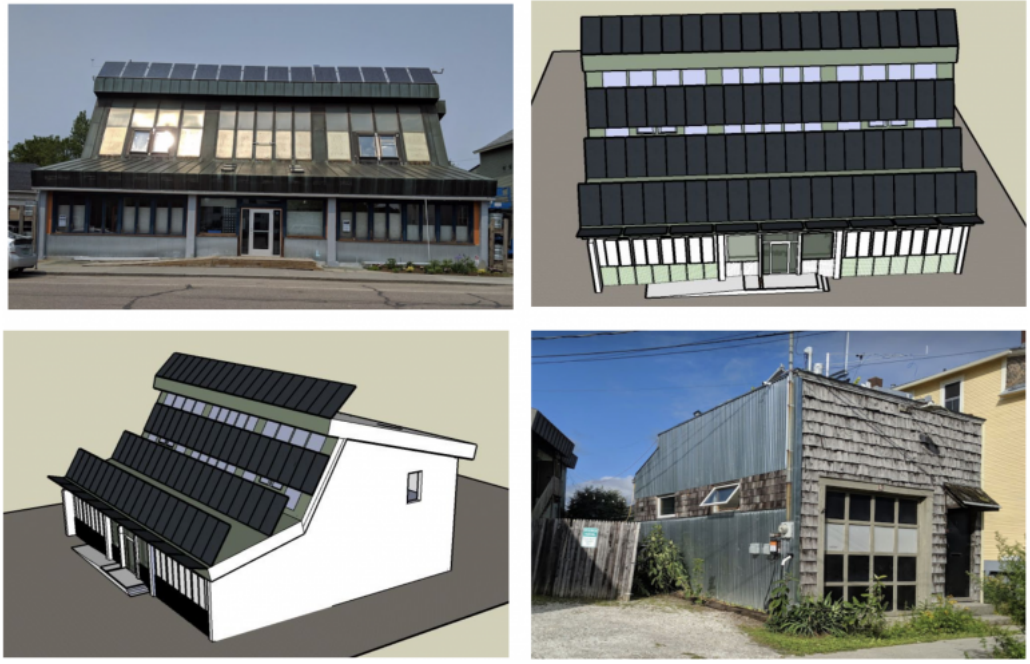
FACILITIES, EQUIPMENT AND OTHER RESOURCES
for 12-22North Distributed Energy Resources Testbed

FACILITIES

Laboratory:

DER Testbed - 12-22North (AJ Rossman owner / manager)
12-22North is a 5000sf active and passive solar building built in 1980. It is an IoT-networked office building and adjoining garage with over 50 Internet-Connected Technologies (ICTs) integrated over the past 15 years spanning industrial to consumer grade devices. These technologies include PV Performance monitoring systems, electrical submetering, smart thermostats, air quality sensors, Building Management System controllers and a smart EV Car Charger. 12 North is the 1st floor and 22 North is the 2nd floor. Both floors and garage have separate Burlington Electric Department service entrances and billing. Flexible loads and flexible tenants for tech integration.



More information available at http://www.12-22north.com/der-testbed/

Clinical: not applicable

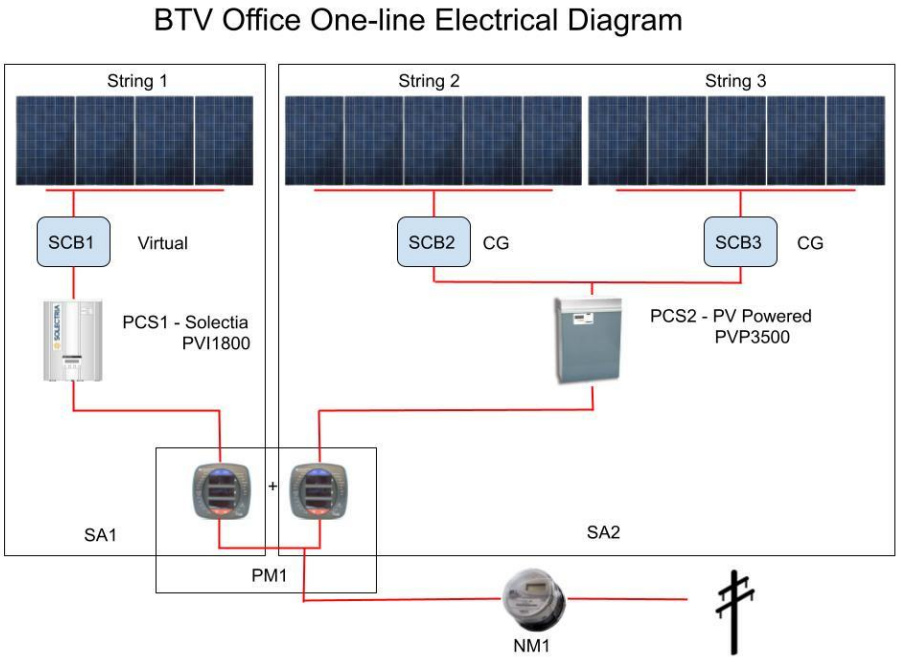
Animal: not applicable

Computer:
Network of Distributed Raspberry PIs - Computational support for the proposed project will be available from a system of Raspberry PIs for acting as connectors and driving communication displays.

MAJOR EQUIPMENT

PV Array installed in 2014:

4.2kW array with over 7 continuous years of production data and intermittent solar resource data.



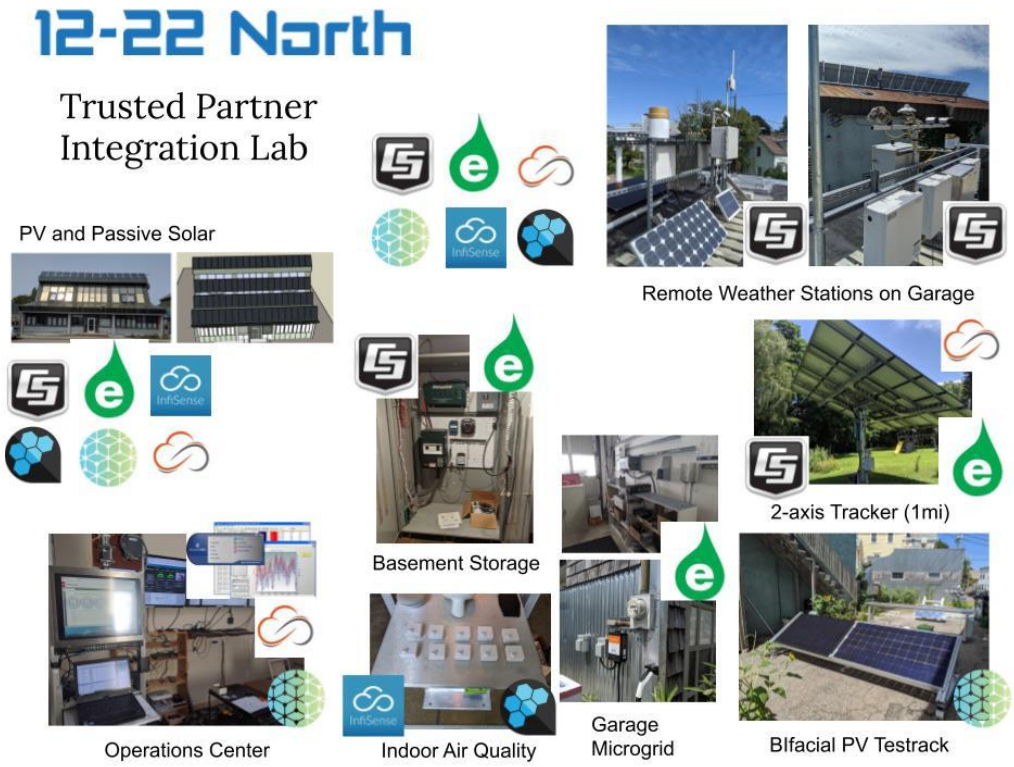
PV PERFORMANCE MEASUREMENTS

- Revenue-grade PV Production
- DC Currents
- Solar Resource - Plane Of Array
- Solar Resource - Global Horizontal Irradiance
- Ambient Temp, wind speed, wind direction, barometric pressure and humidity

Car Charger:

- 40A Enel-X Juicebox
- Flexible EVMatch car scheduling software
- Electrically submetered

Weather Stations and Internet of Things Network



Independent Garage Testing Facility

Flexible Controllable Loads

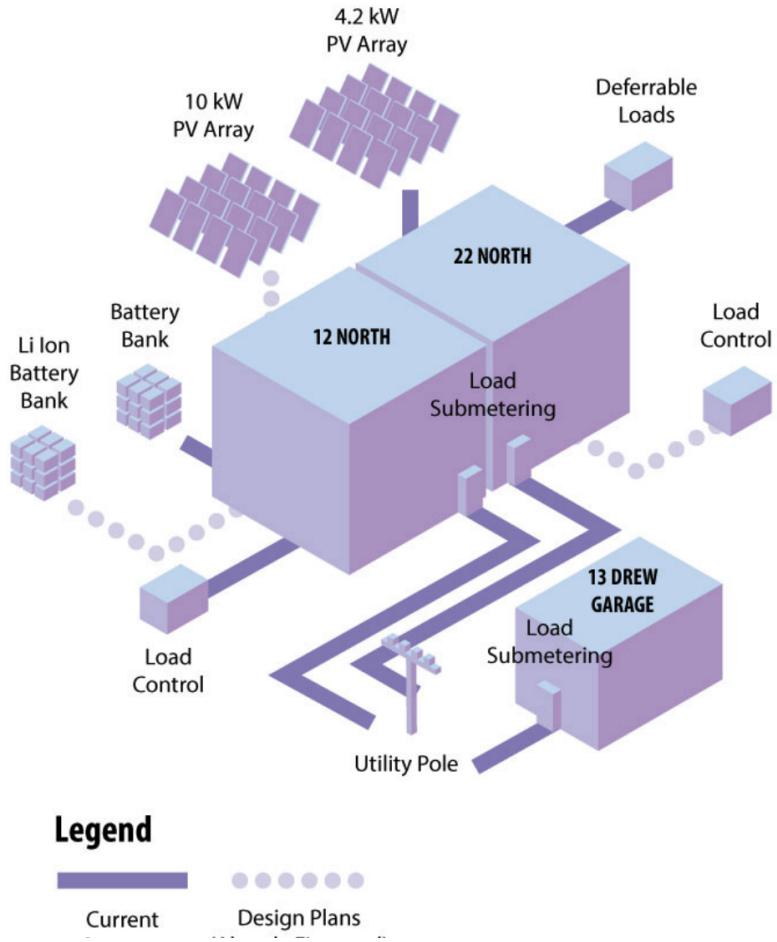
- 120 Gallon Water Heater
- 5-ton Air Conditioning
- Heat pump
- HVAC Fans
- 240V 50 and 30A circuits on exterior of building

Battery Testing Room

- AC and DC metering
- Safety Disconnects
- Networked
- Camera

Dedicated Operations Center

Microgrid Buildout Plan - 3 separate service entrances on same distribution feeder and transformer



OTHER RESOURCES

NREL American Made Network : The IoT Conduit is a Gold Connector in the NREL American Made Challenges network that gives access to technical resources, promotional ability and connections for future collaborations.

Experimental Support: The IoT Conduit has a relationship with the UVM Office of Vice President for Research to connect to UVM researchers for future collaborations.

IoT Conduit Professional Partners: The IoT Conduit Professional Partners are vetted professionals and companies who are willing to work in small teams to mentor and provide fixed-cost domain-specific services in design, prototyping, coding, evaluation and promoting new technologies.