SMART GRANTS PROGRAM

# BSOOB Transit Smart Grid Transition

Biddeford Saco Old Orchard Beach Transit Committee

## PROJECT PARTNERS

Wildan

S-Curve

E-Three

## PROJECT CHALLENGE

As transit operators making fleet transitions from fossil fueled buses to electricity, resiliency becomes an increasingly important consideration to maintain operations, particularly as Maine has continued to experience increased natural disasters and power outrates as a result. A microgrid solution that permits for generation, storage, and utilization during outages is a potential solution to maintain the essential service of public transit. This microgrid will rely on several new innovative components and new smart relays instead of a traditional automatic transfer switch to control the different distributed energy resources (DERs). Each component of the DER features technology to optimize energy production, maximize efficiency, and increase safety and resilience.

## IMPACT

The Pomerleau Street location is the focus for the SMART Grant Stage 2 project. BSOOB Transit owns the building and the 2-acre land parcel where it is sited. The project location is located near the boundary of the historically disadvantaged community in Biddeford and is recognized in the Climate and Economic Justice Screening Tool. Several of these census tracts that BSOOB Transit services are also are classified as Historically Disadvantaged Communities per the CEJST. The microgrid will enhance livability in these communities via the ability of BSOOB to provide reliable transit service even when natural disasters create power outages, as well as operating vehicles that reduce greenhouse gas emissions and promote transit usage.

## CURRENT STATE OF THE ISSUE

**Energy demand profile is a statistic that tracks the amount of energy required by the agency to power its electric bus fleet, with dimensions that express the time of day and expense associated with the energy, pending source of the electricity. Another stat is Value of Lost Load (VOLL), which is used to evaluate the monetary benefits of installing back-up power systems but does not represent any type of payment directly paid to the customer.**

## POLICY QUESTIONS

1. Can a small transit provider with a small facility footprint (>3 acres) generate enough renewable energy to power a fully electric / zero emission fleet?
2. Can the agency develop a microgrid with resilience to permit for electric bus operations during periods of sustained utility outages?
3. Can a small renewable energy microgrid reduce or eliminate operating expenses related to fuel energy for zero emission fleets?

## STAGE 1 OUTCOMES

This stage 1 project intended to evaluate the feasibility for a microgrid to improve resilience, reduce negative climate impacts associated with power generation and zero emission fleets, and to minimize operational costs for fueling battery electric buses. This project validated these considerations and advanced a 30% design set for a microgrid and battery storage system that can address the desired goals.

## STAGE 2 VISION

The designed microgrid will have resiliency benefits, for both short- and long-term utility outages, climate benefits resulting from renewable energy generation for zero emission fleets, and operation cost savings based on the modeled usage for vehicle charging from off-grid battery storage.