Project 3: High-Impact weather and power system simulator for renewable energy integration and resilience analysis—Malaquias Peña

Goal: Create a virtual replica of a fine-resolution weather-power grid dynamical system to simulate future grid responses under hazardous and stressful conditions for DER planning and resilience analysis

Set up a special configuration of UFS-SRWF

Weather conditions and Load and VRE supply

Metrics for Energy Resilience

Resilient responses for various systems involving different costs.

Set up an appropriate system model for Eversource power grid

Events to be analyzed:
- Tests for increased penetration levels of renewable energy.
- Results will document key resilience metrics and grid requirements at the facility or system level.

Regional Models

Storm forecasts

Urban Heat Island Forecasts

Energy distribution systems are vulnerable to a diverse and dynamic set of disruptions.