

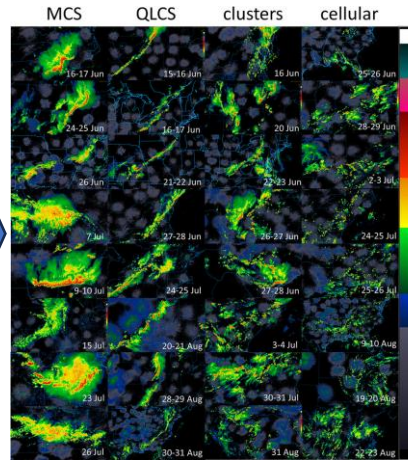
Project 3: High-Impact weather and power system simulator for renewable energy integration and resilience analysis— Malaquias Peña

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

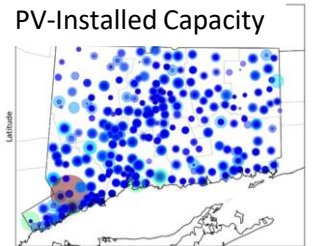
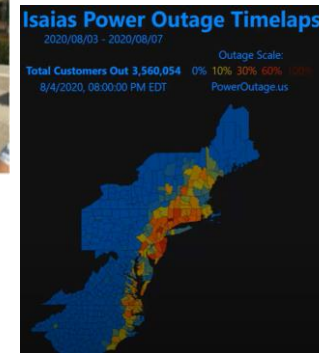


Regional Models



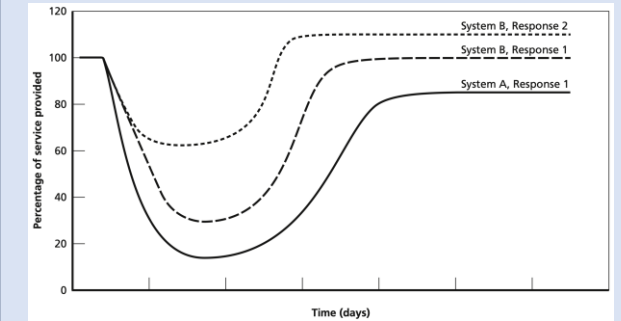
Storm forecasts

Weather conditions and Load and VRE supply



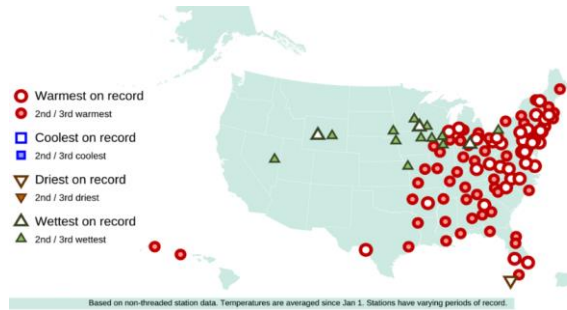
PV-Installed Capacity

Metrics for Energy Resilience



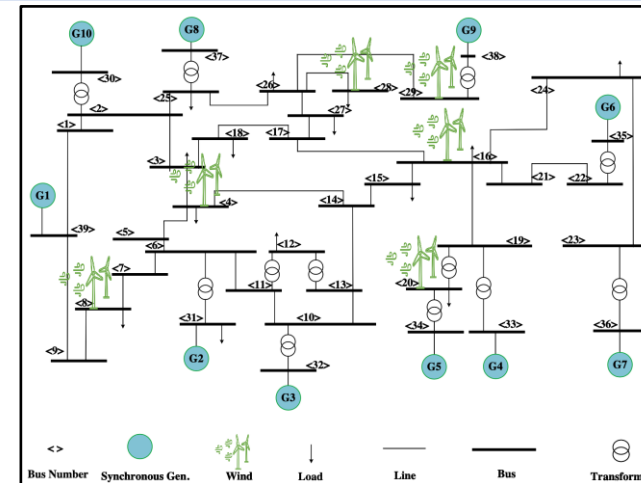
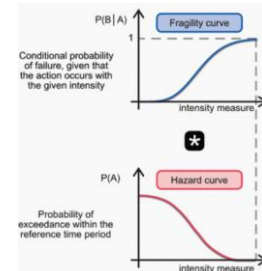
Resilient responses for various systems involving different costs.

Set up an appropriate system model for Eversource power grid



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

Urban Heat Island Forecasts



- Events to be analyzed: Tropical Storm Isaias, in Aug. 2020, and the Heat Wave in June 2021.
- Tests for increased penetration levels of renewable energy.
- Results will document key resilience metrics and grid requirements at the facility or system level.