DOE OPTIMA Projects

DOE Operation and Planning Tools for Inverter-Based Resource Management and Availability for Future Power Systems (OPTIMA)

Rapid Health Risk Assessment Tools for Grid Operations

SRP Utility Perspective

NASPI WG Meeting

April 14th , 2026

Power System Dynamics Transformation

SRP and other utilities are seeing an unprecedented increase in the dynamic behavior of the power system due to highly variable, high-speed loads and generation via:

- IBR
- HVDC
- Data Centers

These dynamics are extremely difficult to monitor using traditional SCADA measurements. Such dynamics include:

- Oscillations
- Harmonics
- High speed inverter/converter switching transients

Synchronized measurements, advanced analytics, and actionable control room displays will be needed in the future of IBR-rich grids.

ASU Project Scope

ASU will be collaborating with Electric Power Group (EPG), CAISO and **SRP as the demonstration utility** to perform the following over the next three years:

- Collect data from multiple sources (PMU, SCADA, DFR) and stream into a central analytics platform.
- Develop the following analytical tools:
  - Dynamic Security Assessment (DSA)
  - Sub-synchronous Oscillations (SSO) Detection and Mitigation
  - Continuous Time-Synchronized Tracking of Regional Inertia
  - High-Speed Anomaly Detection and Response in IBR-rich Power Systems
  - Mitigation of FIDVR and IBR Cascades via Distributed Corrective Control
- Deliver actionable analytics results to Operations teams for evaluation in a control room environment.

PNNL Project Scope

PNNL will be collaborating with Grid Protection Alliance (GPA), GE Vernova, University of Texas San Antonio (UTSA) and **SRP as the demonstration utility** to perform the following over the next three years:

- Collect data from newly installed POW devices and stream into a newly installed substation analytics platform.
- Develop the following analytical tools:
    - Oscillation Correlation Analysis
    - Oscillation Source Localization
    - Nuisance Trip Detection
    - Grid Strength Monitoring
- Deliver actionable analytics results to a central VM platform for Operations teams for evaluation in a control room environment.

Danovo Project Scope

Danovo in collaboration with ConEd, Entergy, FPL and **SRP as an advisor utility** to perform the following over the next three years:

- Collect data from multiple sources (SCADA, Substation IEDs, PMUs, and PQMs) and stream into a central analytics platform.
- Develop the following analytical tools:
  - Real-Time Inertia Estimation
  - Real-Time Grid Strength Estimation
  - IBR control-driven sub synchronous oscillation (SSO) location.
- Deliver actionable analytics results to a central VM platform for Operations teams for evaluation in a control room environment.