Official Project Title
Enabling Extended-Term Simulation of Power Systems with High PV Penetration

Statement of Work 'Summary'
Significantly Improve extended-term power system simulation tools by implementing numerical algorithms that better simulate both fast and slow dynamics involved with systems that have high penetration of inverter based resources, variable solar irradiance, and low inertia.

- Focus on a 'mixed-mode' simulation framework.

- Implement fast time scale solvers.

- Conduct simulation studies of realistic grid models with high PV penetration and variable solar irradiance.

- Demonstrate performance improvements relative to prior state-of-the-art.

Deliverables and Due Dates

1. Develop mixed mode simulation framework and up to three different simulation test cases (models plus datasets) along with a matrix of numerical results comparing to the baseline solver method (RK-2 method). This is due no later than **6/30/2020**.

2. Implement the new mixed-mode simulation framework developed in Milestone 1 into PST/Matlab using variable irradiance PV models and data. This is due no later than **1/31/2021**.

3. Provide written contributions to a final report, covering framework development and simulation results. This is due no later than **2/28/2021**.