

# Energy and Power Group

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## WEEKLY SEMINAR SERIES – SPRING 2019

Friday, April 12, 2019 at 9:10 a.m. – 10:10 a.m., ETB 1020

### VOLT/VAR OPTIMIZATION IN THE GRIDAPPS-D™ PLATFORM

DATA-DRIVEN LOAD MODELING AND A GENETIC ALGORITHM TO IMPROVE DISTRIBUTION SYSTEM OPERATIONS



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#### **Abstract**

The need for timely, affordable, and standardized advanced distribution management systems (ADMS) and associated ADMS applications such as volt/VAR optimization (VVO) has led to the creation of the GridAPPS-D™ platform. GridAPPS-D is an open platform for the development of advanced applications for distribution system management and control.

This presentation will cover both the GridAPPS-D platform itself and a new VVO application, PyVVO, which operates within the platform. GridAPPS-D is open source, open architecture, and standards-based. It's key goal is to reduce the time and cost to integrate new systems into the distribution system. The PyVVO application is a novel VVO application which combines data-driven load modeling with a genetic algorithm in order to determine optimal set points for devices such as voltage regulators, capacitors, and photovoltaic inverters.

#### **Biography**

Brandon Thayer is a Power Systems Engineer in the Electricity Infrastructure Group at Pacific Northwest National Laboratory (PNNL), and a current Master's student at Texas A&M University under Professor Overbye (graduating in 2020). His research interests include grid-based emissions quantification, volt/VAR optimization, distributed energy resource integration, modeling and simulation, and software development. Brandon graduated magna cum laude from the University of Washington with his B.S. in electrical engineering in 2016. Brandon completed three concentrations (sustainable electric energy, large scale power systems, and power electronics and electric drives) and a minor in mathematics.

In his free time, Brandon enjoys hiking, backpacking, exercising, working on house projects, and spending time with friends and family.