

**AEP/EPRI Smart Grid Demo
Virtual Power Plant Simulation**

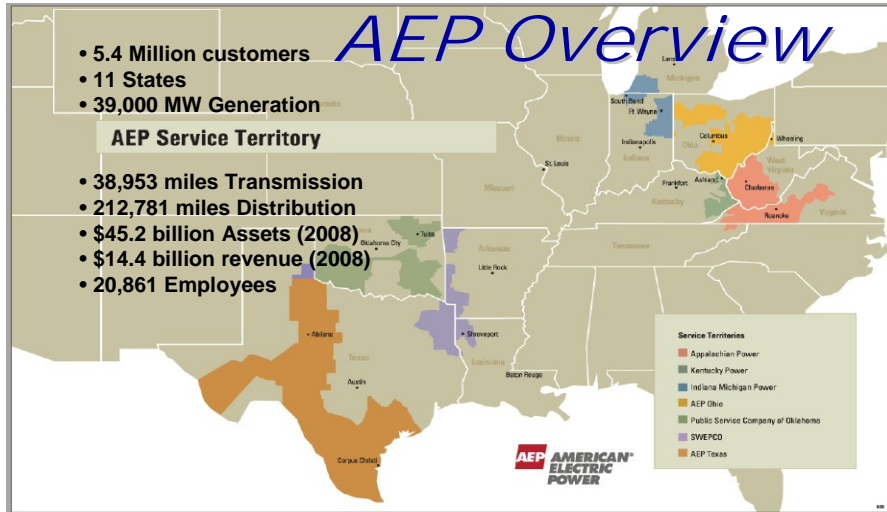
Project Overview

**Smart Grid Advisory Meeting
Oct 13, 2009**

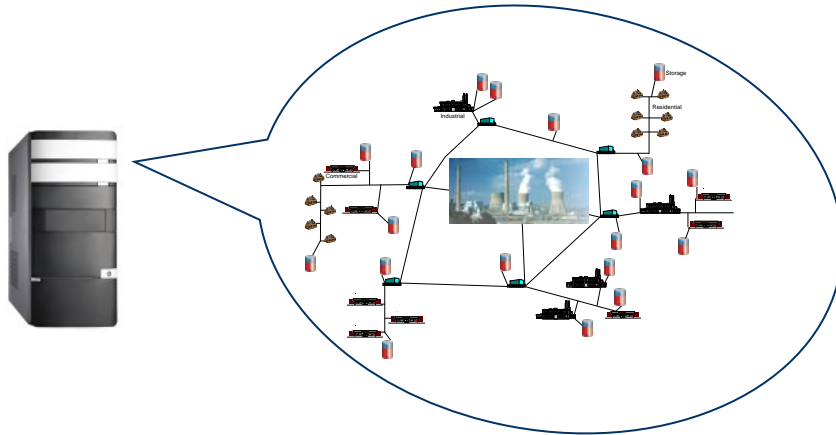
Tom Jones / Tom Walker

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The Virtual Power Plant Simulator



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Virtual Power Plant Simulation Project Objective

Assess the functionality, performance and benefits of a fully integrated and robust smart grid as a **Virtual Power Plant**, from end-use to RTO, by leveraging Real system and device information and data with a comprehensive modeling and **Simulation** tool

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VPPS Foundational System South Bend, Indiana

Distribution Automation

- 8 Circuits
- 18 Reclosers

VAR Automation

- 24 Capacitor Banks

AMI / AMR

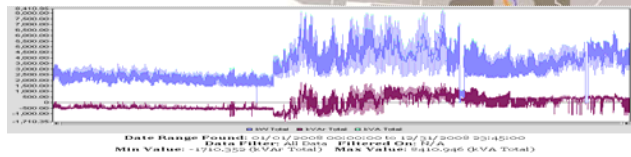
- 10,000 Smart Meters



Columbus, Ohio Integrated Volt VAR Control

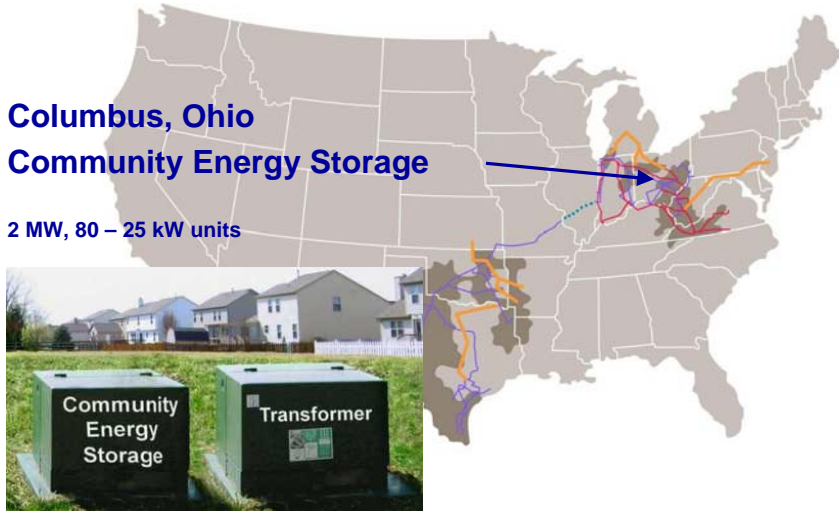
- 6 Stations
- 17 Circuits

Two control schemes



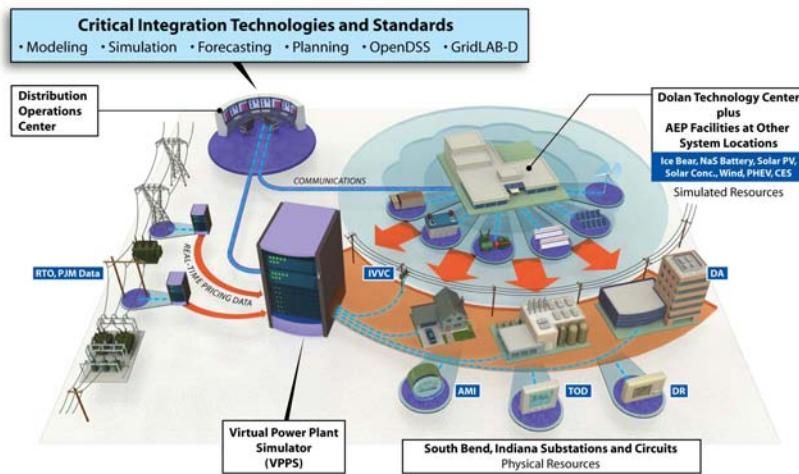
**Columbus, Ohio
Community Energy Storage**

2 MW, 80 – 25 kW units



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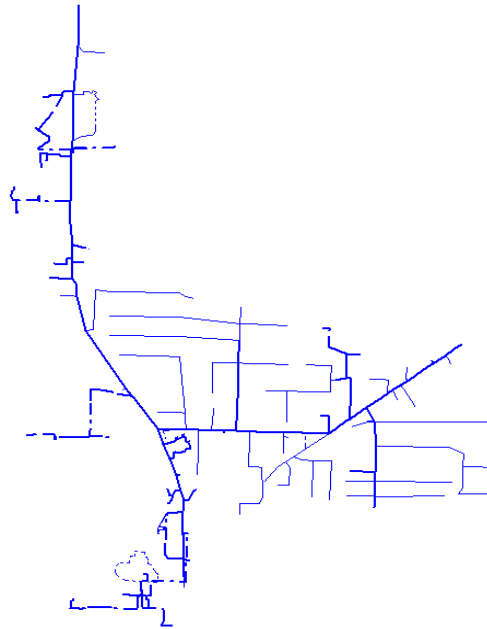
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Preliminary Results - Colfax 21 Circuit Plot

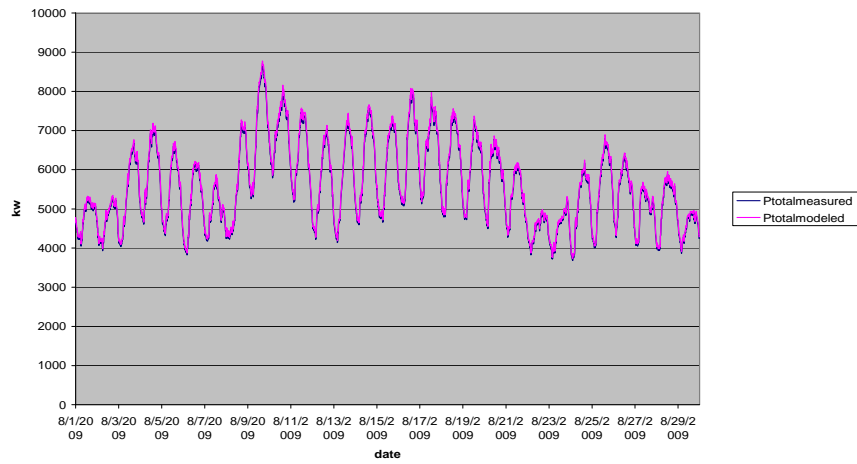


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Preliminary Results - Colfax 21 Real Power

kW modeled and measured



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