Comprehensive Cybersecurity Technology for Critical Power Infrastructure AI-Based Centralized Defense and Edge Resilience



Task 1: Realization of advanced energy management applications in T&D

John Dirkman, PE

Prepared for Itai Ganzer and Ofer Goldhirsh Israel Innovation Authority Avi Shavit and Eynan Lichterman Israel Ministry of Energy

Commercialization Tasks



- Assemble digital twins in Grid360
 - distribution/transmission network, solar arrays, refineries, communications network
 - DLC, APS, SRP, Arava, Delek
- Assemble cybersecurity lab
 - Sensors, Meters, PLCs, RTUs, HMI, Firewalls, Historians, Management Systems, etc.
 - Zones: Corporate, DMZ, Operations
- Team Education T&D dynamics and threat vectors
- Team Education commercialization approaches
 - Convert academic work to commercialized product
 - User experience: data input, processing, output, visualization
 - Use of third-party tools
 - Integration with other applications APIs
 - Testing
 - Installation and User Guides
 - Commercialization Plan: Go-to-market and business growth strategy
 - what is the product, who are the target customers, customer value proposition, market potential, competitive advantages, IP strategy, promotion, management, metrics, and financial performance
- Lean Canvas determines which tasks have greatest potential for commercialization
- Establish Industry Advisory Board, first meeting in June



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Add developed software as "engines" inside of Grid360 and other vendor systems

Create commercial grade engines to be embedded in Energy Management Systems (<u>EMS</u>), Distribution Management Systems (<u>DMS</u>), and Supervisory Control and Data Acquisition (<u>SCADA</u>) systems, similar to Resource Innovations' current work with Hitachi/ABB, GE, Toshiba, and Smarter Grid Solutions



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Form Industry Advisory Board

Board member organizations from previous collaboration of Resource Innovations with ASU: ComED, Entergy, Oncor, PSEG, Salt River Project, San Diego Gas & Electric Company, Southern California Edison, Southern Company, UK Power Networks

BIRD Cybersecurity Industry Advisory Board will include Arava Power, Delek US, Duquesne Light Company, Salt River Project, Arizona Public Service as well as many other utility companies

DER Network Analyzer Commercialization



DER Network Analyzer components function in parallel with ADMS/DERMS



1. Compiled code from ASU, installed on Resource Innovations servers

- 2. Working with ASU to create Installation Guides and User Guides to include data input, output, visualization
- 3. Working with APS to set up servers, install and use developed code
- 4. Working with Industry Advisory Board to determine best candidates for commercialization



Commercialization - ASU Topology Processor Engine





Commercialization - Cyber Metrics Visualization





Commercialization - Cyber Metrics API



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