Control System Cyber Security at INL

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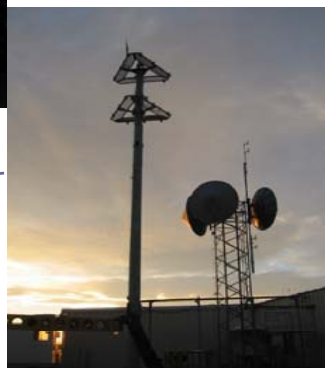
National & Homeland Security

February 2009

Intersection of Industry and Government

Power Grid Test Bed

Control System Test Bed



Wireless Test Bed

INL provides a "bridge" for Critical Infrastructure Protection between Industry and Government

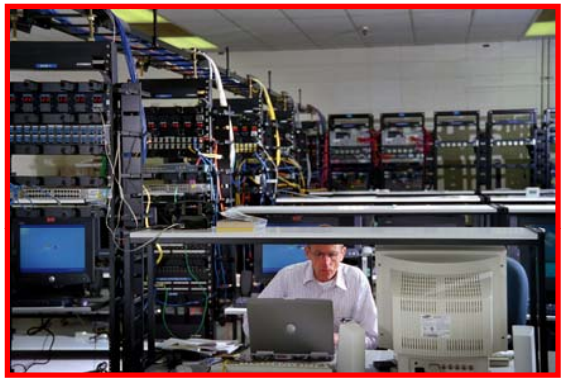
- **Take on challenges that Industry and Academia cannot, will not, or should not do**
- **Leverage unique assets and capabilities of INL**
- **Establish direct relationships with Industry**
- **Focus and prioritize resources and efforts on "thought leadership"**

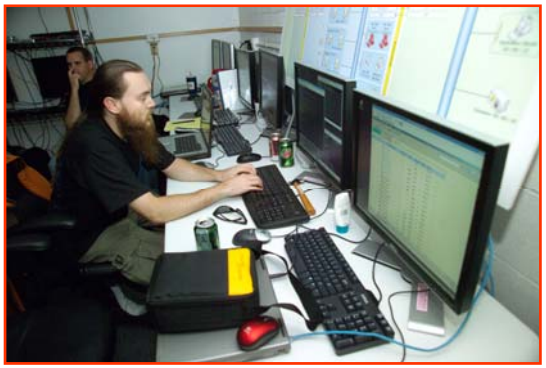
Global Vendor Partnerships

- Vendor and asset owner partnerships through DOE/ DHS programs
- Fully functional Supervisory Control and Data Acquisition (SCADA) systems and Energy Management Systems (EMS)
- Fully functional Distributed Control Systems (DCS)
- Safety systems and protective components
- Real world configurations and consequence testing


Capabilities: Cyber Security

- Cyber Security Assessments on Control Systems
- Zero Day (New) Exploits
- Protocol Analysis
- Partial Code Review and Reverse Engineering
- Wireless Security and Exploitation (WiFi/Cellular)
- Component Firmware and Embedded Devices
- IDS Review, Testing, Configuration and Design
- Forensics Review and Recommendation for Implementation
- Controlled Information Sharing and Demonstrations
- Security Training / Outreach





Control System Cyber Security Assessments

- **Broad Instrumentation & Control Experience with Industry Segments/ Infrastructures**
  - Nuclear Reactors
  - Power and Related Infrastructure
  - Chemical processes
  - Manufacturing

- **58 Control System Cyber Security Assessments: 19 field, 23 lab, 9 components, 7 limited**
  - In Lab assessments average 1300 hours - consist of large SCADA/EMS and process control systems
  - In Field assessments average 800 hours - consist of SCADA/EMS, process control systems
- **Information shared with asset owners of assessed systems for mitigations**

Home of

Science *and* **Engineering** Solutions

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