

The Lemnos Interoperable Security Project

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U.S. DEPARTMENT OF
ENERGY

Office of Electricity
Delivery and Energy
Reliability



Energy Sector Industry Challenges

- Security is more **IMPORTANT** than ever before as control system are evolving
 - Increasing use of Ethernet and IP communications
 - Lower installation costs
 - Connections to external systems
 - Supports changing operational and business needs
 - New and emerging regulatory requirements
- Security is more **COMPLICATED** than before
 - Utilities are faced with limited security expertise
 - It shouldn't take a security expert to configure a device properly!
 - Vendors need alternatives to proprietary solutions
 - Utilities and Vendors need a straight forward method to communicate user needs, product features, and configuration parameters relating to cyber security functions

What is “Lemnos”?

- Lemnos is a DOE funded project to provide a security interoperability framework for use in the ***ENERGY SECTOR***
- Lemnos Partners
 - EnerNex (Prime Contractor)
 - Tennessee Valley Authority (Utility)
 - Sandia National Labs (FFRDC)
 - Schweitzer Engineering Laboratories (Vendor)
- Based on open source security software from the NSTB project OPSAID
 - **Open PCS Security Architecture for Interoperable Design**

Lemnos (cont)

- **NOT** aimed at any one Power System Application
- Develops **INTEROPERABLE CONFIGURATION PROFILES** for widely accepted Internet protocols
 - Allows security devices from different vendors to interoperate using a common set of device configuration parameters
- Reference implementation by Sandia National Labs
- Commercial product released by SEL, December 2009
- Several other vendors participating in “plug fests”
 - ISA 2009
 - Distributech 2010

Lemnos Benefits – Vender Perspective

- Permits shortened development cycle by providing reference design and proof of concept models
- OPSAID open source code available to public
 - Robustness of open source versus proprietary solutions
- Uses configurations proven in lab and field to secure control system communications in a way that doesn't trade of reliability
- Enhances the vendors ability to meet the customer's needs
 - Provides a common understanding between customer and vendor

Lemnos Benefits – Utility Perspective

- Enables utilities to choose **BEST IN CLASS** solutions for various facilities (versus a “one size fits all”)
 - Communications Hub/Control Center
 - Substation
 - Generating Plant
 - Outdoor/Poletop
- Reduction in setup/deployment time and effort
 - Lower Total Cost of Ownership
- Reduction in configuration errors
- **IMPROVED CONTROL SYSTEM SECURITY POSTURE**

After the Project

- Long term need is for a body to take over as steward for the upkeep and development of the Interoperable Security Profiles
- Does this fall into the scope of the SG Security WG?
 - Is there interest within SG Security WG?