

CASE
STUDY



Veterans Affairs
HealthCare System
Energy Plant

Cyber Secure Integration of Networked
Distributed Energy Resources (DER)

PARTNERSHIP

2018 - 2020

FoxGuard Solutions, in partnership with Lawrence Livermore National Laboratory (LLNL), a U.S. Department of Energy (DOE) lab, completed a DOE Cyber Security for Energy Delivery Systems (CEDS) project, Distributed Energy Resource (DER), which includes technology and solutions that improve the security and resilience of the Department of Defense (DoD) and the Veterans Affairs (VA) Distributed Energy Resource (DER) infrastructure. This project was showcased at the Veterans Affairs (VA) Southern Nevada Healthcare System (VASNHS).

OVERVIEW

Solar arrays typically operate without interruption - the sun shines, and power is generated. This power is then fed into a micro-grid and distributed across your facility or onto the grid. A DOE Cyber Security for Energy Delivery Systems (CEDS) project was designed to evaluate this technology and improve the cybersecurity posture at a pilot location, VA Southern Nevada Hospital, in North Las Vegas. Each system within the solar array micro-grid will need to be inventoried, baselined and assessed for vulnerabilities. A team of security experts will review the results of the analysis to architect and implement a robust cyber solution with heavy focus on Cyber Risk & Vulnerability Management, Asset & Network Management and Asset and Network Monitoring.

SOLUTION

FoxGuard Solutions brought fifteen years of experience building cyber security programs and solutions to the table to retrofit a solution that was designed and subsequently implemented to secure the micro-grid control system with minimal impact. This solution included the establishment of an electronic security perimeter, the ability to actively monitor the system for anomalies and intrusions, and a robust patch management program for their control systems to maintain their cyber posture.

In order to properly design a cyber solution to meet this site's specific needs, we first had to better understand their system architecture and current overall cyber risk. To better understand our current cyber posture, our team spent a week onsite implementing a vulnerability assessment. During our assessment, we also created a detailed asset list and asset baseline. This gave us everything we needed to design a new cyber program that best met the customers' needs and requirements. FoxGuard's Sentrigard Cyber Platform was customized to address their endpoint security needs. Centrally managed tools to backup Windows and network devices were setup, configured and implemented. Anti-Virus, Host Intrusion Detection, and Network Intrusion Detection solutions were evaluated, tested and deployed. Asset Change Detection Software was setup and configured to work with each asset at site, allowing the site to monitor any changes in configurations from the devices, which may be indicative of an attack. FoxGuard's Patch Availability Report (PAR), Patch Binary Acquisition (PBA) subscriptions and Sentrigard Patch Deployment Tools were setup and systems were safely patched. Our team worked with the site to harden systems and lock down the perimeter. Finally, FoxGuard partnered with Xona to create a robust remote access solution to give the customer better visibility and cyber control over their maintenance programs. During a short timeframe, the sites overall cybersecurity posture was greatly improved.

EXCEEDING EXPECTATIONS

The overall results of this initiative greatly enhanced the resilience and reliability of energy delivery systems in the secure microgrid facilities through proactively addressing potential cyber risks. The DOE-funded CEDS program engaged in a successful technology partnership with the Department of Veterans Affairs, DoD, and FoxGuard Solutions. While the project has shown how an integrated patch and network analytics/management solution can identify and mitigate risks to the physical and cyber operations of microgrids, it is the partnership itself that has exemplified how stakeholders can exchange knowledge, working together to accomplish a larger task that each would not have been able to achieve alone. Researchers from LLNL, the U.S. Department of Veterans Affairs (VA), the U.S. Department of Defense (DoD) and a Christiansburg, Virginia company, FoxGuard Solutions were honored by the Federal Laboratory Consortium (FLC) for an outstanding partnership.



Photo by Julie Russell/LLNL.

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Photo by Julie Russell/LLNL.

Emma Stewart (right), associate program leader for defense infrastructure, and Jovana Helms, associate program leader for civilian cyber, discuss technologies their team is developing.

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FoxGuardSolutions develops custom cyber security, compliance and industrial computingsolutions. FoxGuard provides reliable, secure and configurable patch managementreporting services, which include availability reporting and applicabilityanalysis for information technology (IT) and operational technology (OT) assetsused in critical infrastructure environments. Visit foxguardsolutions.com to learn more.

ABOUT LLNL

Lawrence LivermoreNational Laboratory (LLNL) is a U.S. Department of Energy (DOE) lab located inthe San Francisco Bay Area. LLNL is a leader in developing innovative solutionsto improve our nation's energy security, while reducing the environmentalimpact of energy production and consumption. LLNL partners with industry,academia, state and local government agencies, and communities to explore andevaluate opportunities to expand the use of renewable energy, improve energyefficiency and reliability, and reduce costs.

https://www.energy.gov/sites/prod/files/2020/11/f81/CPR11_Lawrence%20Livermore%20National%20Laboratory%20%28LLNL%29_CyberInterconnect_2020%20CEDs%20Peer%20Review_508.pdf

[https://www.serdp-estcp.org/Program-Areas/Installation-Energy-and-Water/Energy/Conservation-and-Efficiency/EW18-5310/EW18-5310/\(language\)/eng-US](https://www.serdp-estcp.org/Program-Areas/Installation-Energy-and-Water/Energy/Conservation-and-Efficiency/EW18-5310/EW18-5310/(language)/eng-US)

<https://www.llnl.gov/news/lawrence-livermore-wins-three-regional-flc-awards>


Photo by Julie Russell/LLNL : <https://www.llnl.gov/news/lawrence-livermore-wins-three-regional-flc-awards>




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