



CASE STUDY

Regional Power Operator Improves ICS Cybersecurity and Operational Efficiency

Vermont Electric Cooperative (VEC) garnered significant improvements in the reliability, efficiency and cybersecurity of its utility power delivery.



Nozomi Networks' Guardian solution delivers the reliability, cybersecurity and operational efficiency benefits that we sought. Its performance gives me peace of mind because we're continuously improving our security profile.

KRIS SMITH — Manager of Operations Engineering, Vermont Electric Cooperative

To hear directly from Vermont Electric Coop, visit: nozominetworks.com/vec

Customer Profile

A Vermont energy provider operating across 75 communities in eight counties

Annual revenue in excess of \$77,000,000

Goals & Challenges

Enhance the reliability and cybersecurity of the power grid

Increase operational efficiency by eliminating manually-intensive ICS monitoring

Results

Implemented proven solution to "greatly enhance [VEC's] security profile"

Boosted operational efficiency by slashing ICS administration and cybersecurity hours. Labor hours were reduced by "10 to 12 hours a week" [12.5 labor weeks annually]

Reduced the number of repair truck rolls

Guardian

Proves its Value to Earn System-wide Deployment

The Challenge: Enhancing Security Profile While Increasing Operational Efficiency

Electric industry information sharing and confidential briefings from industry and government agencies worry Kris Smith, Manager of Operations Engineering at Vermont Electric Cooperative. That's because the responsibility for service interruptions to VEC's members lands squarely on his shoulders. "As with any utility, service reliability is paramount. And a robust cybersecurity program with robust cybersecurity platforms are how we ensure that reliability."

In practice, promoting reliability means adopting the U.S. Office of Electricity Delivery and Energy Reliability's (OE

mindset. Specifically, boosting VEC's "cybersecurity preparedness" and "incident response" capabilities.¹

Towards that end, Smith resolved to overcome several challenges that he faced. "[Prior to implementing the Nozomi Networks solution] we relied heavily on manual, time-consuming processes to administer our systems and mine data. Collating and analyzing large data sets in tabular format, from three different systems, was so resource intensive that it made applying a comprehensive cybersecurity approach difficult."

VEC's Goals

To ensure he chose an effective solution, Smith established strict criteria. First among them was a solution with a proven industry track record. "We didn't want to be beta testers for newcomers in our space."

Additionally, Smith wanted a solution that could:

- Automatically build an asset inventory, visualize assets and model their interactions
- Systematically detect and provide alerts concerning anomalies and potential threats

- Dramatically improve operational efficiency by:
 - Replacing manual processes with automation features and capabilities
 - Interfacing seamlessly with VEC's existing systems
 - Enabling the consolidation of data from networks onto a single platform
- Scale and adapt for future development, growth and support

¹ "Cybersecurity for Critical Energy Infrastructure," Office of Electricity Delivery and Energy Reliability.

VEC and Nozomi Networks

Boost Control Network Reliability, Efficiency, and ICS Cybersecurity

The Solution: Guardian Demonstrates its Value in Proof of Concept

“We selected Nozomi Networks because their Guardian solution meets all of our requirements in terms of visualization, detection, response and administration, as well as being a platform for long-term development and support.”

The final decision was based in part on the completion of a successful Proof of Concept (PoC) project at VEC. Smith uses

the **Guardian™** solution to consolidate ICS data for analysis, to visualize his assets and their relationships to one another, and to automate alerts to address anomalies and potential threats.

“It allows us to do a deep dive into the network protocols themselves, which supports both our cybersecurity and operational efficiency objectives.”

The Results: Improved Reliability, Cybersecurity and Productivity

A Proven Solution

Smith deployed a tried, tested and vetted solution so that he could focus on tuning, monitoring and maintaining his network to ensure its reliability and efficiency. “Not only do they have major deployments around the world to their credit, but Nozomi Networks specialists demonstrated that Guardian delivers value in our environment. Most significantly, the solution has reinforced our cybersecurity program to help us advance our reliability goals.”

Enriched Cybersecurity Visualization and Response

“Today, I can visualize all of my network components and see how they interact together,” says Smith. “I’ve also added IOCs

[indicators of compromise] as I get them through the cybersecurity community. So, in a matter of moments, I can identify, and promptly address, any issues.”

Smith likes the automated cybersecurity and operational monitoring feature he gets through Guardian. “When the system detects anomalies, I get email alerts in real time.”

Additionally, Smith notes that the Nozomi Networks solution’s comprehensive and integrated reports have “...enabled me to do more consistent reviews of my log data and system performance. And it allows me to respond more quickly and comprehensively to information that we get from our peers.”



We chose Nozomi Networks because their solution delivers enhanced ICS cybersecurity, significantly increases our productivity and positions us to adapt to changing circumstances.

KRIS SMITH — Manager of Operations Engineering, Vermont Electric Cooperative

VEC and Nozomi Networks

Boost Control Network Reliability, Efficiency, and ICS Cybersecurity

The Results: Improved Reliability, Cybersecurity and Productivity

As a result, "Vermont Electric Cooperative enjoys a greatly enhanced security posture that reduces our exposure," explains Smith. "So much so that with Guardian in place, I have the peace of mind that lets me sleep at night."

Greater Operational Efficiency

Guardian gives Smith granular visibility into ICS operations. Specifically, the solution creates an asset inventory and automatically updates it. Furthermore, it visualizes VEC's network and models the relationships between assets. Finally, artificial intelligence features allow Guardian to learn traffic behavior patterns, and issue alerts or warnings when anomalies are detected. "We've also used this data to tune protocols to be more efficient and to eliminate some communication errors as well," adds Smith.

These features combine to eliminate many of the time-intensive, manual tasks that Smith used to perform. "Previously, it

took me two to three hours to go through dozens of pages of information from three systems," explains Smith. "Today, some of the cybersecurity system reviews I do take me as little as 15 minutes. Overall, the Nozomi Networks solution has helped me gain back between 10-12 hours a week."²

The solution also helps Smith reduce time spent on troubleshooting and forensic activities. "Guardian allows us to drill down in protocols for new and existing equipment to efficiently diagnose issues. Consequently, we've improved our operational performance and in some cases can avoid costly truck rolls."

Future Plans

While VEC currently doesn't have any NERC CIP jurisdictional assets, "We're prepared for the possibility that regulators will bump the limit down so that our assets are included," says Smith. "I like that Guardian positions us to be compliant if regulations become more stringent."

²About 500 labor hours annually (assuming 10 hrs/week @ 50 weeks) - or 12.5 labor weeks per year.



Nozomi Networks Guardian helps us secure reliable, more efficient energy delivery to keep our cooperative members happy.

KRIS SMITH — Manager of Operations Engineering, Vermont Electric Cooperative

The Nozomi Networks Advantage

Securing the World's Largest Organizations

Accelerating your digital transformation by reducing cyber risk.

Unifying Cybersecurity Visibility

Innovating visibility and threat detection across your OT, IoT, IT and cyber-physical systems.

Partnering to Accelerate IT/OT Convergence

Deeply aligned with the OT, IoT and IT partners you trust.

See how Vermont Electric benefits from the Nozomi Networks solution.

Energy operators gain the real-time visibility and threat detection needed to ensure high cyber resiliency and reliability. Watch the video featuring Kris Smith from Vermont Electric Coop by visiting nozominetworks.com/vec.

About Vermont Electric Coop



Vermont Electric Cooperative (VEC) is a member-owned electric distribution utility headquartered in Johnson, VT. It provides safe, affordable and reliable energy services to its approximately 32,000 members. Towards that end, it operates under the guidelines of a Service Quality and Reliability Plan (SQRP), which measures employee's service performance. VEC's operating area covers 75 communities across eight counties and includes 2,882 miles of line and 39,546 meters.



Nozomi Networks

The Leading Solution for OT and IoT Security and Visibility

Nozomi Networks is the leader in OT and IoT security and visibility. We accelerate digital transformation by unifying cybersecurity visibility for the largest critical infrastructure, energy, manufacturing, mining, transportation, building automation and other OT sites around the world. Our innovation and research make it possible to tackle escalating cyber risks through exceptional network visibility, threat detection and operational insight.

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