

Quantum Authentication for Air Force Facilities



Deploying quantum communication systems to secure control systems

This project demonstrates secure authentication of operational critical infrastructure data, such as supervisory control and data acquisition commands, over installed optical fiber links. Authentication tokens will be created in real time by quantum communication systems operating on dark fiber channels co-located with the data channels. The use of quantum-generated authentication keys will ensure that no adversary can impersonate legitimate users, enhancing the reliability and resiliency of the facility's control system. The project leverages a suite of technologies previously developed by the CEDS program. The project team is deploying quantum communication systems developed at LANL with a system developed by the private sector at a Department of Defense facility.

KEY TAKEAWAYS

- Demonstrates the secure authentication of operational critical infrastructure data over installed optical fiber links
- Deploys hardware previously developed under the CEDS program in a Department of Defense facility
- Enhances the reliability and resiliency of a facility's control system

OUTCOME

This project enables the secure distribution of authentication tokens and cryptographic key material that cannot be spoofed or intercepted by an adversary. The deployment establishes a strong collaboration between the Departments of Energy and of Defense.

PARTICIPANTS

ROLE



Design, develop, and deploy interoperable quantum communication systems with low facility support requirements suitable for use in critical infrastructure protection.



Field demonstration partner; participates in joint demonstrations of quantum communication systems to show seamless interoperability of heterogeneous communication systems.

CONTACT INFORMATION

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Period of Performance: January 2019 – May 2021

Total Award Value: \$1,000,000
DOE Share: \$1,000,000
Cost Share: \$0

CYBERSECURITY FOR ENERGY DELIVERY SYSTEMS (CEDS)

CEDS projects are funded through DOE CESER, which aims to enhance the reliability and resilience of the nation's energy infrastructure by reducing the risk of energy disruptions due to cyberattacks.

Website: <https://www.energy.gov/ceser>

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