PROJECT NAME: DER Cybersecurity Standards Development

Last five digits of project number: 34216
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**SYSTEMS INTEGRATION TRACK** (*DER Cybersecurity Topic????*)

## BACKGROUND / INDUSTRY IMPACT

- This team is working directly with industry to develop consensus distributed energy resource (DER) cybersecurity recommendations and best practices that act as a basis for new/revised DER cybersecurity standards.

## PROJECT OVERVIEW / OBJECTIVES

- The DER Cybersecurity Workgroup brings together interoperability and cybersecurity experts to discuss improvements to DER devices, gateways, aggregators, utilities and the US power system.

## METHODS

- The group convenes subgroups to facilitate discussions between stakeholders and establish cybersecurity recommendations in the areas of device security, reference network architectures, data-in-flight requirements, access controls, etc.

## KEY OUTCOMES / MILESTONES

- NREL report with recommendations for DER certification protocols.
- EPRI report on a DER communication reference architecture.
- Sandia report on improvements to trust and encryption in IEEE 2030.5.

## CONCLUSION / REMAINING RISK

- Please join the subgroups to develop the next-generation of cybersecurity requirements for robust, secure DER interoperability!
- It is a challenge to find appropriate standards development organizations to codify the recommendations.



# Creating **DER cybersecurity recommendations** and **best practices** to secure solar assets and act as the basis for future standards.

Take a picture to download the full paper

## SunSpec/Sandia DER Cybersecurity Workgroup

### DER Devices & Servers — Complete

- **Defined standardized procedure for DER vulnerability assessments.**
- Leads: Danish Saleem (NREL) and Cedric Carter (MITRE)
- Publication: "Certification Procedures for Data and Communications Security of Distributed Energy Resources"
- Future work: Development within UL 2900-2-4 STP


### Secure Network Architecture — Complete

- **Created DER reference architecture best practice.**
- Lead: Candace Suh-Lee (EPRI)
- Publication: "EPRI Security Architecture for the Distributed Energy Resources Integration Network: Risk-based Approach for Network Design"
- Future work: TBD

### Data-in-Flight Requirements — Wrapping Up

- **Defining encryption, authentication, and key management requirements.**
- Lead: Ifeoma Onunkwo (Sandia)
- Publication: "Recommendations for Trust and Encryption in DER Interoperability Standards", another forthcoming.
- Future work: IEEE 1547.3 update, IEEE 2030.5 revisions.


### Access Controls — Active Subgroup

- **Establishing role-based access control recommendations for IEEE 1547-2018 protocols.**
- Lead: Jay Johnson (Sandia)
- Topics: Access control taxonomy, password control
- Planned Publication: "Recommendations for DER Access Controls" and IEEE 2030.5, IEEE 1815, and Modbus implementation recommendations.

### Patching Requirements — Q3 FY20

- **Establishing patching guidelines for DER devices and communication equipment.**
- Starting April 2020. Lead: TBD
- Topics: Patching update rates, maintenance guidelines, etc.

### Utility/Aggregator Auditing Procedure — FY21

- **Creating recommended auditing practices for DER networks.**
- Planned for Oct 2020. Lead: TBD
- Topics: Step-by-step auditing procedure for internal or external compliance review. Recommend data for attack forensics.

Additional project contributors: NREL

**Workgroup information: https://sunspec.org/cybersecurity-work-group/**
**Email: support@sunspec.org to participate!**