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DER Digital Supply Chain Gap Analysis

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Securing Solar for the Grid Workshop

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Introduction

- Presidential Executive Order 14017 for supply chain cybersecurity
- This project supported research for supply chain cybersecurity by:
  - Performing gap analysis of current cybersecurity landscape of distributed energy resources (DERs)
  - Creating recommendations for the digital supply chain cybersecurity of solar photovoltaics
  - Engaging with academia, national laboratories, and industry to address and understand digital supply chain challenges.
- Identified future opportunities to engage with industry members through different cybersecurity working groups.

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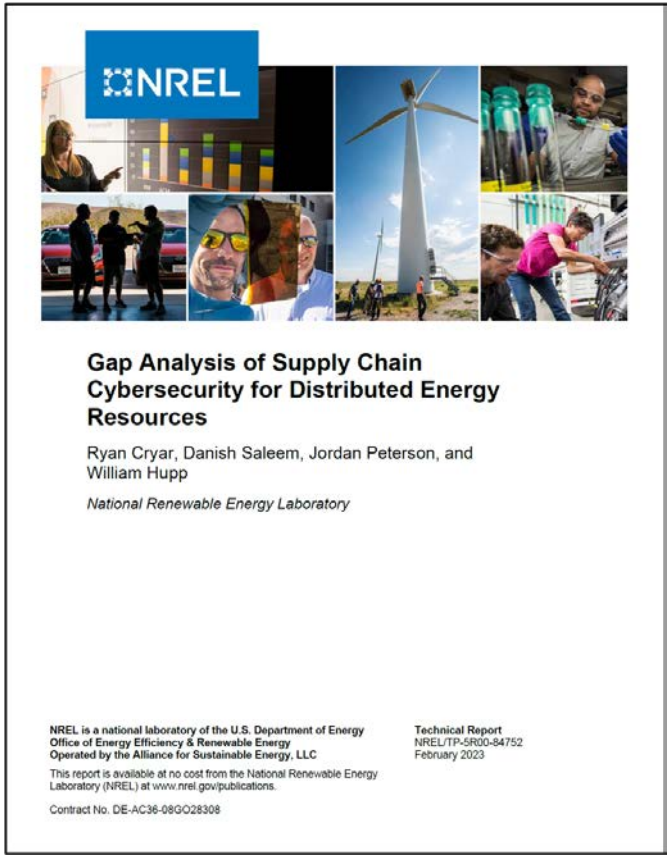
Past Work

- *Gap Analysis of Supply Chain Cybersecurity for Distributed Energy Resources*:
  - Addresses the landscape of the digital supply chain
  - Drafts the ideal state of the digital supply chain
  - Provides recommendations to bridge gaps between the current and ideal.
- Challenges stem from areas such as open source, standards, and where to apply best practices.



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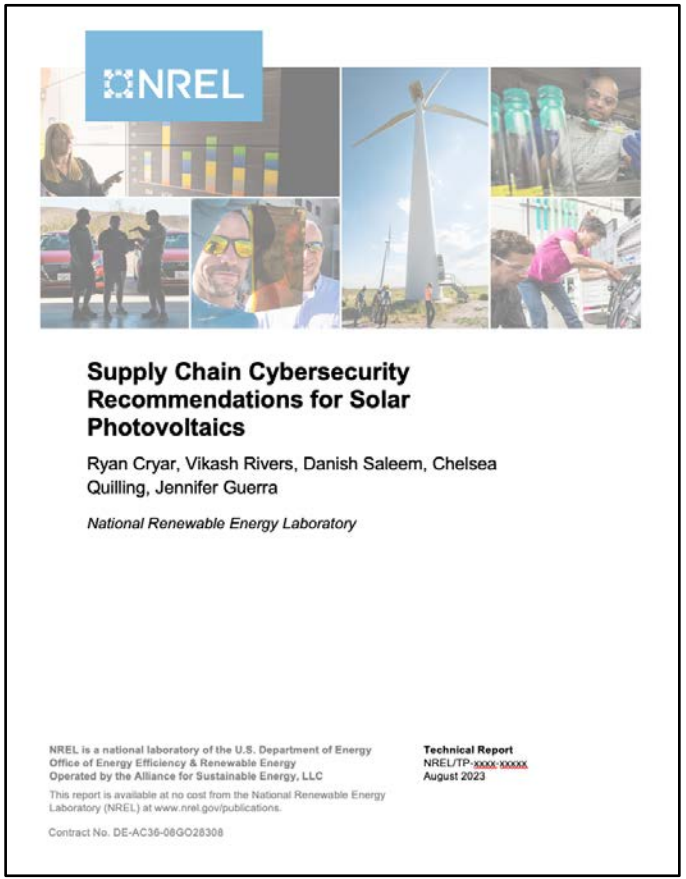
Addressing Recommendations

- Supply Chain Cybersecurity Recommendations for Solar Photovoltaics
  - Follows prior work
  - Addresses practices found and adapted from NERC, NIST, and NATF
  - Provides down-selected recommendations that that could apply to the digital supply chain of solar photovoltaics
  - Focuses on short, clear language that can be testable and quantified
  - Includes recommendations reviewed by academia and national laboratories
- Publication released on NREL website



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Example Recommendations

- **Recommendation 30**: Through a secure portal, vendors should provide customers with a vulnerability disclosure report, including the analysis and findings describing the impact that a reported vulnerability has on a product as well as plans to address the vulnerabilities. The vulnerability disclosure report should be signed with a trusted, verifiable, private key that includes a time stamp of the signature. (Adapted from NIST SP 800-161r1 RA-5; NATF Energy Sector Supply Chain Risk Questionnaire RISK-08)

- **Recommendation 31**: Vendors should establish a separate notification channel for customers in case a vulnerability arises that is not included in the vulnerability disclosure report. (Adapted from NIST SP 800-161r1 RA-5; NATF Energy Sector Supply Chain Risk Questionnaire VULN-06, VULN-07)

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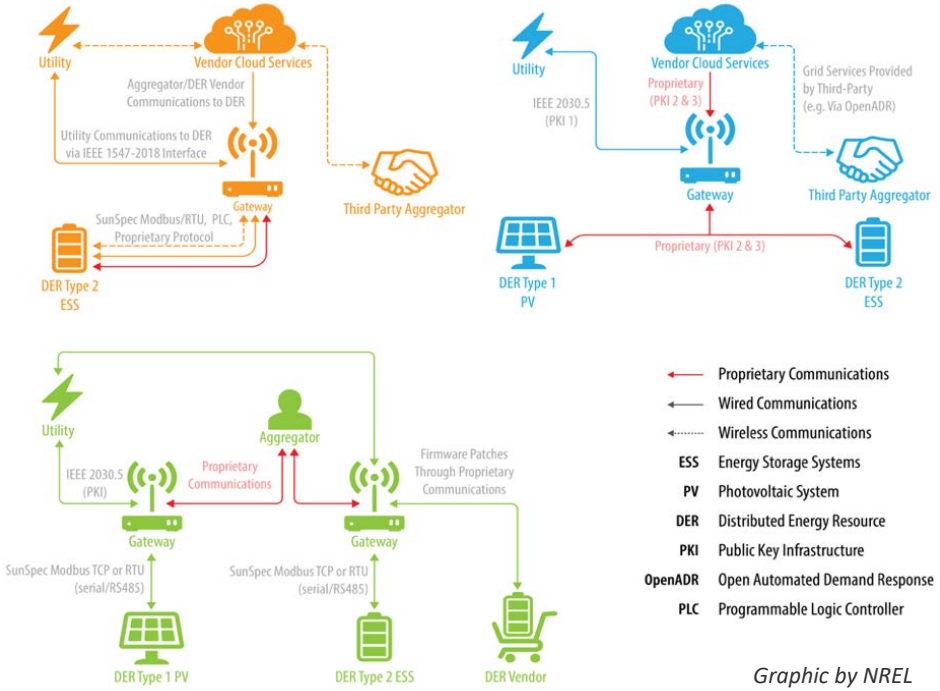
Outcomes of the Reports

- Interest in forming a subgroup on supply chain cybersecurity within SunSpec/Sandia Cybersecurity Working Group
- Engage with industry members to develop more effective recommendations.
- Provide immediate value to industry through recommendations that are testable.
- Gaining visibility into the challenges of the digital supply chain of renewable energy resources.



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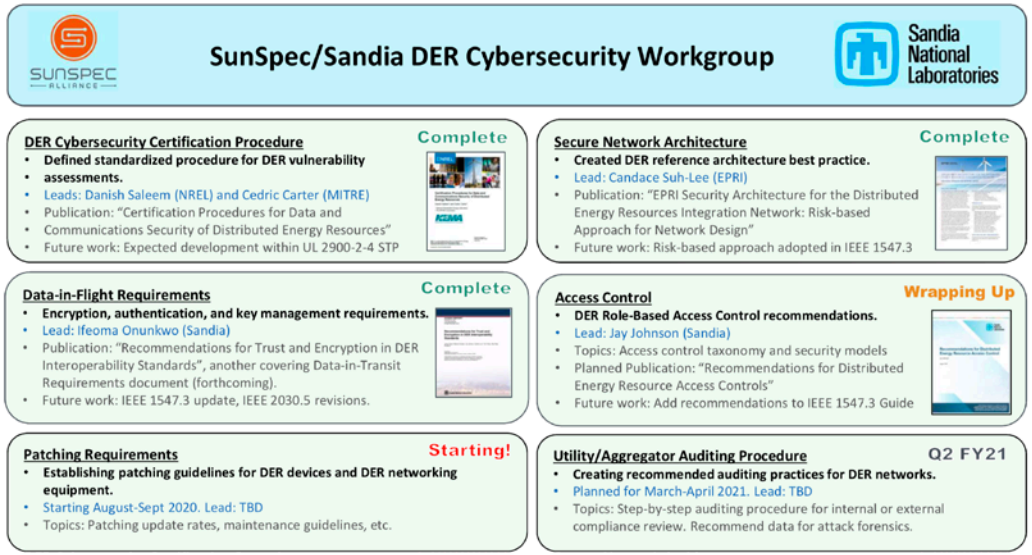
Future Work

- By leveraging the SunSpec/Sandia cybersecurity working group to create a subgroup on supply chain cybersecurity, further adapt the recommendations.
- Through this subgroup, to the extent possible, harmonize with other groups, such as SEPA CSWG, CPUC Smart Inverter Working Group, and UL 2941 Technical Committee.
- With this engagement, industry members see immediate value by actively developing recommendations that can be tailored to their own practices.



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Industry Engagement

- Engagement with industry is prioritized.
- Several working groups are being leveraged to provide balanced feedback among multiple types of stakeholders and participants.
- Additional engagement sources are actively being sought.

Photo by Dennis Schroeder, NREL 22168

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Thank You!

Let’s work together!

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