

# **EPRI DER Projects**

## *A Selective Overview*

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**DER Protocols Workshop**  
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# Information & Communication Technology for Distributed Energy Resources Integration – Research Themes 1



**Advance Open, Scalable Protocols from the Device to Utilities and Aggregators**



**Collaborate and Develop Best Practices, Requirements, and Industry Guidance**

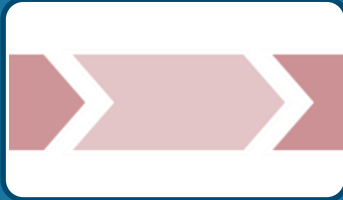


**Provide Tools and Reference Implementations to Advance Testability of DER**



**Demonstrate Functionality and Address Barriers to the Cross-Utilization of DER in Utility Systems**

# Information & Communication Technology for Distributed Energy Resources Integration – Research Themes 2



## Enable Open, Interoperable DER

*Standards, Testability, and Pairing to DER/DR Abilities*



## Assess Products

*Evaluate Communication Interfaces and the State of the Art for DER*



## Perform Utility Case Studies in DER Architecture

*Experiences, Best Practices, and Barriers*



## Test DER/DR Management Systems

*Systems for Aggregation Monitoring and Management*

# Survey of the DER Integration Standards Landscape: Assessment

## Objective

- Summarize EPRI's work and assessments of communications protocols.

## Deliverables

- Informational Webcasts
  - IEEE 1547, IEEE 2030.5 (SEP2), IEEE 1815 (DNP3)
- EPRI Protocol Reference Guide



## The Big Picture

EPRI's ICT team participates in standard-related activities across the industry. This activity provides up-to-date information on activities pertaining to Distributed Energy Resources and produce concise reference materials to capture key facts.

**Advance Open, Scalable Protocols from the Device to Utilities and Aggregators**

# Survey of the DER Integration Standards Landscape: Guide

## ■ Goals

- Concise (~2-pages)
- Standardized Format
- Digest-like Appearance, Stylized

## ■ Example Topics

- Relevant Devices and Technologies
- Overview of Functionality
- Overview of Governance
- Date of Last Update to Standard
- Open or Proprietary
- Reference to Relevant EPRI Reports



Advance Open, Scalable Protocols from the Device to Utilities and Aggregators

# DER Group Management: Interoperability Workshop

## Objective

- Conduct Group Management Interoperability Workshop to test *IEC 61968-5 Distributed Energy Optimization*.

## Deliverables

- Workshop Results – Technical Update
- Workshop Test Cases – Technical Update



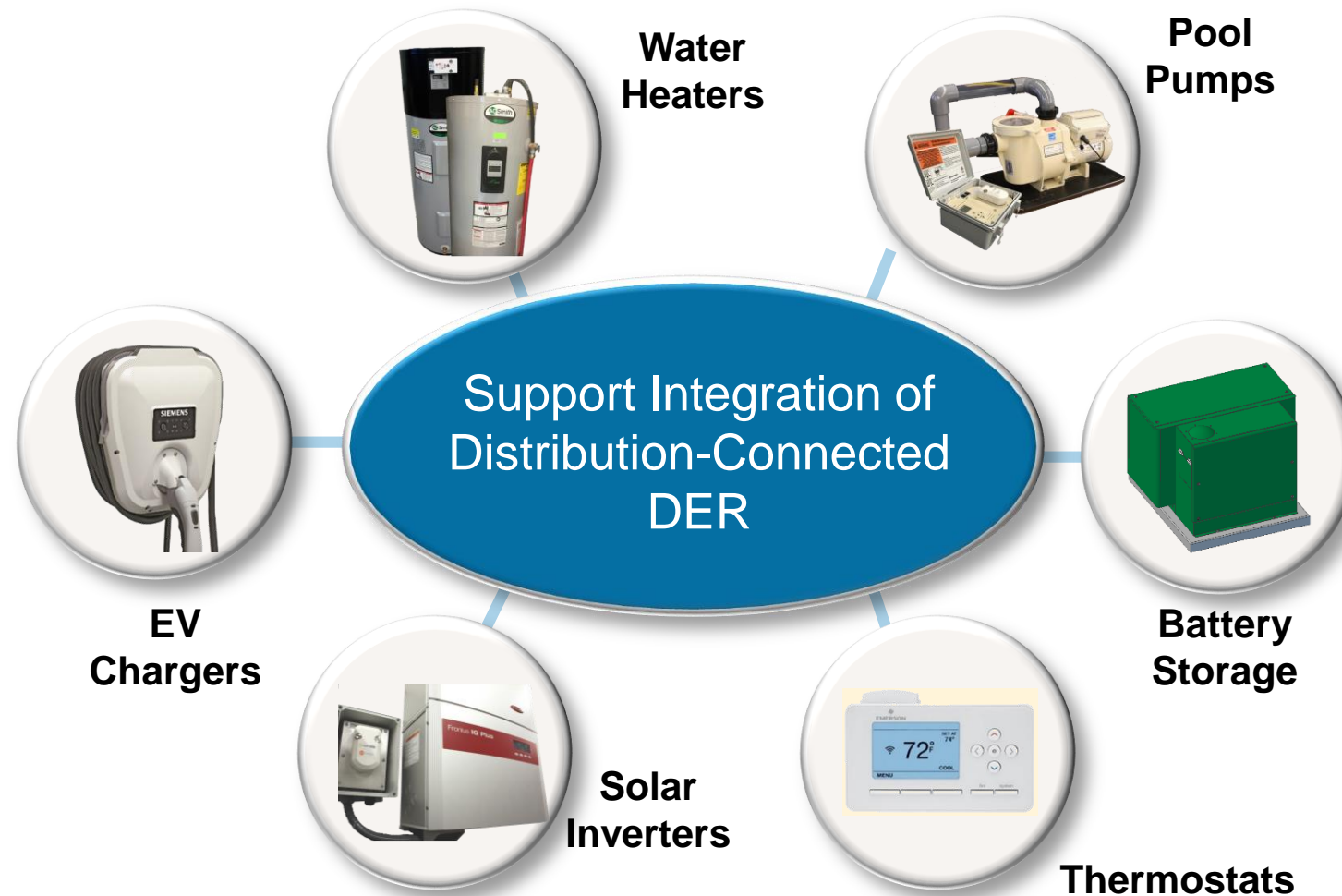
## The Big Picture

EPRI has facilitated advances in the development of standard functions for enterprise integration of groups of DERs. These functions allow for the grouping, monitoring, forecasting, and dispatch of groups of DERs. This workshop will expand on this work and bring together vendors of enterprise systems to test how these messages are used in products today.

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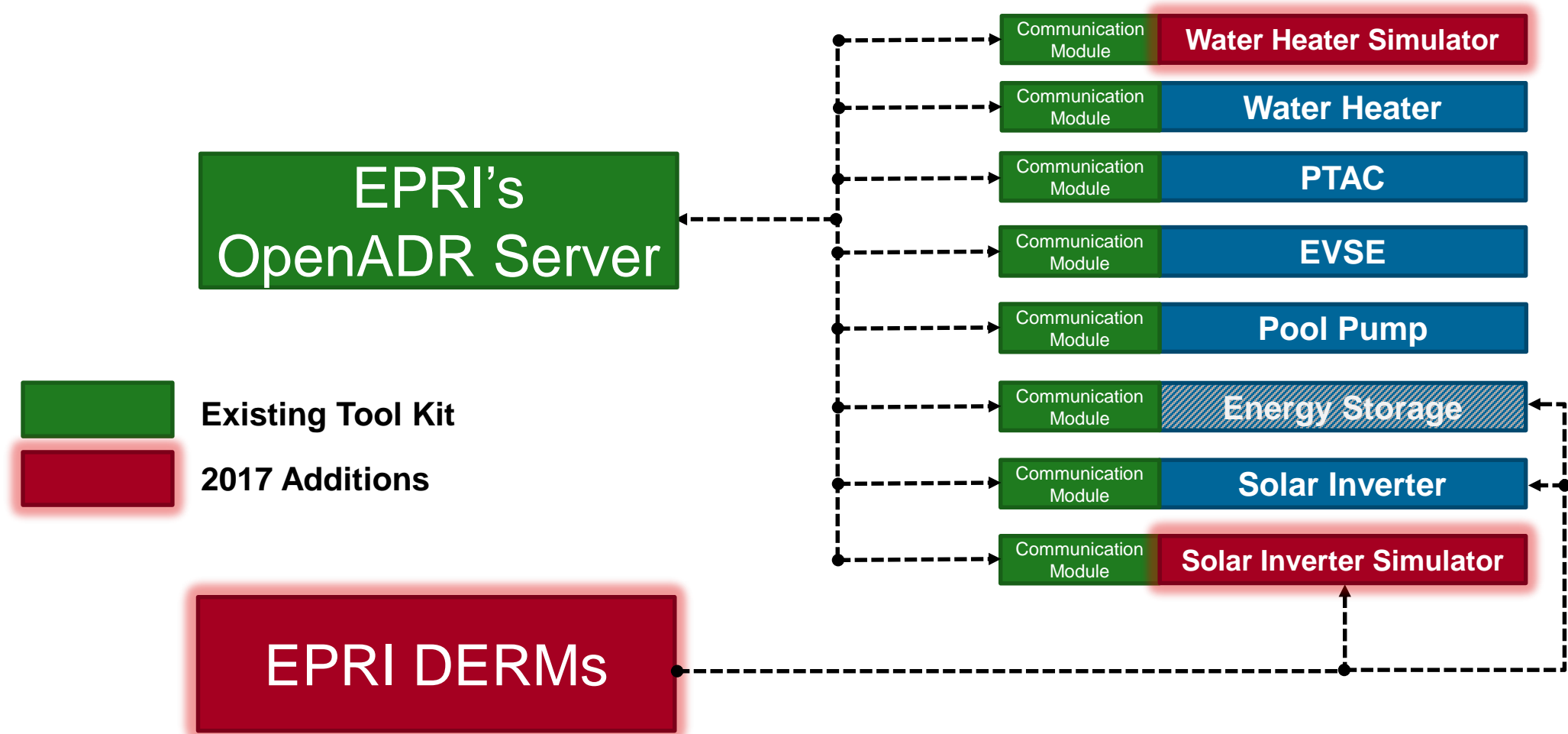


# Standards-Based Demand Response for Solar Integration



**Collaborate and Develop Best Practices, Requirements, and Industry Guidance**

# DER Integration Toolkit



Provide Tools and Reference Implementations to Advance Testability of DERs



# Systems Integration

- DER Enterprise Integration
  - Updating test script (adding 3 use cases):
    - Voltage regulation
    - Capability discovery
    - Group connect/disconnect
- **Testing event: October 2017, Knoxville**
  - Utility and vendor tracks



## **Deliverables:**

- Technical Report: *IEC 61968-5 Distributed Energy Optimization Test Script*
- Artifacts: WSDLs (IEC 61968-100-compliant), XSDs (IEC 61968-5-compliant), Test Cases: soapUI, EPRI Test Harness updates



# Together...Shaping the Future of Electricity