



Information and Communication Technology (Pi61) Newsletter

Jan./Feb. 2023

Dear ICT Program Advisors,

I hope that all of you had a wonderful holiday season and that your new year is off to a great start! We are looking forward to kicking off the year at our upcoming Advisory meeting in Knoxville, Tennessee, February 27th - March 1st; followed by our Sector Council Meetings Feb. 28th - March 2nd - and an exciting part of this meeting is that it will include a **full tour of our Knoxville Lab!** Something we've been trying to do for several years, but the pandemic got in the way of that.

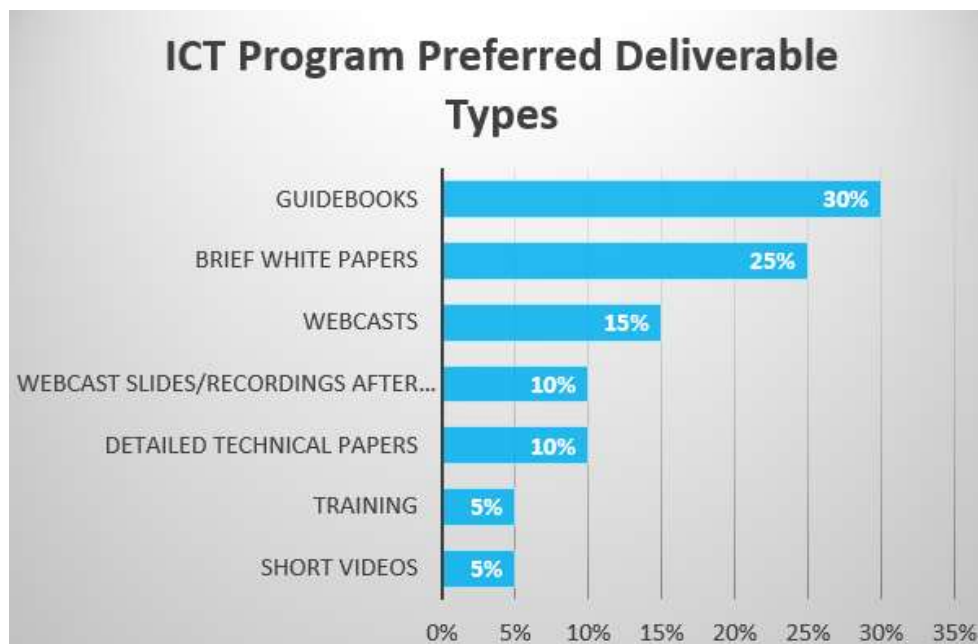


Be sure to [register for the meeting here](#) and also get your Hotel [Registration at the Knoxville Marriott Downtown](#) by **February 6th** to get the EPRI room rate.

In other news, we just published our **Information, Communication and Cyber Security (ICCS) Annual review** that is a fantastic resource to all our deliverables, recent accomplishments and the research plan for this year. Be sure to [download it](#) and share within your organization.



As many of you know, we publish over half of our annual research results in December, so be sure to go to our ICT Program [Research Results web page](#) to download the latest reports and deliverables. During our end of year webcast, we asked “What is your preferred deliverable type?” Numerous types of resources were mentioned, but the most popular resource mentioned was Guidebooks! (See chart of results below).



Did you know, **we published 11 Guidebooks** last year? These are our some of our most popular resources. Here is the list:

DER Data & Connectivity (161D)

- [DER Interoperability Guidebook – 2022 Edition: Information and Case Studies to Support Utilities in Achieving Interoperability with Distributed Energy Resources and Demand Response Technologies](#)
- [DER Protocol Reference Guidebook – 6th Edition: Assessment of Information and Protocol Standards for Distributed Energy Resources \(DER\), Electric Vehicles, and Demand Response Technologies](#)

Enterprise Architecture and Integration (161E)

- [Cloud Integration Guidebook, 7th Edition: A Guide for Enterprise Architects](#)
- [Digital Transformation: Information Technology–Operational Technology Convergence Guidebook: Fifth Edition](#)
- [Utility Enterprise Architecture Guidebook, 7th Edition](#)

Advanced Metering Systems (161F)

- [Guidebook for Identifying and Mitigating AMI Communications Problems](#)

Telecommunications (161G)

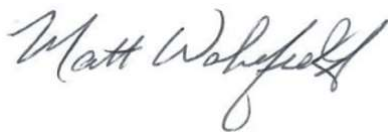
- [Private Long-Term Evolution Guidebook: Fourth Edition 2022](#)
- [Strategic Fiber Guidebook 2022 Edition](#)
- [Wide Area Network \(WAN\) Modernization Guidebook: First Edition 2022](#)
- [Telecommunication Standards Guidebook V4 2022](#)

Geospatial Informatics (161H)

- [Geospatial Informatics Guidebook: Third Edition](#)

I hope you continue to find these resources valuable, and we look forward to getting your guidance at our advisory meeting to continuously improve these resources and –
Together... Shaping the Future of Energy!

Sincerely,



Matt Wakefield
Director, ICCS & ICT Program Manager



ICT Emerging Technologies and Technology Transfer (161A)

Project Set Manager: Matt Wakefield

mwakefield@epri.com

161 3rd Thursday of the Month Webcast Series:

As we begin this new year, we will continue to offer our "3rd Thursday of the Month" webcasts featuring information about a different topic each month. This is an interactive webcast which will allow for questions and answers and an opportunity to vote on the next topic. The list below provides the dates and Program Set being highlighted for each of the webcasts through the end of the year.

[January 19 - DER & DR \(161D\)](#)

February 16 - Enterprise Architecture & Integration (161E)

March 16 - Advanced Metering Systems (161F)

April 20 - Telecommunications (161G)

May 18 - Geospatial Informatics (161H)

June 15 - ICT Mid-Year Update

July 20 - DER & DR (161D)

August 17 - Enterprise Architecture & Integration (161E)

September 21 - Advanced Metering Systems (161F)

October 19 - Telecommunications (161G)

November 16 - Geospatial Informatics (161H)

****December 14**** (Note: Date change due to holidays; December will be the **2nd Thursday of the Month**) - ICT End of Year Review

We hope that you will be able to join us on these fun and informative webcasts!

Need an invitation to a webcast? Contact Tristen DeAngelo-Hicks (tdeangelo-hicks@epri.com) or Matt Wakefield (mwakefield@epri.com).



DER Data and Connectivity (161D)

Project Set Manager - Ben Ealey

bealey@epri.com

DistribuTECH is Coming Soon!

Are you attending DistribuTECH? We would love to see you there!

Ben Ealey is conducting a course on [DER Interoperability and IEEE 1547](#) with James Mater of QualityLogic and Matthew Wallace of PPL. This session sold out last year so sign up while you still can. Not attending this year but interested in the course? Contact Ben Ealey (bealey@epri.com) to hear about other options.

Also, we have [a booth this year \(#5212\)](#) and will be talking about the DER Gateway project, so be sure to stop by and say hi!

Hot Topics, Pain Points and Buzzwords



EPRI hosted the second Hot Topics, Pain Points and Buzzwords at [December's DER Data and Connectivity task force](#). This session is designed to share EPRI's view of emerging topics that have impacts on the utility domain and provide a pipeline of topics for our annual emerging technology research. In the coming weeks, we will be soliciting member feedback via web poll to help us select which topics EPRI will focus on in 2023. Not a member yet but see a topic you're interested in? Let Ben Ealey know (bealey@epri.com). We welcome all input!

Guidebooks

EPRI Protocol Reference Guidebook – 6th Edition

Assessment of Info and Protocol Standards for DER, EV, and Demand Response Technologies

DER Interoperability Guidebook – 2020 Edition

Info and Case Studies to Support Utilities in Achieving Interoperability with DER and DR Technologies



Enterprise Architecture & Integration (161E)

Project Set Manager: Sean Crimmins

scrimmins@epri.com



OT Systems in the Cloud

At our February "3rd Thursday of the Month" presentation, we'll provide an overview of OT Systems in the Cloud initiative. We are aiming to breakdown roadblocks to the adoption of cloud-based services for grid management of both the distribution and bulk electric system. This is the beginning of a multi-year project that will include lab facilities that can prove out vendor claims and get utilities of all sizes more comfortable with real-time operations in the cloud. The conversation will continue at our Advisory in Knoxville: [HOME - EPRI Information, Communication & Cyber Security Advisory & Sector Council Meeting - Winter 2023 \(cvent.com\)](#) [gcc02.safelinks.protection.outlook.com]



Enterprise Architecture Spring Task Force

Members of the Enterprise Architecture project will meet (virtually) for our Spring Task Force on **April 11th from 10 am - 1pm PT**. At this meeting we will share experiences

and lessons learned from the implementation of Data Lakes and Analytics platforms, especially in their migration to the cloud. Members will inform this year's research with their highest priorities projects and initiatives.



2022 A successful year!

We completed some large multi-year projects, our guidebooks got even better, and we were able to meet face to face again. Congratulations to our members and our EPRI team for a successful year of collaboration.

White Paper

[Utilizing a business capability model for assessments](#) (3002024101)

Tech Updates

[A Functional Application Architecture for Grid Model Data Management: Model Files](#)

[Architectural Impacts of Disruptive Technology](#) 3002024191

[Cloud Integration Guidebook, 7th Edition: A Guide for Enterprise Architects](#) 3002024186

[Common Information Model Primer: Eighth Edition](#) 3002024188

[Distribution Grid Model Manager \(GMM\) Functional Requirements](#) (3002025388)

[Information Technology—Operational Technology Convergence Guidebook: Fifth Edition](#)
3(002024190)

[Library of Enterprise Architecture Patterns: LEAPworx 5th Edition](#) (3002024189)

[Top Ten Indicators of Enterprise Architecture \(EA\) Maturity—2021 Results](#) (3002024184)

[Utility Enterprise Architecture Guidebook, 7th Edition](#) (3002024184)

Technical Reports

[Applying the Grid Model Data Management \(GMDM\) Approach at the Distribution Utility](#)
(3002025387)

[CIM Support for Distribution Grid Model Data Management](#) (3002025386)

[Distribution Grid Model Data Management \(GMDM\) A Best Practice Approach](#)
(3002025384)

[Grid Model Data Management \(GMDM\) Architecture in Archimate](#) (3002025385)

[Diagramming OT Cyber Security Threats, Vulnerabilities, and Impacts](#) (3002025527)

[A Functional Application Architecture for Grid Model Data Management \(GMDM\)](#)
(3002025383)

[A Reference Architecture for DER Gateways](#) (3002024195)

Webcasts

[Link to Presentations & Recordings](#)



Advanced Metering Systems (161F)

Project Set Manager: Edward J. Beroset

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Advanced Metering Systems (161F) update:

Supplemental research opportunity:

Next Generation Metering – Distributed Intelligence

Multiple meter vendors are now touting the benefits of the ability of new devices to accommodate the development, testing and distribution of applications that can be created and downloaded to meters. Other vendors claim that there is no real benefit in doing so, and that centralized data processing is a superior model in all cases. These are obviously diametrically opposed viewpoints, that independent and objective EPRI research can help resolve. The purpose for this research is to investigate use cases to which distributed intelligence might be put, to understand the process by which the development, testing, deployment, and retirement of applications can be done in the current environment.

<https://www.epri.com/research/products/3002025322>

To learn more about this and other advanced metering research that EPRI is conducting, contact Ed Beroset, eberoset@epri.com.



Telecommunications (161G)

Project Set Manager:

Tim Godfrey

tgodfrey@epri.com

Please join us in welcoming **Ishaq Mian** to the 161G Telecom team. Ishaq was previously with Redline Communications, Ericsson, Nokia, and Hydro One. He started with EPRI on January 16th!

The 161G project set is launching 2023 with webcasts of the **WAN (Jan 25th)**, **FAN (Feb 23rd)**, and **Network Management (March 22nd)** subgroups to review and fine tune the project activities for the year. We are seeking a host for the Spring 2023 161G Task Force meeting.

[- Wide Area Network \(WAN\) Modernization Guidebook: First Edition 2022](#)

[- Telecommunication Standards Guidebook V4 2022](#)



Geospatial Informatics (161H)

Project Set Manager:

Kevin Gorham

kgorham@epri.com

Thank you for your participation in the 2023 Geospatial Informatics project set. We are looking forward to an exciting year. Below is a look back at our 2022 deliverables. If you have any questions or wish to discuss any of these in more detail, please contact me at kgorham@epri.com.

Geospatial Data Management

Geospatial Data Management

Geospatial Applications

Geospatial Analysis & Visualization

Geospatial Analysis & Visualization

3002024796 [Geospatial Informatics Guidebook 3rd Edition](#)

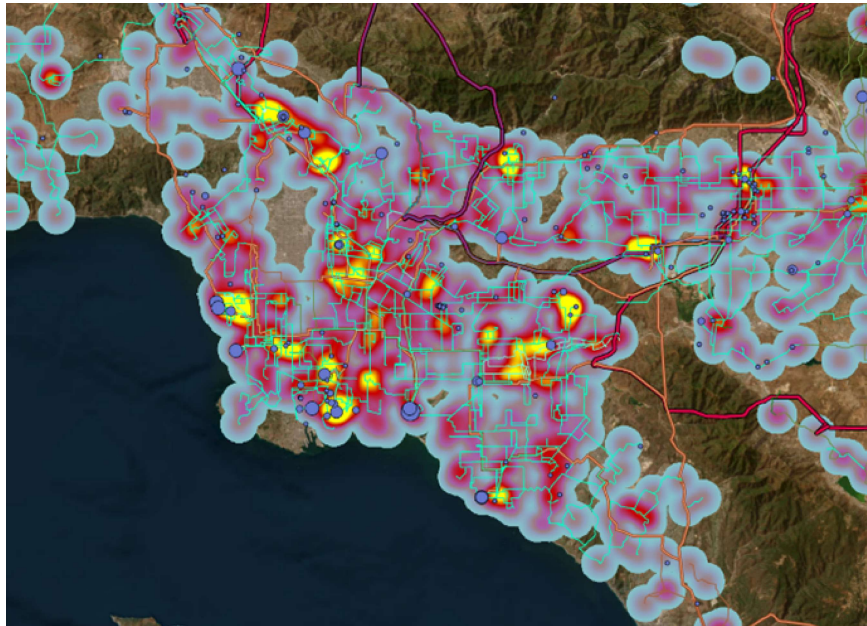
3002024798 [Enhancing GIS Data Quality Using Artificial Intelligence Tools](#)

3002024797 [Geospatial Requirements for XR Applications 2022 Update](#)

3002024818 [Dynamic Geospatial Informatics Can Model Grid Operations](#)

3002024104 [Geospatial Analysis for Site Selection and Grid Management of Distributed Energy Resources](#)

Here is a summary of our 2023 research plans which we will discuss in more detail at the ICT Winter Advisory meetings February 27th and 28th.



Geospatial Data Management:

- Migrating the Geospatial Guidebook 4th Edition to an interactive digital format
- Case studies summarizing data maintenance/data improvement procedures at member utilities
- Utility GIS Department Survey – team size, organizational structure, software, applications, etc.
- Geospatial Software Functionality Matrix

Geospatial Applications:

- Work Management systems and GIS
- Low code/No code GIS applications and management leading practices
- Machine learning/neural networks and Digital Twins

Geospatial Analysis and Visualization:

- Applying GeoINT principals to Electrical Grid operations
- Situational Awareness
- Machine Learning change detection and potential for geo-trigger process automation

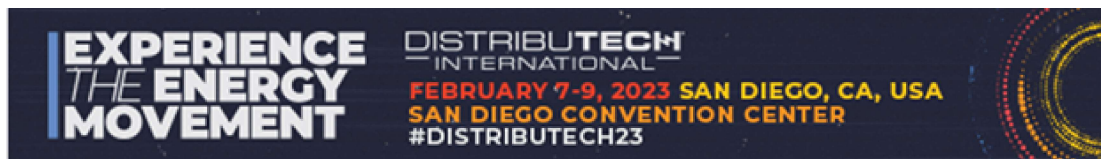
If you are interested in any of the above topics, please reach out to me to discuss at kgorham@epri.com. We will go into further detail at the 161H Virtual Task force meetings below:

1. **2023 161H Launch Task Force March 15, 2023**
2. **2023 161H Mid-Year Task Force Jun2 21st, 2023 (*Open to all Utilities*)**
3. **2023 End of Year 161H Task Force November 8, 2023**

Upcoming Meetings & Past Meeting Materials

Use this button to see what meetings are planned and to access materials from past meetings on EPRI.com.

Events



Going to DISTRIBUTECH 2023?

Come and see **EPRI at Booth Space #5126** – in Hall B1
Main entrance is Hall C

We will show case the latest technology research in the EPRI booth. In addition, we have several University Courses addressing IEEE 1547-2018 Interoperability, and accepted sessions in the Interconnecting DER and DER for Flexibility + Resilience tracks.



Additional Research Results

[- Guidebook for Identifying and Mitigating AMI Communications Problems](#)

- [Standard Meter Communications Protocols Primer](#)
- [Summary of Interoperability Tracking and Reporting by the ICT Program in 2022](#)
- [Private Long-Term Evolution Guidebook: Fourth Edition 2022](#)
- [Reference Implementation of OpenAFC: AFC Assessment Tool Project Research](#)
- [Integration of Device Provisioning into the Network Management System](#)
- [Smart Grid Communications Intelligencer, 2H 2022](#)
- [Analysis of Automatic Frequency Control System Protection of 6 GHz Microwave: Review, Research, and Simulations](#)
- [Strategic Fiber Guidebook 2022 Edition](#)
- [PRE-SW: AMI System Simulation v1.0 Beta](#)
- [Distributed Energy Resources Interoperability Guidebook – 2022 Edition: Information and Case Studies to Support Utilities in Achieving Interoperability with Distributed Energy Resources and Demand Response Technologies](#)
- [DER Protocol Reference Guidebook – 6th Edition: Assessment of Information and Protocol Standards for Distributed Energy Resources \(DER\), Electric Vehicles, and Demand Response Technologies](#)
- [Modeling Your Advanced Metering Infrastructure Network: How and Why You Should](#)
- [Wide Area Network \(WAN\) Modernization Guidebook: First Edition 2022](#)
- [Geospatial Analysis for Site Selection and Grid Management of Distributed Energy Resources](#)
- [Analyzing and Categorizing Momentary Outages from Advanced Metering Infrastructure \(AMI\) Data](#)
- [Geospatial Informatics Guidebook: Third Edition](#)
- [Advanced Metering Infrastructure \(AMI\) System Simulation Software Manual](#)
- [Simplifying and Streamlining Interoperability of Distributed Energy Resources: Application-Specific Profiles for DER Information and Protocol Standards](#)
- [Communication Requirements for DER: Initial Steps in Evaluating Wi-SUN for DER Communications](#)
- [Opportunities for IoT Protocols in DER Applications: Summary of IoT-Based Connectivity, Distributed Messaging, and Integrated Platform-As-A-Service Solutions](#)
- [Decomposing FERC O2222: Architectures and Protocols to Support DER Aggregation](#)
- [Developing ICT Networks to Integrate Distributed Energy Resource Technologies](#)
- [Grid Model Data Management \(GMDM\) Information Architecture](#)
- [Dynamic Geospatial Informatics Can Model Grid Operating Conditions Operations](#)



Program Announcements

Supplemental Project Notification

[Next Generation Metering - Distributed Intelligence](#)

[Enterprise Architecture Maturity Assessment](#)
[Business Capability-Based Investment Optimization \(BCM Phase II\)](#)
[Field Asset Unique Identification System](#)
[Applied Grid Model Data Management \(GMDM\) for Distribution](#)
[Applied Grid Model Data Management \(GMDM\) for Transmission](#)
[System Development Kit for CTA-2045](#)
[Assessing the Use of Voice Assistants for Industry](#)



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[ICT Roadmap](#)
[ICT Annual Review](#)

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