INFORMATION AND COMMUNICATION TECHNOLOGY (P161) SUPPLEMENTAL PROJECTS

AI.EPRI Supplemental: AI for the Modern Energy Company

While AI technologies are rapidly evolving globally, their implementation in the energy sector has been limited due to challenges related to security, reliability, trust, and compliance. Generative AI offers significant benefits through natural language interaction and the ability to create diverse content, but energy companies face risks associated with data accuracy and scalability, making it difficult to effectively evaluate and deploy AI for specific applications.

Price	Status	More Info	
$50K to $150K	Beginning	Jeremy Renshaw at 704.612.1336 jrenshaw@epri.com Adrian Kelly at 704.595.2810 akelly@epri.com two-page summary of project	

Applied Grid Model Data Management (GMDM)

The Applied Grid Model Data Management (GMDM) project aims to assist utilities in implementing the data management architecture developed by EPRI to enable faster and more seamless updates of grid models across various business domains. By streamlining maintenance, improving accuracy and traceability, and facilitating better model sharing and integration, the project seeks to reduce labor costs and meet the data needs of grid simulation applications.

Price	Status	More Info	
$125K	∞ Ongoing	Sean Crimmins, 865.227.1991, scrimmins@epri.com	Scan QR code for GMDM for Distribution GMDM for Transmission

Assessing the Use of Voice Assistants for Industry

This research project aims to explore various voice-based use cases in the maintenance, operations, and construction sectors of electric utilities, while examining the supporting data, IT/OT, communications, and cybersecurity functions. The initiative will evaluate workforce productivity, satisfaction, and safety improvements from these technologies, address IT integration and cybersecurity challenges, and analyze necessary adaptations to work procedures for effective voice technology implementation.

Price	Status	More Info	
• $50K – Observing participant • $85K – Application demo participant •$135K – Enterprise application demo participant - all qualify for SDF	Winding down	Jared Green, 865.360.7967 jgreen@epri.com Scan QR code for two-page summary of project	

INFORMATION AND COMMUNICATION TECHNOLOGY (P161) SUPPLEMENTAL PROJECTS

Assessment of DER-Ready Meter Forms

This project aims to explore various voice-based use cases in the maintenance, operations, and construction sectors of electric utilities, while examining the supporting data, IT/OT, communications, and cybersecurity functions. The initiative will evaluate workforce productivity, satisfaction, and safety improvements from these technologies, address IT integration and cybersecurity challenges, and analyze necessary adaptations to work procedures for effective voice technology implementation

Price	Status	More Info	
$100K	Beginning	Daniel Quarells, 865.218.8080 dquarells@epri.com two-page summary of project	

Assessment of MATTER Protocol for Utility Applications

The CSA's Matter Protocol, developed by major tech companies, seeks to enhance interoperability and security among smart home devices by facilitating seamless communication without reliance on cloud services. If utilities adopt Matter, it could lead to better integration with systems like SCADA and AMI for real-time energy monitoring and improved grid management, although there are currently no utility-specific applications available.

Price	Status	More Info	
$65k	Beginning	Ben Ealey, 865.218.5938, bealey@epri.com two-page summary of project	

Business Capability-Based Investment Optimization (BCM Phase II)

Strategic objectives frequently misalign with actual spending due to immediate challenges and strong personalities that divert focus from long-term goals, making it crucial to establish a clear connection between these objectives and financial investments. By ensuring utility investments reflect stated priorities, tying business capabilities to the underlying architecture, and developing a roadmap, utilities can effectively operationalize their business capability model to support strategic initiatives.

Price	Status	More Info	
$150K	Ongoing	Sean Crimmins, 865.227.1991, scrimmins@epri.com two-page summary of project	

Data Management Collaborative: Surviving the Data Avalanche

Efficient data management is essential for utilities navigating today's dynamic landscape, yet challenges like poor data quality and accessibility hinder progress despite the potential of AI and ML to drive new services and cost savings. This collaborative project seeks to accelerate data management innovation by sharing best practices, enhancing data literacy, and using frameworks to assess and improve data management capabilities, thereby fostering informed decision-making and ensuring competitiveness among participating utilities.

Price	Status	More Info	
$50K	Beginning	Sean Crimmins, 865.227.1991, scrimmins@epri.com two-page summary of project	

Information and Communication Technology (P161) Supplemental Projects

Enhanced Surveillance Over Wireless

The project aims to assess systems and solutions for delivering physical security video over bandwidth-constrained communications networks, focusing on both traditional video compression technologies and innovative event-based sensors that reduce motion. Key objectives include enabling video surveillance from remote locations, expanding use cases for Private LTE Networks, quantifying tradeoffs between data cost and quality on commercial cellular networks, and evaluating low-loss compression and data reduction techniques utilizing AI and ML.

Price	Status	More Info
$50K	Beginning	Tim Godfrey, 650.855.8584, tgodfrey@epri.com two-page summary of project

Enterprise Architecture Maturity Assessment

The project aims to support Enterprise Architecture (EA) teams at utilities in bridging gaps related to EA as strategy, the Business-IT relationship, and business architecture, based on two key annual deliverables. These include a survey assessing the maturity level of EA practices at utilities and a guidebook that facilitates the practical application of leading EA frameworks like TOGAF, ultimately helping companies enhance their EA maturity and align it with strategic objectives.

Price	Status	More Info
$25K	Ongoing	Sean Crimmins, 865.227.1991, scrimmins@epri.com two-page summary of project

EPRI U - Information, Communication Technology and Cyber Security (ICCS)

Utilities are confronted with ongoing training demands due to the retirement of experienced staff and new challenges in digital transformation and cybersecurity, prompting this project to focus on foundational technical training in ICCS topics. Additionally, it aims to establish a system for tracking and managing employees' professional development to enhance their skills and ensure the organization remains agile and competitive.

Price	Status	More Info
Tier 1: $15k/year **Tier 2: $25k/year** Tier 3: $35k/year	Beginning	Greg Drewry, 865.218.5916, gdrewry@epri.com two-page summary of project

Evaluation and Economic Feasibility Analysis of Commercial DER Gateways

The initial phase of the project (2021-2022) successfully developed technical requirements and specifications, resulting in an open-source reference implementation of a gateway focused on solar-type distributed energy resources (DER). The second phase will address gaps by integrating energy storage and solar-plus-storage DER, identifying and testing commercial DER gateway vendors, evaluating their technical and economic feasibility, and facilitating a working group to document DER integration needs and advanced gateway requirements.

Price	Status	More Info
$80K	Started	Ben Ealey, 865.218.5938, bealey@epri.com two-page summary of project

INFORMATION AND COMMUNICATION TECHNOLOGY (P161) SUPPLEMENTAL PROJECTS

Evaluation of Automated GIS Data Cleanup Methods

This project attempts to examine emerging technologies and methodologies to automate GIS data cleanup and asset inventorying. The project will evaluate multiple data collection approaches such as:

- **Street Vehicle-based mobile mapping**
- **Aerial Vehicle-based mobile mapping**
- **Satellite-based mapping**

Price	Status	More Info	
$75k	Underway	Kevin Gorham, kgorham@epri.com two-page summary of project	

Field Asset Unique Identification System

Tracking electric grid assets, particularly field assets throughout their lifecycle, has gained significant importance in recent decades, prompting the use of QR codes and industry consensus catalog IDs to create unique identifiers for all electric grid assets. This initiative aims to develop a comprehensive inventory tracking system that spans from factory assembly to retirement, integrating with EPRI's transformer database and GS1 QR code standards, while also demonstrating the application of durable unique identifiers through accelerated lifecycle testing in collaboration with utilities and vendor partners.

Price	Status	More Info	
$25K	Beginning	Kevin Gorham, 704.595.2397, KGorham@epri.com Sean Crimmins, 865.227.1991, scrimmins@epri.com Scan QR code for two-page summary of project	

FLEXIT: Flexible Interoperable Technologies Initiative: VPP/DER Registry and Integration Interface

As distributed energy resources (DER) such as generation, storage, and manageable load are expected to grow, there will be a need for visibility and control over these devices, leading to an increase in commercial offerings of third-party DER management systems (DERMS). This project aims to provide a guide and framework for integrating DER via aggregators, simplifying the process through common utility requirements, addressing utility-to-aggregator interactions, and enhancing customer participation and confidence in commercial aggregation, while also creating materials to inform regulatory discussions.

Price	Status	More Info	
$100K	Beginning	Brian Seal at 865.456.3586, bseal@epri.com two-page summary of project	

INFORMATION AND COMMUNICATION TECHNOLOGY (P161) SUPPLEMENTAL PROJECTS

Grid Model Data Management (GMDM) Vendor Forum Phase II: An EPRI-Sponsored Vendor-Funded Collaborative Initiative

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Price	Status	More Info	
$8K to 80K	Started	Sean Crimmins at 650.855.7901 scrimmins@epri.com Varun Perumalla at 650.855.1051 vperumalla@epri.com Click here for two-page summary of project	

Grid Model Manager (GMM) for Distribution Interest Group

As transmission operators have deployed Grid Model Manager applications, distribution operators and vendors are now striving to develop accurate and detailed models of the distribution grid to support various power flow analyses. This initiative aims to create an industry vision for Distribution Grid Model Managers through the exchange of perspectives, insights from vendor demonstrations, and direct engagement with vendors to validate the vision and architectural requirements.

Price

Size	*GWh range*	*Total Price*
Small	Less than 22,000	$25,000
Medium	22,000 to 45,000	$35,000
Large	More than 45,000	$45,000

Status

Beginning

More Info

Sean Crimmins, 650.855.7901, scrimmins@epri.com
Varun Perumalla, 650.855.1051, vperumalla@epri.com
Scan QR code for two-page summary of project

Nationwide Resilient Communications System (NRCS): Phase 1: Requirements Definition and Design Specification

The project's objectives include developing a technical specification and business operations plan for a Nationwide Resilient Communications System (NRCS) that offers an interoperable solution to the black sky communications challenge across North America's grid interconnections. This system will utilize commercial off-the-shelf technologies, operate independently of commercial service providers, and be designed to function during black sky events, with the first phase producing design specifications to determine whether to proceed to deployment.

Price	Status	More Info	
$45K	Beginning	Jay Herman 913.626.8255, jherman@epri.com two-page summary of project	

INFORMATION AND COMMUNICATION TECHNOLOGY (P161) SUPPLEMENTAL PROJECTS

Next Generation Metering – Distributed Intelligence

Multiple meter vendors are promoting the advantages of new devices that support the development, testing, and distribution of applications directly on meters, while others argue that centralized data processing is the superior model. EPRI's research aims to objectively investigate use cases for distributed intelligence, assess vendor offerings for Advanced Metering Infrastructure (AMI) application deployment, and provide unbiased data to inform decisions regarding AMI purchases, upgrades, and utilization.

Price	Status	More Info	
$100k for participating, $60k for observing	Beginning	Ed Beroset 919.901.2652; eberoset@epri.com Scan QR code for two-page summary of project	

Next Generation Wireless Local Area Network (WLAN)

Recent advancements in wireless LAN technology, including the completion of Wi-Fi 6 (IEEE 802.11ax) and the near completion of Wi-Fi 7 (IEEE 802.11be), feature enhanced security standards like WPA3 and new Wi-Fi location capabilities, significantly improving efficiency and enabling various utility use cases such as wireless sensors and augmented/virtual reality (AR/VR). This next-generation WLAN offers performance that can match or exceed 5G at a lower cost, addressing reliability, security, and electromagnetic compatibility concerns, while also reducing sensor installation costs and enhancing IT and OT connectivity across the enterprise for increased operational efficiency.

Price	Status	More Info	
	Beginning	Tim Godfrey, 650.855.8584, tgodfrey@epri.com two-page summary of project	

Renewables Communications: Use Cases, Communications Technologies, and Implementation Considerations

New renewable generation is rapidly increasing, with utilities pursuing both the development of new solar and wind projects and the acquisition of existing renewable assets. The project aims to identify communication use cases at remote renewable sites, analyze relevant technologies and protocols, and foster collaboration among members and EPRI to enhance research insights.

Price	Status	More Info	
	Beginning	Tim Godfrey, 650.855.8584, tgodfrey@epri.com two-page summary of project	

Utility Digital Worker Collaborative

A utility digital worker combines technology and applications to enhance the safety and effectiveness of field workers, and the project will prioritize technologies that improve digital worker performance through three primary tasks: case studies, assessing application impact, and creating a guidebook. The public benefits of this initiative include decision-making guidance for utilities on implementing the most beneficial digital worker applications, ultimately supporting their goals of providing safe, affordable, and reliable electricity.

Price	Status	More Info	
$50K	Started	Julia Uhr; 972.556.6556; juhr@epri.com Scan QR for two-page summary of project	