



American Electric Power | Anerix | Atlantic City Electric | AVEVA | Baltimore Gas & Electric | Bandera Electric Cooperative | Black & Veatch | ComEd | Con Edison | DNV Energy USA Inc. | Delmarva Power | Exelon | GE Digital | GE Grid Solutions | GridBright | Hitachi Energy | Itron | Krevat Energy Innovations | National Grid | PECO | Pepco | Qubitekk | Schneider Electric | Siemens Energy | Utilidata | VEIR

July 26, 2022

The Honorable Jennifer Granholm
Secretary of Energy
U.S. Department of Energy
1000 Independence Avenue SW
Washington, DC 20585

Dear Madam Secretary,

The GridWise Alliance is a non-profit organization consisting of leading utilities, rural cooperatives, owners and operators of transmission and distribution grids, manufacturing, engineering companies, and new innovative grid technology companies. This diverse group of industry stakeholders is committed to building a modern 21st century grid that can support decarbonization, empower consumers, reduce costs, and bolster electric reliability and resiliency. GridWise Alliance strongly supported Congress' historic investments in grid modernization under the Infrastructure Investment and Jobs Act (IIJA).

As the Department of Energy (DOE) implements IIJA programs, it must leverage federal funding to drive additional investment in both the transmission and distribution systems as Congress envisioned. It is worth noting that IIJA funding is an important tool in mitigating the costs on state ratepayers of grid modernization projects, an important priority in providing affordable electricity to U.S. families and businesses. We look forward to working with you and your team as you design these programs and offer the following recommendations as you develop priorities for the IIJA grid modernization funding.

The IIJA grid-related programs focus on a variety of objectives (See Table 1). Most obvious are the two grid resilience programs totalling \$11 billion (Sections 40101 and 40103), funding that could be used for both transmission and distribution investments. For example, in Section 40101, Congress identified twelve categories of "activities, technologies, equipment, and hardening measures" designed to enhance the grid in order to avoid the consequences of a "disruptive event." Transformation of all elements of the grid clearly was the intent. The \$2.5 billion for the Transmission Facilitation Program (Section 40106) will support decarbonizing the power sector and enhancing reliability and resilience by financing new transmission. New borrowing authorities and other funding for Bonneville Power Administration (BPA) and Western Area Power Administration (WAPA) will support upgrades to federally owned transmission. Additionally, the DOE Loan Program Office announced \$5 billion in loan guarantees in 2021 to support innovative transmission projects. The \$1 billion for middle mile infrastructure (Title IV) administered by the National Telecommunications and Information Administration (NTIA) is specific to utility communications systems, which support all the desired outcomes.

Table 1. IJJA funding programs mapped against desired outcomes on the transmission (T) and distribution (D) systems.

Funding Area	Amount	T	D	Comm	Decarbonized Power Supply	Affordable Energy	Beneficial Electrification	Reliable Delivery	Resilient System	Customer Choice
SGIG 40107	\$3B	X	X	X	X	X	X			X
Grid Resilience 40101, 40103	\$11B	X	X	X		X		X	X	
Transmission Facilitation Program 40106	2.5B	X			X	X		X	X	
BPA		X				X		X	X	
WAPA		X				X		X	X	
DOE Loan Program Office	\$5B	X								
NTIA Title IV Middle Mile Infrastructure	\$1B	X	X	X	X	X	X	X	X	X

The \$3 billion appropriated for Smart Grid Investment Grants (SGIG) for Deployment of Technologies to Enhance Grid Flexibility (Section 40107) will likely be oversubscribed, as was the case for the \$3.4 billion in the 2009 American Recovery and Reinvestment Act (ARRA). However, IJJA contains over \$20 billion in grid-related funding programs, so it will be important to focus Section 40107 grants on program areas not funded through other programs. When mapping IJJA grid programs against desired outcomes of a modern grid (Table 1), it becomes clear that promoting beneficial electrification, allowing increased customer choice, and supporting a decarbonized power supply requires a new level of flexibility envisioned by Congress when it updated the SGIG authorizing language. Tapping into the flexibility that distributed resources can provide will be vital to achieving decarbonization cost-effectively “end to end” throughout the electric power system.

More specifically, we recommend that DOE focus SGIG funding on projects that seek to accelerate a decarbonized grid by facilitating the integration of distributed energy resources (DERs) and utility scale projects onto the distribution grid. This would include projects focusing on accommodating additional distributed renewable energy, storage, transportation electrification, grid-interactive efficient buildings, and demand response, including the communications and advanced technologies necessary to support these transformative changes. Decarbonizing the power sector and beneficial electrification will require enormous growth and grid integration of renewable energy development in the U.S. It will, therefore, be important to maximize the value of demand flexibility and energy storage at the distribution system level to manage load and shave peak demand, reduce the curtailment of renewable energy, while also reducing overall the costs of service. Doing so would not only enhance distribution system optimization, but would also allow the distribution system to place more efficient demands on the bulk power system.

The SGIG could also include projects at the transmission level to address the increased load from beneficial electrification and provide grid operators with additional visibility and flexibility to shift load. GridWise Alliance also believes Grid Enhancing Technologies, or GETs, deployed on the transmission and distribution systems will support flexibility, however DOE should closely coordinate its grant allocations across programs to ensure that proposed investments are coordinated across various IJJA sections, which involve both transmission and distribution system applications. GETs also can provide significant resilience benefits envisioned by Sections 40101 and 40103, including preventative grid hardening capabilities, real-time situational awareness, and corrective response functionality during and after extreme weather and wildfire events.

Grid modernization is occurring in a patchwork fashion across the country,¹ so the transformational investments envisioned by IIJA will look different depending on conditions in each state and utility service territory. While some utilities are deploying sophisticated broadband communications networks across their grid, others lack Supervisory Control and Data Acquisition (SCADA) systems. The best example of that patchwork nature is the distribution of Advanced Metering Infrastructure (AMI) across states.

A basic building block of a modern grid, AMI provides the mechanism for two-way electricity flow and communication on the distribution system. AMI gives utilities greater visibility and control of grid conditions, allowing for faster power restoration and enabling demand response². Customers can access timely data on their power consumption and take advantage of time-of-use pricing to plan their consumption. AMI meters are also essential for enabling many energy efficiency programs and technologies. Yet less than 61% of customers across all classes (residential, commercial, and industrial) are connected to the grid with AMI.³ The regional differences in AMI deployment are stark: whereas 75% of residential customers have AMI in some southwestern states, only 22% of customers in New England have AMI. Furthermore, these statistics include AMI that range from basic hourly internal meters that provide data at least once a day to real-time meters with built-in two-way communication that can transmit instantaneous data.⁴ Current AMI with distributed intelligence represents a technological quantum leap from the AMI that was funded a dozen years ago with ARRA investments.

The equity issues of this disparity in AMI deployment are significant. Customers without AMI suffer longer power outages, lack information to reduce their energy burden, and cannot receive pricing signals from the utility. Without modern AMI, customers will not be able to participate in the emerging markets for aggregated Distributed Energy Resources (DERs) envisioned by FERC Order 2222. In Section 40103 of IIJA, Congress expanded the definition of smart grid functionalities, all of which will require the deployment of a suite of technology solutions. In some cases, utility grid modernization plans will include AMI deployment in concert with other smart grid technologies. The GridWise Alliance recommends that DOE support grant applications that enhance equity, affordability, and smart grid functionality and not exclude any currently available grid technologies from its program specifications.

Finally, application and program management processes can be a hurdle for small- and mid-sized utilities in both rural and urban service territories. DOE should identify opportunities to reduce the effort required of these utilities to obtain and manage grants. To support efficient disbursement of program funds, DOE should consider developing a centralized portal for utilities (especially small- and mid-sized) to submit Requests for Proposals describing their grid modernization needs that allows solution providers to submit how their technologies and services fit within each DOE program.

We would welcome the opportunity to speak with you about grid modernization when our members are in town in December for our annual conference, gridCONNEXt. In the meantime, the GridWise Alliance

¹ The GridWise Alliance's Grid Modernization Index (GMI) uses data inputs and publicly-available information to evaluate and rank the status of grid modernization efforts across all 50 states and the District of Columbia.

² [Next Generation Advanced Metering Infrastructure \(AMI\) System Design and Utilization: Case Studies in Utility Innovation](#). EPRI, Palo Alto, CA: 2019. 3002013400.; [Advanced Metering Infrastructure-to-Outage Management System Use Case Exploration](#). EPRI, Palo Alto, CA: 2014. 3002002858.

³ 2019 Form EIA-861 Advanced_Meters_2019 data file, 2019 Form EIA-861 Utility_Data_2019, 2018 Form EIA-861 Advanced_Meters_2018 data file, 2018 Form EIA-861 Utility_Data_2018.

⁴ <https://www.eia.gov/tools/faqs/faq.php?id=108&t=3>

stands ready to convene our members virtually should you or your staff desire additional industry insights.

Thank you for your support for grid modernization and its role in serving as the platform for the Administration's goals of decarbonization and resilience.



Karen G. Wayland
Chief Executive Officer

