



Smart Electric
Power Alliance

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Utility Resilience as a Service Insight Briefing

2023 UTILITY CONFERENCE WORKSHOP

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About SEPA

The Smart Electric Power Alliance (SEPA) is dedicated to helping electric power stakeholders address the most pressing issues they encounter as they pursue the transition to a carbon-free energy system. We are a trusted partner providing education, research, standards, and collaboration to help utilities, electric customers, and other industry players across three pathways: Electrification, Grid Integration, Regulatory and Business Innovation. Through educational activities, working groups, peer-to-peer engagements and advisory services, SEPA convenes interested parties to facilitate information exchange and knowledge transfer to offer the highest value for our members and partner organizations. For more information, visit www.sepapower.org.

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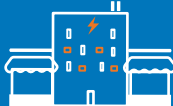
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Background

The Utility Resilience-as-a-Service (RaaS) workshop convened by the Smart Electric Power Alliance (SEPA) highlighted the emerging trend of utilities partnering with customers to provide resilience offerings. These programs can vary based on target customers, financing structures, rate schedules, and technology types; however, they aim to deliver reliability, capacity, and resilience during extended power outages. The workshop featured guest speakers from Georgia Power and Xcel Energy and 25 participants from 14 utilities across the U.S. It focused on exploring best practices and lessons learned related to utility resilience partnerships with customers in and designing RaaS programs.

Key Takeaways

	Technology Agnostic: Utility RaaS programs should be technology agnostic, considering various solutions while keeping in mind fuel costs and the need for low-cost, low-carbon, long-term resilience.
	Benefits Beyond Resilience and Creating Value for Utilities and Customers: Public-use facilities and communities in need of resilience often struggle to monetize additional benefits from microgrids or resilience investments. To make utility RaaS programs successful, the value proposition for customers and utilities should include value streams from peak management and resource capacity, in addition to resilience.
	Value for Larger Customers: Larger customers with substantial assets, such as big box retailers, can provide demand response and resource adequacy, forming the foundation for utility RaaS. Larger customers also value power reliability and could benefit from partnering with utilities in a RaaS arrangement as a physical insurance policy. Smaller customers, such as emergency shelters or high school gymnasiums, may be less enticing for utilities due to their lower power demands.
	Competition with Third-Party Providers: Large commercial and industrial customers, such as Walmart and other large businesses, present opportunities for utility RaaS programs; however, they also face competition from third-party energy service providers.
	Regional and Policy Implications: Utilities exploring RaaS should consider state policies related to utility asset ownership, carbon-free mandates, and restrictions on building new fossil fuel generation. Regional fuel cost differences, customer demographics, and hazard threats may also impact the utility RaaS value proposition.

Key Questions

SEPA outlined key questions to help utilities assess the feasibility of RaaS programs. These questions covered areas such as value proposition, limitations and risks, target customers, program design, and partnerships. Examples include identifying customer drivers for resilience, evaluating limitations for asset installation, and determining customer eligibility for participation.

VALUE PROPOSITION



- What are the key drivers and needs for your customer's interest in resilience? (e.g. least cost resilience solution, least cost carbon resilience solution, outage duration and critical load needs, etc.)
- What is the customer's value proposition? (e.g. value of loss of load for customers, value of backup power for critical loads, value of emergency services, credits for participating in other tariffs, etc.)
- What is the utility's value proposition? (e.g. contingency capacity reserves, resource adequacy, frequency startup, frequency regulation, reliability and capacity project deferral, etc.)

LIMITATIONS AND RISKS



- What are your limitations for owning/installing different assets such as diesel or natural gas generators?
- What are the risks associated with a program? (e.g. regulatory intervenors, operational risks, decarbonization goals, excess generation, anti-competitive regulations, fuel costs, etc.)
- Who are the target Customers?
- Who is eligible to participate in the program? (e.g. residential, commercial, industrial, etc.)
- What is the participation minimum for a customer? (e.g. 100 kilowatts (kW), 1000kW, etc.)

DESIGN AND PARTNERSHIPS



- What are the prescribed terms of service and aggregation and how do you structure the program in terms of business models? (e.g. behind the meter (BTM) vs. front of the meter (FTM), monthly vs. upfront payments, tariffs vs. credits, ownership structures, etc.)
- What are your supplier relationships with vendors and solution providers in the market? (e.g. vendors, installers, energy contractors and engineers for further analysis, engineering work, requests for proposals)

Designing Hypothetical RaaS Programs

During breakout sessions, participants from different utility groups designed their own RaaS programs. Some notable features included grant funding for customers, long-term contracts with buyout options, partnerships with third parties, and the involvement of emergency response facilities, water and wastewater treatment plants, and community resilience hubs.

Group A. Medium Sized Investor-Owned Utility in the Pacific Northwest			
Economics	Terms & Conditions	Target Participation	Roles & Responsibilities
- Quantify and value resilience for public purpose facilities - Offset costs via federal and state grant funding	- Concerns around Environmental Protection Agency and permitting 1st line of resiliency: BTM direct serve 2nd line of resiliency: FTM from utility asset 3rd line of resiliency: Last for forced outages	- Critical facilities, such as water and wastewater treatment facilities - Resilience hub, such as emergency shelters and centers where people gather and seek comfort	Utility ownership and operation of battery energy storage component

Group B. Larger Sized Investor-Owned Utility in the Mid-Atlantic			
Economics	Terms & Conditions	Target Participation	Roles & Responsibilities
- Monthly payments to customer for ancillary services, such as non-wires alternatives - Monthly payments to utility for resiliency and energy - Quantify and value voltage optimization	15-year contract terms close to life of asset - Buyout option at expiration	- Data centers, health care, emergency response, water and wastewater treatment, and Department of Defense facilities - Large customers >500 kW demand Customers	- Manufacturer design and installation - Utility ownership with partnership with third parties to manage risk - OATI (Open Access Technology International, Inc.) dispatch management partnership via distributed energy resource management software (DERMs) - Standardize metering and monitoring for customer alerts

Group C. Medium Sized Investor-Owned Utility in the Northeast			
Economics	Terms & Conditions	Target Participation	Roles & Responsibilities
• Concern around inability to take advantage of federal tax credits and capture a clear rate of return • Must include maintenance expense in tariff • Must ensure firm capacity gained for utility	• Focus agreements with New England Independent System Operator (NE ISO) • Offer mobile resources with subscriptions	• Municipalities, resilience centers, electric vehicle charging hubs, surgical centers, and banks • Customers who are isolated to single vfeeders/radials	• Address lithium-ion safety concerns • Mobile grid charged storage • Customer ownership and operation for other uses

Conclusion

RaaS programs may not suit every utility and customer; however, they offer an attractive option for utilities with large commercial, industrial, and governmental customers with resilience and sustainability goals. These programs allow utilities to reduce the capital burden on customers, increase resilience and reliability, and leverage economies of scale. While utility RaaS programs gain traction, utilities should explore other customer offerings like “bring-your-own-devices” programs that allow customers to make upfront investments to receive bill credits. The key takeaways, key questions, and hypothetical program designs outlined in this briefing can guide utilities and end-use customers in implementing RaaS programs, especially as technology costs decrease and resilience demand rises.



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