ON-DEMAND Act

Optimizing Networks for Distributed Energy Management and New Demand Act

Overview. The ON-DEMAND Act aims to leverage the deployment of virtual power plants—i.e., aggregations of smart appliances, batteries, and other distributed energy resources that provide grid services—to help meet growing energy demand and lower costs for consumers.

Section-by-Section Overview:

Section 2. Virtual Power Plant Standardization and Scalability.

The bill directs the Department of Energy (DOE) to convene a wide range of grid stakeholders for the purpose of examining regulatory hurdles and other challenges hindering virtual power plant (VPP) projects and requires the agency to consider opportunities where DOE-led standards and best practices could help support new VPP deployments. DOE is required, for example, to examine whether developing standardized methods to measure the benefits of VPP services would benefit the industry and ultimately lower costs for consumers. It also directs the agency to consider best practices for consumer protection.

Reasoning: As outlined in DOE's VPP Liftoff Report, "part of the difficulty in scaling up proven VPPs across geographies stems from inconsistencies in key areas of distribution system operations, including grid participant governance, electricity data measurement and communication, DER interconnection and product certification, and cybersecurity." Improved coordination and resourcing is needed to develop coherent industry- and regulator-aligned standards that would enable VPP projects to be more easily repeatable and cost-effective.

Section 3. Virtual Power Plant Communication Protocols.

DOE is directed, in part, to establish and promote standards relevant to virtual power plant communications, interoperability, and cybersecurity based on findings that such standards would support consumer protection and cost-effectiveness. The agency must inventory existing standards, seek stakeholder input, and avoid adopting standards or protocols that are duplicative or overly burdensome. Lastly, after setting relevant standards and protocols, DOE is required to support their adoption through technical assistance, stakeholder outreach, and other activities.

Reasoning: DOE has found that a lack of consistent standards for the underlying technologies of VPPs, including communications and data sharing between devices, creates significant hurdles for new VPP projects. Moreover, a lack of cybersecurity best practices "creates both real and perceived risks for VPP deployments."

Section 4. Technical Assistance for Electric Utilities, Utility Regulators, and other Stakeholders.

Under this legislation, DOE must provide technical assistance and expert support for: (a) electric utilities and load-serving entities in the operation of VPP projects; and (b) utility regulators—including public utility commissions, boards of rural electric cooperatives, boards of municipal utilities, and state and local policymakers—to encourage the effective planning and adoption of VPPs. Technical assistance shall take the form of direct technical support, case studies, etc., and DOE is further directed to host workshops, roundtables, information sessions, and other activities to educate stakeholders and policymakers about VPPs.

Reasoning: Many utility regulators lack the resources, expertise, and/or capacity needed to scrutinize utility distribution and resource plans that do not adequately consider VPPs and their full range of benefits and grid services. Moreover, according to DOE, familiarity with VPPs remains low nationally among utility regulators, the boards of rural electric cooperatives, public power utilities, and state policymakers.

Section 5. Integration of Virtual Power Plants into Wholesale Markets.

The bill directs DOE to provide technical assistance and capacity support to Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs) to help implement relevant Federal Energy Regulatory Commission (FERC) orders and ensure the timely and inclusive integration of VPPs into system planning and marketplaces.

Reasoning: Multiple ISOs/RTOs are facing significant challenges with the implementation of FERC Order 2222, which instructs regional grid operators to allow participation of VPPs directly in wholesale markets. These challenges, including IT limitations and personnel capacity constraints, must be addressed.

Section 6. Contracts and Cooperative Agreement Authority

The bill provides the authorities for DOE to enter into contracts and agreements necessary to carry out these activities.

Section 7. National Laboratory Forecasting and Planning Tools.

DOE, in part, must direct the National laboratories to create and expand modeling tools, including forecasting and planning tools, to enable the design, adoption, integration, etc. of distributed energy resources and virtual powerplants. In carrying out this subsection, DOE is required to consult with utilities and other stakeholders to ensure that such tools will be widely utilized.

Reasoning: The National laboratories have already developed a host of modeling tools—such as real-time distributed energy resource management and optimization resources—that help utilities and other stakeholders deploy VPPs. They should continue to build on and expand these tools.

Section 8. Report to Congress.

DOE is directed to detail the findings and actions taken to implement this Act in a report to Congress that will also be made publicly available.

Section 9. Delegation and Interpretation.

The bill delegates appropriate authority to DOE to carry out this Act.

Section 10. Definitions.

The bill defines "virtual power plant," "distributed energy resource aggregator," and other key terms in the context of this legislation.