IMPLEMENTING EFFECTIVE GRID TRANSFORMATION

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Virginia has an antiquated electric grid. The current power grid was originally designed to support large fossil fuel power plants, with “one-way” power flow from plants to customers. To significantly cut greenhouse gas emissions and realize climate goals, Virginia will need to build a modern, responsive and integrated power grid.

Transforming the grid to make it “smarter” and more resilient through the use of cutting-edge technologies that communicate and work together to deliver electricity more reliably and efficiently can reduce peak demand and pollution, increase integration of renewable generation, and lower operational costs. In addition, the adoption of advanced technology will yield more data on ratepayers’ energy use, which could provide ratepayers with an opportunity to better manage their own energy consumption and costs.

BACKGROUND

In 2018, the General Assembly passed SB 966, the Grid Transformation and Security Act, which allows utilities to invest in modernizing Virginia’s power grid. However, this legislation defines “electric distribution grid transformation projects” very broadly, which could result in mixed opportunities, wasteful projects, or even costly abuse.

In July of 2018, Dominion requested approval from the State Corporation Commission (SCC) for Phase I, the first three years of a ten-year grid modification plan. The entire plan would cost customers approximately $6.0 billion and Phase I, as proposed, would have cost customers approximately $1.5 billion including financing costs.

Of the proposed program areas, the SCC ultimately approved only one – the cyber and physical security and telecommunications proposals. For everything else, the SCC found the proposal was not cost effective or reasonable and prudent and would result in an economic loss for all customers.

The SCC’s oversight in this matter was essential to prevent wasteful spending by the utility on a plan that was not well-developed or comprehensive. In its ruling, the SCC stated that full deployment of smart meters and other grid enhancements is only reasonable and prudent if it “is accompanied by a sound and well-crafted plan to fulfill the promise that smart meter technology and other grid enhancements offer.” The Commonwealth’s policymakers should promote electric distribution grid transformation projects that are part of a cost-effective and robust plan to reduce Virginia’s carbon output, lower energy costs, and produce a flexible, adaptable grid. These projects should include the integration of the following, in rough order of implementation and immediate opportunity:

- Advanced Metering Infrastructure (“AMI”)
  - AMI is an integrated system of smart meters, communication networks and data management systems that enable two-way communications between utilities and customers. AMI and related technologies are beneficial and cost-effective only to the extent that they are used to maximize the potential gains of rate optimality, energy efficiency, demand response, and distributed energy resources. Utilities will also likely need to upgrade their software capacities to fully exploit the new data produced by AMI, and.
- Data Access: The implementation of AMI will data on every customer’s energy usage. This data is very valuable to utilities, customers, and the energy industry. The data provided by AMI should be properly integrated with a Green Button Connect My Data (CMD) and Green Button Download My Data (GMD), which provides customers with access to their own personal data, the ability to download it, and the authority to release that data to third party energy product providers, so customers can better manage their energy consumption and costs.

TO SIGNIFICANTLY CUT GREENHOUSE GAS EMISSIONS AND REALIZE CLIMATE GOALS, VIRGINIA WILL NEED TO BUILD A MODERN, RESPONSIVE AND INTEGRATED POWER GRID.

• Demand response programs.
  - Distributed Energy Resources (DER) – In order to best integrate and expand DER, utilities should develop hosting capacity maps and make these maps publicly available. Hosting capacity maps are interactive maps that indicate how much generation can be added in a particular area before the current infrastructure reaches capacity or other limitations.
  - Non-Wires Alternatives (NWAs) – NWAs include the deployment and utilization of local DERs (including distributed solar, microgrids, and battery storage), and other non-traditional means of regulating voltage, managing the grid, reducing peak loads, improving resiliency or replacing or deferring traditional transmission and distribution investments (such as energy efficiency and demand response); and, Electric Vehicle (EV) infrastructure – EVs with smart charging systems can help balance energy loads by charging vehicles during periods of cheap and abundant renewable energy. Additionally, with the implementation of vehicle-to-grid communication technology, EVs can act as a quasi-battery – storing surplus electricity generated from renewable energy sources and feeding power back to the grid when needed.

CONCLUSION

The SB 966 provides utilities with the opportunity to overhaul the Commonwealth’s energy infrastructure, but we need to be vigilant to make sure that these electric distribution grid transformation projects are implemented effectively in order to reduce carbon output, empower customers, and prepare Virginia for the future.

POLICY RECOMMENDATIONS

Enact legislation to make account-level comprehensive data easily accessible to the ratepayer.

Enact legislation to protect ratepayers’ private information, but allow ratepayers to access their own data and disclose it to third party energy efficiency providers.

Amend Virginia code section 56-585.1 to prohibit utilities from using the customer credit offset for costs associated with grid hardening activities included as “electric distribution grid transformation projects.” Grid hardening activities include, but are not limited to: implementing new loading standards, implementing new vegetation management programs, upgrading substation transformers, replacing breakers, switches, and re-closures, removing obsolete network equipment; and replacing failing equipment.