



Mr. Joel H. Peck, Clerk  
State Corporation Commission  
Document Control Center  
P.O. Box 2118  
Richmond, Virginia 23218

November 6, 2018

**RE: PUR-2018-00100; Virginia Electric and Power Company - For approval of a plan for electric distribution grid transformation projects pursuant to § 56-585.1 A 6 of the Code of Virginia**

Dear Mr. Peck:

The Virginia Energy Efficiency Council ("VAEEC") respectfully submits the following comments for consideration by the Virginia State Corporation Commission ("Commission") in regards to the petition filed by Virginia Electric and Power Company ("Dominion Energy" or the "Company") in Case No. PUR-2018-00100.

VAEEC is a 501c3 organization, headquartered in Richmond, providing a platform for stakeholder engagement while assessing and supporting programs and policies that advance energy efficiency in Virginia. We engage our members to identify barriers and opportunities to energy efficiency advancement in Virginia, and to develop a strong, fact-based and balanced industry voice before local, state and national policymakers and regulators. Our diverse group of nearly 100 members includes Fortune 500 companies, nonprofits, local governments, state agencies, utilities and individuals. The VAEEC's goal is to ensure that energy efficiency is recognized as an integral part of Virginia's economy and clean energy future.

VAEEC supported the Grid Transformation and Security Act of 2018 due to the many energy efficiency commitments that were included in the legislation, and which paved the way for the Company to submit the Phase I application for their ten-year grid modernization plan.

The electricity industry is changing. As Demand Side Management (DSM) programs, distributed energy resources, and energy storage technologies become more widely available, modernizing the utility distribution grid will become even more necessary to maximize the benefits of these programs and technologies for consumers. However, it is equally important that best practices from other states, who have already begun grid upgrades, are employed, which include stakeholder engagement, robust cost/benefit analysis, and defining clear, measurable goals from the outset to ensure that customer benefits are realized.

Grid modernization is not a one-time event. It is an ongoing process; therefore, it is critical to establish clearly defined and measurable goals at the outset. Evaluating performance on the various components of the Company's grid modernization application can also help prioritize future investments over the next ten years and beyond.

Our comments focus on the following improvement areas as listed in the Company's filing:

1. *Smart meters*
2. *Customer Information Platform*

### 3. *Emerging Technologies*

#### *Smart meters*

Smart meters or Advanced Metering Infrastructure (AMI) provide real-time energy usage data to both the customer and the Company. Dominion Energy proposes installing approximately 1.4 million smart meters over the next three years in the Phase I filing, with an additional 700,000 meters deployed in subsequent phases over the remaining ten-year period. Currently, only 16% of Dominion Energy customers have smart meters. While smart meter deployment is a crucial first-step in any grid modernization plan, it is important that the savings potential from smart meter deployment is fully realized for customers. Such savings include allowing for third-party data analysis, using the 'Connect My Data' standard for two-way communication with customers, using AMI data to evaluate DSM program performance, and applying Time of Use rates to encourage electricity conservation during peak-demand times.

The Phase I plan, as introduced, does not provide any specifics on these important savings features. While the Company's application discusses some of the benefits of smart meter technology- such as enhancing grid reliability and decreasing response time to power outages- there are many other benefits, including demand reduction and conservation efforts that smart meters can provide, which are not mentioned.

Data from AMI can provide a deeper analysis on the effectiveness of approved DSM programs and can inform future program designs. With full deployment of AMI, utilities and evaluators are provided with real savings data rather than modeling results to show program performance. Analysis of this data also allows the Company to customize future programs for customer classes to determine the most effective programs for each class.

In a 2016 report, *A Smart Approach to Analyzing Smart Meter Data*, analysts with the American Council for an Energy-Efficient Economy (ACEEE), used AMI data to quantify real savings by using hourly temperature data to pinpoint the days and hours in which the greatest energy savings were achieved for a low-income HVAC program. They were able to take the analyses a step further by separating out the results for various participant groups<sup>1</sup>.

With the ability to record time of use, in addition to the volume of electricity consumed, smart meters allow for alternative rate structures, such as Time of Use (TOU) rates, to be implemented by the utility. This rate structure offers lower electricity prices when energy demand is low thereby allowing customers to maximize their energy savings by shifting energy consumption to partial-peak or off-peak hours of the day. In a 2018 review paper<sup>2</sup>, researchers reviewed 50 different time-varying rate designs where the average peak demand reduction was 16% and the average reduction in overall consumption was 2.1%, which indicates that customers do respond to time-varying rates, particularly during peak-demand times.

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<sup>1</sup> A Smart Approach to Analyzing Smart Meter Data

[https://aceee.org/files/proceedings/2016/data/papers/12\\_626.pdf](https://aceee.org/files/proceedings/2016/data/papers/12_626.pdf)

<sup>2</sup> <https://aceee.org/blog/2017/03/why-rate-design-matters-energy>

These savings opportunities, in conjunction with the benefits stated in the Company's application, can potentially lead to reduced costs to the system. However, it is unclear how the Company intends to pass on these savings to the customers who will be paying for these upgrades.

While we respectfully encourage the Commission to approve Dominion Energy's plan to deploy smart meter technology throughout its service territory, **we recommend setting parameters at the outset to achieve maximum savings for customers, which include clearly defined performance metrics for data analysis and alternative rate structures and a clear plan on passing savings onto customers.**

#### *Customer Information Platform*

Data access is crucial on two fronts. First, it provides energy usage awareness to customers, which can ultimately lead to behavioral changes that help customers make wiser energy decisions and save money. Second, it provides overall environmental and societal benefits by relying less on fossil fueled-power plants due to overall energy reductions. While we are encouraged to see a Customer Information Platform (CIP) included in the Company's Phase I petition, we have several recommendations that will help strengthen the proposal while maximizing benefits for customers.

#### **Require parallel deployment of smart meters and the Customer Information Platform**

For the Phase I filing, the Company is only requesting 45% of its total CIP budget while proposing to spend nearly 70% of its budgeted smart meter dollars during the same period. AMI deployment alone will not directly benefit customers. While smart meters are useful tools to save energy, they need to be utilized to their fullest potential by providing customers with easy-to-understand consumption data that encourages users to take action to save energy.

To that end, **the Commission should also require that the Customer Information Platform adhere to the Green Button Standard for data access and that the Company set clearly defined performance metrics.** The Green Button Standard is an industry-led initiative to provide electricity, natural-gas and water utility customers easy access to their usage data. As other utilities in Virginia begin tackling the issue of data access and energy awareness, it is important to set a standard for all to adhere to.

#### *Emerging Technologies*

One emerging technology worth noting, which was not included in the Company's original application, is voltage reduction technology, or Voltage and VAR Optimization (VVO). Delivering electricity at the lower end of a circuit's threshold can result in energy savings. While voltage reduction techniques have been around for decades, it has been difficult to monitor and control. With the advent of AMI and grid modernization, voltage reduction efforts are achievable with integrated monitoring and communication systems.

VVO is a process of optimally managing voltage levels and reactive power to achieve more efficient grid operation by reducing system losses, peak demand, and/or energy consumption.

According to a report by the Department of Energy, many utilities find 1 to 4% savings per circuit on initial deployment of VVO technology<sup>3</sup>. DVI, a sister company to Dominion Energy, is a leader in providing VVO technology. We encourage the company to consider VVO technology in future grid modernization filings.

In conclusion, the phase I investments in the Company's application will serve as the foundation for future grid modernization filings. Therefore, it is crucial to get this plan right in order to maximize benefits and savings for customers. With our suggested recommendations for improvement, this plan will achieve even greater benefits for customers.

Sincerely,



Chelsea Harnish  
Executive Director  
Virginia Energy Efficiency Council

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<sup>3</sup> [http://www.pnl.gov/main/publications/external/technical\\_reports/PNNL-19596.pdf](http://www.pnl.gov/main/publications/external/technical_reports/PNNL-19596.pdf)