

# **ANNUAL REPORT TO THE GOVERNOR AND GENERAL ASSEMBLY**



## **ENERGY CONSERVATION EFFORTS OF VIRGINIA'S INVESTOR-OWNED PUBLIC UTILITIES IN 2018**



**Submitted by the Department of Mines, Minerals and  
Energy**

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## **Introduction**

The Code of Virginia (§ 67-202.1) requires each investor-owned public utility (IOU) that provides electricity service in the Commonwealth to prepare an annual report to the Department of Mines, Minerals and Energy (DMME) delineating its efforts to conserve energy. In the report, each IOU is required to disclose its implementation of demand-side management (DSM) programs serving its customers, and its efforts to improve energy efficiency and conservation relating to its internal operations. These annual reports are to be submitted by November 1 of each year to the Division of Energy of DMME. The Division is required to compile the utilities' reports and submit the compilation to the Governor and the General Assembly.

For the year 2018, reports were received from Virginia Electric and Power Company (Dominion Energy, or "Dominion"), Appalachian Power Company ("APCo"), and Kentucky Utilities Company d/b/a Old Dominion Power Company ("ODP") on or by November 1. The following is a summary of reported energy conservation efforts during the past year. An electronic copy of each utility's full report is available from DMME. This report also includes an analysis of the progress toward the Commonwealth's goal of reducing retail customers' electric energy consumption by ten percent by the year 2020.

## **Dominion Energy**

Dominion Energy ("Dominion") continues to report that it has invested significant resources in conservation and efficiency (DSM) programs that provide customers the information and supporting technology needed to manage and reduce energy consumption.

### DSM Tariffs

Dominion offers one DSM tariff, the Standby Generation ("SG") rate schedule. The SG service tariff provides load reduction during peak periods by transferring load normally served by the company to a participant's standby generator. The customers receive a bill credit based on providing either a contracted amount of standby generation, or by average power generated during a billing month where standby generation is requested. There is currently one customer participating in the SG program in Dominion's Virginia service territory.

### DSM and Demand Response (DR) Programs

Dominion reports the Residential Air Conditioner Cycling ("Smart Cooling Rewards") and Income and Age Qualifying Home Improvement Programs are active; the Non-Residential Distributed Generation, Lighting Systems and Controls, Heating and Cooling Efficiency, Window Film, Small Business Improvement and Prescriptive programs are active.

Through its Phase VII DSM filing, Dominion has proposed 11 energy efficiency (DSM) and one DR program, with a spending cap of \$225.8 million. Dominion states in its filing with the State Corporation Commission (SCC) in Case No. PUR-2018-00168 on October 16, 2018, that this suite of programs is intended as a first phase of programs developed to meet the requirements of the Grid Transformation and Security Act, enacted March 2018. Dominion indicates that an SCC decision on the proposed Phase VII Programs is expected in June 2019.

Proposed Residential programs include:

- Appliance Recycling Program – Incentives for customers to recycle older refrigerators and freezers.
- Customer Engagement Program – Would provide educational insights and insights into customer energy consumption through a Home Energy Report.
- Efficient Products Marketplace – Rebates on energy-efficient lighting and appliances through an online marketplace and in-store promotions
- Home Energy Assessment Program – Would provide customers with incentives to install energy saving measures following completion of a walk-through home energy assessment.
- Smart Thermostat Management Program – To include both a demand response (DR) and energy efficiency component. The energy efficiency component would provide an incentive to customers to purchase a qualifying smart thermostat and/or enroll in an energy efficiency program to help manage heating and cooling energy use through remote optimization of their thermostat. The DR component would allow Dominion to work with customers not already participating in the Smart Cooling Rewards Program to curtail load during peak demand through the customer’s smart thermostat.

Proposed Non-residential Programs include:

- Lighting Systems and Controls Program – To provide incentives for implementation of more efficient lighting systems, including lamp/fixture upgrades and occupancy sensors and controls.
- Heating and Cooling Efficiency Program – Qualifying customers could receive incentives for upgrading heating and cooling equipment that will produce verifiable savings.
- Window Film Program – Continuing a program to provide incentives to install solar gain reduction films on window to lower cooling bills and improve comfort
- Small Manufacturing Program – Would provide incentives to qualifying customers for installing energy efficiency improvements, targeting compressed air systems for small manufacturing facilities.
- Office Program – To provide recommissioning services for smaller office buildings, aimed at energy efficiency improvement.

#### DSM Pilot Programs

Dominion reports it continues administering two ongoing DSM pilot programs. These programs include an electric vehicle pilot and an advanced metering infrastructure demonstration. The Electric Vehicle (“EV”) Pilot offers customers two alternatives (a whole house rate plus EV and EV only rate) to electricity pricing intended to encourage customers to charge electric vehicles during times of low usage. For both whole house plus EV and EV-only programs, supply service charges are significantly lower for Off-Peak hours (generally between 10 pm and 5 am). The program closed to new customers on September 1, 2016, and is scheduled to conclude on November 30, 2018. Dominion reports that as of August 31, 2018, 383 customers were enrolled on the whole-house EV rate and 155 in the EV-only rate, for a total of 578 customers across both options.

Dominion is also continuing to upgrade individual customer meters to smart meters via the advanced metering infrastructure demonstration program. As of July 31, 2018, Dominion reports having installed over 427,000 smart meters throughout its service territory in the Commonwealth, an increase of 47,000 over the last year. Dominion notes that smart meters and Advanced Metering Infrastructure (AMI) may provide benefits by allowing for remote meter reads and service connects/disconnects and better voltage regulation and integration of distributed and renewable energy resources. Although not noted in its report, Dominion's July 24, 2018 filing to the SCC (Case No. PUR-2018-0100) indicates that Dominion plans to install 1.4 million smart meters in Phase I (2019-2021) and an additional 600,000 in the 2022-2023 timeframe (Phase II) as part of its investments under the Grid Transformation and Security Act.

Dominion had a third program in place, the dynamic pricing (DP) schedule program, which concluded on July 31, 2017. The DP schedule allowed Dominion to charge different prices as the costs of electricity production changed in response to demand, meaning that the company charged more per kilowatt hour (kWh) for electricity usage during periods of higher electricity usage than during periods of lower electricity usage. The pilot program did not meet its voluntary participation goals of 2,000 residential customers and 1,000 commercial/general customers: 480 customers enrolled under the residential DP-R tariff, 68 customers under the commercial DP-1 tariff, and 71 customers under the commercial DP-2 tariff. Before it concluded, the SCC approved a modification allowing existing customers to remain on the tariffs after the conclusion of the pilot.

#### Evaluation, Measurement and Verification

In order to continue to quantify the level of energy and demand savings from its programs, Dominion has implemented Evaluation, Measurement, and Verification (EM&V) plans for the approved DSM programs. These plans are developed, executed, and reported by a third party vendor, DNV GL. The most recent EM&V report was filed with the SCC on May 1, 2018. This report concludes that across Dominion's portfolio of residential and non-residential programs in Virginia, cumulative actual participants were 74 percent of planned, while Net Energy Savings was 75 percent of planned through the 2017 program year.

#### Consumer Education and Outreach

Dominion has several consumer education initiatives that include providing demand and energy usage information, stakeholder meetings, and online customer support options to assist customers in managing their energy consumption. Through consumer awareness and education, Dominion is working to encourage the adoption of energy-efficient technologies in residences and businesses. Dominion's education programs include a newsletter, an energy conservation blog, online energy calculators, community outreach events and presentations in K-12 schools, a dedicated section of its website on energy conservation, and the use of social media.

In addition, Dominion's EnergyShare program will be expanded as set forth in the Grid Transformation and Security Act. EnergyShare provides energy assistance and weatherization services to low-income, elderly, disabled, and military veteran customers. Dominion will allocate an additional \$4 million annually, bringing the total annual funding to \$13 million. Over 23,000 homes have received weatherization improvements and 3,400 military veterans and 3,400 individuals living with disabilities have been assisted through the program during its 36-year history.

### Company Operations and Reporting

Dominion reports it continues initiatives to conserve energy and save money in its internal operations. Some examples are maintaining and improving the energy efficiency of Dominion's facilities, retrofitting new lighting to replace old florescent fixtures with electromagnetic ballasts, enhancing the irrigation system at its Richmond office to save water, green information technology (IT) incorporating ENERGY STAR compliant or certified components such as computers and servers, the Night Watchman program that shuts down inactive desktops at night, and an investment recovery program that disposes of surplus assets in a way that both maximizes return on investment and minimizes the environmental impact. Two of Dominion's Virginia-based facilities have obtained Leadership in Energy and Environmental Design (LEED) certification. In 2017, Dominion received the "Governor's Green Fleet Award" and reports that over 30 percent of the company's on-road fleet is powered by alternative fuels.

Dominion's report provides an overview of the suite of programs available to the company's internal and external stakeholders. Dominion states it supports the Commonwealth's goals regarding energy conservation and renewable energy and will continuously evaluate energy savings and environmental programs for itself and its customers in support of the overall goals in the Virginia Energy Plan.

### **Appalachian Power Company**

Appalachian Power Company ("APCo's") parent company, American Electric Power (AEP) continues to express a commitment to energy efficiency and demand side management measures. APCo reports that it seeks to limit the growth in the amount of power consumed at peak through several methods including demand response tariffs, direct load control programs, time-differentiated rates, and energy efficiency programs. APCo reports its suite of seven active programs realized approximately 42,000-megawatt hours (MWh) of electric savings during 2017. The 2017 calendar year savings are provided in order to ensure that verified and evaluated data are provided.

APCo reports that it has a total of seven DSM programs currently available to customers in Virginia, including six residential programs and one commercial program. Two of these, the Residential Low Income Program and Residential Direct Load Control program, were approved by the SCC in November 2014. On July 7, 2017, APCo filed to extend the Residential Low Income Program and Residential Direct Load Control programs for an additional three-year period (2018-2020) and received SCC approval for the extension on February 15, 2018. On June 24, 2015, the SCC approved five programs, including four residential programs and one commercial and industrial customer programs. These programs became available for customers in 2016 and are currently approved for implementation through 2018.

## Residential Programs

APCo's six currently available residential programs currently include: Low Income, Direct Load Control, Home Performance, Appliance Recycling, Manufactured Housing ENERGY STAR®, and Efficient Products.

The Low Income Program uses weatherization agencies in APCo's service territory to implement cost-effective energy saving measures in residential households with low incomes. Through December 2017, 686 customers have participated in the program.

The Direct Load Control Program offers participating residential customers \$8 per month during the summer season for each controlled central air conditioning unit or heat pump unit. APCo installs a switch on these units, and the switch has communication capability such that a signal can be sent from the utility to cycle the air conditioner or heat pump unit off during times of high system demand. Through December 2017, 4,743 load control switches have been installed under the program.

The Home Performance Program continues to grow and serve more customers. The program offers a free online energy checkup, access to a home energy assessment, and rebates for larger upgrades to the customer's home. Through December 2017, 8,954 customers participated in the program online, in-home, or through rebates. For the in-home energy audit portion of the program, APCo utilizes local contractors. There are currently 20 contractors engaged in the program.

The Residential Appliance Recycling Program helps customers reduce their energy consumption by removing old, working refrigerators and freezers from customers' homes for recycling. Properly capturing and recycling refrigerants helps to reduce their release into the atmosphere. Through December 2017, the program has recycled 1,824 freezers and refrigerators. On May 16, 2018, the SCC approved an extension of the Residential Appliance Recycling program through calendar year 2019.

The Manufactured Housing ENERGY STAR® Program provides manufacturers with incentives for improving building envelopes, utilizing efficient HVAC systems, and providing other heating and water heating efficiencies for new manufactured homes. APCo reports an interest ramp-up after the initial marketing push and continues efforts to raise manufacturer and customer awareness. A total of 24 manufactured homes were incentivized through December 2017.

The Residential Efficient Products program provides markdown incentives to retailers for the sale of light emitting diodes (LEDs) and mail-in rebates for certain ENERGY STAR® appliances. Through December 2017, the program has provided markdown incentives on 440,649 LEDs and rebates for 2,210 ENERGY STAR® appliances.

On September 29, 2017, APCo filed for approval of three new residential programs; two were approved by the SCC on May 16, 2018, for a three-year period, beginning January 1, 2019. These include: Bring Your Own Thermostat (BYOT) program and eScore program.

### Commercial and Industrial Programs

The Commercial and Industrial (C&I) Prescriptive program launched in January 2016, and has experienced steady growth. Through December 2017, 527 energy efficiency projects were completed for 289 customers, with realized savings of nearly 28,000 MWh. Approximately 80 registered trade allies (lighting distributors, electrical contractors, and consultants) participate in the program.

APCo filed for three new C&I programs with the SCC on September 29, 2017: the C&I Lighting Program, C&I Standard Program, and Small Business Direct Install Program. The SCC approved these programs on May 16, 2018 for a three-year period, beginning January 1, 2019. These include: C&I Lighting Program, C&I Standard Program, and Small Business Direct Install Program.

### Pilot programs to comply with Senate Bill 1349 (2015)

The Energy Assistance Pilot provides energy assistance for homeless veterans who are receiving support from the Virginia Veterans and Family Support Program or the Total Action for Progress (TAP) program. The goal of the program is to provide utility grant assistance through \$500 energy vouchers to low-income homeless veterans to assist them with getting back into permanent housing. APCo allocated \$100,000 to the program. Through December 2017, 130 grants had been given totaling \$65,000. Under the provisions of the Grid Transformation and Security Act, APCo plans to continue the Veteran Energy Voucher Pilot Program in its Virginia service territory.

APCo also provides an energy efficiency pilot for low-income elderly and disabled individuals, which includes two initiatives. The first, the Multifamily Residential Energy Efficiency pilot, aims to weatherize and improve the overall efficiency of selected multifamily properties. APCo intends to move this program out of the pilot stage and will propose to do so in a future rate adjustment filing to the SCC. The second, the Energy Efficiency Education Pilot, which provides direct mailings to customers receiving financial assistance through different agencies to help pay their electric bills. Customers receive direct mail with information about measures they can take to save energy and reduce their electric bills along with a postcard the customer can return in order to receive a free energy conservation kit. Each kit includes six energy efficient light bulbs, two LED nightlights, two faucet aerators, and a refrigerator thermometer. As of November 2017, 6,000 customers have responded to the initial mailing and 6,000 kits have been distributed.

### Tariffs

APCo continues to offer time-of-day tariff options that allow customers to shift usage to lower cost periods. Based on a change of lifestyle or, in the case of a non-residential customer, a change or shift in mode of operation, these tariff schedules provide the customer with an opportunity to shift or reduce peak demand on the Company's system. The tariff options for residential customers include a load management water heating provision and time-of-day rate schedules. Tariff options for commercial and industrial customers include: Small General Service load management water heating, Medium General Service and Large General Service Off-peak excess demand provisions, General Service and Large General Service time-of-day and an Advanced Time-of-Day Schedule.

APCo's voluntary demand response tariffs, the optional rider demand response services (DRS) – RTO capacity, and Optional Rider DRS, became effective June 1, 2017. Under the optional rider DRS-RTO capacity, APCo will contract with customers for capacity that is consistent with updated

requirements for demand response (DR) in PJM. As curtailments under this rider would be mandatory interruptions of load when PJM declares an emergency or pre-emergency event, capacity under this rider qualifies as capacity within PJM. This capacity can then be included in APCo's Fixed Resource Requirement plan. APCo reports there is currently one participant on the DRS-RTO Rider.

Optional Rider DRS is a peak shaving rider that is designed to save system costs when energy prices in PJM are high. It is not subject to PJM emergency conditions and does not count as PJM capacity. APCo did not report any participants in the Optional Rider DRS program. This rider is also open to DRS-RTO capacity participants.

### Consumer Education

For several years, APCo has implemented a consumer education program on energy conservation entitled "Watt, Why, & How," which has continued through 2018. The program is geared toward educating community leaders and citizens on what APCo is doing to meet the growing demand for electricity, changes in electric rates, and how people can save money on their electric bills. In addition, APCo mails a monthly e-newsletter containing energy saving tips to more than 250,000 customers in Virginia. APCo employees regularly make presentations to community groups about the benefits of energy efficiency. APCo also partnered with Virginia Energy Sense to distribute the 3<sup>rd</sup> Grade curriculum "Value Your Power: Energy Conservation and Resource Renewal" to schools in its Virginia service territory.

### Internal Operations

APCo advised it is continuing to look for opportunities to improve internal efficiencies. The company is continuing to explore emerging cost effective LED lighting technologies both inside and outside of their facilities. The company has also completed lighting retrofit projects, the installation of ENERGY STAR® rated white roofs, and energy management controls, and has replaced various HVAC equipment. APCo reports that for its Virginia facilities, weather-normalized energy use for the 12-month period ending December 2017 (compared to a baseline year of 2007) has decreased approximately 9.3 million kWh, or 44 percent.

## **Old Dominion Power Company**

Old Dominion Power Company ("ODP") does not report any major changes to its energy conservation efforts. ODP does not currently deploy demand-side management programs in its Virginia service territory. However, it reports that its subsidiaries Kentucky Utilities Company (KU) and Louisville Gas and Electric Company (LG&E) have had significant demand-side management and energy efficiency programs in place in Kentucky for a number of years. ODP customers in Virginia have benefited indirectly from these programs through avoided capacity savings.

ODP continues to encourage customers to conserve energy by providing energy efficiency and conservation tips in the Power Source newsletters that are included in the monthly bills. During 2018, each issue contained practical and proactive ways in which customers can implement energy and conservation measures. Energy efficiency/smart saver tips are made available to customers at various public gatherings and community festivals as well as the company's website.



ODP reports its website also contains tools, which allow its customers to identify potential areas for energy savings. ODP offers Smart Saver ideas which offer low cost and no cost ways to save on lighting, heating and cooling, appliances and electronics, insulation and water usage. Additionally, a Watt Finder Guide is available which educates customers on how appliance choices and usage impacts energy consumption.

ODP advises its billing options such as paperless billing and auto pay continue to enable customers to view and pay bills on-line using a mobile device, tablet or computer instead of receiving a paper copy through regular mail. Lastly, ODP, KU, and LG&E have continued the “Environmental Champions Program,” which encourages employees to conserve energy and recycle waste at work.

### **IOU Contributions to Virginia’s Electric Energy Consumption Reduction Goal**

The third enactment clause of Chapter 888 of the 2007 Acts of Assembly provides that “the Commonwealth shall have the stated goal of reducing the consumption of electric energy by retail customers through the implementation of [demand side management and energy efficiency] programs by the year 2022 by an amount equal to ten percent of the amount of electric consumed by retail customers in 2006.” This goal was reflected in the 2007 Virginia Energy Plan, the first energy plan developed after utility re-regulation, and the 2018 Virginia Energy Plan reiterated the need to achieve the ten percent goal. The utility-sponsored demand-side management and energy efficiency programs described in this report represent the primary contributions to Virginia’s electric energy reductions in furtherance of the ten percent goal.

To evaluate the progress the Commonwealth has made towards the stated electric energy reduction goal, DMME has established a baseline reduction total of 10,700,000 MWh, which represents ten percent of the 2006 retail electric energy sales in Virginia. Neither statute nor the Virginia Energy Plan provide a specific methodology for measuring progress towards this goal. There are two primary methodologies for measuring avoided energy in megawatt hours (MWh) that DMME has analyzed: annual savings and cumulative savings. Below is a brief discussion of each methodology and how progress towards the goal under each approach is measured. These figures are based on the best available data at this time; however, they may change from year to year, depending on level of investment in DSM programs, and actual and projected effectiveness of these programs.

Annual savings is the sum of avoided energy consumption for a given year plus prior year savings for installed measures that are still within their useful life. Using an annual savings approach encourages increased program implementation in years leading up to the target by rewarding programs that are still providing energy conservation benefits in that year. The current projection under this approach based on information from state and utility-sponsored programs is that the Commonwealth will save 3,093,076 MWh by 2022. This projection represents 28.91 percent of the ten percent goal.

Cumulative savings is the sum of all incremental savings for each year in a particular period, in this case between the base year of 2006 and the goal year of 2022, including installed measures that are beyond their useful life. Using a cumulative savings approach encourages program implementation within the given period regardless of useful measure life by crediting savings for

programs that may no longer have a measurable impact by the target year. The current projection under this approach based on information from state and utility-sponsored programs is that the Commonwealth will save 7,053,826 MWh by 2022. This projection represents 65.92 percent of the ten percent goal.

Under either accounting approach, it is clear that the Commonwealth has more work to do to achieve its energy efficiency goal and that utility-sponsored programs will continue to be an important component of this effort.