ANNUAL REPORT TO THE GOVERNOR AND GENERAL ASSEMBLY

ENERGY CONSERVATION EFFORTS OF VIRGINIA'S INVESTOR-OWNED PUBLIC UTILITIES IN 2017

Submitted by the Department of Mines, Minerals and Energy

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Introduction

§ 67-202.1 of the Code of Virginia 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 customer demand-side management (DSM) programs and its efforts to improve energy efficiency and conservation within its internal operations. The annual reports are to be submitted by November 1 of each year to the Division of Energy of DMME. The Division is charged with compiling the utilities' reports and submitting the compilation to the Governor and the General Assembly.

For the year 2017, reports were received from Dominion Energy (Dominion), Appalachian Power Company (APCo), and Kentucky Utilities Company d/b/a Old Dominion Power Company (ODP). The following is a summary of their energy conservation efforts during the past year. A 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)

Dominion continues to report that it has invested significant resources in conservation and efficiency programs that provide customers the information and supporting technology needed to manage and reduce energy consumption. Dominion also offers one DSM tariff, the Standby Generation (SG) rate schedule. The SG service tariff provides a direct means of implementing load reduction during peak periods by transferring load normally served by the company to a participant's standby generator. The Curtailable Service tariff, which requires participants to reduce their electric demand upon request by Dominion in return for a rate reduction credit, was closed to new participants effective January 25, 2014.

Dominion continues to offer two programs from last year to residential customers: the air conditioner cycling and the income and age qualifying home improvement programs. The air conditioning cycling program involves the installation of cycling switches on air conditioning units that allows the units to be remotely cycled off for brief intervals during periods of peak load demand. The income and age qualifying home improvement program provides qualifying participants with energy assessments and direct install measures at no cost. Dominion filed for a five-year extension of this program and expects a decision from the SCC by June 2018. Four residential programs closed during 2017: the duct sealing, heat pump tune-up, home energy check-up, and appliance recycling programs.

Programs available to non-residential customers include the distributed generation program, lighting systems and controls, heating and cooling efficiency, window film, small business improvement, and prescriptive programs. The distributed generation program, which allows participating customers to receive reduced-cost backup generation service in exchange for reducing electrical load on Dominion's system, was recently extended. The energy audit and duct testing and sealing programs closed during 2017.

Dominion reports it is also administering several ongoing DSM pilot programs. These programs include dynamic pricing tariffs, an electric vehicle pilot, and an advanced metering infrastructure demonstration. Approved by the SCC in 2011, a dynamic pricing schedule allows Dominion to charge different prices as the costs of electricity production change in response to demand. This means that electricity usage during periods of higher usage will be charged more per kWh than usage during periods of lower electricity usage. The pilot was limited to 3,000 voluntary participants, 2,000 of whom are residential customers and 1,000 of whom are commercial/general customers. The program concluded on July 31, 2017, with 480 customers 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 Dominion modification allowing existing customers to remain on the tariffs after the conclusion of the pilot if they choose.

The electric vehicle pilot offers customers two alternatives to electricity pricing intended to encourage customers to charge their electric vehicles during times of low usage. The program closed to new customers on September 1, 2016, and will conclude November 30, 2018. As of August 31, 2017, 578 were enrolled in the pilot across both options. Dominion is also continuing to upgrade individual customer meters to smart meters. As of September 2016, Dominion reports having installed over 380,000 smart meters throughout the state.

In order to continue to quantify the level of energy and demand savings, 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 report was filed with the SCC on May 1, 2017.

Dominion has numerous consumer education initiatives that include providing demand and energy usage information, opportunities to meet with Dominion representatives, and online customer support options to assist customers in managing their energy consumption. Dominion's website has a section dedicated to energy conservation. Through consumer education, Dominion is working to encourage the adoption of energy-efficient technologies in residences and businesses. Dominion's education programs continue to include a customer connection newsletter, an energy conservation blog, online energy calculators, community outreach events, and utilization of social media.

Dominion has expanded its EnergyShare fuel assistance program to include weatherization assistance and educational outreach. This expansion will allow for sustainable energy improvements to older homes. Since the program's expansion in 2015, Dominion reports that nearly 2,000 veterans and more than 2,000 individuals with a disability have been positively impacted. Additionally, Dominion indicates it has provided weatherization improvements to over 17,000 homes.

Dominion reports it has also taken steps to conserve energy 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 incorporating ENERGY STAR compliant or certified components in the IT department, 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. Dominion reports receiving recognition for being among the top 100 green utilities based on carbon emissions and renewable energy capacity. Specifically, in 2015, Dominion ranked 36 among the top 100 global electric utilities based on carbon emissions and renewable energy capacity, up from number 37 in 2014.

Dominion's report provides a snapshot of the current plans and programs available to the company's internal and external stakeholders. Dominion reports that in March 2012, the Company and eight other utilities joined the Green Button Initiative to provide households access to data related to their energy use. Dominion states it supports the Commonwealth's goals regarding energy conservation and renewables 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 (APCo)

APCo's parent company, American Electric Power (AEP) continues to express a commitment to energy efficiency and demand side management measures. APCo also reports, in order to delay the need to procure supply resources, APCo 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 EE programs including Volt VAR Optimization. The APCo report includes information through the 2016 calendar year in an effort to provide verified and evaluated data.

APCo reported that it has seven DSM programs available to customers in Virginia. Two of these programs, the residential low income program and residential direct load control program, were approved by the SCC in November 2014. On June 7, 2017, APCo filed to extend these two programs for an additional three-year period, 2018 through 2022.

The residential 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 2016, 438 customers have participated in the program. Residential customers participating in APCo's direct load control program are offered $8 per month during the summer season for each controlled central air conditioning unit. The switch has communication capability such that a signal can be sent from the utility to operate the switch and cycle the air conditioner or heat pump unit during times of high system demand. Through December 2016, 3,406 load control switches have been installed under the program.

On October 24, 2014, APCo filed with the SCC a petition for approval of a portfolio of six energy efficiency programs as well as a rate adjustment clause to recover costs. The portfolio included four residential programs and two commercial and industrial programs. These programs were designed to improve energy consumption in residential structures by offering online and in-person energy checkups, removing and recycling used appliances, recruiting manufacturers to design and build Energy Star qualified homes, and offer instant rebates for energy efficient appliances and lighting equipment. For commercial and industrial customers, APCo proposed programs that offer financial incentives for various energy saving projects. In early 2015, the SCC approved five of the six programs, keeping all four residential programs and approving only one of the commercial and industrial customer programs. These programs became available for customers in 2016.

The residential home performance program was launched in January 2016. Promotion of the program began several months prior to the official launch. After the launch, marketing and promotional activities continued to raise trade ally and customer awareness of the program, the eligible energy efficiency measures, and the associated requirements, processes, and procedures. 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 2016, 5,048 customers participated in the program. For the assessment portion of the program APCo utilizes local contractors. There are currently 11 contractors engaged in the program.

The residential appliance recycling program is designed to help customers reduce their energy consumption by removing old, working refrigerators and freezers from customers' homes for recycling. The program launch was delayed when the original vendor abruptly went into receivership in November 2015; however, the program was ultimately launched in June 2016 with a new vendor. The program incorporates a variety of outreach methods to generate customer interest including bill inserts, direct mailings, word of mouth, and digital media campaigns. Through December 2016, the program recycled 110 freezers and 322 refrigerators.

The manufactured housing Energy Star® program provides manufacturers with incentives for increasing building envelope, HVAC system, heating and water heating efficiency for new residential homes. APCo reports an interest ramp-up after the initial marketing push and continued efforts to raise manufacturer and customer awareness. Four manufactured homes were incentivized during 2016.

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. The program was launched in January 2016, with pre- and post-launch marketing efforts. Through December 2016, the program has provided markdown incentives on 151,483 LEDs and rebates for 1,499 Energy Star® appliances.

The commercial and industrial (C&I) prescriptive program was launched in January 2016. Through December 2016, 141 customers have participated in the program representing 238 different efficiency projects. There is a strong trade ally network (lighting distributors, electrical contractors, and consultants) of approximately 60 trade allies that are registered to participate in the program. Due to the high level of interest in the C&I prescriptive program, the program is fully subscribed. The program has since been slowed down and APCo anticipates the program will end sometime next year.

APCo has two 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 House Development for Veterans through the Virginia Wounded Warrior Program. The goal of the program is to provide utility grant assistance, through $500 energy vouchers, to low-income homeless veterans to assist them getting back into housing. APCo allocated $100,000 to the program. Through May 2017, 100 grants had been given totaling $50,000. APCo plans to roll over the remaining funds into a 2018 program with the hope of providing more homeless veterans with assistance to get back into housing. The energy efficiency pilot for low income elderly and disabled includes two initiatives. The first, the multifamily residential energy efficiency pilot aims to weatherize and improve the overall efficiency of selected multifamily properties. The second, the energy efficiency education pilot, provides direct mailings to customers receiving financial assistance through different agencies with information regarding measures they can take to save energy and reduce their electric bills. As of November 2017, over 5,500 customers have responded to the initial mailing.

APCo continues to offer various 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, save money and encourage additional efficiencies. 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 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 Advanced time-of-day tariffs.

On June 17, 2016, the SCC approved APCo's application to implement two new voluntary demand response tariffs, optional rider demand response services (DRS) – RTO capacity and optional rider DRS. Both riders 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 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 allows this capacity to be included in APCo's Fixed Resource Requirement plan. The optional rider DRS is not subject to PJM emergency conditions and does not count as PJM capacity. Instead, the program is a peak shaving rider that is designed to save system costs when energy prices in PJM are high. This rider is also open to optional rider DRS-RTO capacity participants.

In 2008, APCo implemented a consumer education program on energy conservation entitled "Watt Why & How" which has continued through 2017, and will be ongoing in the future. 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 230,000 customers in Virginia.

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, energy management controls, and has replaced various HVAC equipment. APCo reports that from the baseline year of 2007 to December 2017, energy use in its Virginia facilities has decreased approximately 9.8 million kWh or 44 percent.

Old Dominion Power Company (ODP)

ODP does not report any major changes to its energy conservation efforts. 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 2017, 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.

Although ODP does not currently deploy demand-side management portfolios, it reports 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 in which ODP customers have benefited from indirectly through avoided cost capacity savings. KU/LG&E estimates these programs along with additional programs, approved in KU and LG&E's 2015-2018 DSM/EE plan, are expected to achieve 500 megawatts of demand reduction and a cumulative energy savings of 1.6 million MWh by 2018. To achieve these benefits, KU and LG&E project a total DSM/EE portfolio of $179 million from 2015-2018, of which the amount approved by the DPSC in Case No. 2011-00134 for the same years is $155 million.

ODP reports that in March 2017, the Cadmus Group completed an industrial-demand-side-management-and-energy-efficeincy-potential-study ("Industrial Study") of the long-run technical, economic, and achievable potential of electric and natural gas energy efficiency for the residential and commercial sections in the service territories of LG&E and KU from 2019 to 2038. The study was in accordance with a Kentucky Public Service Commission final order that required KU and LG&E to "commission a study that examines the potential benefits of industrial DSM/EE [demand-side management and energy efficiency] programs."

ODP advises its billing options such as paperless billing and auto pay continue to enable customers to view and pay bills on-line instead of receiving a paper copy through regular mail. Lastly, ODP, KU, and LG&E have initiated 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 and accelerated by Governor McAuliffe in the 2014 Virginia Energy Plan, which set 2020 as the new target date for this ten percent reduction goal. The DSM/EE programs of IOUs described in this report represent the primary contributions to Virginia's electric energy reductions.

In 2015, Governor McAuliffe created the Governor's Executive Committee on Energy Efficiency (GEC). The GEC is comprised of public and private sector stakeholders tasked with developing strategies and recommendations to achieve the goal of a ten percent reduction in electricity consumption by 2020. Both Dominion and APCo are members and actively participate in the GEC.

In order 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 consumption in Virginia. Neither statute nor the Virginia Energy Plan provide a specific methodology for measuring progress towards this goal; however, there are two primary methodologies measuring avoided energy in megawatt hours (MWh) that DMME has analyzed: annual savings and cumulative savings. Below is a brief discussion of each methodology along with how to measure progress towards the goal under each approach. These measures are based on the best available data at this point in time; however, they are likely to change from year to year.

Annual savings measures the savings in avoided energy consumption for a given year plus prior year savings 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. Current projections under this approach, based on information from state and IOU programs, are for savings of 1,644,801 MWh in 2020. This projection represents 15.37 percent of the target reductions.

Cumulative savings measures the sum of all incremental savings for each year in a particular period, in this case between the base year of 2006 to the goal year of 2020, including programs that are beyond their useful life. Using a cumulative savings approach encourages program implementation within the given period regardless of useful life by crediting savings for programs that may no longer be having a measurable impact by the target year. Current projections under this approach, based on information from state and IOU programs, are for savings of 7,208,312 MWh in 2020. This projection represents 67.37% of the target reductions.

DMME is not the only state agency analyzing IOU energy efficiency programs. Chapter 255 of the 2016 Acts of Assembly directs the State Corporation Commission to "evaluate the establishment of uniform protocols for measuring, verifying, validating, and reporting the impacts of energy efficiency measures implemented by investor-owned electric utilities providing retail electric utility service in the Commonwealth and the establishment of a methodology for estimating annual kilowatt savings and a formula to calculate the levelized cost of saved energy for such energy efficiency measures." A provision of the Act stipulates that the SCC "shall receive input from interested parties and the Department of Mines, Minerals and Energy." Accordingly, DMME provided comments on May 25, 2016. The SCC published the report on November 30, 2016, which concluded, among other things, "the Commission finds it appropriate to promulgate formal regulations related to the EM&V of utility sponsored energy efficiency programs" that include "Virginia-specific data where possible."

On May 16, 2017, the Commission issued an Order for Notice and Hearing as a follow-up proceeding. A draft of the proposed Rules prepared by Commission Staff was appended to the Procedural Order and comments from interested parties were invited. DMME provided additional comments on July 28, 2017. On November 9, 2017, the Commission adopted the final rules governing the evaluation, measurement, and verification of the effects of utility sponsored demand-side management programs, effective January 1, 2018.