



**Virginia Electric and Power Company**

**Annual Report to the  
Division of Energy of the  
Department of Mines, Minerals and Energy**

**As Required by § 67-202.1 of the Code of Virginia  
Annual Reporting by Investor-Owned Public Utilities**

**November 1, 2011**

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## INTRODUCTION

During the 2008 session of the Virginia General Assembly, Chapter 651 of the Virginia Acts of Assembly (Senate Bill 718) amended and reenacted §§ 56-585.2 and 67-202 of the Code of Virginia (Va. Code), relating to renewable energy, energy conservation, and energy efficiency (Act). Specifically, enactment clause 2 of the Act, later codified as Va. Code § 67-202.1, *Annual reporting by investor-owned public utilities*, provides that:

*Each investor-owned public utility providing electric service in the Commonwealth shall prepare an annual report disclosing its efforts to conserve energy, including but not limited to (i) its implementation of customer demand-side management programs and (ii) efforts by the utility to improve efficiency and conserve energy in its internal operations pursuant to § 56-235.1. The utility shall submit each annual report to the Division of Energy of the Department of Mines, Minerals and Energy by November 1 of each year, and the Division shall compile the reports of the utilities and submit the compilation to the Governor and the General Assembly as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents.*

Pursuant to Va. Code § 67-202.1, Virginia Electric and Power Company (DVP, Dominion or Company) submits this Annual Report of Conservation Efforts (Report) to the Division of Energy of the Department of Mines, Minerals and Energy.

Energy conservation is essential to the Commonwealth's future and is one of the Company's top priorities. The General Assembly has set a target of reducing Virginia's 2022 retail electricity consumption by 10% of the amount that was consumed in 2006 through conservation and efficiency. The Company supports this goal and has adopted it as part of an integrated strategy called Powering Virginia, which focuses on relying on a combination of conservation and efficiency programs with renewable energy sources and new, economic and environmentally sound base-load generation.

This Report covers Company conservation efforts for the time period of approximately September 1, 2010 through September 1, 2011 and is divided into two sections. The first section focuses on the Company's implementation of customer demand-side management (DSM) programs. This includes a description of current DSM tariffs and programs, ongoing DSM pilot programs, proposed DSM programs, customer education and external conservation measures.

The second section of this Report focuses on the Company's efforts to improve energy efficiency and conserve energy in its internal operations. This includes how the Company conserves and uses energy efficiently in areas such as Facilities, Information Technology (IT) and Investment Recovery.

## CUSTOMER DEMAND-SIDE MANAGEMENT PROGRAMS

### Introduction

The Company generally defines DSM as all activities or programs undertaken to influence the amount and/or timing of electricity use. Demand-side resources are used to encourage the more efficient use of existing resources and to delay or eliminate the need for new supply-side infrastructure. In this Report, the Company will summarize its current and proposed future efforts to implement DSM tariffs, DSM programs, and DSM pilots. The Company's DSM tariffs provide customers with price signals to curtail load at times when system load or marginal costs are high. The Company's DSM programs and pilots are designed as a way to provide customers the opportunity to manage their electricity usage. The Company's DSM pilots not only reduce megawatt hour (MWh) sales and megawatt (MW) peak demand, but also allow the Company to gain valuable operational information and data on customer usage and customer acceptance of potential DSM programs.

Figure 1 provides a list of the Company's DSM tariffs, and pilots that were active during the period since the Company's 2010 Annual Report, and the approved and proposed DSM programs as presented in the 2011 Integrated Resource Plan filed September 1, 2011.

**Figure 1 – DSM Tariffs, Programs & Pilots**

Tariffs	Status
Standby Generation	Approved
Curtable Service	Approved
Programs	
Residential Air Conditioner Cycling	Approved
Commercial HVAC Upgrade	Approved
Commercial Lighting	Approved
Residential Low Income	Approved
Residential Lighting	Approved
Commercial Distributed Generation	Proposed
Commercial Duct Testing & Sealing	Proposed
Commercial Energy Audit	Proposed
Commercial Refrigeration	Proposed
Residential Bundle (includes the following 4)	
Residential Home Energy Check-Up	Proposed
Residential Heat Pump Upgrade	Proposed
Residential Duct Testing & Sealing	Proposed
Residential Heat Pump Tune-Up	Proposed
Residential Lighting Phase II	Proposed
Pilots	
Commercial Distributed Generation	Ongoing
Dynamic Pricing Tariffs	Ongoing
Electric Vehicle	Ongoing
Advanced Metering Infrastructure	Ongoing

## **Current DSM Tariffs**

### **Standby Generation & Curtailable Service Tariffs**

The Company currently offers two DSM pricing tariffs including Standby Generator (SG) rate schedules and a Curtailable Service (CS) rate schedule. These tariffs provide incentive payments for dispatchable load reductions that can be called on by the Company when load reduction is needed.

The SG rate schedules provide a direct means of implementing load reduction during peak periods by transferring load normally served by the Company to a customer's standby generator. The customer receives a bill credit based on a contracted capacity level or average capacity generated during a billing month when SG is requested.

The CS rate schedule requires participating customers to reduce electric demand to a contracted firm demand level when requested by the Company in return for a rate reduction credit. Failure to comply with the Company's request to reduce demand to the firm level results in a penalty, based on a demand charge that is approximately four times the per kilowatt (kW) credit, on the customer's bill. To receive the rate credit, customers commit to participate in the curtailment upon at least two-hours notice. The tariff is primarily aimed at customers with the operational flexibility to store inventory or to curtail or reschedule production.

During a load reduction event, a customer receiving service under the SG rate schedule is required to transfer a contracted level of load to its dedicated on-site backup generator, while the customer receiving service under the CS rate schedule is required to reduce load to a contracted firm demand level. At the Company's request, the customer may be asked to reduce load on the Company's system up to 19 times during the summer (May 16 – September 30) and up to 13 times during the winter (December 1 – March 31).

## **Current DSM Programs**

The Company has invested significant resources in conservation and energy efficiency programs that provide customers the information and supporting technology needed to manage and reduce energy consumption. On March 24, 2010, the Virginia State Corporation Commission (SCC or Commission) issued an Order Approving Demand-Side Management Programs (March 24, 2010 SCC Order), which included approval of five Programs: (1) Residential Air Conditioner Cycling; (2) Commercial Heating,

Ventilating, and Air Conditioning (HVAC) Upgrade; (3) Commercial Lighting; (4) Low Income; and, (5) Residential Lighting. The following is a description of each program.

#### Residential Air Conditioner Cycling

This Program provides participants with an external radio frequency cycling switch that operates on central air conditioners and heat pump systems. Participants allow the Company to cycle their central air conditioning and heat pump systems during peak load periods. The cycling switch is installed by a contractor and located on or near the outdoor air conditioning unit(s). The Company remotely signals the unit when peak load periods are expected, and the air conditioning or heat pump system is cycled off and on for short intervals.

#### Commercial HVAC Upgrade

This Program provides incentives for HVAC system efficiency upgrades for the commercial sector, including chillers, roof-top units, and packaged terminal air conditioners. Participants who enroll in the Program will receive a one-time incentive payment for replacing or upgrading inefficient heating and cooling systems. This upgrade should help assure commercial customers that their HVAC systems are running at maximum efficiency, thus minimizing energy consumption.

#### Commercial Lighting

This Program provides commercial and industrial customers with an incentive to upgrade inefficient lighting systems to more cost-effective, energy-efficient lighting systems. Participants will receive a one-time average incentive based on the lighting upgrades selected.

#### Residential Low Income

The Low Income Program provides an energy audit for residential customers who meet the low income criteria defined by state social service agencies. A certified technician performs an audit of participating residences to determine potential energy efficiency improvements. Specific energy efficiency measures applied may include, but are not limited to: envelope sealing, water heater temperature set point reduction, installation of insulation wrap around the water heater and pipes, installation of low flow shower head(s), replacement of incandescent lighting with efficient lighting, duct sealing, attic pressure testing, attic insulation, and air filter replacement.

#### Residential Lighting

This Program is an extension of the Company's previous Compact Fluorescent Light (CFL) price reduction program, which ran from October 2007 to December 2009. As

part of this Program, the Company partners with manufacturers and retailers to provide participants with an instant rebate for high-efficiency lighting purchases. CFLs, when compared to incandescent lamps, give the same amount of visible light, use approximately 75% less energy, and have an approximately 10 times longer rated life. This Program will be closed to new participants on December 31, 2011.

### **Ongoing DSM Pilots**

#### **Distributed Generation/Load Curtailment for Large Non-Residential Customers**

The Company has executed agreements with customers for backup generators to be installed at participants' facilities to be used as replacement power when requested by the Company during periods of high electric demand. A minimum of a 30-minute notice is provided to participants for start and end times of load curtailment events, which the Company may call for up to 200 hours per year. The Company hired an outside contractor, PowerSecure, to provide backup generation services to participating customers at a discount and dispatch the enrolled generators when requested by the Company, in exchange for an incentive payment. The payment is based upon the amount of load curtailment capacity enrolled and the number of hours dispatched.

The Company called a total of 14 load curtailment events during the timeframe of this Report. One of the events was called for PJM testing purposes.

The Company requested approval of a Commercial DG Program as part of its application for approval of six new DSM Programs filed on September 1, 2011, as discussed further below.

#### **Dynamic Pricing Tariffs**

On September 30, 2010, the Company filed an application with the SCC (Case No. PUE-2010-00135) proposing to offer three experimental and voluntary dynamic pricing tariffs to prepare for a potential system-wide offering in the future. The filing was in response to the SCC's July 30, 2010 Order Establishing Pilot Programs issued in Case No. PUE-2009-00084, which, among other things, directed the Company to establish a pilot program under which eligible customers/renewable generators volunteering to participate would be provided the ability to purchase and sell electricity to the Company at dynamic rates.

A dynamic pricing schedule allows the Company to apply different prices as system production costs change. The basic premise is that if customers are willing to modify behavior and use less electricity during high price periods, they will have the opportunity

to save money, and the Company in turn will be able to reduce the amount of energy it would otherwise have to generate or purchase during peak periods.

On April 8, 2011, the Commission approved the Company's proposed pilot, which will be available to 2,000 participants consisting of 1,000 residential customers to take service under experimental dynamic pricing tariff DP-R and 1,000 small to mid-size commercial/general customers to take service under dynamic pricing tariffs DP-1 and DP-2. Participation in the pilot requires either an Advanced Metering Infrastructure (AMI) meter or an existing interval data recorder (IDR) meter at the customer location.

Energy usage is recorded every 30 minutes, which enables the Company to offer pricing that varies based on the time of day. In addition, the pricing varies based on the season, the classification for the day, and the customer's demand (kW). Therefore, the AMI or IDR meter coupled with the dynamic pricing schedules allows customers to manage their energy costs based on the time of day.

The rates were available starting July 1, 2011. As of October 1, 2011, 469 residential customers are enrolled in DP-R and one commercial customer is enrolled in DP-2. Enrollment is open until December 2, 2012 and the pilot is scheduled to conclude November 30, 2013.

#### Electric Vehicle (EV) Pilot

On January 31, 2011, the Company filed an application with the SCC (Case No. PUE-2011-00014) proposing a pilot program to offer experimental and voluntary EV rate options to encourage residential customers who purchase or lease EVs to charge them during off-peak periods. The pilot program provides two rate options. One rate option, a "whole house" rate, will allow customers to apply the time-of-use rate to their entire service, including their premise and vehicle. The other rate option, an "EV only" rate, will allow customers to remain on their existing standard rate for their premise and subscribe to the time-of-use rate only for their vehicle. The program will be open to up to 1,500 residential customers, with up to 750 in each of the two experimental rate options. The SCC approved the pilot on July 11, 2011. The Company began enrollment October 3, 2011 and will conclude the pilot November 30, 2014. If supported by the results of the pilot program, the Company plans to request approval of a Virginia service territory EV peak-shaving program in the future.

#### AMI Demonstration

The Company indicated in its supplemental testimony filed on February 12, 2010 (Case No. PUE-2009-00081) that it wanted to obtain further information regarding AMI to

ensure that the technology, costs and benefits of implementing the technology, and the technology's potential for energy reduction were better understood. In 2010, the Company extended its AMI demonstration by installing approximately 32,000 AMI meters in parts of the City of Alexandria, Arlington County, Fairfax County, and the City of Falls Church. The Company's efforts to demonstrate meter technology continue with additional meter exchanges in 2011. In addition to the 32,000 AMI meters in Northern Virginia, the Company plans to install approximately 8,000 meters to evaluate the technology in Blue Ridge, downtown Richmond, and Williamsburg by the end of 2011.

### **Proposed DSM Programs**

The Company filed for SCC approval of six new DSM Programs on September 1, 2011 (2011 SCC DSM Application). The six proposed Programs include: i) Commercial Energy Audit Program, ii) Commercial Duct Testing & Sealing Program, iii) Commercial Refrigeration Program, iv) Commercial Distributed Generation (CDG) Program, v) Residential Lighting (Phase II) Program and vi) Residential Bundle Program (Home Energy Check-up, Duct Testing & Sealing, Heat Pump Tune-up and Heat Pump Upgrade). The Company also requested additional funding for the approved Commercial HVAC Upgrade and Commercial Lighting Programs due to pent-up demand. This request was a result of stakeholder input obtained through the Company's Stakeholder Review Process (SRP), a process whereby the Company convenes meetings of interested stakeholders to provide a forum to exchange information with stakeholders about the Integrated Resource Planning process and to provide more specific information about the Company's planning process, including its IRP and demand-side management initiatives. The Commission docketed the Company's 2011 SCC DSM Application as Case No. PUE-2011-00093 and has scheduled public and evidentiary hearings for March 6, 2012. An SCC decision is expected by May 1, 2012.

These proposed DSM Programs provide a diversified mix of programs that the Company believes are cost-effective and should be approved as being in the public interest.

#### **Commercial Energy Audit Program**

As part of this Program, an energy auditor will perform an on-site energy audit of a non-residential customer's facility. The customer will receive a report showing the projected energy and cost savings that could be anticipated from the implementation of options identified during the audit. Once a qualifying customer provides documentation that some of the recommended energy efficiency improvements have been made at the

customer's expense, a portion of the audit price will be refunded, up to the full price of the audit.

#### Commercial Duct Testing & Sealing Program

This Program will promote testing and general repair of poorly performing duct and air distribution systems in non-residential facilities. The Program provides incentives to qualifying customers to have a contractor seal ducts in existing buildings using program-approved methods, including: aerosol sealant, mastic, or foil tape with an acrylic adhesive. Such systems include air handlers, air intake, return and supply plenums, and any connecting duct work.

#### Commercial Refrigeration Program

This Program provides calculated incentives to qualifying non-residential customers for the installation of program-approved refrigeration measures.

#### Commercial Distributed Generation Program

A redesigned version of the Company's Distributed Generation/Load Curtailment Pilot for Large Non-Residential Customers referenced above, this Program provides qualifying customers with an incentive to curtail load, up to 120 hours per year, by operating customer-owned backup generation when called upon to do so. The Program is implemented by a contractor who is responsible for installing equipment to enable remote operation and monitoring of the customer's backup generation equipment and for dispatching load curtailment events under the direction of the Company.

#### Residential Lighting Program (Phase II)

With the Company's existing Residential Lighting Program ceasing to gain new participants on December 31, 2011, the Company has obtained information that indicates the Virginia market is not saturated with CFL products and is therefore proposing a second phase of its Residential Lighting Program. This Program promotes the installation of CFL and light-emitting diode (LED)-based bulbs in lieu of conventional incandescent bulbs.

#### Residential Bundle Program

During the SRP, it was suggested that the Company consider a residential audit as part of its DSM offerings and bundle it with other individual programs into larger offerings. In response, the Company proposed the Residential Bundle Program, which includes the four following DSM Programs described below.

- Residential Home Energy Check-Up Program - The purpose of this Program is to provide owners and occupants of single family homes an easy and low cost home energy audit. It will include a walk through audit of customer homes, direct install measures, and recommendations for additional home energy

improvements.

- Residential Duct Testing & Sealing Program - This Program is designed to promote the testing and repair of poorly performing duct and air distribution systems. Qualifying customers will be provided an incentive to have a contractor test and seal ducts in their homes using methods approved for the Program, such as mastic material or foil tape with an acrylic adhesive to seal all joints and connections. The repairs are expected to reduce the average air leakage of a home's conditioned floor area to industry standards.
- Residential Heat Pump Tune-Up Program - This Program provides qualifying customers with an incentive to have a contractor tune-up their existing heat pumps once every five years in order to achieve maximum operational performance. A properly tuned system should increase efficiency, reduce operating costs, and prevent premature equipment failures.
- Residential Heat Pump Upgrade Program - This Program provides incentives for residential heat pump (e.g., air and geothermal) upgrades. Qualifying equipment must have better Seasonal Energy Efficiency Ratio and Heating Seasonal Performance Factor ratings than the current nationally mandated efficiency standards.

The Company requested approval of the Residential Bundle as one Program that will be offered to customers as a combined bundle of services and has been studied for cost-effectiveness as one Program. However, if the Commission does not approve the Residential Bundle Program, the Company is proposing that the Residential Home Energy Check-Up be approved as a stand-alone Program.

### **Evaluation, Measurement & Verification (EM&V)**

The Company has implemented EM&V plans to quantify the level of energy and demand savings for approved DSM programs in Virginia. As required by the March 24, 2010 Order, the Company provides semi-annual EM&V reports that include: i) the actual EM&V data; ii) the cumulative results for each program in comparison to forecasted annual projections; and iii) any recommendations or observations following the analysis of the EM&V data. The Company signed a contract with a third-party vendor, KEMA, Inc., to be responsible for developing, executing, and reporting the EM&V results for the Company's currently approved DSM Programs.

Although outside the reporting timeframe for this report, the third EM&V report was filed on October 3, 2011 in Case No. PUE-2010-00084, covering program activity for the

May 1, 2010, to June 30, 2011 period. Report findings indicate that all programs are on track to meet or exceed energy and demand savings goals established through 2011.

As required by the March 24, 2010 Order, the Company has reviewed its EM&V Reports during the course of its SRP. In addition, in its 2011 SCC DSM Application, the Company requested that its EM&V reports be allowed to be filed annually beginning April 1, 2012.

## **EDUCATION AND EXTERNAL CONSERVATION INITIATIVES**

### **Consumer Education Programs**

The Company's consumer education initiatives include providing demand and energy usage information, opportunities to meet with Company representatives, and online customer support options to assist customers in managing their energy consumption. The Company's website has a section dedicated to energy conservation. This section contains helpful information for both residential and non-residential customers. Through consumer education, the Company is working to encourage the adoption of energy-efficient technologies in residences and businesses. Examples of how the Company increases customer awareness include the following:

#### **Customer Connection Newsletter**

The Customer Connection newsletter is sent to customers as an insert to their monthly power bill six times a year. It contains information on topics such as DSM programs, how to save money or manage electric bills, helping the environment, service issues and safety recommendations, in addition to many other relevant subjects. For those who receive their electric bills by e-mail, the newsletter is available online.

#### **"Every Day" Advertisements**

The Company advertises the "Every Day" campaign, which are commercial and print ads that address various energy issues.

#### **News Releases**

The Company prepares news releases and reports on the latest developments regarding its DSM initiatives and provides updates on Company offerings and recommendations for saving energy as new information becomes available. For example, on July 21, 2011, DVP issued a press release urging customers to stay safe during the heat wave and to use electricity wisely as regional temperatures and humidity levels remained extremely high. The Company also provided several recommendations on how customers could conserve energy during this high peak time.

#### **Online Energy Calculators**

Home and business energy calculators are provided on the Company's website to estimate electrical usage for homes and business facilities. The calculators can help customers understand specific energy use by location and discover new means to

reduce usage and save money. An appliance energy usage calculator and holiday lighting calculator are also available to customers.

### Community Outreach - Trade Shows, Exhibits and Speaking Engagements

The Company conducts outreach seminars and speaking engagements in order to share relevant energy conservation information to both internal and external audiences. The Company also participates in various trade shows and exhibits at energy-related events to inform customers and communities about the importance of implementing energy-saving measures in homes and businesses. Additionally, Company representatives positively impact the communities served through presentations to elementary, middle, and high school students about using energy wisely and practicing sound environmental stewardship. Some examples of the ongoing, year-round effort to inform customers about the programs and choices available to them include:

- During the heating season, the Company conducted information sessions in the Greater Richmond, Colonial Heights and Norfolk areas to help low-income customers and those in financial distress pay their energy bills and reduce their energy usage. Company representatives discussed no-cost and low-cost energy conservation measures, the Company's EnergyShare program, and services such as weatherization and winter fuel assistance programs provided through state and local agencies.
- During the cooling season, the Company hosted an Energy Fair in Norfolk to educate consumers about electricity conservation and its EnergyShare program. The Company gave away gift cards, conservation tools and energy-saving tips. The fair had exhibits on electric cars and CFL bulbs.
- The "Green Expo," hosted by the Town of Vienna in the spring, kicked off the town's Watt Watchers program with the presentation of a \$2,500 check donated by the Company to Vienna to purchase watt meters for residential use. The watt meters are loaned out, at no cost, to residents to measure energy usage.

As part of the Residential Lighting Program, in 2011 the Company held energy efficient lighting outreach events at Lowe's stores throughout its Virginia service territory with educational activities for kids and information for adults. In April, the Company held a Lighting Program school contest with Culpeper elementary schools. The school that accrued the most vouchers and receipts attributed to CFL bulb sales received a \$5,000 scholarship to support its math and science initiatives.

### Home Energy Reports

Beginning in May of 2010, the Company partnered with OPOWER to provide Home Energy Reports to 25,000 customers in the Charlottesville area on a bi-monthly basis

for one year. The reports are designed to help customers understand their home's energy usage and find ways to make their home more efficient, including references to the Company's energy conservation programs. The Company recently completed this initiative.

#### Twitter

The Company uses the social media channel Twitter to provide real-time updates on energy-related topics, promote Company messages and provide two-way communication with customers.

#### Energy Conservation Blog

The Company has an "Energy Conservation Blog," an online forum for Company experts to answer customer questions on energy-related topics and provide specific examples of measures to take that will help reduce energy consumption. It is also a means to report the current impacts achieved through Company DSM programs.

#### Discontinued Consumer Education Programs

The Company has removed its carbon calculator formally available on [www.dom.com](http://www.dom.com) due to fewer web visitors than anticipated; however, other energy calculators are available for customer use.

#### **Employee Education Programs**

The Company has an internal news source where energy conservation topics are spotlighted on a routine basis. Employees are provided information concerning how to conserve energy at home and work.

#### Energy Conservation Helpline

Employees have access to information about the five energy conservation programs available to Virginia customers so they may be prepared to answer questions from friends, family and the community. A new Energy Conservation helpline was created exclusively to help employees learn more about these new customer options. Through the helpline, employees can request additional information about the programs, provide feedback or schedule a department presentation.

#### Energy Conservation Speakers

To help educate employees on the Company's energy conservation programs, the Energy Conservation department teamed up with the Company's Speakers Bureau. Speakers Bureau members and employees interested in "green" issues are encouraged

to take information about these programs to a local level by speaking to their department about energy conservation. These employees will serve as a conduit between the Energy Conservation department and all employees, making sure they receive and understand the information.

In addition, the Company's Energy Conservation and Advanced Metering departments conducted employee education seminars on energy conservation and AMI as part of the Company's effort to inform and educate its own employees about Company initiatives, as well as inform them of new customer options that they may be interested in taking advantage of themselves as customers of the Company. The messages included the newly launched energy conservation programs and the investment and deployment of AMI meters. There were numerous meetings and seminars conducted throughout the DVP service territory in support of this effort.

#### Energy Awareness Month

In honor of Energy Awareness Month in October 2010, the Energy Conservation Department held the first ever Energy Conservation Superlatives Contest. Employees or departments were encouraged to submit entries during the month outlining why they were the best in the following categories: Greenest Department, Greenest Kids, Greenest Employee at Work, Greenest Employee at Home and Greenest Employee in the Community. Winners were announced on the Company's internal internet site and awarded prizes.

As part of Energy Awareness Month, employees also shared their energy conservation stories in the "Dominion Employees Live Green" video series. The series featured the recycling program at the Company's Chesapeake District Office and weatherization home improvements.

#### "Green Resolutions"

In April 2011 the Company encouraged customers and employees in honor of Earth Day to think about how they can make their life a little greener by making their own "green" resolution. The resolution could be anything from turning off the lights when one leaves the room to using ceiling fans instead of air conditioning, from starting a recycling program at work using reusable bags to establishing a community garden. Customers and employees submitted their green resolutions and the winning entries received a prize and were posted on the Company's website, [www.dom.com](http://www.dom.com).

## **Environmental Stewardship**

Sound environmental stewardship must have the commitment of consistent, corporate emphasis, as shown through the Dominion Foundation and its employees' volunteer efforts. The Dominion Foundation and a number of employee initiatives are detailed below, which exemplify the emphasis the Company has put on environmental awareness.

### **Dominion Foundation**

The Company has shown environmental stewardship through the Dominion Foundation, which is dedicated to improving the physical, social and economic well-being of the communities served by Dominion companies. The foundation supports a wide range of environmental, educational, cultural, community development, and health and human services efforts. The following are three examples of the Company's environmental and energy conservation education efforts conducted through the Dominion Foundation:

- **Employee Participation** - The Company's largest annual volunteer project, called "Put Your Energy to Work for the Environment," combines volunteer know-how with Dominion Foundation funding. Each year Company employees work in partnership with schools, state parks and environmental organizations to choose projects that will make a significant difference in the community. In late 2010, volunteers planted trees for the Middleburg Community Center, built a handicapped bridge for access to the Great Bridge Waterway Museum in Chesapeake, and installed greenhouse equipment for math and science classes at J.E.B Stuart Elementary School in Petersburg. The Dominion Foundation provides funds for materials and supplies – up to \$2,500 per project – and employees organize the work and supply the labor.
- **Project Plant It!** - In partnership with the National Arbor Day Foundation, the Company works with school systems in six states in the Mid-Atlantic and New England to teach students first-hand about the environmental benefits of trees. In 2011, the Company distributed its 100,000<sup>th</sup> tree seedling through Project Plant It! Each year, the Company sends seedlings and teachers' kits to the schools. The materials are designed to teach students how trees help moderate climates, improve air quality, absorb carbon, harbor wildlife and prevent soil erosion. A week before Arbor Day, students and teachers in about 360 schools received tree seedlings. More than 33,000 students participated in the project in 2011.
- **K-12 Education Partnership** - Through a competitive process, the Company offers grants of up to \$10,000 to schools and educational organizations throughout the areas where the Company has business operations. Beginning in February, educators apply online for the grants. Applications are evaluated by an

independent panel of judges, as well as senior-level employees. Awards are presented in two categories:

- Environmental Education – for programs that develop math and/or science skills through the study of the environment.
- Energy Education – for programs that increase students' awareness of energy efficiency and conservation, energy sources or other energy-related topics.

The program is open to accredited public and private elementary and secondary schools, public school divisions, as well as state agencies and non-profit organizations that serve students, from Kindergarten through Grade 12.

For example:

- A science class at J.R. Tucker High School in Henrico County used solar panels, bought with the help of a \$3,500 grant from the Dominion Foundation, to power their classroom. The students also performed lab experiments using the wind turbine generator, solar panels, and other electrical equipment purchased with the grant.
- Prince William County Public Schools were awarded \$5,000 for energy exploration kits that enabled sixth grade students to conduct energy audits in their school and homes.
- Carson Middle School in Northern Virginia installed 11 solar panels on the school's roof. The project was begun in spring 2009 by a group of eighth grade students studying solar energy and has been continued by members of the school's Going Green Club.

### Citizenship & Sustainability Report

In 2011, the Company launched a formal sustainability program by forming an executive sustainability council and creating a staff level committee with employees from across the Company. The Company has pledged to work for cost-effective and sustainable solutions by reducing its environmental footprint and providing green opportunities for customers and communities.

### Awards

#### 2010 Green Ratings

Dominion was among the 500 greenest companies in the United States, according to *Newsweek* magazine. The Company ranked No. 471 on the "2010 Green Ratings" list of large, publicly-traded companies.

The rankings were based on each company's actual environmental footprint and management of that footprint, including policies and strategies, as well as its reputation among environmental experts.

In the utilities industry sector, Dominion ranked twentieth. *Newsweek* collaborated with MSCI ESG Research – a leading source of environmental, social and governance ratings – to produce the list.

### **Other External Conservation Initiatives**

#### **Dominion Higher Educational Partnership**

In the area of post-secondary education, the Dominion Foundation awards grants of up to \$50,000 in order to encourage the development of programs for post-secondary students aimed at developing a skilled work force in areas critical to the Company, such as renewable energy. For example:

- Virginia Highlands Community College students developed "Wolf Grounds," an on-campus, student-run coffee shop. The non-profit business will involve 100% organically grown and recyclable products, local suppliers, Energy Star compliant appliances, and both solar hot-water heating and solar photovoltaic technologies.

#### **Energy Efficient Homeless Shelter**

In late 2010, the old Norfolk Fire Station #1 was opened as an energy efficient, 24-hour transfer center for the homeless with the help of the Dominion Foundation. Around two dozen volunteers from the Company helped to renovate the old fire station, which included building two new walls and installing weather stripping and other insulation and weatherization projects.

#### **LED Lights for Decoration**

The Company has encouraged customers to choose holiday decorations that use LEDs as an energy efficient, economical, and safe alternative to incandescent lights. LEDs use 98% less electricity than conventional bulbs and are safer because they generate much less heat.

Additionally, Lewis Ginter Botanical Garden's GardenFest of Lights, one of the Richmond area's largest holiday light displays, worked in partnership with the Company to create a holiday light display that required less energy and yielded more intensity and flexibility by using LEDs.

## EarthCraft

The Company partners with EarthCraft House Virginia to deliver a voluntary green-building program to serve as a blueprint for healthy, comfortable homes that reduce energy consumption and protect the environment. Homes built to EarthCraft standards are more energy efficient and have less environmental impact than non-certified homes.

## Energy-Efficient Habitat for Humanity Homes

- In April 2011, over 300 Company volunteers helped equip the renovated Henrico County Habitat for Humanity home with alternative energy and high-performance products, ranging from a solar hot-water system and radiant heating to high R-value insulation, low-emittance (low-E) windows and Energy Star compliant appliances.
- For seven months beginning in December 2010, nearly 200 Company volunteers worked side-by-side with Habitat for Humanity staff to renovate a house in Richmond with environmentally sustainable products, including roof-mounted solar panels and radiant-heated floors.

## **INTERNAL EFFICIENCY & CONSERVATION INITIATIVES**

### **Introduction**

The following section discusses the Company's overall efforts related to its focus on environmental stewardship, including initiatives to conserve energy through its internal operations pursuant to Va. Code § 56-235.1. The Company's efficiency and conservation commitment is multi-faceted. The Company does not view environmental responsibility as only controlling emissions but also conserving resources, such as energy and water. Examples of these projects and other environmentally-focused projects are described.

### **Facilities**

One or more facility professionals at each of the Company's major facilities support operations in maintaining and improving energy efficiency. The Company continually improves efficiency and conserves energy in its internal operations by installing the following where needed:

- White ThermoPlastic Olefin (TPO) membrane systems over 2" - 3" polyiso foam or other efficient systems during roof repairs and replacements;
- Variable speed drives on large air handling units to allow fan speed control as needed, which reduces the starting load of the motor;
- High efficiency hot-water boilers in place of steam boilers;
- High efficiency gas-fired unit heaters in place of steam fan coil units;
- Solar film on windows to decrease heat infiltration and to increase the efficiency of air-conditioning operations;
- Modifying existing lamps (relamping);
- Building management systems to allow real-time, remote access to building functions and electrical mechanical systems, which enables control of lighting and temperatures;
- Energy-efficient heat pumps in place of existing heating and cooling systems when warranted;
- Efficient T-8 florescent fixtures in place of incandescent lighting and inefficient florescent lights;
- Efficient T-5 High-Bay fixtures for warehouse and dock lighting;
- Occupancy sensor controlled light fixtures installations in restrooms and conference rooms;
- Motion sensors in restrooms with no touch flush and hand washing fixtures to minimize water usage;

- Programmable thermostats;
- An open floor plan to maximize the natural light in building interiors, reducing the number and wattage of lighting fixtures needed; and,
- Carpet manufactured from 90% recycled materials.

In addition to the above, the Facilities Management Department also:

- Uses recycled materials in new office furniture systems;
- Recycles demolition material;
- Introduces single-stream trash recycling after doing building renovations, alterations and/or new construction;
- Uses recycled paper;
- Has preventative maintenance programs to maintain equipment in peak operating condition, which enhances the life of the equipment and delays replacements; and,
- Verifies that facility blinds are closed on high peaking days.

#### New Lighting/Light Quality

Each of the Company's employee-occupied buildings in the Company's electric service territory has completed the Green Lights Program. The Green Lights Program is a project implemented by the Environmental Protection Agency (EPA) and adopted by the Company in the early 1990s. The program began the initiative of retrofitting all fluorescent fixtures from electromagnetic ballasts and T-12 lamps to the more efficient electronic ballast and T-8 lamps. All removal and disposal of lamps and ballasts was done in compliance with all environmental guidelines and regulations. Additionally, occupancy sensors were liberally installed to turn lights on and off based on occupancy.

Moreover, office and non-emergency lighting systems installed at the Company's corporate and many of the field offices are programmed to cycle to half lighting at a prescribed time and completely off at another specified time.

The Company also uses daylight harvesting ballasts on lighting in areas with ample ambient lighting, and entrance/exit hall lighting has been replaced with LED lighting.

In 2009, the Company tested LED lights for some of the corporate branding signage and interior directional signage. In late 2010, the Company's new Lincoln Park office building in Northern Virginia was outfitted with LED lighting signage.

#### Irrigation Enhancement

A recent enhancement to an irrigation system was implemented at the Company's Tredegar campus in Richmond to remove the irrigation from the local water utility service and use natural irrigation from the James River. This initiative will save greater than one million gallons of water from the utility supply annually.

### OJRP Energy Conservation Measures

During the timeframe of this Report, the Company made a number of improvements at its One James River Plaza (OJRP) facility in Richmond resulting in energy savings:

- A new reflective roof that increases the performance of the HVAC system in the floors directly below;
- Closing the window blinds on especially hot days;
- Better use of the building management system for lights and HVAC, such as ramping down on nights and weekends.

### Green Efforts

#### Green Information Technology

The Company's Information Technology (IT) organization continues working toward a more environmentally friendly computing environment. IT continually strives to gain efficiencies and cost savings while reducing environmental impacts. Since 2006, most new desktops, laptops, and printers ordered within the Company's fleet are Energy Star compliant or certified. Additionally, the Company's primary data centers underwent significant redesigns in 2007. These changes eliminated areas above ambient temperatures created by the Company's larger data centers and increased the data centers' power and cooling efficiencies. In 2010, IT moved equipment in the computer rooms for better air flow. Better air flow maintains ambient temperature in the computer room and enables the air handlers to be more efficient in cooling the room.

For the past two years, IT has been working on reducing the number of physical machines in the Company's server farm, making the farm more energy efficient. By consolidating an average of 32 servers to one by way of advanced software, approximately 50% of the Company's server farm is now virtual, and this number will increase to 70% next year. IT also adopted a physical configuration called a blade server which is 30 to 40% more energy efficient than the older, rack-mounted servers.

The Company is in the process of migrating SUN/Oracle systems to Linux, and installed special disk drives to back up data in order to reduce electricity use.

Moreover, the Company's IT disposal vendor has a "no landfill" policy, resells almost all of the Company's disposed assets for continued use, and recycles all others in an environmentally responsible manner.

#### NightWatchman

The Company has continued use of its NightWatchman program, which was introduced in 2009 to automatically shut down inactive desktop computers at night. NightWatchman will turn off desktop computers at 8 p.m. each evening if the user is not logged on.

#### Green Fleet

The Company's intranet site gives gas saving tips to employees, including advice on using vehicle air-conditioning, tips on the optimal speed to drive, tire pressure, tune-ups, and alternative fuels charging station locations.

#### Nuclear Green Team

This group of environmentally-aware nuclear employees identifies, assesses, and recommends actions to make the Company more environmentally responsible and verifies that the Company is wisely using natural resources.

Investment Recovery - As part of the Shared Services Supply Chain Management group, the Investment Recovery department disposes of surplus assets in a way that both maximizes return on investment and minimizes environmental impact. From September 1, 2010 to August 31, 2011, the Investment Recovery department recycled:

- 18.8 million lbs. of scrap iron and steel;
- 5.6 million lbs. of scrap aluminum and copper;
- 1 million gallons of used oil;
- 8,665 scrap transformers;
- 713,000 lbs. of glass and porcelain;
- 224,000 lbs. of scrap street lights
- 1,300 tons of powdered limestone;
- 8,900 ft. of conveyor belting;
- 308 tons of recyclable paper; and,
- 1 ton of recyclable plastic.

#### Plastic Bottle Recycling

The Company announced a new opportunity for employees to not only "think green" but also take action. Effective October 2010, employees at the OJRP, Tredegar Street, Innsbrook and 8th & Main buildings began recycling their empty plastic bottles.

## **Conclusion**

This Report provides a snapshot of the current plans and programs available to the Company's internal and external stakeholders. The Company also is evaluating other energy conservation and demand reduction initiatives. These include the Voltage Conservation, Commercial Re-Commissioning, Commercial Solar Window Film, Commercial Data Center/Computer Room, and Commercial Custom Incentive Programs, along with the Residential Cool Roof Program. Additional details concerning these potential programs can be found in the 2011 Integrated Resource Plan filed September 1, 2011 with the SCC.

In addition, corresponding with the filing of this Report, the Company submitted for SCC approval a Community Solar Power Program, additional details of which are available on the Commission's website and will be included in the 2012 Report.

The Company supports the Commonwealth's goals regarding energy conservation and renewables and will continually evaluate energy savings and environmental programs for itself and its customers in support of the overall goals in the Virginia Energy Plan.