

**DIRECT TESTIMONY
OF
DAVID F. KOOGLER
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2007-_____**

1 **Q. Please state your name and position with Virginia Electric and Power Company**
2 **(“Dominion Virginia Power” or the “Company”).**

3 A. My name is David F. Koogler. I am Director of State Regulation for Dominion Virginia
4 Power. My business address is One James River Plaza, 701 East Cary Street, Richmond,
5 Virginia 23219. A statement of my background and experience is provided as
6 Attachment DFK-1.

7 **Q. Mr. Koogler, what is the purpose of your testimony in this case?**

8 A. The purpose of my testimony is to discuss Dominion Virginia Power’s demand side
9 management and energy efficiency programs, as well as the PJM Interconnection, L.L.C.
10 (“PJM”) load response programs. I will discuss how the Company’s existing programs
11 already help offset, to a degree, the increases in load the Company has experienced and
12 expects to experience in the future.

13 **Q. What are demand side management and energy efficiency programs?**

14 A. Demand side management (“DSM”) can include a wide variety of utility activities
15 designed to change or influence the level or timing of customers’ electricity consumption
16 and thus their impact on the demand for generation. Generally, DSM can be classified
17 under two basic categories: 1) DSM education programs, outside the tariff pricing
18 regime, that educate or promote energy efficiency and/or conservation (“DSM Education
19 Programs”); and 2) tariffs, that either a) include direct load control provisions or b)

1 provide time-differentiated pricing, which gives the customer price signals that better
2 track the utility's variable costs of production ("Tariff-Based DSM").

3 DSM Education Programs generally consist of: a) consumer education about how to
4 reduce consumption and conserve energy; or b) consumer incentives to purchase products
5 that will reduce energy consumption. Examples of DSM Education Programs include
6 customer information designed to increase awareness of energy use and opportunities to
7 save energy via energy audits, financial assistance to lower the purchase price of energy-
8 efficient technologies and performance contracting in which third parties contract with
9 the utility and the customer, providing a guarantee of energy reduction or efficiency.

10 Tariff-Based DSM includes Company-sponsored direct load control tariffs, such as
11 curtailable service or standby generation, which requires customers to reduce loads during
12 high cost or high load periods. Tariff-Based DSM also may include time-differentiated
13 rate schedules, such as time-of-use, variable pricing, real-time pricing or critical peak
14 pricing tariffs. On a spectrum, these time-differentiated tariffs can be relatively static,
15 such as residential time-of-use tariffs, which provide different rates for pre-established
16 on- and off-peak periods, to extremely dynamic, such as real-time pricing, which provides
17 different rates for each hour of the day.

18 **Q. What approach does Dominion Virginia Power take with respect to DSM?**

19 A. Dominion Virginia Power actively employs both DSM Education Programs and Tariff-Based
20 DSM to reduce or manage consumption and ultimately to limit the demand for electricity.
21 As will be discussed in more detail below, non-utility businesses and local, state and federal
22 government programs have generally replaced utility-sponsored programs, and customer

1 participation in dynamic pricing options has increased. Dominion Virginia Power continues
2 to believe that combining customer information and education, along with Tariff-Based
3 DSM, and particularly the more dynamic pricing tariffs, provides our customers with the best
4 information as to the varying costs of electric production. These better price signals can form
5 the basis for the customer to make more informed and energy-efficient purchasing decisions,
6 including conservation activities and load modification actions.

7 **Q. Please discuss the Company's DSM Education Programs.**

8 With respect to customer information, the Company includes energy savings tips in its
9 *Customer Connection* newsletter, which is inserted in all of its customer bills on a
10 bimonthly basis. Articles include how to use energy wisely (September 2006), energy
11 efficiency information available on the Company's web site (November 2006), tips to
12 warm your home (January 2007) and tips on home insulation (March 2007). The
13 Company also offers energy saving tips for both homes and businesses on its Internet web
14 site at www.dom.com/customer-service/home/Virginia. This information includes a
15 downloadable, 22-page booklet (*Energy Efficiency @ Home*) of energy saving tips and a
16 series of videos (*10 Low-Cost/No-Cost Ways to Save Money on Winter Heating Bills*),
17 both of which explain what to do and how to do it.

18 **Q. How do customers decide to take advantage of these DSM Education Programs?**

19 Generally, customers' energy decisions are based upon their own personal and economic
20 situation. For example, customers take into account the cost of an energy efficiency
21 action (such as the purchase of additional attic insulation by a homeowner),
22 counterbalanced against the expected savings on their electric (or other fuel) bill.
23 Customers also may take into account other non-economic benefits or factors, such as

1 increased comfort in their home due to added insulation. They may consider the length of
2 time that they will be living in the home. They also may consider other factors, such as a
3 belief that they are improving the environment by their actions. But all of those factors,
4 including the relative value of each, are very customer-specific. The same would be true
5 of commercial and industrial customers, who will likely have different criteria and
6 decision factors that they would utilize, including their desired payback periods.

7 **Q. You stated earlier that informative price signals through dynamic pricing will**
8 **provide customers with information to make better decisions regarding the use of**
9 **electricity. Can you elaborate?**

10 A. Certainly. The Company believes that it has the responsibility to supply, transmit and
11 deliver electricity to its customers in a reliable and cost-effective manner. At the same
12 time, the Company also believes that its customers are in the best position to decide how
13 much, and when, they purchase electric energy. This may include an individual
14 customer's evaluation of energy efficiency activities that he or she could personally take
15 that could alter the amount and timing of his or her electricity purchases.

16 The Company believes tariffs with time-differentiated pricing that more precisely tracks
17 costs will do the best job of providing customers with the information necessary to make
18 more educated and customer-specific energy efficient decisions.

19 **Q. Mr. Koogler, would you please describe what tariffs the Company currently offers to**
20 **its residential and nonresidential customers that provide better price signals?**

21 A. The Company has had time-of-usage ("TOU") rates in some form since the late 1970's.
22 Currently, there are two TOU rates available to Virginia residential customers on a

1 voluntary basis – one with time differentiated demand and energy rates (Schedule 1S) and
2 one all-energy TOU rate (Schedule 1T). Schedule 1S provides kilowatt-hour (“kWh”)
3 charges for certain on-peak weekday hours and a lower kWh charge for off-peak periods
4 (nights, weekends and certain holidays). Schedule 1S also includes seasonal on-peak
5 kilowatt (“kW”) demand charges that are applied to the customer’s highest average kW
6 demand measured in any 30-minute interval during the on-peak hours of the current
7 billing month. Schedule 1T provides for separate seasonal kWh charges for certain on-
8 peak weekday hours, and a lower kWh charge for off-peak periods (nights, weekends and
9 certain holidays). There are no demand charges in this rate. The Company also offers
10 voluntary TOU rates to its church, synagogue and charitable institution customers
11 (Schedule 5P) and its intermediate general service customers (Schedule GS-2T).
12 Standard rates for our large general service customers (Schedules GS-3 and GS-4) also
13 reflect on- and off-peak energy rates and on-peak demand charges for electricity supply
14 service. Based on a review of the Company’s total kilowatt-hour (kWh) sales for the
15 month of December 2006, over 66% of the kWh sales were to customers on time-based
16 rates.

17 **Q. In addition to the time-based rates discussed above, does the Company offer any**
18 **more dynamic rates?**

19 A. Yes. Another dynamic rate, available to nonresidential customers, is Schedule 10 – Large
20 General Service. Schedule 10 is designed for customers who have the flexibility to make
21 energy purchase decisions on a day-to-day basis. This rate is a hybrid of real-time
22 pricing and time-of-day rates in that all rates are pre-established, but vary from day to
23 day. Schedule CS – Curtailable Service is available on a voluntary basis to intermediate

1 and large general service customers who agree to curtail loads upon Company request.
2 Schedule SG – Standby Generator also is applicable on a voluntary basis to intermediate
3 and large general service customers who have a standby generation capacity of 100 kW or
4 greater which is not normally operated in parallel with the Company. The Company also
5 offers similar tariffs with time-differentiated pricing in its North Carolina service
6 territory. Finally, the Company also has agreements for electric service with two large
7 industrial customers (one located in North Carolina and one located in Virginia) that
8 involve dynamic pricing provisions and curtailment provisions during high cost and peak
9 load periods.

10 **Q. Please discuss the benefits that PJM brings to customers of Dominion Virginia Power in**
11 **the area of demand response.**

12 A. PJM has several FERC-approved demand response programs available, including one in
13 which Dominion Virginia Power’s customers are participating – the Economic Load-
14 Response Program (“Economic Program”). The goal of the PJM Economic Program is to
15 ensure that customers have the capabilities necessary to make informed decisions about
16 energy consumption. The program encourages end use customers to monitor wholesale
17 electric prices in real time and provide a revenue stream for end use customers who can
18 simply reduce electric usage or activate on-site generation when prices are high or the
19 reliability of the wholesale electricity grid is in jeopardy. Customers may participate
20 directly with PJM or through their utility, third party electric supplier, electric cooperative
21 or municipality. The Economic Program is also 100% voluntary and is available to end
22 use customers that can respond frequently when wholesale prices are high. According to
23 the *2005 PJM State of the Market Report*, prepared by the PJM Market Monitoring Unit,

1 “The Economic Program experienced a significant increase in MW enrolled in the
2 program in 2004 and 2005, primarily associated with the integration of new areas into
3 PJM [including the Dominion Virginia Power control area]. As of November 30, 2005,
4 there were 2,210.4 MW currently active in the Economic Program.”¹

5 The Company believes that it is important to consider the impact of Dominion Virginia
6 Power’s membership in PJM in promoting energy efficiency. Dominion Virginia
7 Power’s participation in PJM provides its customers with the opportunity to participate in
8 a program where the wholesale market assesses the economic value of demand side
9 initiatives. Access to PJM pricing expands the potential for Tariff-Based DSM pricing
10 opportunities for Dominion Virginia Power’s customers.

11 **Q. Would you please discuss how these dynamic pricing schedules contribute to reducing**
12 **the Company’s peak demand?**

13 A. As shown on Attachment DFK-2, it is estimated that during the Summer of 2006, customers
14 served under these tariffs (and participating in the PJM Economic Load Response Program)
15 reduced usage by approximately 314 MW during the high cost periods of their respective
16 tariffs. This means that, at peak times, the Company needed to supply 314 MW less than it
17 would have had the programs not been in place.

18 **Q. Mr. Koogler, is the 314 MW discussed above the only contribution that the**
19 **Company’s customers make to reducing demand on its electrical system?**

20 A. No, it is not. Much of the Company’s application and testimony in this proceeding are
21 dedicated to the need for the Meadow Brook to Loudoun project based on the load

¹PJM 2005 State of the Market Report, page 75.

1 forecasts produced for the Company by PJM, which are validated by the Company as
2 described in the testimony of Company witness Phillip Powell. As discussed above,
3 customers make energy decisions based on economical, as well as non-economical,
4 benefits and factors. The Company cannot and does not track these customer specific
5 actions that may result from conservation and energy efficiency information or education.
6 However, to the extent that the Company's residential customers are taking actions to
7 reduce their energy consumption through home energy audits, the installation of energy
8 efficient heating and cooling equipment and appliances, improvements to the thermal
9 envelope of their homes and other customer specific actions, the load reductions are
10 reflected in PJM's load forecasts for Dominion Virginia Power and the Company's
11 validation of those load forecasts. The same would be true of commercial and industrial
12 customers, who likely will have different criteria and decision factors that they would
13 utilize, including their desired payback periods. Accordingly, both the 314 MW which
14 the Company can track and the energy decisions made by the Company's customers that
15 cannot be tracked are embedded in PJM's load forecasts and the Company's validation of
16 them.

17 **Q. In addition to the Company's and PJM's DSM programs, are there other programs**
18 **that encourage cost-effective energy efficiency measures?**

19 A. Yes. Many DSM Education Programs that were once offered by utilities have now been
20 institutionalized by federal, state and local governmental programs. For example,
21 ENERGY STAR is a government-backed program helping businesses and individuals
22 protect the environment through superior energy efficiency. Through its partnerships
23 with more than 8,000 private and public sector organizations, ENERGY STAR delivers

1 the technical information and tools that organizations and consumers need to choose
2 energy-efficient solutions and best management practices. Because of ENERGY STAR,
3 it is estimated that Americans saved enough energy in 2005 alone to avoid greenhouse
4 gas emissions equivalent to those from 23 million cars — all while saving \$12 billion on
5 their utility bills.²

6 It is noteworthy that recent actions by the federal government have focused on
7 establishing energy efficiency standards for equipment and appliances and providing
8 incentives for users as a means for reducing demand for power. Approximately three
9 years ago, the Department of Energy (“DOE”) took a major step to improve energy
10 efficiency standards for residential air conditioners and heat pumps by setting a minimum
11 13 seasonal energy efficiency rating (“SEER”) standard for equipment manufactured after
12 January 23, 2006. The new standard is 30% more stringent than the previous requirement
13 for energy efficiency rating of 10 SEER, which had been in effect since 1992.³
14 According to a survey of Heating, Ventilating and Air Conditioning (“HVAC”)
15 contractors, “a majority of HVAC contractors plan to convert to 13 SEER (77 percent) by
16 January 2006....”⁴

17 Furthermore, the Energy Policy Act of 2005 offers consumers and businesses federal tax
18 credits beginning in January 2006 for purchasing energy efficient appliances and

² ENERGY STAR web site at www.energystar.gov/aboutENERGYSTAR.

³ *New Standard Nears for Air Conditioners, Heat Pumps*, Nation’s Building News, National Association of Home Builders, August 8, 2005

⁴ *Emerson Climate Technologies Survey Shows Majority of Contractors Plan to Convert to 13 SEER by January 2006*, Emerson Climate Technologies, News Release, June 13, 2005.

1 products. Most of these tax credits remain in effect through 2007. Consumers who
2 purchase and install specific products, such as energy efficient windows, insulation,
3 doors, roofs and heating and cooling equipment in the home can receive a tax credit of up
4 to \$500 beginning in January 2006.⁵

5 **Q. What new internal initiatives for DSM and energy efficiency has the Company**
6 **implemented?**

7 A. Dominion has created an internal Executive Steering Committee to establish a strategic
8 direction on the role DSM will play in the Company's resource portfolio. The Executive
9 Steering Committee will oversee an evaluation of the development of potential DSM
10 programs in a variety of customer sectors (residential, small commercial, large
11 commercial, industrial, military and other governmental entities). Potential DSM
12 programs under consideration include, but are not limited to, DSM tariff rates, energy
13 audits, consumer education, weatherization, energy storage systems, distributed
14 generation, demand response and emerging technologies. Toward that end, on January
15 24, 2007, the Company established an internal Energy Conservation Group ("EC
16 Group"), to implement the directives of the Executive Steering Committee as they relate
17 to DSM. The EC Group will lead a planned increase in the number of initiatives aiming
18 to help customers reduce energy needs. The EC Group will select and oversee efficiency
19 programs provided by outside vendors as well as provide energy-saving advice for
20 residential, commercial, governmental and industrial customers in Virginia and North
21 Carolina. The EC Group became effective February 1, 2007.

⁵ P.L. 109-59, 119 Stat. 594 (2005).

1 **Q. Mr. Koogler, are you aware that during the 2007 Session of the General Assembly,**
2 **the General Assembly passed, and the Governor has amended, legislation which**
3 **may alter state policy on energy efficiency and conservation of energy?**

4 A. Yes. Senate Bill 1416/House Bill 3068 passed by the General Assembly and amended by
5 the Governor provides that it is in the public interest, and is consistent with the energy
6 policy goals in § 67-102 of the Code of Virginia, to promote cost-effective conservation
7 of energy through fair and effective demand side management, conservation, energy
8 efficiency and load management programs, including consumer education. These
9 programs may include activities by electric utilities, public or private organizations or
10 both. The legislation directs the Commission to conduct a proceeding to determine
11 whether a 10% electric energy consumption reduction goal can be achieved cost-
12 effectively through the operation of such programs, and if not, determine the appropriate
13 goal for the year 2022 relative to the base year of 2006. It also requires the Commission
14 to identify the mix of programs that should be implemented, and develop a plan for the
15 development and implementation of recommended programs, with incentives and
16 alternative means of compliance to achieve such goals. Additionally, the Commission is
17 directed to determine the entity or entities that could most efficiently deploy and
18 administer various elements of the plan, and estimate the cost of attaining the energy
19 consumption reduction goal. Finally, the Commission may consider providing for a
20 public benefit fund and shall consider the fair and reasonable allocation by customer class
21 of the incremental costs of meeting the goal. Most importantly, Senate Bill 1416/House
22 Bill 3068 as amended by the Governor, and subsequently agreed to by both Houses, sends
23 a clear signal on the Commonwealth's policy on energy efficiency and conservation. The

1 legislation now requires the Commission to submit its findings and recommendations to
2 the Governor and the General Assembly by December 15, 2007. The Commission must
3 include in those recommendations any additional legislation necessary to implement the
4 plan to meet the energy consumption reduction goal.

5 **Q. Does this conclude your prepared direct testimony?**

6 **A. Yes, it does.**

**BACKGROUND AND QUALIFICATIONS
OF
DAVID F. KOOGLER**

I graduated magna cum laude from Washington and Lee University in 1980 with a Bachelor of Science Degree in Physics/Engineering and was selected to membership in the Gamma of Virginia Chapter of Phi Beta Kappa. In 1988, I was awarded a Master of Business Administration Degree from Virginia Commonwealth University.

I joined Dominion Virginia Power in June of 1980 and have spent my entire career in the customer service and rates and regulation areas. I was first promoted to a management position in October 1997 and appointed to my present position of Director – State Regulation in June 2002. My current responsibilities include managing traditional regulatory activities, such as rate design, administration of terms and conditions, and regulatory research and analysis. I am also responsible for negotiating and administering electric rate agreements with state, local and federal government customers in Virginia that are not under the jurisdiction of the State Corporation Commission, and for administering the Company's electric distribution company business process requirements in PJM Interconnection.

I serve on the Board of Directors of the North American Energy Standards Board (NAESB) and of North Carolina Green Power. I have previously presented testimony before the Virginia State Corporation Commission, the North Carolina Utilities Commission, the Federal Energy Regulatory Commission, and the Virginia General Assembly's Commission on Electric Utility Restructuring (CEUR).

Dominion Virginia Power**Load Reductions in the Summer of 2006**

Rate Schedule	Load Reduction
Variable Pricing	117 MW
Curtable Service	8 MW
Standby Generation	37 MW
Variable Pricing/Curtable Service	113 MW
PJM Economic Load Response Program*	39 MW
Total	314 MW
* Dominion Virginia Power customers participating in the PJM economic load response program.	