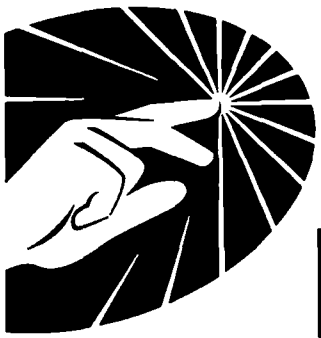

Dominion®

Application, Direct Testimony, Exhibits and Schedules of Virginia Electric and Power Company

Before the State Corporation Commission of Virginia

For approval and certification of the proposed Major Unit Modification of the Hopewell Power Station under §§ 56-580 D and 56-46.1 of the Code of Virginia and for approval of a rate adjustment clause under § 56-585.1 A 6 of the Code of Virginia

Case No. PUE-2011-00074

Filed: June 27, 2011

PUBLIC VERSION
Volume 2 of 3

Application of Virginia Electric and Power Company
For approval and certification of the proposed Major Unit Modification of the Altavista Power Station under §§ 56-580 D and 56-46.1 of the Code of Virginia and for approval of a rate adjustment clause under § 56-585.1 A 6 of the Code of Virginia — **Case No. PUE-2011-00073**

Application of Virginia Electric and Power Company
For approval and certification of the proposed Major Unit Modification of the Hopewell Power Station under §§ 56-580 D and 56-46.1 of the Code of Virginia and for approval of a rate adjustment clause under § 56-585.1 A 6 of the Code of Virginia — **Case No. PUE-2011-00074**

Application of Virginia Electric and Power Company
For approval and certification of the proposed Major Unit Modification of the Southampton Power Station under §§ 56-580 D and 56-46.1 of the Code of Virginia and for approval of a rate adjustment clause under § 56-585.1 A 6 of the Code of Virginia — **Case No. PUE-2011-00075**

TABLE OF CONTENTS

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TABLE OF CONTENTS CONTINUED

TABLE OF CONTENTS CONTINUED

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TABLE OF CONTENTS CONTINUED

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TABLE OF CONTENTS CONTINUED

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DIRECT TESTIMONY
OF
DIANE LEOPOLD
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2011-00073
CASE NO. PUE-2011-00074
CASE NO. PUE-2011-00075

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Virginia Power" or "Company").

A. My name is Diane Leopold, and I am Senior Vice President, Business Development and Generation Construction for Dominion Virginia Power. In that capacity, I am responsible for the development, engineering and construction of power station capital projects, including both existing facilities and new facilities planned by Dominion Virginia Power. My business address is 5000 Dominion Boulevard, Glen Allen, Virginia 23060. A statement of my background and qualifications is attached as Appendix A.

Q. What is the purpose of your testimony in this proceeding?

A. I am testifying in support of the Company's proposal to perform major unit modifications to the existing Altavista, Hopewell and Southampton Power Stations currently owned and operated by the Company ("Application"). The Company is seeking all necessary approvals by the State Corporation Commission ("Commission") related to the construction and operation of those stations. These major unit modifications consist of converting the power stations from being coal-burning generation facilities into renewable biomass generation facilities ("Biomass Conversions"). Specifically, I provide a summary of the Company's reasons for proposing the Biomass Conversions

and I introduce the Company's witnesses in this proceeding. My testimony also supports the Company's request for Commission approval of a rate adjustment clause ("RAC") designated Rider B, under § 56-585.1 A 6 ("Subsection A 6") of the Code of Virginia ("Va. Code") for timely and current recovery of the cost of the Biomass Conversions. In addition, my testimony is responsive to the Filing Schedule 46 requirement to provide information relative to the need and prudence of the proposed Biomass Conversions.

Q. Are you sponsoring an exhibit in this proceeding?

A. Yes, I am sponsoring information responsive to 20 VAC 5-302-25(1), (2), (3), (4), and (5), which are included as Exhibit 1 to the Company's Application. Exhibit 1 is also responsive to 20 VAC 5-302-10, Par. 1(ii).

Q. What is the Company proposing in this proceeding? (20 VAC 5-302-10, Par. 1(i))

A. The Company proposes major unit modifications to convert its three existing coal-burning generation facilities at Altavista, Hopewell and Southampton to burn biomass. For the purpose of these Biomass Conversions, the term "biomass" means wood, wood waste, wood manufacturing industry byproducts, and/or other organic plant material, but shall exclude municipal liquid and solid waste (i.e., sludge), animals or animal waste. In particular, the Company intends to use primarily waste wood, such as slash, pre-commercial thinnings, harvesting residues, brush, and mill residues.

Because the Altavista, Hopewell and Southampton Power Stations were built at the same time and are almost identical in design and operation, I will discuss them as a group, as will many of the Company witnesses. Where differences between the facilities exist, they will be discussed by the witnesses.

The total estimated construction cost for the Biomass Conversions is approximately $165.8 million, excluding financing costs. After the Biomass Conversions are completed, each power station will be rated at a capacity of approximately 51 megawatts ("MW") (net), which is a reduction from the current 63 MW (net) rating for each station. However, the capacity factors are projected to rise significantly to an estimated annual 92% over their 25-year lives as compared to an average capacity factor of 18% over the same period on continued coal operations.

All three power stations were originally built and completed in 1992, by the same previous owner, and acquired by the Company as a "set," as approved by the Commission on March 2, 2001 in Case No. PUE-2000-00745 ("March 2001 Order"). Because the Company is proposing major unit modifications to convert the Altavista, Hopewell and Southampton Power Stations so that they can burn biomass, the Company is requesting the Commission to amend and reissue certificates of public convenience and necessity ("CPCNs") for those stations pursuant to Va. Code §§ 56-580 D and 56-46.1.

In addition, because the major unit modifications will result in conversion of the facilities into renewable powered facilities, the Company is also seeking a 200 basis points addition to the authorized return on common equity ("ROE") for the investments in the facilities for the first 15 years of their service lives, as permitted under Va. Code § 56-585.1 A 6 ("Subsection A 6"), through Rider B. After the Biomass Conversions, the three power stations are expected to produce renewable energy eligible for use in meeting Virginia's renewable energy portfolio standard ("RPS") as set forth in Va. Code § 56-585.2 ("Virginia's RPS Goals") and the Company's RPS Plan as approved by the Commission in Case No. PUE-2009-00082.

The Company seeks an order amending and reissuing the CPCNs and approving Rider B as soon as possible. The Company recognizes that the Commission has up to nine months to issue an order regarding a Subsection A 6 RAC; the Company respectfully requests the Commission to also issue an order approving amendments to the CPCNs at the same time. In order to qualify for the federal Production Tax Credits ("PTC"), which are a material and direct benefit to our customers, construction must begin by no later than August 2012 for the Biomass Conversions to be completed and the power stations operational by December 31, 2013.

Q. Please summarize the reasons why the Company is proposing the Biomass Conversions. (20 VAC 5-302-10, Par. 1(iii), (iv) and (v); 20 VAC 5-302-25(13))

A. The Biomass Conversions are expected to benefit our customers, the environment and the Commonwealth as a whole. The converted units will provide low-cost, renewable baseload energy, enhance fuel diversity, promote Virginia's renewable goals, provide economic benefits to the Commonwealth, serve the public convenience and necessity, and are in the public interest. Specifically, the Biomass Conversions will be beneficial to our customers for the following reasons:

- The Company will transform existing generation facilities that are not being fully utilized, modify them, and enhance their utilization and value to customers. Further, the cost of converting the existing facilities at Altavista, Hopewell and Southampton to burn biomass is substantially less than building new biomass facilities and is a prudent and more beneficial use of currently underutilized power stations.

- The Biomass Conversions were selected as one of the most reasonable and cost-

effective means of addressing customers' growing needs and are expected to provide customer savings of approximately $388 million net present value ("NPV") over the entire 25-year lives of the converted power stations when compared to continued operation of the units on coal.

- The Biomass Conversions are projected to support native load by increasing the capacity factors of these existing facilities. The capacity factors are projected to rise significantly to an estimated annual 92% over their 25-year lives as compared to an average capacity factor of 18% over the same period on continued coal operations. The increased capacity factors will help reduce dependence on market purchases.

- Converting the Altavista, Hopewell and Southampton Power Stations will enhance the diversification of the Company's fuel portfolio by increasing our overall use of biomass fuel and act as a hedge against fluctuating commodity prices among fuel types.

- The Biomass Conversions will have numerous benefits to the environment of Virginia, including reductions of nitrogen oxides ("NO_x"), sulfur dioxide ("SO_2"), particulate matter ("PM") and mercury ("Hg").

- Customers will have the opportunity to take advantage of federal PTCs available through these Biomass Conversions for the first 10 years of operation. The value of those federal PTCs will be directly passed along to customers.

- The Biomass Conversions will support Virginia's RPS Goals, as well as the Company's RPS Plan, and produce self-generated, renewable energy certificates (or

"RECs"). These RECS can also be optimized for customer benefit.

- Construction and operation of the Biomass Conversions will promote economic development and enhance employment within the Commonwealth.

- The Company has concluded that there is sufficient availability of sustainable biomass fuel for each of the three power stations. The majority of the wood expected to be used will be waste wood, such as slash, pre-commercial thinnings, harvesting residues, brush, and mill residues. Using regional wood in a sustainable manner is good for the Virginia economy and for the environment.

- The Biomass Conversions will support the Commonwealth's Energy Plan and will contribute to the Company's ongoing efforts to provide safe and reliable power in a prudent and cost-effective manner.

In summary, these Biomass Conversions make sense because they are relatively low-cost to construct, are cost-effective investments that benefit customers, provide needed low-cost, baseload energy that uses sustainable, renewable fuel sources, and further the Commonwealth's energy policy goals. The Company therefore believes that the Biomass Conversions are in the public interest and create value for our customers through the increased utilization of existing assets.

I. BACKGROUND

Q. Please describe the three facilities. (20 VAC 5-302-10, Par. 1(i) and (v); 20 VAC 5-302-25(13))

A. In its March 2, 2001 Order in Case No. PUE-2000-00745, the Commission approved the

acquisition of the Altavista, Hopewell and Southampton Power Stations by the Company from LG&E-Westmoreland ("March 2001 Order"). These facilities were acquired and operated as coal-fired facilities and were each rated at approximately 70 MW (gross), and 63 MW (net) capacity. Over time, these facilities have become less economical to dispatch. In fact, over the past two years (2009-2010), the three combined units averaged a capacity factor of only 26%. In October 2010, the Company decided to place Altavista Power Station in cold reserve status and its capacity factor is now zero.

The Company has determined that these power stations can be better utilized and provide a net benefit to customers if they are converted to renewable biomass facilities. Though each of the facilities is expected to decrease from a 63 MW capacity rating to approximately 51 MW, the capacity factor for each facility will increase to approximately 92% over the 25 year lives of the converted facilities.

Each station also has the capability to sell steam to an adjacent manufacturing facility, or steam host. If steam is sold to such a steam host, up to 5 MW of the facility's capacity would be utilized by the steam host, at a price that is neutral to the Company's customers.

Converting these units to renewable biomass fuel will reduce their dispatch costs and significantly increase the electric production from these facilities, thereby reducing the Company's dependence on market energy purchases.

Q. **Please summarize the major unit modification investments that will be made to Altavista, Hopewell and Southampton as part of the Biomass Conversions.**

A. The Biomass Conversions will require major unit modifications to the existing Altavista, Hopewell and Southampton Power Stations. The total estimated construction cost for the

Biomass Conversions is approximately $165.8 million, excluding financing costs. This breaks down to approximately $56.7 million in construction costs at Altavista, $54.4 million at Hopewell, and $54.7 million at Southampton.

At each power station, major unit modifications will be made to the fuel unloading and handling facilities and boilers. In particular, the coal-handling equipment will be retired and replaced with new fuel unloading and handling systems to store and move biomass fuel into the boilers; existing coal bunkers will be modified, overfire air systems will be installed; economizers will be added; and several parts of the furnace, baghouses and boilers will be modified. The new and modified equipment will meet Best Available Control Technology ("BACT") requirements.

But a key aspect that supports the conversions is what the Biomass Conversions will not entail. The Company will use existing parts of the three power stations, including the plant buildings and structures, the steam turbines and electrical generators, electrical interconnection facilities, the condensate and feedwater systems, the closed loop cooling system including condensers and cooling towers, and the water and wastewater processing equipment. These existing units also already have the majority of the necessary emissions control equipment necessary to control NO_x, SO_2, PM and Hg. Through the Biomass Conversions, the Company will transform existing generation facilities that are not being fully utilized, modify them, and enhance their value to customers. The ability to reuse these existing systems is the primary reason the costs associated with the Biomass Conversions is low compared to constructing a new biomass facility of similar configuration.

Q. Why does the Company believe these conversions are "major unit modifications" as stated in Subsection A 6?

A. The Biomass Conversions constitute major and significant changes to the fuel storage, fuel handling equipment and boilers at the power stations, as well as how the facilities will be fueled and operated. As previously described, the existing fuel storage, fuel handling, and boilers will be significantly modified at each of the facilities, and the facilities will no longer be capable of burning coal. Operating procedures will be modified and adjusted to support fuel handling and the firing characteristics of the biomass fuel. Biomass burns differently than coal and will require operators to modify how the emissions control equipment is operated to assure compliance with air permit limits. Short of a complete repowering, abandonment of a primary fuel type and conversion to a completely different type is one of the more significant changes a power station may undergo.

II. NEED

Q. Please discuss the Company's need for the Biomass Conversions. (20 VAC 5-302-10, Par. 1(iv) and (v); Va. Code §§ 56-46.1 and 56-585.1 A 6)

A. These are existing facilities and the Commission, by its March 2001 Order, had already determined that the public convenience and necessity required their acquisition by the Company - and the need for these facilities continues to exist today. As discussed previously, Altavista, Hopewell and Southampton, as coal-burning facilities, are less economical to dispatch relative to other Company resources and market purchases, and are not currently dispatched very often. After the Biomass Conversions, the three power stations are expected to continue to serve native load at a somewhat reduced capacity

rating, but with much higher anticipated capacity factors due to their improved economics.

The Company is currently a net purchaser of energy. In fact, in 2010, the Company purchased approximately 18% of its energy requirements from the PJM Interconnection, LLC ("PJM") spot energy market. With the Company's growing energy requirements, the need for additional baseload generating resources is clear. These three existing coal-fired stations currently run at peak times when demand is at its highest. By converting the power stations to operate using biomass as fuel, combined with the value of PTCs and RECs, the Company will be able to dispatch the three renewable generating facilities economically as baseload resources, which will provide significant energy benefits to customers. The slight reduction of net capacity ratings upon the conversions will be greatly offset by the substantial increase in energy generation.

The Company projects that the peak demand for the Dominion Zone will increase by approximately 4,900 MW over the next 10 years (2011-2021). In addition, the projected annual energy gap (the difference between the forecasted energy requirement and what is expected to be economically generated by Dominion's existing or planned assets) will increase to 36,075 GWh by 2026 assuming no additional generation is built. The Company's system-wide Integrated Resource Plan ("Plan") identifies the mix of resources necessary to meet future capacity and energy needs in an efficient and reliable manner at the lowest reasonable cost. In both the 2009 and 2010 Plans, generic, greenfield biomass units were chosen as part of the Plans. In addition, in the 2010 Plan update filed with the Commission in Case No. PUE-2010-00107, the Company identified potential coal-to-biomass conversions totaling 150 MW (2010 Plan at 1-5, 6-16). The

Commission approved the Company's 2009 Plan as reasonable and in the public interest, and our 2010 Plan, although not requiring similar approval, was filed with the Commission in Case No. PUE-2010-00107. By converting these units, the Company would be increasing the supply of much needed baseload energy. As the existing infrastructure has already been constructed, conversions at these under-utilized facilities can be completed at a fraction of the cost when compared to building 150 MW of new greenfield biomass units, making them a more economic choice.

While market purchases have been, and will continue to be, an important aspect of meeting our customers' needs, it is the *dependence* on these market resources that is cause for concern. Growth will continue in the Dominion Zone and in the other areas around the regional transmission organization. It is important to maintain the viability of these three units and have them dispatching as a baseload resource as part of our portfolio. An *over-dependence* on the wholesale energy market leaves customers more vulnerable to uncontrollable market factors such as commodity price increases, extreme weather, generation availability, and congestion. The Company will still utilize the PJM energy and capacity markets when it is cost-effective to do so, but having additional low-cost electric generating resources increases dispatch flexibility and ultimately reduces the cost to serve our customers.

The Biomass Conversions are also consistent with the Company's "Powering Virginia" strategy.

For the reasons noted above, these Biomass Conversions are a prudent and cost-effective means to address the needs of our customers and they are in the public interest.

III. ECONOMIC BENEFITS

Q. What are the economic benefits of the Biomass Conversions to the Company's customers? (20 VAC 5-302-10, Par. 1(v); 20 VAC 5-302-25(13))

A. The Biomass Conversions are expected to provide customer savings of approximately $388 million NPV over the projected 25-year life of the converted facilities when compared to continued operation of the units on coal. Compared to the forward market curve, these units are projected to provide a customer savings of approximately $434 million. **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted] **[END EXTRAORDINARILY SENSITIVE]** As Company Witness Glenn A. Kelly presents, the Company ran numerous other sensitivities. These sensitivities conclude that the Biomass Conversions are cost-effective to customers under a broad range of scenarios.

Q. Are there other economic benefits to Virginia from the Biomass Conversions? (20 VAC 5-302-20(10), Par. 1(iii); 20 VAC 5-302-25(9); Va. Code §§ 56-46.1 and 56-585.1 A 6)

A. Yes, there are. The Company commissioned a report prepared by Chmura Economics and Analytics entitled *The Incremental Economic and Fiscal Impacts of the Proposed Dominion Biomass Conversions in Altavista, Hopewell, and Southampton* ("Chmura Report"). The Chmura Report determined the direct, indirect and induced economic

impacts of the Biomass Conversions, including jobs created and tax revenues generated. Because there are already some economic benefits from the existing power stations as they burn coal, the Chmura Report provides information on the incremental economic benefits of the Biomass Conversions. By identifying these incremental benefits in jobs, investments, taxes, etc, the Chmura Study provides the Commission with the information necessary to conclude that the Biomass Conversions will have significant economic benefits. In summary, the Chmura Report determined that:

- During the construction period, the average annual total direct, indirect and induced incremental impact of capital expenditures from the Biomass Conversions is expected to be $25.2 million or an annual average of 159 jobs. In the peak year of construction (2013), there will be 279 new direct jobs combined at all three facilities, and an additional 168 incremental indirect and induced jobs will be created.

- Once operational (2014 onward), the aggregate annual direct, indirect and induced incremental impact of operating the converted biomass powers stations is expected to be $129.5 million. There will be 309 incremental indirect and induced jobs at all three power stations, most of them created in the logging and hauling industries.

IV. PRODUCTION TAX CREDITS

Q. Please comment on the use of Production Tax Credits for the Biomass Conversions.

A. The Biomass Conversions are expected to take advantage of the federal PTCs established and made available for such renewable projects under the American Recovery and Reinvestment Act. To qualify, the renewable facilities must be placed in service by the end of 2013. The PTCs are produced for the portion of megawatt hours generated using

biomass as defined in Section 45 of the United States Internal Revenue Code. To qualify for the PTCs, the power stations may not co-fire with fossil fuels (except they may use fossil fuels for startup and flame stabilization).

The PTCs for these Biomass Conversions will be approximately $11/MWh (in 2011 dollars, subject to an annual inflation adjustment factor) for 10 years starting from initial commercial operation on biomass fuel. At an annual estimated capacity factor of 92% at all three facilities, these federal PTCs are expected to produce a NPV to customers of approximately $120 million (which is included in the total customer benefit of $388 million). The Company has assumed in its calculations that 95% of the production from these converted facilities will be eligible for the federal PTCs, because we anticipate at least 95% of the fuel input at each of the power stations will comply with the biomass definition in Section 45 of the United States Internal Revenue Code.

These PTC dollars will pass directly through Rider B, reducing the costs of the conversions that will be passed onto customers, and they will ultimately result in lower dispatch costs for each of the facilities, which will also provide direct benefits to customers.

Q. Will the converted power stations still be economical after the PTCs expire?

A. Yes, they will. During the first 10 years of operation when the units are expected to receive PTCs, the dispatch cost on biomass is, on average, anticipated to be 88% lower than on coal. Upon expiration of the PTCs, the dispatch cost on biomass is still anticipated to be 79% lower than on coal, driven largely by the lower emissions costs and the value of the RECs.

V. ENVIRONMENTAL BENEFITS

Q. Please discuss the environmental benefits of the Biomass Conversions. (20 VAC 5-302-10, Par. 1(iii); Va. Code § 56-46.1)

A. By switching from coal to biomass fuel, Altavista, Hopewell and Southampton Power Stations are expected to reduce their NO_x, SO_2, PM and Hg emissions when compared to operating on coal. Altavista, Hopewell and Southampton Power Stations are currently equipped with significant emissions controls, including Selective Non-Catalytic Reduction ("SNCR") systems for NO_x control (except at Southampton Power Station, which will have it installed as part of its conversion to biomass fuel), Dry Flue Gas Desulfurization ("DFGD") systems for SO_2 control, and high-efficiency baghouses for PM control and Hg control. Additionally, overfire air systems will be installed, and continued deployment of good combustion practices will be incorporated into the conversions to improve emissions of carbon monoxide and volatile organic compounds. Water pollution will be controlled with existing settling, pH control and aeration. The Biomass Conversions also eliminate the production, handling and storage requirements of coal ash. The wood ash produced from these biomass facilities is expected to be a source of fertilizer for local farmers. The environmental permits, as well as needed approvals and compliance plans, are further discussed in the testimony of Company Witness Robert M. Bisha and the Department of Environmental ("DEQ") Supplements he is sponsoring.

VI. FUEL DIVERSITY

Q. Do the Biomass Conversions enhance the Company's fuel diversity?

A. Yes, they do. The Biomass Conversions enhance fuel diversity across the Company's generation portfolio. Maintaining a diverse mix of fuels reduces the Company's reliance

on any one single fuel source and, therefore, helps protect customers from the rising cost of any one commodity. The Company currently has only one wood-burning biomass power generation facility in its fleet: the 83 MW Pittsylvania Power Station in Hurt, Virginia. These conversions will increase the Company's energy production from a sustainable, renewable fuel source, furthering the fuel diversity within the electric generating portfolio. Company Witnesses Gregory A. Workman and Glenn A. Kelly discuss the fuel diversity aspects of the Biomass Conversions in more detail in their testimonies.

VII. FUEL SUPPLY

Q. Is there a reliable and sustainable supply of biomass for these facilities to use as fuel? (20 VAC 5-302-25(8))

A. Yes, there is. The Company commissioned a study by Innovative Natural Resource Solutions LLC ("INRS") to examine the local/regional wood basket and the availability of biomass to serve the potential Biomass Conversions ("INRS Study"). INRS is a consulting firm specializing in the forest industry, natural resource conservation, and renewable energy. INRS has significant experience working with the forest industry, loggers, landowners and biomass facilities. The INRS Study concludes that there is sufficient availability of sustainable biomass to fuel the converted power stations, as well as the existing Pittsylvania Power Station. It should be noted that the INRS Study considered in its assumptions the impact on biomass availability of the Northern Virginia Electric Cooperative biomass facility in South Boston, Virginia that was recently approved by the Commission in Case No. PUE-2010-00126, as well as other current and expected future users of biomass within the regions of the power stations. The INRS

Study is included as an extraordinarily sensitive exhibit to the testimony of Company Witness Gregory A. Workman.

Q. Please discuss the Company's fuel supply plans.

A. In total, the three facilities are expected to consume approximately **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted] **[END EXTRAORDINARILY SENSITIVE]** of wood per year. With Pittsylvania Power Station's consumption added to that, the total for all four facilities is expected to be **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted] **[END EXTRAORDINARILY SENSITIVE]** per year. The types of biomass the facilities will be capable of using are: wood, wood waste, wood manufacturing industry byproducts, and/or other organic plant material, but shall exclude municipal liquid and solid waste (i.e., sludge), animals or animal waste. In particular, the Company intends to use primarily waste wood, such as slash, pre-commercial thinnings, harvesting residues, brush, and mill residues. The Company anticipates only a limited quantity of "a tree or any portion of a tree which is used or can be used for lumber and pulp manufacturing by facilities located in Virginia" would be used at these facilities and does not expect to exceed its allotment of 1,108,940 tons of the 1.5 million tons of this type of biomass as set forth under Va. Code § 56-585.2 F and pursuant to the Commission's Final Order in Case. No. PUE-2009-00082.

With the projected significant increase in biomass consumption and multiple power station fueling integration responsibilities as a result of the Biomass Conversions and to ensure there will be a sufficient supply of biomass at a reasonable price, the Company determined it would be advantageous to contract with fuel service providers that have

expertise in biomass fuel management. The Company issued requests for proposals ("RFP") from several potential biomass fuel service providers, who would develop and manage the biomass fuel supply with the expected hundreds of individual loggers and haulers in the region around each facility.

[BEGIN EXTRAORDINARILY SENSITIVE] [redacted] **[END EXTRAORDINARILY SENSITIVE]**

As a result of the fuel RFP process, the Company has selected **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted] **[END EXTRAORDINARILY SENSITIVE]**. The solicitation and selection of these biomass fuel service providers are expected to provide effective sourcing and delivery of competitively priced biomass for these Biomass Conversions.

Company Witness Workman addresses the fuel RFP process, as well as the availability and sustainability of the fuel supply in more detail.

VIII. OPERATION AND CONSTRUCTION

Q. Does the Company have any experience operating biomass generation facilities?

A. Yes. The Company currently owns and operates one of the nation's largest biomass facilities, the 83 MW biomass wood burning Pittsylvania Power Station in Hurt, Virginia. The Company has been operating Pittsylvania as a biomass facility since it purchased the facility in November 2004 with Commission approval in Case No. PUE-2004-00089. The technology used at Pittsylvania is very similar to the technology that will be used for the Biomass Conversions. Under the Company's ownership, the Pittsylvania Power Station has been a reliable performer with Equivalent Availability ("EA") and Equivalent Forced Outage Rate on demand ("EFORd") statistics comparable to those of baseload coal generating facilities. In addition, the Company has been using waste wood as Pittsylvania's fuel supply, which is primarily forest harvesting residue such as slash, pre-commercial thinnings, brush, and mill residues. The composition of the biomass fuel used at the Pittsylvania Power Station is expected to be similar to what the Company proposes to use at the Altavista, Hopewell and Southampton Power Stations after converting to biomass fuel.

In addition, Altavista Power Station was originally designed to use up to 15% dry wood as a fuel source. Sawdust was used for approximately 10% of its fuel source, with the remainder being coal.

Q. Why is Dominion Virginia Power well-qualified to achieve a successful outcome from the Project? (20 VAC 5-302-10, Par. 1(ii); 20 VAC 5-302-25(5)(a))

A. Besides successfully operating the Pittsylvania biomass facility, Dominion Virginia Power has an excellent record of designing, developing, constructing and operating large generation projects in a safe and reliable manner, and at reasonable cost. The most recent examples of these accomplishments include the Ladysmith Generation Facility, the Bear Garden Generating Station, numerous station uprates, and the scrubber retrofit projects at Chesterfield Units, as well as the project at the Virginia City Hybrid Energy Center ("VCHEC") that is currently under construction. Combined, there were more than 12 million hours worked on these projects as of the end of 2010. In each of these cases, the Company has successfully designed and developed a technologically advanced project, carefully and competitively selected its contractors and vendors, contracted for its construction and equipment to maximize certainty of the project's costs at the project's early stages, and has capably managed each phase of the project, with the goals of concluding every one safely, on time and on budget. We will use the same construction and project management approaches with the Biomass Conversions.

I want to emphasize the exceptional safety record that Dominion Virginia Power has achieved in carrying out its construction programs. Through May 2011, projects managed within the Generation Construction group worked more than 19 million hours, and achieved an Occupational Safety and Health Administration recordable incident rate of approximately 1.10 compared with an industry average recordable incident rate of 3.8 for similar heavy construction. We are confident that we can continue our excellent record of providing a safe working environment for our employees and contractors during

the construction of the Biomass Conversions.

Q. What competitive procurement procedures is the Company using with respect to construction of the Biomass Conversions? (Va. Code § 56-233.1)

A. Dominion Virginia Power has utilized, and will continue to utilize, competitive bidding practices to the greatest extent practicable in its purchases of equipment, materials and its acquisition of construction and other services related to the Biomass Conversions.

Babcock and Wilcox ("B&W"), the original equipment manufacturer ("OEM") of the existing boilers, has designed and will provide equipment required to retrofit the boilers to burn biomass. Dominion Virginia Power then compiled a RFP package for soliciting an Engineering, Procurement and Construction ("EPC") contractor to perform the facility conversions.

[BEGIN EXTRAORDINARILY SENSITIVE] [redacted]

[redacted]

[redacted] **[END EXTRAORDINARILY SENSITIVE]** The details of the procurement process and EPC contracts are discussed in the testimony of Company Witness Robert B. McKinley.

Q. What is the proposed timeline for the development, construction and commercial operation of the Biomass Conversions?

A. The EPC contract work is expected to be completed in specific stages with a Limited Notice to Proceed ("LNTP") for engineering and procurement of long lead-time equipment, and a Final Notice to Proceed ("FNTP") for construction. The LNTP will allow both engineering and the procurement of long lead-time equipment to begin. LNTP for engineering and design for all three facilities will be given to the EPC contractor upon contract execution in July 2011.

FNTP for construction will be given after the Company receives amended and reissued CPCNs and air permit approvals for the Biomass Conversions. Once all approvals are received, the Company anticipates it will take approximately 16 months to complete the Biomass Conversions. As discussed previously, in order for the Company to take advantage of the PTCs, the conversions must be complete and the power stations placed in commercial operation on biomass fuel by December 31, 2013.

Q. What are the projected costs of the Biomass Conversions?

A. As described above, the Biomass Conversions will require major unit modifications to the existing Altavista, Hopewell and Southampton Power Stations. The total estimated construction cost for the Biomass Conversions is approximately $165.8 million,

excluding financing costs. This breaks down to approximately $56.7 million in construction costs at Altavista, $54.4 million at Hopewell, and $54.7 million at Southampton. These costs are much lower than a new, greenfield biomass facility of similar capacity and configuration. A more detailed discussion of these investments is provided in the testimony of Company Witness McKinley.

Q. Has the Company begun the process for obtaining other regulatory approvals that are required with respect to the Biomass Conversions?

A. Yes, it has. All local governmental zoning permits have been received for the Biomass Conversions, and all three air permit applications have been submitted to the Virginia DEQ for review and approval and the Company does not foresee any permitting problems that will delay the construction or prevent the operation of these facilities. Company Witness Bisha addresses the environmental permits and requirements for the Biomass Conversions in his testimony, and Company Witness McKinley addresses additional regulatory approvals.

IX. TRANSMISSION

Q. Do the Biomass Conversions require any new transmission facilities? (20 VAC 5-302-25(12)(a))

A. No, they do not. Since Altavista, Hopewell and Southampton are existing power stations, they already have transmission facilities and are interconnected to the Company's transmission system and therefore no new interconnections or network upgrades are required. Since Altavista is in cold reserve, an application for the facility to re-enter the transmission system and operate the facility in the future was required by PJM and the

Company subsequently signed a new Interconnection Service Agreement for the Altavista Power Station to that effect.

X. COST RECOVERY AND ENHANCED RATE OF RETURN

Q. Is the Company seeking an enhanced rate of return under Subsection A 6 for the Biomass Conversions?

A. Yes. As previously mentioned, the proposed conversions to the Altavista, Hopewell and Southampton Power Stations are major unit modifications in that they constitute major and significant changes to the fuel storage, fuel handling equipment and boilers at the power stations, as well as how the facilities will be fueled and operated. Short of a complete repowering, abandonment of a primary fuel type and conversion to a completely different type is one of the more significant changes a power station may undergo. These Biomass Conversions will help ensure a reliable and adequate supply of electricity, will serve native load and will promote economic development. They will add significant value to customers by better utilizing existing assets and converting them for a more economical use.

If approved in time so that construction can be completed and the power stations become operational by December 31, 2013, the Company will be able to utilize the federal PTCs, which will result in a reduction of dispatch costs. Additionally, the Biomass Conversions will help achieve Virginia's RPS Goals, and the goals of the Company's RPS Plan, in a cost-effective manner. These Biomass Conversions qualify for 200 basis points in enhanced rate of return because they are renewable powered facilities.

Due to the critical need for energy resources in the Company's service territory, the cost-

effectiveness of the Biomass Conversions to help meet this growing need, and the risks associated with the development of the Biomass Conversions, the Commission should determine that the first portion of the Biomass Conversions' service life will be 15 years.

In summary, the Biomass Conversions are in the public interest and the Company is seeking the 200 basis point addition to its ROE for the facility for the full period of 15 years, as allowed under Subsection A 6. As the Commission is aware, the Company has requested an ROE of 12.5% in its 2011 Biennial Review Filing in Case No. PUE-2011-00027, which includes 100 basis points for the performance incentive. If approved, and because the conversions qualify for the 200 basis points, the Biomass Conversions would thus receive a 14.5% ROE. Should the Commission ultimately approve and authorize a different ROE in Case No. PUE-2011-00027, the Company proposes that such authorized ROE be used in this proceeding and the 200 basis points as renewable powered generation facilities under Subsection A 6 be added to it for the first 15 years of the life of each facility.

Q. What will the monthly rate impact be for an average 1,000 kWh residential customer? (20 VAC 5-302-25(13))

A. As Company Witness Kurt W. Swanson discusses in his testimony, the implementation of the proposed Rider B on April 1, 2012 is expected to increase the typical residential customer's monthly bill, based on 1,000 kWh per month, by $0.14.

Q. The provisions of Va. Code § 56-585.1 A 7 address a nine-month timeframe for Commission approvals of a Subsection A 6 RAC, yet there is no similar restriction on approving a CPCN. Is the Company requesting the Commission both approve the Subsection A 6 RAC and amend and reissue the CPCNs for the Biomass Conversions in nine months?

A. Yes. The Company needs to have the facilities operational on or before December 31, 2013 in order for the facilities to qualify for the PTCs. Because it will take 16 months to complete construction of the major unit modifications, the Company needs to begin construction in August 2012. An order approving the conversions by no later than March 27, 2012 will help to ensure that the engineering, procurement, construction and commissioning is completed by the end of 2013 and the units are eligible for those PTCs.

XI. RPS PLAN

Q. Does the Company intend to use this facility toward meeting its RPS Plan?

A. Yes. As a renewable facility, it meets the Virginia RPS requirements under Va. Code § 56-585.2 and will contribute to the Company's RPS Plan. At a 92% capacity factor, these three facilities are projected to generate approximately 1.2 million RECs, of which 80.69% (current jurisdictional allocation to Virginia retail customers) will be available toward meeting the Company's RPS Plan either directly or through optimization. Pursuant to Va. Code § 56-585.2 F, the Company intends to optimize the RECs and purchase lower-value replacement RECs when available and credit the difference to customers. As explained by Company Witnesses Gregory J. Morgan and Mark C. Stevens, the proceeds from the sales of the higher-value "Tier I" RECs that the three power stations will produce post-conversion will be credited to all customers through the

Subsection A 6 RAC, Rider B. The costs for replacement with lower-value "Tier II" RECs will be allocated in a future Va. Code § 56-585.1 A 5 RAC, but will not include "customers that are served within the large industrial rate classes of the participating utilities and that are served at primary or transmission voltage," consistent with Va. Code § 56-585.2 E.

XII. COMMONWEALTH ENERGY POLICY

Q. Do the Biomass Conversions contribute to the Commonwealth Energy Policy stated at Va. Code § 67-102 and the Virginia Energy Plan?

A. Yes, the Biomass Conversions support these policy goals and are expected to provide many other benefits, including, but not limited to, the following:

- The Biomass Conversions will result in electric generation facilities that use renewable biomass as their energy source.
- They will create environmental benefits by reducing emissions of NO_x, SO_2, PM and Hg when compared to operation on coal.
- The Biomass Conversions will promote the efficient use of sustainable renewable resources and promote fuel diversity.

XIII. WITNESSES

Q. Please introduce the witnesses.

A. The Company is presenting the following additional witnesses:

- Glenn A. Kelly, Director of Generation System Planning, discusses the Company's forecasted need for additional energy to serve the Company's customers and the generation analysis conducted demonstrating that the Biomass Conversions are the best economic option for meeting this need, including his evaluation of the customer benefits to be achieved by the Biomass Conversions.

- David W. Faison, Director, Contracted Assets, provides background on the Altavista, Hopewell and Southampton Power Stations, including their acquisition by the Company, capacity factors and current operations.

- Robert B. McKinley, Vice President, Generation Construction, describes the Biomass Conversions in detail, including its design, construction schedule, the reasonableness and prudence of Biomass Conversions costs and risk mitigation techniques and the competitive procurement processes used to evaluate and ultimately select the Engineering, Procurement and Construction contractor and equipment supplier.

- Gregory A. Workman, Director-Fuels, sponsors a biomass availability study, describes the biomass supply market and summarizes arrangements made for fueling the Biomass Conversions.

- Robert M. Bisha, Director, Environmental Business Support, testifies concerning the environmental aspects of the Biomass Conversions, sponsors the DEQ Supplements, and discusses other required local, state and federal environmental approvals, as well as the outlook for prospective new environmental regulations.

- Gregory J. Morgan, Managing Director, Energy Supply, provides details on the benefits of the Biomass Conversions to the Company's RPS Plan.

- Mark C. Stevens, Project Director, Regulatory Accounting, describes the Biomass Conversions' revenue requirement under the proposed Rider B.

- Kurt W. Swanson, Manager, Regulatory and Pricing, presents the proposed rate revisions and associated customer bill impacts related to Biomass Conversions.

XIV. CONCLUSION

Q. Ms. Leopold, do you have any concluding remarks?

A. The Company's Biomass Conversions will provide significant value and benefits to our customers and the Commonwealth. The Biomass Conversions are expected to provide $388 million (NPV) in value to our customers, produce significantly more energy, operate as renewable energy generating facilities using a sustainable fuel source, reduce emissions of NO_x, SO_2, PM and Hg when compared to operation on coal, support economic development and jobs in the Commonwealth, enhance tax revenue to the state and localities, and contribute to meeting the Commonwealth's Energy Plan and

Virginia's RPS Goals. For these reasons, the Company respectfully requests that the Commission approve its Application in this proceeding.

Q. Does this conclude your prefiled direct testimony?

A. Yes, it does.

BACKGROUND AND QUALIFICATIONS OF DIANE LEOPOLD

Diane Leopold joined Dominion Virginia Power in 1995 as an Assistant Project Manager. Prior to Dominion Virginia Power, she worked in various power plant performance, startup and controls engineering positions at Potomac Electric Power Company. Ms. Leopold is a native of Philadelphia, and graduated from the University of Sussex in the U.K. in 1989 with a BS in Mechanical and Electrical Engineering. While working at Potomac Electric, she received a Master's in Electrical Engineering (Energy Conversion, Power & Transmission) from George Washington University in 1992 and, once at Dominion, received an MBA from Virginia Commonwealth University in 1998. As an Assistant Project Manager and a Project Manager, her work included technical project management and market analysis in Latin America and the U.S.

In 1998, Ms. Leopold became Manager – Energy Markets, focusing on market analysis, strategy development and commercial management within the U.S. In February 2000, she became Director – Business Planning and Market Analysis, and in January 2003 became Managing Director – Business Planning and Market Analysis where she was responsible for developing potential growth plans and portfolio analysis for Dominion's generation, gas storage and gas pipeline assets. Ms. Leopold became Vice President – Business Planning & Market Analysis in 2004, and Vice President – Financial Management –Dominion Energy, in February 2006. She was named Vice President – Fossil & Hydro Merchant Operations in September 2007.

In April 2009, Ms. Leopold was appointed to her current position of Senior Vice

President –Business Development & Generation Construction where she is responsible for the engineering and construction of new power station projects, as well as uprates and environmental projects at existing generation facilities.

She has previously testified before the Virginia State Corporation Commission and the North Carolina Utilities Commission.

DIRECT TESTIMONY
OF
GLENN A. KELLY
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2011-00073
CASE NO. PUE-2011-00074
CASE NO. PUE-2011-00075

Q. Please state your name, business address and position with Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company").

A. My name is Glenn A. Kelly, and I am Director of Generation System Planning for the Company. My business address is 5000 Dominion Boulevard, Glen Allen, Virginia, 23060. The Generation System Planning department develops and maintains generation production cost models for use in the Company's planning efforts as well as its regulatory filings and applications. As part of this effort, I am responsible for developing generation portfolio plans to serve customer capacity and energy needs. A statement of my background and qualifications is attached as Appendix A.

Q. What is the purpose of your testimony in this proceeding?

A. I am testifying in support of the Company's proposal to perform major unit modifications to the existing Altavista, Hopewell and Southampton Power Stations currently owned and operated by the Company ("Application"). The Company is seeking all necessary approvals of the State Corporation Commission ("Commission") related to the construction and operation of those stations. These major unit modifications consist of converting the power stations from being coal-burning generation facilities into renewable biomass generation facilities ("Biomass Conversions"). Upon conversion, each power station will provide

approximately 51 megawatts ("MW") (net) of baseload capacity, giving customers a renewable and economic source of electric generation. Specifically, I describe the need for the Biomass Conversions to serve customers' increased demand for capacity and energy in a cost-effective manner. In addition, I discuss the economic studies and sensitivities conducted by the Company that demonstrate the Biomass Conversions are the best option for meeting this need. Finally, I discuss some of the additional benefits that the Biomass Conversions are expected to provide our customers.

Q. Are you sponsoring an exhibit in this proceeding?

A. I am sponsoring Filing Schedule 46A, which was prepared under my direction and supervision and is accurate and complete to the best of my knowledge and belief.

Q. What information is included in Filing Schedule 46A? (20 VAC 5-302-25(12)(d); 20 VAC 5-302-35(4)-(5))

A. Rules 60 and 90 of the Commission's Rules Governing Utility Rate Applications and Annual Informational Filings, 20 VAC 5-201-60 and 20 VAC 5-201-90, require the Company to include Filing Schedule 46 with each rate adjustment clause ("RAC") filing. I am providing information responsive to the following Filing Schedule 46 requirements:

- Load and generating capacity reserve forecast information that demonstrates the need for the plant in the in-service year proposed; in addition, I provide forecast information on the energy production that demonstrates the need for the plant; and
- Economic studies that compare the selected alternative with other options considered, including sensitivity analyses and production costing simulations of the applicant's overall generating resources that demonstrate that the selected option is the best alternative.

My testimony and Filing Schedule 46A are also responsive to the Filing Schedule 46 requirement to provide information relative to the need and prudence of the proposed Biomass Conversions.

Q. Please describe the current status of the Altavista, Hopewell and Southampton Power Stations.

A. Each power station currently consists of one 63 MW (net) unit. They are the smallest and among the least efficient coal-fired stations in the Company's generating fleet. Due to the recent elevated cost of coal, existing high heat rates, and increased environmental expenses, these units have not been economic to operate as baseload resources. Figure 1 below shows the declining average capacity factors of these three units over the past five years. Over the past two full years (2009-2010), the combined units have averaged only a 26% capacity factor, which is more characteristic of peaking units than a traditional baseload coal generating station.

Figure 1: Historical Capacity Factors

	2006	2007	2008	2009	2010*	2011**
Altavista	63%	66%	34%	23%	29%	0%
Hopewell	0%	56%	46%	19%	31%	14%
Southampton	52%	71%	50%	21%	32%	20%

*Altavista was placed in cold reserve status in mid-October 2010 and therefore Altavista's 2010 capacity factor includes 2 ½ months of not operating.

** The 2011 capacity factors for each of the three power stations are through the period ending April 2011.

Due to its declining capacity factors, low margins and high fixed maintenance costs, the Altavista Power Station was not economic and therefore was placed in cold reserve status in October 2010. Converting the units to operate on biomass fuel will allow the Company to bring the Altavista Power Station out of cold reserve status, reduce the dispatch costs of all three facilities, and lead to significant increases to each of their capacity factors.

Built in 1992, these units are among the newest of the Company's coal fleet and already have most of the emissions control equipment required to meet proposed U.S. Environmental Protection Agency ("EPA") requirements. With the Biomass Conversions, these units will be well-positioned to contribute renewable, economic baseload energy for years to come.

Q. Please discuss the load growth in the Dominion Zone that contributes to the need for the Biomass Conversions.

A. Traditionally, the Company's control zone is "summer-peaking." In other words, the Company's absolute peak load for the entire year occurs during the summer months. As shown in Figure 2, actual peak load grew 3,888 MW (2.3% growth rate) over the last 10 years (2000 to 2010).

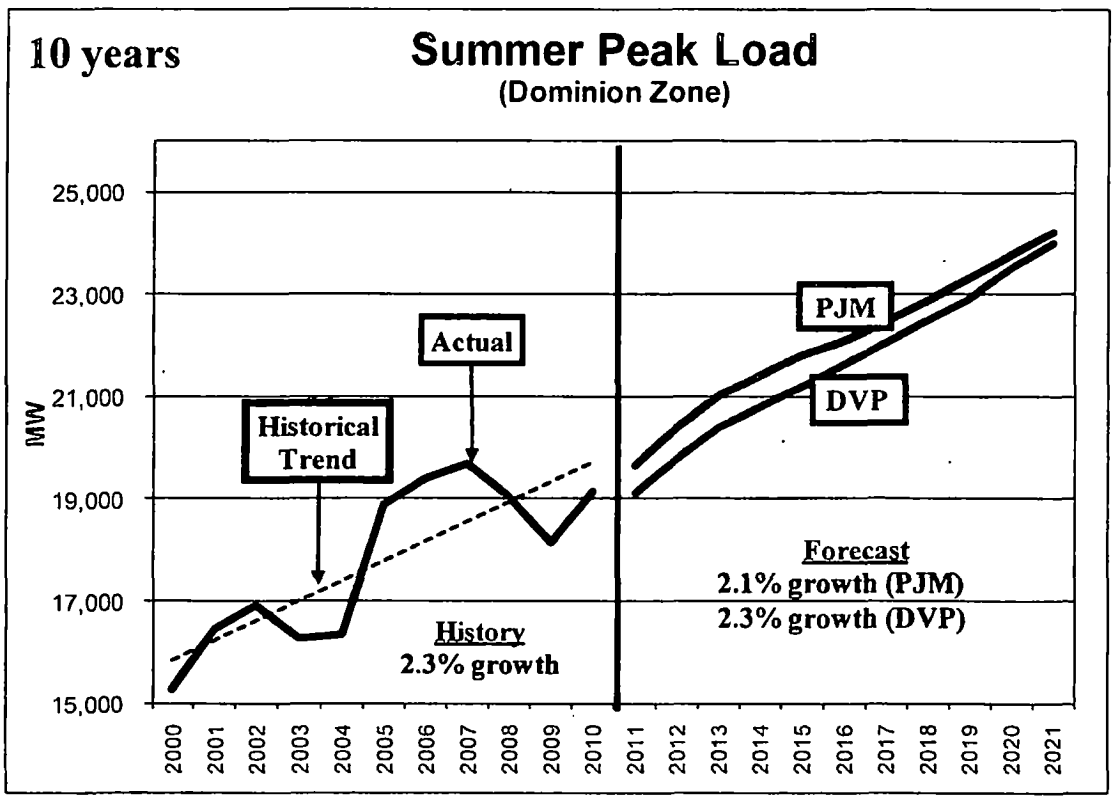


Figure 2 - Peak Load

The Company projects that the weather-normalized peak load for the Dominion Zone will increase 4,908 MW (2.3% growth rate) over the next 10 years (2011 to 2021). In January 2011, PJM Interconnection, LLC ("PJM") released its weather-normalized Load Forecast Report (available at <www.pjm.com>) for the Dominion Zone ("PJM 2011 Load Forecast Report"), which projected an increase in peak load of 4,545 MW (2.1% growth rate) over the same time period. Even though PJM's growth rate is lower than the Company's internal forecast, the PJM demand forecast is higher than the Company's for the entire 10 years.

Q. What are the planned resources to meet the Company's capacity needs over the next several years?

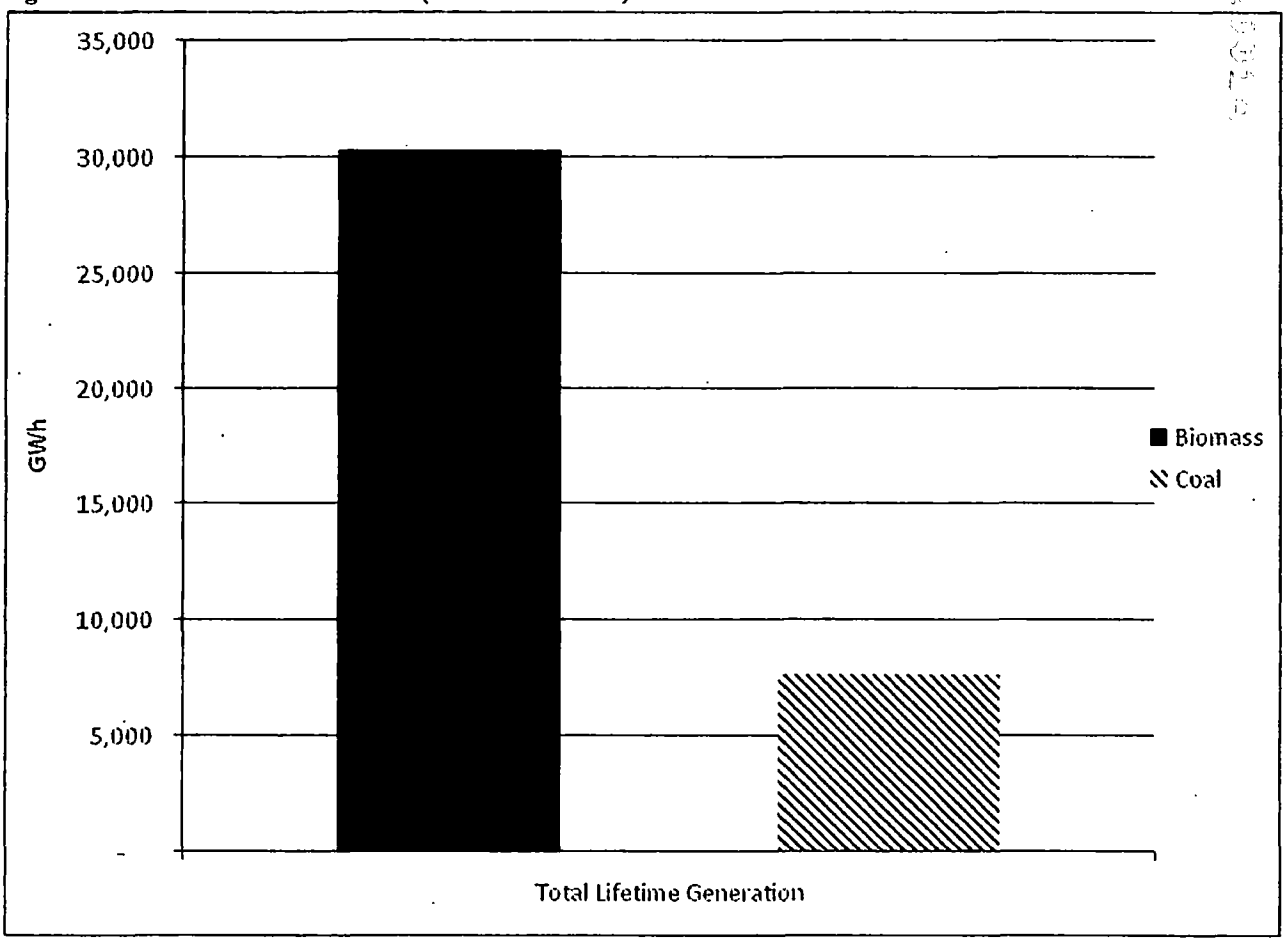
A. Construction of new generating units, unit uprates and demand-side management ("DSM") programs will meet key portions of the Company's load growth. The newly commissioned Bear Garden Generating Station will provide intermediate capacity, while Virginia City Hybrid Energy Center, now under construction, is expected to operate as a baseload resource. The Company has also been uprating its fossil and hydro, and its nuclear fleets. In addition to these units, the Company has proposed to construct and operate the Warren County Power Station, a new 1,329 MW natural gas-fired combined-cycle generating facility in Warren County, Virginia, pending Commission approval in Case PUE-2011-00042. The Company is also developing plans and cost estimates for a potential third nuclear unit at its North Anna Power Station. While the Company has not committed to build a new nuclear unit at this time, it recognizes the need for clean, efficient baseload generation. Even with these additional resources, the Company and its customers still face a growing capacity gap. Repowering these three units to use biomass will enhance the economic usefulness of 153 MW of baseload capacity.

Q. Please discuss how the Biomass Conversions will help meet customers' energy requirements.

A. In addition to enhancing the economic usefulness of the power stations, the Biomass Conversions are expected to provide significant energy benefits. The existing Altavista, Hopewell and Southampton coal-fired power stations currently run only at peak times, when demand is at its highest. When repowered to operate on biomass fuel, the lower combined fuel and emissions costs, along with the expected federal Production Tax Credits (or "PTCs") and renewable energy certificates ("RECs"), are expected to enable the converted power stations to run economically at baseload capacity factors. After their conversions to burn biomass, the capacity factors for the three power stations are projected to rise significantly to an estimated annual 92% over their 25-year lives as compared to an average capacity factor of 18% over the same period on continued coal operations. Even once the PTCs expire after their first 10 years of operation post-conversion, the units are expected to continue to run as a baseload resource.

As shown in Figure 3 below, over their 25 year lives, the biomass units are expected to generate 30,243 gigawatt hours ("GWh") of energy , but only 7,585 GWh if they remain coal-fired during the same period. This means that the converted biomass power stations will generate approximately 22,658 GWh more of energy over their 25 year lives as compared to operating coal during the same period.

Figure 3: Total Lifetime Generation (Biomass vs. Coal)



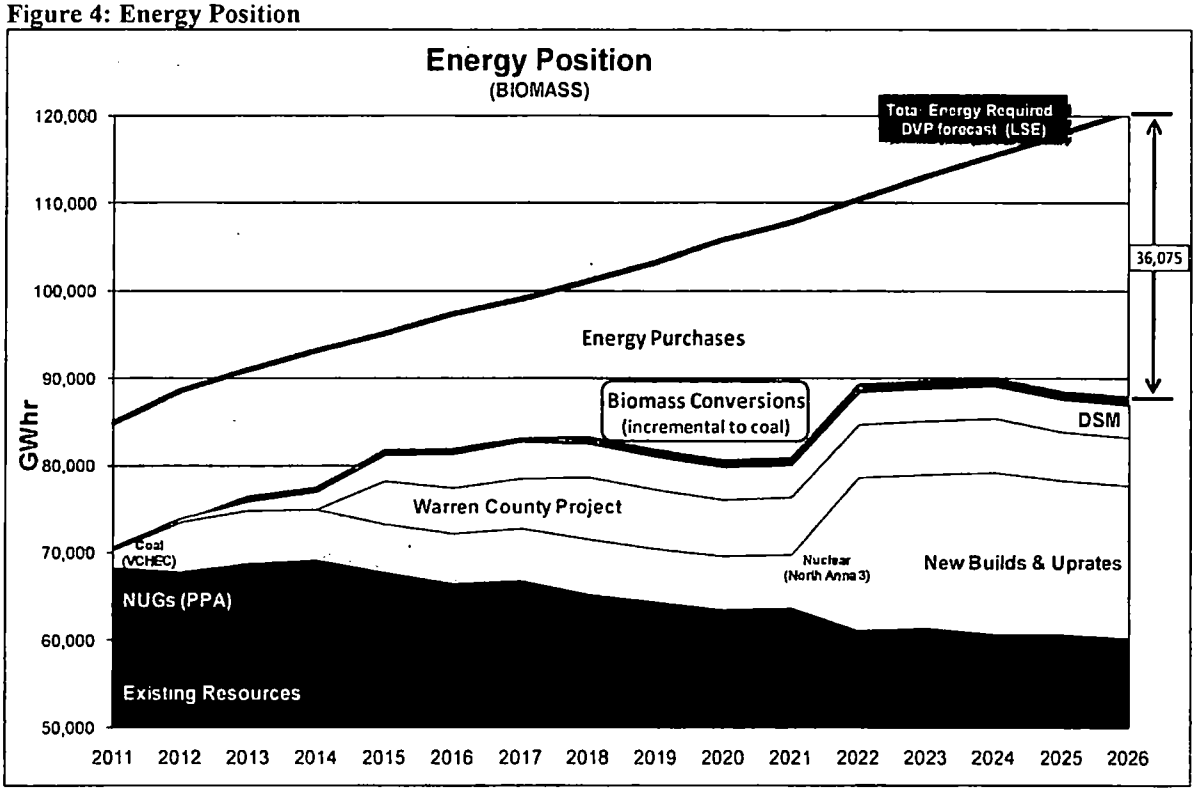
Q. Is there a need for additional energy to serve the Company's customers?

A. Yes, there is. With growing energy requirements in the Company's service territory, the need for additional baseload generating resources is clear. The Company is currently a net purchaser of energy. In fact, in 2010 the Company purchased approximately 18% of its energy requirements from the PJM spot energy market. Figure 4 below shows the Company's forecast of energy purchases for the next 15 years: Absent any additional generation beyond the previously mentioned planned resources, the Company is projected to rely on energy market purchases of 36,075 GWh - or approximately 30% of the Company's forecasted energy requirements - by 2026. The Biomass Conversions are expected to provide

an additional 930 GWh per year of energy production as compared to continued operation on coal.

The slight reduction of net capacity upon conversion is more than offset by the substantial increase in energy generation, displacement of market purchases, and production of RECs, all of which will benefit our customers.

Figure 4: Energy Position



Q. How will the dispatch cost of the power stations change upon conversion?

A. The Biomass Conversions are expected to allow the units to significantly lower their average dispatch costs, enabling them to economically run at high capacity factors. Figure 5 below compares the dispatch cost of the units running on biomass versus coal. During the first 10 years of operation when the units are expected to receive PTCs, the dispatch cost on biomass is, on average, anticipated to be 88% lower than on coal. Upon expiration of the PTCs, the

dispatch cost on biomass is still anticipated to be 79% lower than on coal, driven largely by the lower emissions costs and the value of the RECs generated post-conversion.

Figure 5: Dispatch Cost Comparison, Biomass vs. Coal

$/MWh	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Biomass	11.28	10.69	9.98	9.24	8.38	7.42	6.41	5.24	3.81	2.38	22.94	21.57
Coal	49.72	49.97	50.29	50.84	81.84	84.83	88.08	92.49	98.49	101.64	106.49	112.59
Dispatch Savings	77%	79%	80%	82%	90%	91%	93%	94%	96%	98%	78%	81%

Q. Are there additional benefits from converting existing coal units to biomass fuel?

A. Yes. In addition to the increased energy production, the conversion to biomass enhances fuel diversity across the Company's generation portfolio. Maintaining a diverse mix of fuels reduces the Company's reliance on any one single fuel source and, therefore, helps protect customers from the rising cost of any one commodity. The Company currently has only one other existing wood-burning facility, the 83 MW biomass Pittsylvania Power Station in Hurt, Virginia. These conversions will increase the Company's energy production using a renewable, alternative fuel source, furthering the fuel diversity within the Company's generation portfolio. **[BEGIN EXTRAORDINARILY SENSITIVE]** [redacted] **[END EXTRAORDINARILY SENSITIVE]**

Q. Will the Biomass Conversions qualify for federal Production Tax Credits and, if so, how will these benefit customers?

A. Yes, the Biomass Conversions are expected to qualify for federal PTCs. As part of the American Recovery and Reinvestment Act, federal PTCs were extended for various renewable projects, including biomass conversion projects such as these. To qualify, the unit

must be placed in service by the end of 2013, which the Biomass Conversions are expected to meet. The PTCs anticipated to be available to the Biomass Conversions will be $11/MWh for 10 years (in 2011 dollars and subject to an annual inflation adjustment) for qualifying generation. Based on our assessment that at least 95% of the biomass generation post-conversion will qualify, using the 95% level the PTCs are expected to have a net present value ("NPV") of approximately $120 million. These dollars provide a direct and substantial benefit to customers by lowering the overall cost of the Biomass Conversions.

Q. Please describe the resource planning analysis conducted by the Company to help evaluate the need for the Biomass Conversions.

A. The analytical process for evaluating resources consisted of reviewing and modeling various supply-side and demand-side resources available to the Company, consistent with Integrated Resource Planning. As part of this process, the Company used the Strategist model to assist in evaluating the economics of various resource plans. Strategist is a state-of-the-art portfolio optimization tool that is used by electric utilities to help identify economical long-term resources to meet future customer capacity and energy needs by simulating real-world operation of a utility system in a power market. This is the same tool used in the Company's 2008-2010 system-wide Integrated Resource Plans ("2008-2010 Plans"), as well as the Bear Garden Generation Station and Warren County Power Station proceedings.

The simulation determines the value of adding various demand-side and supply-side resources to the Company's system. The Company utilized these simulation results in its assessment of the need for the Biomass Conversions, but also considered the importance of fuel diversity, price stability and the need for a balanced portfolio of assets.

Q. Did the Company consider economy market purchases in the Strategist model?

A. Yes. The Strategist model incorporated PJM market purchases as an option for both capacity and energy. When market purchases are more economic than DSM and/or new build generation, Strategist chooses market purchases.

Q. What supply-side resources were examined?

A. Similar to the 2010 Plan, the Company examined the possible use of biomass, solar, on-shore wind, off-shore wind, combustion turbine, combined-cycle, integrated gasification combined-cycle with carbon capture, supercritical pulverized coal with carbon capture and nuclear generation. Some of these technologies are in early stages of development and are not commercially available in the immediate time period.

Q. In addition to the supply-side resources, did the Company include the effects of DSM programs to meet projected load requirements?

A. Yes, the Company included the effects of DSM. For modeling purposes, the Company included the DSM programs that were found cost-effective from the 2010 Plan.

Q. Were the Biomass Conversions included in the Company's prior Integrated Resource Plan filings?

A. The Company files its Integrated Resource Plan ("Plan") with the Commission in odd-numbered years and files updates in even-numbered years. In both the 2009 and 2010 Plans, generic, greenfield biomass units were chosen as part of those Plans. In addition, in the 2010 Plan update filed with the Commission in Case No. PUE-2010-00107, the Company identified potential coal-to-biomass conversions totaling 150 MW (2010 Plan at page 1-5, and page 6-16). As the existing infrastructure has already been constructed, conversions at

these under-utilized facilities can be completed at a fraction of the cost when compared to building an equivalent capacity of new greenfield biomass units, making the Biomass Conversions a more economic choice.

Q. Please summarize the economic benefits of the Biomass Conversions.

A. The analysis conducted for this proceeding demonstrates the need for the Biomass Conversions by 2013. The Biomass Conversions were selected as one of the most reasonable and cost-effective means of addressing customers' growing needs and provide a customer savings of approximately $388 million NPV over the entire 25-year life of the project when compared to continued operation on coal. For comparison purposes, the Existing Coal plan assumes that the Altavista Power Station returns from cold reserve in 2014 under existing coal-fired operations. Compared to the forward market curve and other alternatives, these units under the proposed Biomass Conversions provide customer savings of approximately $434 million. The results of this valuation are shown in Figure 6 below.

Figure 6: Base Case Economic Valuation ($ Millions)

	Altavista	Hopewell	Southampton	Total
Existing Coal	12.4	13.5	20.0	45.9
Biomass Conversions	137.0	140.1	157.1	434.2
Incremental Customer Value	124.6	126.6	137.1	388.3

[BEGIN EXTRAORDINARILY SENSITIVE] [redacted] **[END EXTRAORDINARILY SENSITIVE]**

Q. Have any sensitivities been analyzed concerning the impacts of the Biomass Conversions?

A. Yes. As shown in Figure 7 below, the sensitivities reflect the effects of the Biomass Conversions on customers under different external conditions.

Figure 7: Sensitivity Tables

Net Present Value vs. Market ($ Millions)

Sensitivity	Altavista	Hopewell	Southampton	Total
Base	137.0	140.1	157.1	434.2
High Fuel Complex	159.8	162.8	179.4	502.0
Low Fuel Complex	107.6	110.7	127.1	345.4
High Construction Cost	130.6	133.9	150.9	415.4
Low Construction Cost	143.4	146.2	163.3	453.0
High Wood Price	78.0	76.3	97.7	252.1
Low Wood Price	166.3	171.4	186.4	524.0
No PTCs	96.9	100.0	117.0	313.9
Low REC Value	40.0	42.9	60.0	142.8
No Carbon Neutrality	3.3	11.3	23.1	37.8

Net Present Value vs. Continued Operations on Coal ($ Millions)

Sensitivity	Altavista	Hopewell	Southampton	Total
Base	124.6	126.6	137.1	388.3
High Fuel Complex	151.3	150.8	161.5	463.6
Low Fuel Complex	103.7	102.0	121.6	327.4
High Construction Cost	118.1	120.4	130.9	369.5
Low Construction Cost	131.0	132.8	143.3	407.1
High Wood Price	65.5	62.8	77.8	206.2
Low Wood Price	153.8	157.9	166.4	478.1
No PTCs	84.4	86.6	97.0	268.0
Low REC Value	27.5	29.4	40.0	96.9
No Carbon Neutrality	(9.1)	(2.2)	3.2	(8.2)

The High Fuel Complex sensitivity increased the fuel price forecasts for coal and natural gas and therefore raised the power market prices. Conversely, the Low Fuel Complex sensitivity decreased the fuel price forecast for coal and natural gas, thereby lowering the power market prices. The High and Low Construction Cost sensitivities increased and decreased the capital costs of the Biomass Conversions by 10%, respectively. The High and Low Wood Price sensitivities increased and decreased the price of wood by approximately 32% and 16%, respectively, while holding the prices of all other commodities the same as in the base case. The No PTCs sensitivity assumes that the Biomass Conversions do not receive federal PTCs. The Low REC Value sensitivity assumes a lower-value Tier II REC price instead of the higher-value Tier I REC forecast from ICF International, Inc. The Tier II RECs are priced at

approximately 4% of the price of Tier I RECs over lives of the converted power stations. The No Carbon Neutrality sensitivity assumes that the biomass plant would not be considered carbon neutral under a potential greenhouse gas regulatory program and would therefore pay for all carbon allowances. As shown, the Biomass Conversions produce significant customer benefits under nearly all external assumptions. With the additional economic benefit of the federal PTCs if the Biomass Conversions are completed by 2013, now is the time to go forward with converting the Altavista, Hopewell and Southampton Power Stations from coal to biomass.

Q. Please summarize the customer benefits the Biomass Conversions provide.

A. The Biomass Conversions are an integral part of the Company's strategy of providing customers with reliable capacity and energy in a cost-effective manner. The Biomass Conversions provide these significant benefits:

- They provide increased baseload generation and retain capacity to meet the Company's growing energy and capacity requirements;
- They provide substantial customer savings;
- They enhance the fuel diversity of the Company's overall generating fleet by providing renewable energy;
- They mitigate risks associated with potential environmental regulations; and
- They meet customers' future energy needs in an efficient, reliable and cost-effective manner.

Q. Does this conclude your prefiled direct testimony?

A. Yes, it does.

BACKGROUND AND QUALIFICATIONS OF GLENN A. KELLY

Glenn A. Kelly joined Dominion Virginia Power in 1986 as an engineer after graduating from Virginia Tech with a Bachelor of Science degree in Mechanical Engineering. He earned a Master of Business Administration degree from Averett University in 1998.

After working 11 years as a performance and project engineering at Chesapeake Energy Center and Yorktown Power Station, Mr. Kelly transferred to the Company's Fossil and Hydro Technical Services Department in Richmond as a Generation Performance Specialist. In this capacity he worked on various projects to improve and track unit efficiency within the generation fleet. Shortly after earning his MBA, Mr. Kelly joined the Fossil and Hydro Financial Department where he performed financial analysis using Strategist. Following a series of positions supporting Fossil and Hydro operations, he earned his Six Sigma Master Black Belt and became Manager of Planning and Analysis in April of 2004. His responsibilities included Energy Supply PJM support, fuel expense and variance reporting, generation forecasting and project financial analysis.

In September 2007 Mr. Kelly was promoted to Director Generation System Planning for Dominion Virginia Power. He is currently responsible for developing generation portfolio plans to serve customers future energy and capacity requirements. His group also monitors fuel expenses and provides forecasted operational data to various groups within the Company.

Mr. Kelly has previously submitted testimony before the Virginia State Corporation Commission as well as the North Carolina Utilities Commission.