Report of the Office of the Attorney General on

Return-on-Equity Enhancement Adders

of the

2007 Virginia Electric Utility Regulation Act

November 2012

FOREWORD

As Attorney General, I am responsible for serving as consumer counsel. By statute, I am charged with representing the interests of customers in electric rate cases before the State Corporation Commission and with conducting studies and making recommendations on consumer issues to the Governor and the General Assembly.[1] This study and the recommendations it contains arise out of those statutory duties.

In 2007, the General Assembly significantly changed the manner in which electric rates are determined when it passed the Electric Utility Regulation Act. In passing the Regulation Act, the General Assembly made clear its intention to turn away from the retail competition model that had been approved in 1999. However, the Regulation Act did not return Virginia to the traditional regulation in place prior to 1999. Rather, it adopted an entirely new system of electric ratemaking.

From the positions advanced by the various stakeholders in 2007, it is clear that the Regulation Act had several goals, some of which occasionally conflict. These goals include: protecting customers from price volatility and unnecessary rate increases, ensuring a reliable supply of electricity to Virginians, diversifying the utilities' generation portfolios, providing environmental benefits, and economic development in the Commonwealth.

During the five years since its enactment, the Regulation Act has been the subject of much debate. With five years of experience, it is appropriate to look at the data to see what about the Act is working as intended and what may have not worked as intended. This report is an attempt to do that with regard to one issue – the inclusion of certain financial incentives[2] or return-on-equity ("ROE") "adders" that the two electric utilities may earn for taking certain actions.

This review of the statutory adders was undertaken with no preconceived result in mind, but with the understanding that the use of adders was a new concept to Virginia electric utility regulation introduced as part of the Regulation Act in 2007. Thus, we wanted to see how the adders operated after five years in practice, what they were costing consumers, and what benefits they were achieving. The adders were reviewed to see if they were advancing the goals of the Regulation Act: protecting customers from price volatility and unnecessary rate increases, reliability, fuel diversity, environmental benefits, and economic development. All of the recommendations in the report were developed based on the data as viewed from the electric customers' perspective as they are my statutory client.

While the report does contain recommendations for changes that will lower what customers pay to the utility companies, the report should not, in any way, be viewed as a

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[1] Va. Code § 2.2-517.

[2] Although the adders are often referred to as incentives, that term can be misleading. Because the utilities are already guaranteed full cost recovery on the projects subject to the adders through rate adjustment clauses, the utilities are not placed at risk for the expenses prudently incurred. Generally, in legislative parlance, an investment incentive is given to encourage a particular investment by making it less risky.

criticism of the utilities. Their conduct and decisions as reflected in this report are consistent with what reasonable companies would have done given the statutory framework that was put in place in 2007. They should not be criticized for making beneficial business decisions based on choices provided or incentives offered by the Regulation Act. The question going forward is should Virginia leave them with all of those choices and continue to offer them the same incentives funded by ratepayers.

I want to thank all of the people involved in the report. When we started, we solicited input from all of the relevant stakeholders, sending questionnaires to legislators, environmental groups, independent electric generators, business concerns, and the utilities. In addition to those to whom questionnaires were sent, we received input from others who were simply aware of the undertaking, including a Nobel laureate in economics. All of the input was welcome, and I appreciate the time and effort those who responded put into this project.

The respondents to the questionnaire generally fell into one of five categories: utilities; economic development interests; industrial and commercial customers; competitive power suppliers (wholesale and retail); and academics.

Several respondents submitted comments that addressed a broad economic analysis of electric utility regulation and cited benefits of deregulation and retail choice. While the contributions of all entities and individuals who offered insights and positions in response to the questionnaire are appreciated and were reviewed, re-exploring the possible merits of deregulation and retail competition in Virginia is beyond the scope of this inquiry, which is focused on the ROE adders of the Regulation Act. Moreover, the Office believes that it is generally accepted among Virginia policymakers and key stakeholders that reconsideration of the 2007 policy decision to abandon deregulation and return to a regulated model in Virginia is not a realistic course of action at this time.

My hope is that this report will encourage serious policy discussions. We now have experience with how the adders have worked in practice, whether they are achieving their intended results, and what they cost. Based on the data, we should be able to improve electric utility ratemaking in Virginia, making it better for citizens, commercial concerns, and the Commonwealth as a whole.

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EXECUTIVE SUMMARY

- The basic goals of the Electric Utility Regulation Act were to protect customers from price volatility and unnecessary rate increases, promote reliable electricity, promote fuel diversity, provide environmental benefits, and stimulate economic development.

- The Return-on-Equity (ROE) adders that are part of the Act were a significant departure from traditional ratemaking and contribute to Virginia's system of electric utility regulation being substantially different from other states.

- The Renewable Portfolio Standard (RPS) adder has not served to advance the environmental concerns that led to its inclusion in the Act because, by and large, the utilities have not built any new renewable facilities to comply with the RPS goals, but instead, have primarily relied on Renewable Energy Certificates (RECs) from pre-existing renewable facilities, including hydroelectric plants that have been in service for more than 80 years.

- The RPS adder has contributed to increases in customer bills and will likely have a significant impact in the future by allowing utilities to keep profits that exceed its approved fair ROE as determined by the State Corporation Commission (SCC) and reducing the chance that customers will be entitled to a rate decrease.

- Any benefits of the RPS adder are outstripped by its cost because the adder applies not just to investments in renewables, but rather, applies to a utility's entire rate base. This is one of the most impactful conclusions of this report.

- The generation adders have substantially increased the revenue requirements for the two utilities, i.e., the rates they can charge customers. Specifically, the generation adders for the projects that have already been approved will increase the companies' combined revenue requirements by an estimated $284 million over the term of the adders.

- Although it has not been used to date, the nuclear generation adder, under conservative assumptions, would likely cost customers an **additional** $1.8 billion over and above construction costs and the utility receiving its fair rate of return as determined by the SCC. In this scenario, a large industrial customer would pay an additional $351,000 annually just to pay for the adder, over and above the ordinary cost of the project.

- While the generation adders have done more to advance some of the Act's goals than the RPS adder, the generation adders have not significantly advanced the key goals of the Act in light of the substantial costs that they impose.

- Five years of data and experience strongly suggest that the RPS and generation adders be eliminated or significantly changed, as they are not meaningfully advancing the goals of protecting customers from price volatility and unnecessary rate increases, promoting reliable electricity, promoting fuel diversity, providing environmental benefits, nor stimulating economic development.

OVERVIEW OF THE 2007 REGULATION ACT

In 2007, the General Assembly enacted what is now known as the Virginia Electric Utility Regulation Act ("Regulation Act" or "Act").[3] The Act abandoned the Commonwealth's transition under the 1999 Electric Utility Restructuring Act[4] to a deregulated market for the generation component of retail electric service. The 2007 re-regulation of Virginia's electric utilities did not reinstate the pre-1999 regulatory framework of Chapter 10 of Title 56 of the Code of Virginia, but instead introduced a new form of "hybrid regulation" for investor-owned utilities with the enactment of § 56-585.1, § 56-585.2, and amendments to certain other sections of the Code. Virginia's two largest electric utilities, Virginia Electric and Power Company, d/b/a Dominion Virginia Power ("Dominion"), and Appalachian Power Company ("APCo"), an operating company of American Electric Power, are the only two companies covered under the new form of hybrid regulation. These two investor-owned utilities together provide service to almost three million customer accounts in the Commonwealth, with Dominion providing service to over two million customer accounts in Virginia and APCo servicing more than 500,000 customer accounts in Virginia.

An exhaustive analysis of all provisions of the Act is beyond the scope of this report. A summary of key features of the law, and how this regulatory framework differs from traditional Chapter 10 regulation, is outlined below.

[3] 2007 Acts of Assembly, Chapters 888 and 933 (HB 3068 and SB 1416).
[4] 1999 Acts of Assembly, Chapter 411 (SB 1269).

Biennial Reviews

A utility's non-fuel base rates[5] are now reviewed every other year in "biennial reviews." Biennial reviews consist of both a look back at past period earnings and a look forward to determine new rates to be charged prospectively. Generally, if the utility's earnings in the past period under review exceeded the return on equity ("ROE"), or "fair rate of return,"[6] that had been established by the State Corporation Commission ("SCC"), 60% of the excess earnings will be credited to customers and the utility will retain 40% of the earnings above the specified ROE. The rates that produced such over-earnings remain in place (less the temporary credit) unless there are earnings above the allowed ROE in two successive biennial reviews, in which case the SCC may both apply credits and reduce rates prospectively in the second biennial review.[7] If the utility earned below the specified ROE, the SCC is to increase rates going forward, with new rates designed to give the utility the opportunity to earn the Commission-determined fair rate of return. There is a 50 basis points earnings band, or collar, above and below the ROE set by the SCC. Thus, if the allowed ROE is 10.0%, the utility does not have excess earnings unless it earns above 10.5%, and it is not under-earning unless it earns less than 9.5%.[8] This approach differs from traditional utility regulation under Chapter 10 in several respects. Under Chapter 10, there was no set schedule for base rate cases. A utility could file a rate application as frequently as every 12 months, but, if it were satisfied with its rates, it would not be required to

[5] The costs of fuel to supply generating plants and wholesale power purchases continue to be recovered through a separate rate mechanism, the fuel factor, on a dollar-for-dollar basis. Va. Code § 56-249.6.
[6] The ROE, or fair rate of return, represents the utility's profit.
[7] This potentially creates a perverse incentive for a utility to make certain it does not "overearn" in the second biennial review so that it can avoid a rate decrease, allowing the utility to earn greater profits over time than what it would have achieved if it had overearned in the second biennial review. As UBS recently noted in its review of Dominion for investors, "[g]iven the significant ramifications of being deemed to overearn at VEPCO in 2012, we believe the company has some very significant structural incentives to reduce earnings at the core regulated business." UBS Investment Research Report on Dominion Resources at 9 (July 9, 2012).
[8] Va. Code § 56-585.1 A 8.

come before the SCC unless and until ordered by the Commission. The SCC could award rate increases or decreases prospectively, based on expected future costs and revenues, but it could not award rate credits retroactively for past overearnings.

In a traditional Chapter 10 rate case, all of a utility's costs and revenues (except for fuel and purchased power expenses) were examined in the aggregate, and rates were set at a level designed to produce revenues not in excess of costs, plus a fair rate of return (the ROE) on the utility's invested rate base. The fair rate of return was determined by the Commission after considering expert testimony on the utility's cost of equity capital and applying U.S. Supreme Court precedents that prohibit unconstitutional takings.[9] As described below, the Act established new rate case opportunities where utilities can recover costs for certain items outside of biennial reviews where base rates are approved, and it implemented a new scheme for establishing a minimum fair rate of return for the ROE.

Return on Equity and Statutory Peer Group Floor

The 2007 Act establishes a procedure for setting a floor in the SCC's determination of the ROE. The ROE, or "fair rate of return," is at the center of the issues addressed by this report. It is used for two purposes. It is one component used in calculating the revenue requirement that determines the level of rates charged to customers.[10] After rates are set, the approved ROE is then used as the benchmark to measure past earnings produced by those rates. The actual

[9] *See, e.g.*, *Duquesne Light Co. v. David M. Barasch*, 488 U.S. 299 (1989).

[10] Revenue requirement is the amount of money, as determined by the SCC, that a utility is authorized to collect through rates to recover all of its costs, including operating expenses, taxes, interest paid on debts, and a return (profit). The ROE should reflect the return necessary to attract capital and earn a return **comparable to that earned by similar risk investments.** The approved ROE, combined with the utility's cost of debt, is the overall cost of capital, which is then multiplied by the utility's "rate base" to produce part of the utility's revenue requirement. The rate base consists of the utility's assets utilized in producing service to customers. Plant and equipment make up the largest part of a utility's rate base. In addition to the return on rate base, other costs that go into the overall revenue requirement include operations and maintenance, taxes, and depreciation. The rates to be charged to customers are then designed based on the total revenue requirement.

earned return of the utility is compared to the previously **approved** ROE to determine if the utility earned above or below the approved level. Thus, the authorized return is both a component that goes into calculating a utility's revenue requirement to set the rates charged to customers, and it is also the benchmark in determining whether the utility's actual earnings were above or below the allowed return (profit).

While the SCC may undertake the traditional economic analysis of estimating the cost of equity in arriving at the ROE, the Act establishes a floor for the ROE. This statutory floor is determined by calculating the actual three-year average earned (not authorized) ROEs of a peer group of utilities. The peer utilities are determined by certain geographic and operational characteristics prescribed by the statute, and the SCC must use the returns of not less than a majority of the peer utilities for setting the ROE, or fair rate of return.[11] This statutory floor guarantees that APCo and Dominion will have an approved ROE (before any adders) above the lowest actual earned returns of their statutory peers. The term "base" ROE does not appear in the Code, but will be used in this report to distinguish the fair rate of return (applying the peer group floor) determined by the SCC from the ultimate enhanced return awarded that results after inclusion of the ROE adders.

Rate Adjustment Clauses

The Act provides for rate adjustment clauses ("RACs") through which certain costs for a specific project or program may be recovered separately outside of a base rate (biennial review) case. RACs are commonly referred to in utility regulation as "trackers" because specific costs and revenues are tracked independently of the utility's other costs and revenues. RACs are available for the following types of costs: transmission costs approved by the Federal Energy

[11] Thus, under the Act the "fair rate of return" is not synonymous with the utility's actual cost of equity.

Regulatory Commission ("FERC"); construction and operation of new generation facilities; compliance with environmental regulations; peak-shaving, demand-side management and energy efficiency and conservation programs; and participation in a Renewable Portfolio Standard ("RPS") program. RACs were promoted as a means for eliminating "regulatory lag" and providing utilities with more certain and timely cost recovery. For new construction projects, RACs allow for rates to increase gradually to recover costs during construction rather than increasing all at once when the new project is placed into service as under traditional ratemaking practice. In short, for major capital investments, RACs create more of a "pay as you go" model and mitigate the costs customers will incur when a plant is eventually placed into service.

In a RAC rate application, only the costs and revenues associated with the specific project or program may be considered. The SCC cannot consider revenues and costs from other areas of a utility's operations as it would in a traditional base rate case or in a biennial review.[12] In contrast to base rates, which provide only the opportunity to recover costs and earn the authorized return, RACs provide for dollar-for-dollar cost recovery with annual true-up adjustments, which means that a utility is guaranteed to recover all of its costs and earn the authorized return. This is similar to the fuel factor, except that no return or profit is earned on fuel and purchased power expenses. Section 56-585.1 A 6 mandates that, for most new generation facilities, an enhanced return of 100 to 200 basis points (1 to 2%) be added to the utility's authorized general rate of return, or the base ROE. Enhanced returns add to the cost of projects and contribute to higher rates, which, to ratepayers, effectively operates as a tax on their electric usage. These adders will be addressed in greater detail throughout this report.

[12] Biennial reviews do not consider revenues and costs for transmission service. The Act "unbundles" transmission from generation and distribution, and requires the SCC to pass through transmission costs approved by FERC, which the Act automatically deems to be "reasonable and prudent." Va. Code § 56-585.1 A 4.

Renewable Portfolio Standards

The Act established voluntary goals, called a Renewable Portfolio Standard, or RPS, for the sale of electricity from renewable sources. These RPS goals are based on the percentage of energy sales in relation to a 2007 base year. To meet the goal, the utility must obtain the following percentage of the electricity it sells from renewable sources: 4% through 2015; 7% through 2021; 12% through 2024; and 15% in 2025.[13] "Renewable energy" is defined as "energy derived from sunlight, wind, falling water, biomass, sustainable or otherwise, (the definitions of which shall be liberally construed), energy from waste, landfill gas, municipal solid waste, wave motion, tides, and geothermal power," but "does not include energy derived from coal, oil, natural gas, or nuclear power."[14]

Virginia's RPS law does not require utilities to construct, purchase, or own any renewable generation facilities – in Virginia or outside of the Commonwealth – in order to meet the RPS goals. A utility must apply any renewable energy from its existing sources, including purchased power, towards meeting its RPS goal. For the remainder, it may meet the goal with energy from new renewable facilities it constructs, with renewable energy from new purchase power agreements, and by the purchase of Renewable Energy Certificates ("RECs"). RECs are tradable commodities that represent the renewable energy attributes of energy generated from a renewable source. For example, if a hydroelectric facility produces 50 megawatt hours ("MWh") of energy, the attributes of that energy may be sold to a utility as 50 RECs. A Virginia utility does not need to purchase the actual energy output represented by the RECs. RECs from generation in other states may be used for meeting the Virginia RPS goals.

[13] The 15% goal for 2025 was added in 2009.
[14] Va. Code § 56-576.

Some states distinguish RECs as either "Tier I" or "Tier II" RECs. Tier I RECs generally represent generation from newer sources traditionally considered renewable, such as solar, wind, biomass, and some hydroelectric power. Tier II RECs generally represent generation resources that are lower in value, either because the generation sources are not new, are not emissions-free, or otherwise have limited environmental benefits. An example would be a pre-World War II hydroelectric facility. **Virginia's RPS makes no distinction between Tier I and Tier II RECs; either classification of certificates may be used to satisfy the goals.**[15]

The Act rewards a utility with a 50 basis points (.50%) ROE incentive adder when it attains its RPS goal. The adder is applied in a biennial review case, which means that a higher ROE is applied to the equity component of **all of the utility's invested rate base** not otherwise included in a RAC. In other words, **the bonus return is not limited just to the investment in renewable portfolio assets, but instead applies to the entire invested rate base of the utility.** Thus, if a utility spends $500,000 purchasing RECs (the total cost of which are passed on to customers unless the SCC deems the purchases imprudent) and has a rate base of $10 billion, the utility receives the bonus not on the $500,000 spent on renewables, but on its entire $10 billion rate base.

Both APCo and Dominion are meeting the RPS goals and were awarded the .50% bonus in the 2011 biennial review cases. The 50 basis points bonus equates to an increase in the annual revenue requirement of $7.75 million for APCo and $38.5 million for Dominion. Other unique aspects of Virginia's RPS statute and the cost impacts of the adder will be explained in further detail later in this report.

[15] This has created an opportunity for REC "arbitrage" for Virginia utilities. They can sell any Tier I RECs they create to other companies at the higher Tier I price, while meeting the RPS goal by purchasing lower priced Tier II RECs. It is unlikely that this is what the General Assembly envisioned. However, if RPS goals continue, customers actually benefit from a utility's purchase of lower-value RECs. It should be noted that such arbitrage severely inhibits the prospects for any environmental benefits from the Act.

THE REGULATION ACT'S ROE ADDERS

There are two mandatory ROE adders in the Code that require the SCC to increase the authorized base ROE above the fair rate of return. These are: (1) the 50 basis points RPS adder applied to base rates in a biennial review case when the utility has met the RPS goal pursuant to § 56-585.2 C; and (2) the 100 to 200 basis points new generation adders applied to rate adjustment clauses for new generation construction projects pursuant to § 56-585.1 A 6. The third ROE adder of up to 100 basis points, applied to base rates, is discretionary and is based on generating performance, operating efficiency, and customer service pursuant to § 56-585.1 A 2 c. In limited circumstances, this discretionary performance incentive may be applied to lower a utility's ROE.[16]

The ROE enhancements of the Act have attracted national attention in the electric utility industry. The Edison Electric Institute[17] reports that, in the first quarter of 2012, the average awarded ROE in rate cases nationally by state utility commissions was 10.84%, "a jump upward from the level in recent years and the highest awarded for any quarter since 2005."[18] EEI explained that this figure did not represent a trend change, but rather, was influenced by rate cases in Virginia that reflected incentive premiums. EEI continued by noting that: "If the Virginia cases are removed from the dataset, the average awarded ROE was 10.3%, a level much closer to that of recent quarters."[19] The average awarded ROE in cases in the second and third

[16] The statute prohibits any downward adjustment for poor generation performance, operating efficiency, or customer service if the utility is entitled to receive a 50 basis points adder for meeting the RPS goal. Therefore, so long as the utility is meeting its RPS goals, its base ROE may only be increased, but never decreased, pursuant to § 56-585.1 A 2 c.

[17] EEI is the trade association of the shareholder-owned electric utility industry.

[18] EEI Rate Case Summary, Q1 2012 Financial Update; EEI Electric Perspectives, Infrastructure Investment Drives Recent Rate Cases, Cass Bielski, July/August 2012.

[19] The Virginia cases were the rate adjustment clause applications for Dominion's Wise County, Bear Garden, Warren, and Biomass conversion projects, and APCo's Dresden project. The approved ROEs, including the adders, ranged from 11.4% to 12.4%.

quarters were 9.92% and 9.78%, respectively.[20] In a July 2011 report by Black & Veatch,[21] prominent utility industry analyst Leonard S. Hyman, formerly of Salomon Smith Barney and Merrill Lynch, wrote:

> Virginia has some peculiar regulatory rules. Return on equity is set based on an average of returns on equity in neighboring states. The law also specifies special rate of return adders for building particular types of power plants. Essentially, the Commonwealth seems to have retrogressed back to the days of legislative ratemaking. I could never figure out the rationale for the former rule, because the Virginia State Corporation Commission always seemed reasonably middle of the road.[22]

Both the base ROE peer group floor and the adders of the Act factor into the observations of EEI and Hyman on approved ROEs in Virginia. While the return enhancement adders are the focus of this report, it should not be overlooked that the statutory floor for the base ROE has thus far resulted in the SCC establishing ROEs at the upper end of the market cost of equity range. Thus, the adders are placed on top of already robust fair rates of return.

Virginia's Renewable Portfolio Standard Program and RPS Adder

If a utility meets its renewable energy statutory goals, Code § 56-585.2 C requires the SCC to add 50 basis points to the fair rate of return applicable to base rates in biennial review cases. Both APCo and Dominion have achieved their initial goals under the statute. In the 2011 biennial reviews for APCo and Dominion, the RPS adder increased each utility's SCC-determined ROE from 10.40% to 10.90%. This enhanced return has the effect of increasing each utility's revenue requirement. The enhanced return will increase rates charged to customers when rates are subject to being adjusted in a biennial review case. A higher ROE also raises the

[20] EEI Rate Case Summary, Q3 2012 Financial Update (reporting average ROE of 9.92% in Q2 and 9.78% in Q3).
[21] Black & Veach is a global energy consulting, engineering, and construction firm.
[22] Leonard S. Hyman, Rudden's Energy Strategies Report, Black & Veatch, June 27, 2011.

earnings threshold – and thus the amount of any excess profits the utility will be allowed to retain – when historical earnings are reviewed in the next biennial review even if base rates are not changed. **It is important to note that the 50 basis points RPS adder is applied to the entirety of the equity component of a utility's rate base in a biennial review. The rate base is *all* of the utility's assets used to provide service, including all plant and equipment making up the distribution system and all generation facilities not otherwise accounted for in separate rate adjustment clauses. Thus, as a reward for attaining the Commonwealth's RPS goals, a utility's allowed return is increased on capital assets having nothing to do with renewable generation.**

The 50 basis points RPS adder authorized by § 56-585.2 C should not be confused with the separate 200 basis points adder authorized under § 56-585.1 A 6, which is applied to any renewable generation facility whose cost is recovered through a rate adjustment clause. The RPS adder is applied to the ROE in calculating base rates in a biennial review case, while the adder for construction of new renewable generation is applied to the ROE in calculating the separate rates for the project in a rate adjustment clause. Therefore, if a utility has a new renewable generation project, the costs of which are being recovered through a RAC, which enables it to meet its RPS goals, its customers would be rewarding the utility twice for the same project: once with the 200 basis points ROE increase applicable to the rate base of the specific generation facility in the RAC and again with a 50 basis points ROE increase applicable to the utility's entire rate base in base rates.

State RPS Policies in General

To consider the merits of Virginia's RPS adder, it is helpful to have an understanding of how Virginia's RPS operates compared to the policies of other states. Virginia is one of 37 states that have enacted some form of a renewable energy portfolio standard program. Generally, RPS laws require electric utilities to obtain a certain percentage of their energy sales from renewable resources, which typically include solar, wind, biomass, and certain hydroelectric power sources. The target percentages usually increase over time. Virginia's RPS, for example, has a 4% target goal for 2010 through 2015, which increases to 15% by 2025. Some states have more ambitious goals that require utilities to meet higher percentage targets in a shorter time period. The RPS target for utilities operating in California is 33% by 2020, while and the target in New York is 29% by 2015.

Mandatory Versus Voluntary RPS Programs

While most RPS laws are mandatory, Virginia's is a voluntary program. Instead of **requiring** utilities to obtain a certain percentage of their energy sales from renewable sources, Virginia's RPS allows increases in the utility's revenue requirement and authorizes higher profits as a bonus for attaining the RPS goal.

Thirty of the 37 states with RPS policies have mandatory RPS requirements. Of the states bordering Virginia, North Carolina, Maryland, and West Virginia have mandatory RPS laws, while Tennessee and Kentucky have no renewable policies.[23] North Carolina has a mandatory renewable energy portfolio target of 12.5% by 2020 for investor-owned utilities, and 10% by 2010 for municipal and cooperative utilities.[24] Maryland's RPS target is 20% by 2022,

[23] West Virginia's law is an "Alternative and Renewable Energy Portfolio Standard," which allows some non-renewable technologies such as coal, pumped hydro storage, and tire-derived fuels to count towards the standard. W.Va. Code § 24-2F-1, *et seq*.
[24] N.C. General Statutes § 62-133.8.

including a 2% solar energy standard by 2022.[25] West Virginia's goal is 25% by 2025.[26] Of the 14 PJM[27] states, 11 have RPS policies. Out of those 11 states, only Virginia and Indiana have voluntary goals that award utilities with ratepayer-funded bonuses for compliance.

Virginia utilities receive the 50 basis points boost to their approved ROE *in addition to full cost recovery* of approved RPS program costs. Full cost recovery means the assurance of recovering through rates all costs of providing service, including a return on invested capital. Most state policies require utilities to meet the RPS goals, but allow them to recover from customers only the actual costs they incur in meeting the goals. It cannot be said that states with a mandatory RPS will have higher electric rates than other states solely because of their RPS requirement. With all other costs being equal, if the cost of compliance is comparable among two states' RPS programs, a utility meeting a mandatory RPS goal with no incentive award will have lower rates than a utility meeting a voluntary RPS goal, for the same volume of energy, with a ratepayer-funded ROE bonus.

Furthermore, unlike Virginia, some states have instituted "cost caps" or "rate caps" to limit the exposure of ratepayers to the higher costs of renewable energy. For example, North Carolina's mandatory RPS limits the amount of incremental RPS costs that may be recovered from each residential account to $12 per year through 2014, and $34 per year thereafter.[28] Ohio's mandatory RPS does not require utilities to comply with the renewable targets to the extent that the incremental costs necessary to meet the benchmarks would exceed the cost to

[25] Md. Code Annotated § 7-703.
[26] W.Va. Code § 24-2F-1, *et seq.*
[27] PJM is a regional transmission organization ("RTO") that manages the dispatch and flow of wholesale electricity within all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia. PJM manages a capacity market that is designed to ensure the adequate availability of resources for reliability of the electric grid. As PJM member utilities, both Dominion and APCo take direction from PJM as to when to dispatch their generating units in order to meet total system energy demand.
[28] N.C. General Statutes 62-133.8(h)(4).

procure the same amount of energy from non-renewable sources by 3% or more.[29] Colorado's mandatory RPS limits the annual retail rate impact for customers to 2%.[30] In Missouri, utilities' efforts to comply with the mandatory RPS may not result in more than a 1% increase in rates.[31] The purpose of such cost-control mechanisms is to ensure that renewable energy initiatives do not result in excessive bill increases for consumers. Virginia's RPS has no similar provision to limit the RPS program expenses charged to ratepayers.

Utility Participation in Virginia's RPS

The SCC has authorized both APCo and Dominion to participate in an RPS program under Code § 56-585.2. To achieve the initial goals, each utility must obtain a MWh target equal to 4% of the energy that the utility sold in the "base year," which is 2007. When calculating the base year MWh totals, energy obtained from nuclear generating plants is excluded, making the percentage targets easier to achieve.[32] The percentage target increases to 15% by 2025. The following table illustrates Dominion's calculated RPS goals, in terms of MWhs of renewable energy needed, through 2025:

Year	**2010**	**2011-15**	**2016**	**2017-21**	**2022**	**2023-24**	**2025**
% Goal	4%	4% (Average)	7%	7% (Average)	12%	12% (Average)	15%
MWh Goal	1.73 million	1.73 million	3.0 million	3.0 million	5.2 million	5.2 million	6.5 million

Table 1- Dominion Annual RPS Goals[33]

[29] Ohio Revised Code § 4928.64(C)(3).
[30] 4 Code of Colorado Regulations 723-3-3661(a).
[31] Mo. Rev. Stat. 393.1030.2(1).
[32] For example, Dominion's total Virginia jurisdictional MWh sales for 2007 were 64.6 million, and nuclear generation was 21.3 million. Therefore, Dominion's first RPS goal is determined to be 4% of 43.3 million, not 64.6 million MWh.
[33] *Dominion Virginia Power's Annual Report to the State Corporation Commission on Renewable Energy, in accordance with § 56-585.2 H of the Code of Virginia* (November 1, 2011), available at http://scc.virginia.gov/pue/renew.aspx.

Dominion exceeded its RPS goals for 2010 and 2011, and the company has forecasted that it will continue to exceed its goals and bank additional RECs for compliance with future targets. In its 2011 Report on Renewable Energy submitted to the SCC, Dominion stated that it exceeded its 2010 target by 1.3 million MWh.[34] In November of 2012, Dominion reported that it met its 2011 goal, while banking approximately 2.3 million extra MWhs of renewable energy and/or RECs to apply towards future goals.[35]

APCo also exceeded its RPS goals for 2010 and 2011 and expects to exceed its target for 2012. APCo's annual RPS goals are illustrated as follows:

Year	**2010**	**2011-15**	**2016**	**2017-21**	**2022**	**2023-24**	**2025**
% Goal	4%	4% (Average)	7%	7% (Average)	12%	12% (Average)	15%
MWh Goal	0.61 million	0.61 million	1.1 million	1.1 million	1.8 million	1.8 million	2.3 million

Table 2 - APCo Annual RPS Goals[36]

In its March, 2011 biennial review filing, APCo estimated that it will exceed its 2010 and 2011 goals by 97,000 MWh and 289,000 MWh, respectively. APCo also estimates that it will exceed its 2012 goal by 484,000 MWh.[37]

[34] *Id*. at 19-20.
[35] *Dominion Virginia Power's Annual Report to the State Corporation Commission on Renewable Energy, in accordance with § 56-585.2 H of the Code of Virginia* at 20-21 (November 1, 2012), available at http://scc.virginia.gov/pue/renew.aspx.
[36] *Application of Appalachian Power Company for a 2011 biennial review of the rates, terms, and conditions for the provision of generation, distribution, and transmission services pursuant to § 56-585 .1 A of the Code of Virginia*, Case No. PUE-2011-00037, Testimony of Chris Potter, Schedule 3 (March 31, 2011).
[37] *Id.*

Renewable Energy Credits

Unlike most states, Virginia accepts both Tier I and Tier II RECs, **creating the incentive for a utility to meet the RPS goal by purchasing Tier II RECs, which, because most states do not accept them, are cheaper due to the lack of demand.**

Environmental advocates have criticized Virginia's RPS because it allows utilities to purchase Tier II RECs from old, fully depreciated, out-of-state resources for use in meeting the RPS goals in the Commonwealth. They argue that Tier II REC purchases do not result in the construction of new renewable resources and are a waste of Virginia ratepayers' money.[38] **However, although Tier II REC purchases from existing sources provide little to no environmental or economic development benefits, Tier II REC purchases often represent the cheapest way for utilities, and hence their customers, to meet the RPS goals.** For that reason, the Division of Consumer Counsel has recommended in SCC proceedings that the utilities utilize Tier II REC purchases when feasible so as to minimize costs to ratepayers.

REC Purchases for RPS Compliance

Both Dominion and APCo have chosen to rely heavily on out-of-state REC purchases to meet their RPS obligations. In 2010, Dominion attributed approximately 1.5 million MWh of existing company-owned hydroelectric and biomass generation towards its 1.7 million MWh goal.[39] The company also purchased an additional 1.5 million RECs, resulting in a 3.0 million total and a 1.3 million REC bank.[40] **In a November 2012 report to the SCC, Dominion indicated that *none* of the resources used to meet its RPS goals to date were placed into**

[38] See Ivy Main, "Dominion's Wind and Solar Facade," *Washington Post*, December 30, 2011.
[39] *Dominion Virginia Power's Annual Report to the State Corporation Commission on Renewable Energy, in accordance with § 56-585.2 H of the Code of Virginia*, Exhibit 1 (November 1, 2011), available at http://scc.virginia.gov/pue/renew.aspx.
[40] *Id*. A REC bank is when a utility has excess RECs that are not needed to satisfy a particular annual RPS goal. In that situation, the utility may "bank" those RECs for compliance with future goals.

service since the year 2000. In fact, it appears that the majority of Dominion's RECs used to satisfy its initial RPS goals were purchased from out-of-state hydroelectric facilities placed into service in the 1920s.[41] Because none of the resources that Dominion used to meet its RPS goals were placed into service during the current century, it is clear that the RPS goals have not resulted in Dominion's construction of any new renewable facilities. This suggests that the RPS adder is not furthering the environmental goals of the Act.[42]

In its 2009 application to participate in the RPS program, which was approved by the SCC, Dominion projected that it would be able to comply with the RPS requirements through 2025 by applying its existing generation resources and by purchasing lower-value Tier II RECs at an additional net present value cost of $7.9 million. In other words, Dominion forecasted that its total costs of participation in the RPS program to meet the goals through 2025 would be only $7.9 million, on a net present value basis:

> The Company forecasts that, based on current information, the supply of lower cost RECs (that are derived from renewable energy as defined in Va. Code § 56-585.2 A) is adequate to fully satisfy the RPS Goals (I through IV) after including the Company's existing renewable generation portfolio. In its RPS Plan, therefore, Dominion Virginia Power proposes to satisfy its RPS Goals, after counting its existing renewable generation facilities, with the purchase of lower cost RECs. The Company

[41] *Dominion Virginia Power's Annual Report to the State Corporation Commission on Renewable Energy, in accordance with § 56-585.2 H of the Code of Virginia* (November 1, 2012) at 13, available at http://scc.virginia.gov/pue/renew.aspx.

[42] Dominion has sought to open new renewable facilities. For example, it recently received approval to convert several coal plants to biomass facilities. *Application of Virginia Electric and Power Company for Approval 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,* Final Order, Case No. PUE-2011-00073 (March 16, 2012). However, in the approval proceedings for these facilities, Dominion stated that it would not use the renewable energy to meet its RPS goals, but rather, would seek to sell the valuable Tier I RECs associated with these projects to others, presumably in other states. *Id*. at Hearing Transcript at 770. The SCC has not found that the costs of the conversions qualify as RPS program expenses.

> calculates that the NPV for the purchase of the lower cost RECs through 2025 will be approximately $7.9 million.[43]

Under the law, Dominion will be able recover the costs of its Tier II REC purchases from customers in addition to receiving the 50 basis points rate of return adder, currently worth approximately $38.5 million **annually**.

APCo exceeded its initial RPS goals by purchasing out-of-state RECs. APCo, in order to meet its 2010 goal, obtained approximately 611,000 MWh of renewable energy.[44] APCo appears to have met its 2010 goal entirely through MWhs generated at existing hydroelectric facilities and at two wind farms located in Illinois and Indiana. APCo obtained the RECs from the two wind farms as the result of power purchase agreements that were approved by the SCC in 2008.[45]

After applying the energy generated at its existing hydroelectric facilities, APCo also applied Tier I RECs it obtained through wind power purchase agreements to meet its RPS targets for 2010 and 2011. It is unclear from data submitted by APCo how many of its RECs were obtained from Tier II resources. Like Dominion, APCo will have the opportunity to comply with future RPS goals at minimal cost by purchasing Tier II RECs.[46] Unlike Dominion, APCo did not provide an estimate regarding the anticipated total incremental costs of its RPS program. However, at present, the RPS adder is costing APCo customers $7.75 million annually.

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[43] *Application of Virginia Electric and Power Company for approval to participate in a Renewable Energy Portfolio Standard Program pursuant to Va. Code § 56-585.2*, SCC Case No. PUE-2009-00082, Application at 9 (July 28, 2009).

[44] *See Application of Appalachian Power Company, for a 2011 biennial review of the rates, terms, and conditions for the provision of generation, distribution, and transmission services pursuant to § 56-585 .1 A of the Code of Virginia*, SCC Case No.PUE-2011-00037, Direct Testimony of Chris Potter, Schedule 3.

[45] *Id*. APCo received both the energy and the RECs associated with the wind power purchase agreements. *See Application of Appalachian Power Company for approval pursuant to Va. Code § 56-585.2 of purchase power agreements as part of its participation in the Virginia renewable energy portfolio standard program*, SCC Case No. PUE-2009-00102 (June 2, 2010).

[46] As of the date of this report, data submitted by APCo to the State Corporation Commission pursuant to § 56-585.2 H does not indicate whether APCo has purchased any Tier II RECs.

Costs of APCo's and Dominion's Participation in the RPS Program

There are two ways in which Virginia's RPS program results in increased costs for ratepayers. First, as discussed above, except for large industrial customers, all customers pay for the higher, or "incremental," costs of renewable power as compared to non-renewable power.[47] If it costs a utility more to obtain energy from a renewable source than it would have cost to obtain the same quantity of energy from a non-renewable source, then the extra cost is called the "incremental cost." Virtually all customers in all states with RPS programs are required to pay for the incremental costs of a utility's participation in the program. The incremental costs of participation in Virginia's RPS program may be recovered through a RAC, and possibly through base rates.[48] Thus far, only APCo has proposed to recover incremental RPS program costs. APCo's request for approval of an RPS RAC, with a revenue requirement of $6.3 million, was approved by the SCC in November of 2011.[49] Dominion has not yet filed a request to recover any incremental RPS program costs.

Furthermore, reliance on renewables can increase costs because of steps necessary to account for the intermittent nature and relative unreliability of some renewable resources. This is reflected by the net dependable capacity capability or "Capacity Value" assigned to renewable generation resources by PJM. The maximum net dependable capacity rating represents maximum output that a generating unit is able to achieve under normal operating conditions over

[47] **Note that the Code provides an exemption for large industrial customers, who are not required to pay for any incremental costs that are incurred as part of an approved RPS program.** Va. Code § 56-585.2 E. Representatives of large industrial customers have stated that they were exempted from these incremental costs when the Act was passed simply due to their forceful lobbying presence at the drafting stage.

[48] The Commission has not yet determined whether RPS program costs may be recovered through base rates in addition to through a RAC.

[49] *Application of Appalachian Power Company, For approval of a rate adjustment clause, RPS-RAC, to recover the incremental costs of participation in the Virginia renewable energy portfolio standard program, pursuant to Va. Code §§ 56-585.1 A 5 d and 56-585.2 E*, Case No. PUE-2011-00034, Order Approving Rate Adjustment Clause (November 3, 2011).

a specified period of time. PJM requires that there be sufficient generation capacity in the region to meet peak demand, plus a reserve. In determining the Capacity Value for intermittent renewable generation resources, based on summer peak hours, PJM credits a wind generation facility at only 13% of its stated net capacity rating and solar generation at only 38% of its net capacity rating in recognition of the intermittent nature of these resources.[50] As Dominion has stated, "[wind] facilities tend to operate at times that are non-coincidental with peak system conditions and therefore generally achieve a capacity contribution significantly lower than their nameplate ratings."[51] Thus, for utilities' planning reserves, the intermittent nature of wind and solar resources requires additional dispatchable backup generating capacity – generally natural gas turbines – to ensure that consumers' demands can be met at all times.[52]

A real world example makes this point clear. Dominion's highest peaking day in 2011 occurred in July 2011. Dominion's merchant generation affiliate is a joint owner of two wind facilities (Fowler Ridge and Mount Storm) with a nameplate or potential capacity of 565 megawatts (MW).[53] However, on the highest peaking day, the facilities combined to produce only 3 MW at the system peak. In such instances, traditional generating resources owned by Dominion or other generators within PJM would have to be dispatched to provide backup for the unanticipated 562 MW shortage of wind generation. This need to maintain traditional generating resources in service as backup for wind and other intermittent generation significantly adds to the cost of renewable energy resources.

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[50] PJM Manual 21, Rules and Procedures for Determination of Generating Capability, Revision: 09, May 1, 2010, available at http://www.pjm.com/documents/manuals.aspx.

[51] Dominion, "Onshore Wind Power," available at http://www.dom.com/about/stations/renewable/wind-power.jsp.

[52] An Energy Information Administration ("EIA") analysis of renewable portfolio standards concluded that total generating capacity requirements would be higher if a national RPS were implemented. See EIA, Analysis of a 10-Percent Renewable Portfolio Standard, Report #: SR-OIAF/2003-01, available at http://www.eia.gov/oiaf/servicerpt/rps2/analysis.html.

[53] These facilities are not dedicated to serving Dominion's regulated native load in Virginia.

The second way Virginia customers pay increased costs for RPS programs is through annual increases to the utility's rate of return. The RPS statute awards utilities with the 50 basis points ROE adder for meeting the RPS goals. Both APCo and Dominion were recently awarded a base ROE of 10.4%, which when combined with the RPS adder resulted in a total ROE of 10.9%.

For Dominion, a 50 basis points ROE adder equates to a $38.5 million annual increase in its revenue requirement.[54] While the ROE increase has not yet affected Dominion's base rates, because they are frozen through 2013 due to an SCC-approved settlement, the 50 basis points adder effectively raises the ceiling on the level of earnings the company is permitted to retain before rates are reduced or a portion of excess earnings are credited back to customers. The RPS adder has allowed Dominion to earn an extra $77 million over the 2011 to 2012 biennium.

These extra revenues, of course, come from ratepayers. One of Dominion's industrial customers calculated that the RPS adder has the potential to cost the business an additional $100,000 to $150,000 a year. This obviously has a negative effect on the economic development goals of the Act.

APCo's 50 basis points adder resulted in a $7.75 million annual revenue requirement increase.[55] Unlike Dominion's base rates, which were found to be producing excess earnings in the 2011 biennial review, APCo's base rates have already increased because of the RPS adder. The 50 basis points ROE increase was responsible for $7.75 million of the $55.1 million increase approved by the SCC in the company's 2011 biennial review case.

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[54] *Application of Virginia Electric and Power Company for a 2011 biennial review of the rates, terms, and conditions for the provision of generation, distribution, and transmission services pursuant to § 56-585 .1 A of the Code of Virginia*, Case No.PUE-2011-00027, Final Order at 22, note 65 (November 30, 2011).

[55] *Application of Appalachian Power Company for a 2011 biennial review of the rates, terms, and conditions for the provision of generation, distribution, and transmission services pursuant to § 56-585 .1 A of the Code of Virginia*, Case No.PUE-2011-00037, Final Order at 9, (November 30, 2011).

Furthermore, the RPS adder potentially increases customers' costs by insulating a utility from decreases that the SCC could impose for poor performance. Virginia Code § 56-585.1 A 2 c provides that, in limited circumstances, the SCC may make a downward adjustment to a utility's ROE. However, the statute prohibits any downward adjustment for poor generation performance, operating efficiency, or customer service if the utility is entitled to receive a 50 basis point adder for meeting the RPS goal. Thus, not only do utilities recover their incremental costs and receive significant bonuses for meeting the RPS goals, they also are protected from downward corrections to their ROE for poor performance.

Given all of this, it is clear that the RPS is voluntary in name only, and the utilities will, for their own self-interest, participate even if it is not in the best interests of their customers. Given guaranteed cost recovery from customers, meeting the RPS goals comes with no downside risk to the utilities, and their investors reap substantial financial rewards from the higher ROEs regardless of the performance of the utility.

ROE Adders for New Generation Facilities

The Act created rate adjustment clauses, or RACs, for guaranteed cost recovery outside of base rates for certain new generation facilities and major unit modifications of existing generation facilities. Section 56-585.1 A 6 states the objective is to "ensure a reliable and adequate supply of electricity, to meet the utility's projected native load obligations and to promote economic development." In addition to guaranteed cost recovery, "as an incentive to undertake such projects, an enhanced rate of return on common equity" is specified to be applied to the financing costs during the construction phase of the facility and thereafter applied to the entire facility during the first portion of the service life of the facility. The first portion of the service life receiving the ROE adder is determined by the SCC within a range of years specified

in the statute, based on the Commission's determinations regarding "how critical the facility may be in meeting the energy needs of the citizens of the Commonwealth and the risks involved in the development of the facility." After the first portion of the service life of the facility is concluded, the utility's general rate of return is applied for the remainder of its service life.

The Act specified certain types of generation facilities to be incentivized and eligible for an ROE adder. The generation technology, amount of the ROE adder, and range for the first portion of the service life are as follows:[56]

Nuclear-powered	2.00%	12 - 25 yrs.
Carbon capture compatible, clean-coal powered	2.00%	10 - 20 yrs.
Renewable powered	2.00%	5 - 15 yrs.
Conventional coal or combined-cycle combustion turbine	1.00%	10 - 20 yrs.

With subsequent amendments to the Act, the General Assembly has added to the list of generation facilities that could receive RAC treatment and an enhanced ROE, and the statute also now includes:[57]

[56] These generation technologies (along with simple cycle combustion turbine generating units, which are not eligible for an ROE adder) are generally recognized as the most common types of electric generating facilities currently under consideration for meeting future capacity and energy requirements within the electric utility industry. Due to the historically low level of current natural gas prices, relatively low construction and operating costs, and relatively low air emissions, gas-fired combined-cycle combustion turbine generating resources are widely viewed as the most economical of the categories of generation technologies that are eligible for an ROE adder. Under present market conditions, it will be very difficult for new coal, nuclear, or renewable generation resources to compete economically with gas-fired combined cycle generation options for the foreseeable future.

[57] Coal bed methane gas and landfill gas powered generation are less commonly deployed within the electric utility industry due to their relatively small scale, relatively high construction and operating costs, and the unique nature of the fuel supply for such facilities. Although landfill gas powered generation resources are considered renewable resources and therefore eligible for federal tax credits, there is presently significant uncertainty regarding the future availability of federal tax credits for renewable energy. For these and other reasons, coal bed methane gas and landfill gas generation facilities would not

Coal bed methane gas powered	1.50%	5 - 15 yrs.
Landfill gas powered	2.00%	5 - 15 yrs.

These Section A 6 adders are mandatory and are applied to the equity return component of the capital investment for the particular project. With the exception of simple-cycle combustion turbine gas peaking units, there is now practically no generation technology that is not set aside to receive an enhanced return under the Virginia law. **These facilities need not be located in Virginia; they only need to be under the ratemaking jurisdiction of the SCC and dedicated to serving customers in Virginia.**

Dominion has four generation RACs receiving bonus returns: its Virginia City coal plant (receiving a 1.0% adder),[58] Bear Garden and Warren, both natural gas-fired combined-cycle combustion turbine plants (1.0%), and biomass conversion projects (2.0%). APCo has one generation RAC: its Dresden natural gas-fired combined-cycle combustion turbine plant (1.0%).[59] Each of these projects was approved by the SCC, which found pursuant to the applicable statutes that construction was required by the public convenience and necessity, and was not otherwise contrary to the public interest.[60] The ROE adders, however, increase the cost of the facilities borne by customers above what they would be if only the base fair rate of return were applied. As detailed later in this report, the total projected **increased** cost for ratepayers for each of the Dominion projects due to the ROE adder is as follows: Wise County, $146.1 million;

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be expected to supply a material share of Virginia's future generating capacity requirements, even with the ROE incentives which have been added under the Act to encourage their development.

[58] The SCC determined this facility was "clean coal," but not carbon capture compatible. It was therefore awarded a 100 basis points adder. *See Application of Virginia Electric and Power Company for a certificate to construct and operate an electric generation facility in Wise County, Virginia, and for approval of a rate adjustment clause under §§ 56-585.1, 56-580 D, and § 56-46.1 of the Code of Virginia*, Case No. PUE-2007-00066, Final Order (November 30, 2011).

[59] **The Dresden facility is located in Ohio, but, for the purposes of APCo's rates charged to Virginia customers, it is subject to the jurisdiction of the SCC.**

[60] Va. Code § 56-580 D. For Dominion's Virginia City project, it was declared by statute that a coal-fueled generation facility in the coal field region of the Commonwealth is in the public interest. Va. Code § 56-585.1 A 6.

Bear Garden, $40.7 million; Warren, $76.5 million; and Biomass Conversions, $11.1 million, for a total additional cost of $274 million over the life of the adders.

The total projected increased cost for APCo's Dresden facility due to the ROE adder is $10.2 million. It should be noted that APCo's acquisition of the Dresden facility resulted in a $27.5 million reduction to the company's annual revenue requirement in the 2011 biennial review due to lower capacity equalization charges owed to other AEP utilities.[61] It is anticipated that the Dresden facility will bring net benefits to APCo's customers when compared to other generation resources. Nevertheless, the financing costs of the $366 million project would be lower absent the ROE adder, assuming that APCo would have acquired and completed construction of the facility absent the adder.

This report identifies the added costs to Virginia consumers and businesses of the ROE adders for utility construction of new generation facilities. This is not to suggest there will be no benefits to customers and the economy of the Commonwealth from these new investments, and indeed the Division of Consumer Counsel has thus far supported, or at least not opposed, most of Dominion's and APCo's proposed new generation facilities.[62] The precise amount of projected customer "savings" and other benefits from new generation can be highly subjective and subject

[61] *Application of Appalachian Power Company for a 2011 biennial review of the rates, terms, and conditions for the provision of generation, distribution, and transmission services pursuant to § 56-585 .1 A of the Code of Virginia,* Case No. PUE-2011-00037, Final Order at 13 (November 30, 2011). Several AEP utilities, including APCo, operate their generation systems on a coordinated basis as part of a group called the AEP East Pool. The member utilities, pursuant to an agreement, share generating capacity in order to meet the needs of all of the companies. If a member utility does not own enough generating capacity to meet its obligations under the agreement, it may make capacity equalization payments to other members of the AEP East Pool to make up for its deficit. APCo is a "deficit company," and therefore, it must make these payments to other AEP affiliates. These charges are then passed on to APCo's customers.

[62] Consumer Counsel opposed APCo's proposed Integrated Gasification Combined Cycle with carbon capture project to be built in West Virginia due to the high cost and unproven technology. The SCC did not approve the application for cost recovery. Consumer Counsel also opposed Dominion's conversion of three coal fired units to burn biomass, primarily because of skepticism over a host of long range assumptions underlying projections and forecasts that purported to show the projects would be cost effective. The SCC approved this project.

to numerous assumptions and forecasts. The point is, whatever those savings and benefits may be, they could be realized without the adders, and thus, would be even greater.

Discretionary Performance Incentive

In addition to the two provisions in the Act for mandatory enhanced returns, § 56-585.1 A 2 c also permits, but does not require, the SCC to increase or decrease the fair rate of return by up to 100 basis points, or 1.0%, as a "Performance Incentive" based upon generation plant performance, customer service, and operating efficiency. The SCC approved a performance incentive in Dominion's 2009 "going-in" rate case as part of a settlement package that included $726 million in rate credits back to its customers, but it has not awarded a performance incentive in a litigated case. There is a pending rulemaking proceeding at the Commission to determine which performance metrics should be used to judge a utility's generation plant performance, operating efficiency, and customer service in future cases.[63] As noted previously, a utility cannot receive a negative ROE adjustment for poor performance under § 56-585.1 if it has met the RPS goals.

CALCULATION OF COSTS OF ROE ADDERS

Methodology and Approach

The Attorney General's Office retained utility consultants to analyze and quantify the rate impacts of the ROE adders. While the Commission has already quantified the RPS ROE adder for Dominion and APCo in its 2011 biennial review orders, additional information on this adder is provided. This report presents the results of analyses with respect to the four approved new generation RACs for Dominion and the one new generation RAC for APCo. An estimate is

[63] *SCC Ex Parte: In re: In the matter of adopting rules and regulations for consideration of the Performance Incentive authorized by § 56-585.1 A 2 c of the Code of Virginia,* Case No. PUE-2012-00021.

provided for Dominion's proposed Brunswick generation facility, the application for which was filed November 2, 2012. Finally, a projection is also provided for illustrative purposes on the potential impact of the 200 basis points adder on a new nuclear generation unit. The discretionary performance incentive under § 56-585.1 A 2 c was not examined because there is no such adder currently in effect, and because it would be implemented only at the SCC's discretion. Thus, it would be unreasonably speculative to make assumptions about its possible impacts.

Data and analyses contained in the utilities' public testimony and schedules filed at the SCC in the various generation RAC applications were relied upon in making the calculations for the generation adders. The annual revenue requirements were determined by accepting the utilities' respective estimates of future expenditures and total investments for each generation facility. This total investment is the "rate base." This rate base was then multiplied by each utility's stated equity ratio (percent equity of total capital) to arrive at the equity portion of rate base.[64] This equity portion of rate base was then multiplied by the applicable ROE adder percentage (basis points) to arrive at the statutorily required additional after-income-tax equity return (after-tax profit). Because equity returns in utility ratemaking are subject to income taxes, these after-tax equity returns must be "grossed-up"[65] to accommodate for the effect of income taxes (as well as for "uncollectibles" and other revenue-related expenses). This gross-up factor is known as a "revenue conversion factor" and is divided into the after-tax required return to arrive at the total revenue requirement associated with each adder. The revenue conversion

[64] As shown on line 3 of Tables 2 through 6 of the Attachment, the current equity ratios are approximately 53% for Dominion and 44% for APCo. A higher equity ratio results in a higher revenue requirement, all other things being equal, because the cost of equity is higher than the cost of debt.

[65] Because taxes paid by a utility are a necessary part of providing electric service, utilities may recover the costs of taxes from customers. Accordingly, the equity returns are "grossed-up" or revised for ratemaking purposes to reflect the pre-tax figure.

factors calculated and sponsored by each utility were used. Calculations on the cost of the adders are provided on an annual, as well as a total "all years" basis. The all years amounts are stated in nominal, not present value dollars. Estimates are also provided on the impacts on a typical residential customer, assuming 1,265 kilowatt hours ("kWh") per month for APCo and 1,160 kWh per month for Dominion, as well as a typical large industrial customer (GS-4 for Dominion and LPS- Subtrans or Trans for APCo) assuming a 40 MW maximum load and 85% load factor.[66] The impacts on any one residential customer is not large simply because of the relatively lower monthly usage and because the added costs are spread among hundreds of thousands (or, in the case of Dominion, millions) of customers. For a large industrial customer, however, the cost impacts of the adders can be significant.

Finally, the process described above applies only to Virginia "jurisdictional" customers, meaning those customers whose rates are regulated by the SCC. The rates charged by APCo and Dominion to state, local, and federal government customers in Virginia are established by contracts and are not set directly by the SCC. Typically, however, rates for these non-jurisdictional governmental customers track the SCC rates so the total impact in the Commonwealth of the ROE adders is greater than the SCC jurisdictional amount. Governmental customers make up approximately 10% and 15%, respectively, of APCo's and Dominion's total business in Virginia. Accordingly, the results presented here for SCC jurisdictional amounts most likely understate the actual costs imposed on all retail customers in Virginia by the various ROE adders.

[66] "Load factor" is the ratio of average energy usage to peak hour usage. For example, a load factor of 50% means average usage over time is half of the maximum peak usage at any one point in time.

Summary of Results – Total Revenue Requirements

ROE Adders for Renewable Portfolio Standard Goals

In APCo's 2011 biennial review, the SCC found that the company had earned below its previously established fair rate of return of 10.53%, and therefore the company was entitled to a rate increase.[67] The SCC was required to establish a new ROE or fair rate of return in the biennial review case, which would be used in determining the amount of the rate increase. As explained above, the ROE, or fair rate of return, is an input into determining the overall revenue requirement from which rates are designed. The SCC found that APCo's market cost of equity was within a range of 9.40% to 10.40%, and that using the top of the range was fair and reasonable under the circumstances of the case. The statutory peer group floor required that the ROE be set no lower than 10.33%, but the SCC determined that 10.40% was the appropriate ROE to use.

Because APCo had met the RPS goals of § 56-585.2, the SCC was required to increase the company's fair rate of return by an additional 50 basis points, from 10.40% to 10.90%. The SCC's order noted: "The statutorily-required addition of 50 basis points for meeting the RPS Goals increases the Company's rates by an additional amount of approximately $7.75 million annually."[68] The overall jurisdictional annual revenue requirement increase for APCo was $55.1

[67] The 10.53% ROE had been established in APCo's 2009 "going-in" base rate case. Case No. PUE-2009-00030. In that case, the SCC found that APCo's market cost of equity was within a range of 9.50% to 10.50%; however, use of the statutory peer group floor resulted in the fair rate of return being set above the top end of the range at 10.53%. In a biennial review, there is a 50 basis points earnings band, or "collar," above and below the fair rate of return. To receive a rate increase, the utility must have earned more than 50 basis points below the fair rate of return. This 50 basis points earnings collar is unrelated to the RPS adder of 50 basis points.

[68] *Application of Appalachian Power Company for a 2011 biennial review of the rates, terms, and conditions for the provision of generation, distribution, and transmission services pursuant to § 56-585 .1 A of the Code of Virginia*, Case No. PUE-2011-00037, Final Order at 9 (November 30, 2011).

million. **Therefore, at $7.75 million, the 50 basis points RPS ROE adder accounted for 14% of the total APCo base rate increase.**

It was suggested in responses to the questionnaire that the adder would impose no additional costs to customers if APCo does not actually achieve earnings up to its base ROE of 10.40% (exclusive of the 0.50% adder). This, however, ignores the fact that the company's rates are now set higher than they otherwise would be due to the $7.75 million impact of the 0.50% higher ROE on APCo's approved revenue requirement.

Virginia's RPS goals currently extend through the year 2025.[69] **Assuming no increases in APCo's rate base, the cumulative annual value of the RPS ROE adder would total $124 million**. The $7.75 million annual revenue requirement amounts to approximately $8.50 annually per residential customer. For a large industrial customer of APCo with a peak load of 40 MW and a load factor of 85%, it is estimated that the RPS adder costs approximately $122,000 annually.

Unlike APCo, Dominion was found in its 2011 biennial review to have earned above its previously established fair rate of return, and therefore, the company did not receive a base rate increase but instead had to credit a portion of its excess earnings to customers. (By statute, the SCC could not reduce Dominion's rates in this initial biennial review.) A stipulation approved by the SCC in Dominion's 2009 going-in rate case froze the company's base rates through December 2013. Although Dominion's base rates did not change as a result of the stipulation, the SCC was nevertheless required to establish a new ROE in the 2011 biennial review case. This new ROE is to be used as the fair rate of return against which earnings in 2011 and 2012

[69] 2009 Chapter 774 of the Acts of Assembly (HB 1994) extended the term of the RPS goals from 2022 through 2025.

will be measured in the 2013 biennial review.[70] The SCC found that Dominion's market cost of equity was within a range of 9.40% to 10.40% and established Dominion's ROE at 10.4%.

Because Dominion had met the RPS goals of § 56-585.2, the SCC was required to increase the company's fair rate of return by an additional 50 basis points, from 10.40% to 10.90%. The SCC's order noted that this additional 50 basis points "equates to approximately $38.5 million of annual revenues for the company."[71] Unlike with APCo, the RPS adder did not contribute to a rate increase for Dominion's customers because Dominion's rates were frozen by prior stipulation. Had Dominion's base rates been subject to change in the 2011 biennial review, the company's annual revenue requirement would have reflected this additional $38.5 million. The immediate significance for Dominion's customers is that in the 2013 biennial review, the enhanced return from 10.40% to 10.90% will allow the company to retain an additional $77 million in earnings from the 2011 and 2012 biennium before any rate reduction and credits would be triggered. Conversely, the 50 basis points adder increases the possibility of a rate increase in the 2013 biennial review rate case because the company's annual jurisdictional revenue requirement will now be $38.5 million higher than it otherwise would be.

With Virginia's RPS goals extending through the year 2025, and assuming no increases in Dominion's rate base, the cumulative annual value of the RPS ROE adder would total $616 million to SCC jurisdictional customers over the current 16 year life of the RPS goals. As noted above, Dominion has calculated that it can satisfy the goals for the life

[70] This illustrates the dual role of ROE in biennial review rate regulation. First, when new rates are to be established, the ROE is used as a component in calculating the revenue requirement from which rates per kilowatt hour are designed. Second, the ROE is used to establish the level of authorized earnings, which will then be reviewed in the next biennial review.

[71] *Application of Virginia Electric and Power Company for a 2011 biennial review of the rates, terms, and conditions for the provision of generation, distribution, and transmission services pursuant to § 56-585 .1 A of the Code of Virginia*, Case No.PUE-2011-00027, Final Order at 22, note 65 (November 30, 2011).

of the RPS program with its existing supply of renewable generation and the purchase of lower cost Tier II RECs at a total net present value cost to ratepayers of $7.9 million. The $38.5 million annual revenue requirement equates to approximately $10.00 annually per residential customer. For a typical Dominion large industrial customer with a peak load of 40 MW and a load factor of 85%, it is estimated that the RPS adder equates to approximately $100,000 annually.

ROE Adders for New Generation

The additional costs borne by Dominion and APCo ratepayers of the ROE adders for new generation projects are identified below. Detailed schedules showing the calculations for the actual and forecasted annual and cumulative impacts of the ROE adder for each generation facility are included in the Appendix to this report.

Dominion has four approved rate adjustment clauses for generation projects that are receiving an enhanced return. These facilities, with their capital cost[72] and applicable ROE adder and term of the adder[73] noted, are:

$1.8 billion Wise County Clean Coal, with 1.00% adder for 12 years;

$619 million Bear Garden Natural Gas Combined-Cycle, with 1.00% adder for 10 years;

$1.1 billion Warren County Natural Gas Combined-Cycle, with 1.00% adder for 10 years; and,

$166 million Biomass Conversions (3 facilities), with 2.00% adder for 5 years.

The additional cost to ratepayers of these facilities that is attributed to the enhanced return of the ROE adders has been calculated using the methodology described above. For these four Dominion facilities, the additional cost is calculated to be $274 million for SCC

[72] Costs stated exclude financing costs.

[73] The adder is first applied to financing costs during the construction phase of the facility, and then for the stated term of the first portion of the service life of the facility. Thus, the total term of the adder exceeds the term identified to be applied for the first portion of the service life of the facility.

jurisdictional customers over the full term of the adders. Individually, the costs break down as follows:

Dominion Generation Riders ROE Adder Impact (All Years) $ Millions	
	SCC Jurisdictional
Bear Garden gas	$40.7
Wise County coal	$146.1
Warren County gas	$76.5
Biomass conversions	$11.1
TOTAL	$274.4

As explained above, this is the cost only to SCC jurisdictional customers, and the cost to the Commonwealth overall would be greater to the extent governmental contracts for service reflect the enhanced ROEs. The annual and cumulative impacts of the generation adders was also estimated on a per customer basis for a typical residential and large industrial customer of Dominion. The annual cost impact for a typical Dominion residential customer is approximately $6, and $72 for the duration of the adders. For a typical large industrial customer, with a maximum load of 40 megawatts and an 85% load factor, the cost is estimated to be $57,000 per year, and $710,000 over the full term of the adders.

Dominion has announced its intention to build a new natural gas-fired combined cycle generation facility in Brunswick County that will have a rated capacity of 1,358 MW and a cost of approximately $1.27 billion (excluding financing costs). Dominion's investment in this facility would entitle shareholders to a 100 basis points ROE adder. Because the cost of this facility is similar to that of the Warren County Power Station ("Rider W"), the ROE adder impact should be very similar to that calculated for Rider W (see attached Table 4 for Rider W).

Therefore, the Brunswick "all years" adder impact to SCC jurisdictional customers is estimated to be $76.5 million.

Dominion is also pursuing a license from the Nuclear Regulatory Commission for a third reactor at the company's North Anna nuclear facility. While Dominion has not yet announced definitive plans to construct North Anna 3, the Act provides an ROE adder of 200 basis points for new nuclear generation. For illustrative purposes, the cost impact of this adder on a new nuclear facility has been calculated with the 2.0% adder assuming a capital cost of $10 billion, a five year construction period, and the minimum 12 years for the first portion of the service life. These assumptions are believed to be conservative. The estimated "all years" total cost of this 2% ROE for a new nuclear facility is $1.845 billion for SCC jurisdictional customers. It is recognized that if Dominion pursues construction of North Anna 3, it might have less than a full ownership share of the unit. **Nevertheless, even with only 50% ownership, the cost of the ROE adder alone is calculated to be more than $900 million on top of the construction cost and a normal fair rate of return.** At full ownership, the annual cost impact for a typical Dominion residential customer of just the 2.0% nuclear adder is estimated to be approximately $36, and $483 for the duration of the adder. For a typical large industrial customer, with a maximum load of 40 MW and an 85% load factor, the cost is estimated to be $351,000 per year, and $4.8 million over the full term of the adder. At less than full ownership, the impacts would be reduced proportionally.

APCo has one approved rate adjustment clause for a generation project that is receiving an enhanced return. This is the $366 million Dresden Natural Gas Combined-Cycle facility, with

a 1.00% adder for 10 years.[74] The additional cost to APCo ratepayers of this facility that is attributed to the enhanced return of the ROE adder has been calculated using the methodology described above. For the Dresden facility, the additional cost is calculated to be $10.2 million for SCC jurisdictional customers over the full term of the adders. The annual cost impact for an average APCo residential customer is approximately $1, and $11 for the duration of the adders. Assuming a typical large industrial customer, with a maximum load of 40 MW and an 85% load factor, the cost of the adder is estimated to be $19,000 per year, and $160,000 over the full term of the adders.

ACTUAL RESULTS COMPARED TO THE ACT'S GOALS

Based on the positions stakeholders took in 2007 and on responses to the questionnaire, it is generally accepted that the Act had many goals. Primarily, the Act was intended to protect customers from price volatility and unnecessary rate increases, to ensure a reliable supply of electricity to Virginians, to diversify the utilities' generation portfolios, to address environmental concerns, and to enhance economic development in Virginia. To determine if the adders are working as intended, it is useful to review the data regarding the adders against these five goals (cost, reliability, fuel diversity, environmental benefits, and economic development).

RPS ADDER

Cost: As noted above, the RPS adder has already added to the costs customers pay. In the case of APCo, the 50 basis point adder has already resulted in higher rates. Furthermore, by increasing a utility's approved fair rate of return, the RPS adder will allow utilities to keep additional earnings that might otherwise have been returned to customers. The adder may also allow a utility to avoid a rate decrease in the future or make it easier to justify a rate increase.

[74]As explained when discussing the Dominion facilities, the cost stated here excludes financing costs, and the adder is first applied to financing costs during the construction phase of the facility, and then for the stated term of the first portion of the service life of the facility.

This effect is multiplied because the bonus is not just tied to the renewable investment, but is applied across the utility's entire rate base that includes plant and equipment having nothing to do with renewables. Finally, if the SCC were to determine that an ROE decrease was warranted because of poor performance by a utility, the current statutory scheme prevents that from happening if the utility has met the RPS goal and is receiving the adder. In short, the RPS adder has caused customers to pay more and is likely to continue to do so going forward.

Reliability: The RPS adder has not improved reliability. To be fair, it was never expected to do so. As noted above, intermittent renewables, such as solar and wind, are less reliable than traditional fuels, and therefore, are assigned lower capacity values by PJM. However, because APCo and Dominion have largely sought to meet the RPS goals through the purchase of RECs, the RPS adder has not negatively impacted reliability.

Fuel Diversity: While it was likely anticipated that the RPS adder would increase the fuel diversity of the utilities, it has not done so. Because the utilities have largely met their obligations by purchasing out-of-state RECs, the RPS has not caused them to build new renewable energy facilities.[75] Rather, the utilities are simply "credited" for renewable power created and used elsewhere. Thus, little, if any, improvement in fuel diversity has been achieved as a result of the RPS adder.

Environmental Benefits: Some stakeholders anticipated that the RPS adder would address emissions and other environmental concerns that were raised while the Act was being considered. In practice, the RPS adder has done virtually nothing to address these concerns.

[75] APCo has entered into purchase power contracts with out-of-state wind farms. Dominion's biomass conversion projects were not approved as part of an RPS program, and the SCC did not find that the costs of the conversions constitute RPS program costs.

Neither utility has built a new renewable facility so that it can take advantage of the adder.[76] Furthermore, given the use of Tier II RECs to meet the goals, the vast majority of spending to meet Virginia's RPS goals, which is charged to customers, has been related to pre-existing, out-of-state projects. Some of these pre-existing facilities provided power for more than 80 years before the RPS adder was in effect and would continue to do so if the RPS adder were eliminated. In short, the RPS adder has provided few, if any, environmental benefits and has not addressed the environmental concerns that were raised in 2007.

Economic Development: The RPS adder has not created any significant economic development in Virginia. As noted above, the RPS goals have largely been achieved through the purchase of RECs. Accordingly, there have been no plant openings or upgrades undertaken for the purpose of compliance with an RPS program that would have a positive economic impact on Virginia communities. However, to the extent that the RPS adder has raised electric prices for both residential customers and industrial customers with little or no resultant benefit, it has had, on the margin, a negative economic impact.

Conclusion: As currently constituted, the RPS adder increases costs while providing few, if any, benefits. Relative to its costs, it has not increased reliability, improved fuel diversity, addressed environmental concerns, or had a positive impact on economic development. Customers of Virginia's investor-owned utilities would benefit if the RPS adder were eliminated or changed significantly.

GENERATION ADDERS

Cost: The impact of the generation adders on customers is multifaceted. Obviously, if the projects would have been undertaken even without the adders, there would have been

[76] Once again, Dominion has indicated that it will sell the Tier I RECs that are created by its new biomass facilities, and the SCC has not found that the costs of the conversions qualify as RPS program expenses.

substantial customer savings, totaling more than $284 million (the cost of the adders) for both utilities over the terms of the adders for the currently approved projects. However, the question is more complicated than that.

As noted above, because of the unique situation of APCo being a deficit member of the AEP East Pool, the acquisition of the Dresden facility, even with the adder, actually resulted in immediate rate benefits to customers. According to the SCC, the cost of acquisition and completion of Dresden, including the generation adder, added $26.1 million to APCo's revenue requirement effective March 1, 2012. However, by adding to APCo's generation capacity and reducing the purchases from the AEP East Pool, the acquisition of Dresden simultaneously reduced APCo's base rate revenue requirement in the 2011 biennial review case by $27.5 million, providing a net benefit to customers. While these conditions are unlikely to remain over time, customers have, in the short term, benefitted, assuming that APCo would not have acquired Dresden without the benefit of the adder.

However, over the long term, the generation adders will be expected to increase customer costs for the applicable rate adjustment clause. The adders have created a significant incentive for the utilities to look to build or acquire generation facilities. The Act does not expressly require that the utilities seek out potential, lower-cost alternatives, such as purchase power agreements with independent electric generators. Because the generation adders reward utilities for building their own generation even if lower-cost wholesale supply alternatives are available in the market, the generation adders have skewed the decision-making process to strongly favor utility-owned generation as opposed to looking for the most cost effective option for the benefit of customers.

For example, in its most recent Integrated Resource Plan ("IRP") filing, Dominion indicated that it seeks to eventually own 99% of its needed capacity, leaving only 1% of its capacity needs to be fulfilled by other sources.[77] This stands in stark contrast to the position Dominion took in 2003 in its application for approval to join PJM. In that proceeding, Dominion said that the access to lower cost generation from the market would provide customer savings and that access to excess regional generating capacity would reduce the need to build new generation in Virginia.[78] Apparently, the existence of the generation adders is sufficient that, in less than a decade, Dominion has moved from arguing that access to market purchases will provide customer savings to moving towards all but eliminating market purchases from their portfolio.

Reliability: One of the potential benefits of more owned generation assets is increased reliability. If a utility owns sufficient generation to meet its native load, there is, all other things being equal, likely some marginal increase in reliability. However, given the utilities' membership in PJM, such benefits are relatively small.

As Dominion noted in the 2003 application, regional transmission organizations such as PJM provide access to reliable power sources while avoiding the significant construction costs associated with new owned generation. Similarly, long-term purchase power agreements with independent electric generators can provide a reliable supply of electricity.

Fuel Diversity: Fuel diversity is important to customers because, over the long term, diversity of generation assets may help insulate customers from price shocks. If a utility

[77] *Virginia Electric and Power Company's Integrated Resource Plan filing pursuant to Va. Code § 56-597 et seq.*, Case No. PUE-2011-00092, Application at 7, Figure 1.4.2 (September 1, 2011).
[78] *SCC Ex Parte: In the matter concerning the application of Virginia Electric and Power Company d/b/a Dominion Virginia Power for approval of a plan to transfer functional and operational control of certain transmission facilities to a regional transmission entity*, Case No. PUE-2000-00551 (filed June 27, 2003).

becomes overly dependent on one fuel source, its customers can see significant price increases if the prices of the fuel or generation costs increase. Over the last decade, such increases have been caused by simple market forces, natural disasters affecting production and delivery systems (natural gas after Hurricane Katrina), and federal regulation (coal).

To date, the projects for which the utilities have received generation adders have added to the fuel diversity of the utilities. Dominion's approved projects are diverse, including: one clean coal facility, two natural gas plants, and three biomass conversion facilities. APCo, whose generation assets are predominantly coal-fired, achieved some fuel diversity when it acquired Dresden, a natural gas facility.

Thus, it can be argued that the generation adders have, to date, assisted in creating greater fuel diversity. However, especially regarding the natural gas plants, market forces (i.e., the low price of natural gas) would likely have pushed the utilities in this direction without the generation adders. Accordingly, while fuel diversity has increased because of projects receiving the generation adders, it is unclear if the adders caused the increase or simply made investments in the facilities more attractive for utilities and their shareholders.

Environmental Benefits: Some stakeholders in 2007 indicated that they wanted the Act to play a role in lowering carbon dioxide emissions or other pollutants by creating an incentive for new generation facilities to burn something other than coal. However, there is no evidence that establishes that the generation adders have caused a reduction in emissions.

In fact, regarding the biomass conversions, those facilities actually emit more carbon dioxide on a per-MWh basis than coal plants.[79] Thus, to the extent that the generation adders

[79] *Application of Virginia Electric and Power Company, For approval and certification of the proposed biomass conversions of the Altavista, Hopewell, and Southampton Power Stations under §§ 56-580 D and 56-46.1 of the Code of Virginia and for approval of a rate adjustment clause, designated as Rider B, under § 56-585 .1 A 6 of the Code of Virginia*, Case No. PUE-2011-00073, Hearing Transcript at 84, 570;

caused Dominion to convert the already scrubbed, emissions compliant coal facilities to burn biomass fuel, emissions will actually increase as a result of the adder.

New natural gas-fired generation plants do have lower carbon dioxide emissions than coal plants. However, for the generation adders to have reduced emissions, (1) the utilities' decisions to add the natural gas plants would have had to have been driven by the existence of the generation adders rather than the favorable economics of gas-fired generation due to low prices of natural gas (or some other reason), and (2) the natural gas plants would have had to be constructed or built to replace existing or planned coal facilities. While some coal facilities have been taken out of service, it is not clear that the new natural gas plants were the reason for those retirements. In short, the evidence is at best unclear as to whether the generation adders have reduced emissions.

Economic Development: Assuming that none of the projects would have been undertaken absent the generation adders, the generation adders will have a positive impact on economic development in certain communities. The construction of the Bear Garden, Wise County, Warren, and the biomass facilities all created temporary construction jobs and associated economic activity in the local communities. Dominion states that a study it commissioned regarding the positive economic impact of its construction programs found that the major power generation and environmental protection projects recently completed, underway, or planned, would produce more than $3.3 billion in economic benefits for the Commonwealth by 2015. (This would appear to include projects not limited to those that are subject to a statutory ROE adder.) While this increased activity is generally a good thing, it does come with some costs.

"Biomass Energy Basics," Partnership for Policy Integrity, available at http://www.pfpi.net/biomass-basics-2 ("[U]sing biomass to generate energy emits a lot more carbon than using fossil fuels, while diminishing the ability of forests to sequester carbon for decades.").

Obviously, to the extent that the generation adders increase the price of electricity, that has the effect of increasing costs for citizens and businesses, which, in turn, slows economic activity.

Also troubling is the "mismatch" effect that can be caused by using utility regulation to help fund economic development projects. While Wise and Warren Counties no doubt have seen increased economic activity related to the construction and operation of the facilities there, neither of those facilities are located in Dominion's service territory. This raises the question of whether it is appropriate for a laborer in Tidewater to be funding economic development projects on the other side of the Commonwealth. Furthermore, in the case of APCo's Dresden facility, the plant is in Ohio, meaning that any increased economic activity caused by plant acquisition, construction, or operation occurs outside of the Commonwealth.

Finally, the effect of the generation adders is to cause utilities to prefer owned generation over purchases of capacity and energy from independent electric generators. Thus, there could be a negative impact on independent electric generators in Virginia regarding their businesses and employees.

Of course, if the facilities would have been built even without the adders, there are no economic benefits, but rather, economic harm as a result of increased prices for electricity. It is questionable whether the adders have been a necessary component of the Act, particularly in view of the opportunity afforded by rate adjustment clauses under § 56-585.1 A 6. RACs greatly reduce regulatory lag and allow Virginia utilities to begin to recover construction financing costs before a project comes online. Not only do the RACs remedy the lag time in cost recovery for utilities, they guarantee that the utility will recover all costs, including profits, regardless of variables such as weather that traditionally would impact utility earnings. Not just the opportunity to recover costs, but the guarantee of timely and full cost recovery while earning a

fair rate of return should be a powerful extra incentive for any utility to undertake new capital investments. While cost trackers are now not uncommon in some other jurisdictions (although typically limited to the pre-operational construction phase), the mandatory ROE adders for new construction appear to be unique to Virginia, with only the Federal Energy Regulatory Commission employing similar return enhancements for utilities on transmission projects.[80]

While it may be contended that investment in new generation by Virginia utilities would not have taken place absent the generation adders, there is significant reason to question that view. There has been a substantial amount of new generation spending by utilities in other jurisdictions without the benefit of ROE adders. This includes new nuclear generation under construction by both Georgia Power and South Carolina Electric & Gas, projects going forward without statutory ROE adders. State-franchised monopoly utilities have an obligation to undertake needed investments to provide service to the public, and with that obligation comes the opportunity to earn a fair return on invested capital.[81] And generation investments made by Virginia utilities before 2007 were made without the inducement of adders to a fair rate of return. It may be that the scope of new investment desired to be undertaken now by some Virginia utilities is larger than in the past. However, it was explained by an expert witness for one of Dominion's larger customers in Dominion's 2011 biennial review case that the size of a utility's construction plans is not a meaningful factor in determining the cost of equity capital, but rather

[80] FERC awards utilities with an ROE enhancement for transmission projects if the utility is a member of a regional transmission organization, such as PJM. Order No. 679, *Promoting Transmission Investment Through Pricing Reform*, F.E.R.C. Stats. & Regs. ¶ 31,222 at P 326 (2006). In addition, FERC may award an enhanced ROE for reliability-driven transmission projects based on a project's risks and challenges. *Promoting Transmission Investment Through Pricing Reform*, 141 F.E.R.C. ¶ 61,129 at P 22 (2012). Significantly, FERC recently refined its policy on ROE incentive packages, stating, "[s]ix years after issuing Order No. 679, the Commission believes that it is appropriate and in the public interest to evaluate the impacts of its incentives policy and give guidance as to how the Commission will implement that incentives policy going forward." *Id.* at P 31. As a result, the FERC has now narrowed the circumstances for when an ROE incentive package is appropriate. *Id.* at P 17-30 (2012).

[81] With the rate adjustment clauses and annual true-ups, this opportunity is now a guarantee.

it is more of a function of reliable cash flows: "I don't think they have a higher cost of equity because of [plans for significant new construction]."[82] He continued by noting that "just by the fact that [Dominion] has a lot of plant to build doesn't necessarily make it more risky than the same size company with less plant to build. It all has to do with the security of those cash flows. In this situation, it [Dominion's cash flow] seems to be very secure to me."[83]

Conclusion: Unlike the RPS adder, the generation adders have, at least to some degree, potentially advanced at least some of the goals of the Act. However, it appears that the adders have resulted in customers paying more than necessary.

CONCLUSION

The data makes clear that the ROE adders are simply not achieving the Act's goals in a cost-effective manner. **For the already approved new generation projects of APCo and Dominion and their RPS programs, the cost to SCC jurisdictional customers is substantial, totaling more than $1 billion over the first portion of the service life of the generation facilities and the life of the RPS programs.** This cost figure grows if all governmental customers are included. This figure would escalate with additional new generation and/or the extension of the RPS program beyond 2025. These costs represent only the bonus returns, not the underlying "base" ROE that is to compensate the utility's investors with a "fair rate of return." The adders are akin to a surtax on all of the utilities' consumers of electricity that has been imposed on them by statute. It might be noted that the rate impact on the monthly bill of any one residential customer is relatively modest, but the same can be said of a tax on consumer goods and services. But unlike a tax, the proceeds of the adders are not devoted to a public

[82] *Application of Virginia Electric and Power Company for a 2011 biennial review of the rates, terms, and conditions for the provision of generation, distribution, and transmission services pursuant to § 56-585 .1 A of the Code of Virginia*, Case No. PUE-2011-00027, Transcript at 767.
[83] *Id.* Transcript at 803-04.

purpose. These adders, or surcharges, will transfer an enormous amount of money from millions of individuals and businesses in the Commonwealth to utility companies and their shareholders without a sufficient corresponding benefit. Accordingly, the current statutory scheme needs to be changed.

RECOMMENDATIONS FOR STATUTORY CHANGES REGARDING ADDERS

- Eliminate the 50 basis points ROE adder of § 56-585.2 C prospectively for meeting the voluntary RPS goals. The RPS program without the adder may remain voluntary, could become mandatory with cost cap triggers similar to RPS programs in several other states, or could be eliminated.

- Eliminate the new generation ROE adders of § 56-585.1 A 6 prospectively for any new projects undertaken in the future. The availability of rate adjustment clauses, absent the bonus returns, will continue to provide utilities proper incentives with the RACs guaranteed timely cost recovery and a fair rate of return.

- Eliminate the asymmetrical provision of § 56-585.1 A 2 c where a utility's ROE cannot be adjusted downward for poor performance or customer service if it has met the RPS goals, and return the range for possible adjustment to +/- 50 basis points.

Attachments

Table 1

Effect of ROE Adder on Dominion Virginia Power Generation Riders
Summary--- All Approved Generation Riders
(Virginia SCC Jurisdictional Only)
(Dollars in Thousands)

	Jan 2009 Through Dec 2009	Jan 2010 Through Dec 2010	Apr 2011 Through Mar 2012	Apr 2012 Through Mar 2013	Apr 2013 Through Mar 2014	Apr 2014 Through Mar 2015	Apr 2015 Through Mar 2016	Apr 2015 Through Mar 2016	Apr 2016 Through Mar 2017	Apr 2017 Through Mar 2018	Apr 2018 Through Mar 2019	Apr 2019 Through Mar 2020	Apr 2020 Through Mar 2021	Apr 2021 Through Mar 2022	Apr 2022 Through Mar 2023	Total All Years
Rider S - Virginia City Hybrid Energy Center	$5,208	$10,442	$12,181	$11,620	$10,591	$10,330	$10,162	$9,996	$9,833	$9,673	$9,515	$9,360	$9,208	$9,058	$8,910	**$146,090**
Rider R- Bear Garden	$0	$4,191	$4,194	$3,456	$3,379	$3,448	$3,371	$3,295	$3,221	$3,148	$3,077	$3,008	$2,940	$0	$0	**$40,728**
Rider W- Warren County Generation Plant	$0	$0	$0	$2,386	$6,052	$7,318	$7,196	$7,079	$6,964	$6,850	$6,738	$6,629	$6,520	$6,414	$6,310	**$76,456**
Rider B- Bio Mass Conversion Facilities	0	0	0	$847	$1,837	$1,763	$1,722	$1,681	$1,642	$1,604	$0	$0	$0	$0	$0	**$11,097**
Total All Generation Riders subject to ROE Adder	$5,208	$14,633	$16,375	$18,310	$21,860	$22,860	$22,450	$22,051	$21,660	$21,275	$19,331	$18,997	$18,669	$15,472	$15,220	**$274,370**

TOTAL ALL-YEARS ALL DOMINION RIDERS

$274 Million

Table 2

Dominion Virginia Power
Rider S---Virginia City Hybrid Energy Center

	Jan 2009 Through Dec 2009	Jan 2010 Through Dec 2010	Apr 2011 Through Mar 2012	Apr 2012 Through Mar 2013	Apr 2013 Through Mar 2014	Apr 2014 Through Mar 2015	Apr 2015 Through Mar 2016	Apr 2015 Through Mar 2016	Apr 2016 Through Mar 2017	Apr 2017 Through Mar 2018	Apr 2018 Through Mar 2019	Apr 2019 Through Mar 2020	Apr 2020 Through Mar 2021	Apr 2021 Through Mar 2022	Apr 2022 Through Mar 2023	Total All Years
I.SCC Jurisdictional Original Cost Rate Base:																
(1) Avg. Rate Base	$512,011	$1,140,116	$1,397,809	$1,328,901	$1,221,890	$1,191,806	$1,172,380	$1,153,270	$1,134,471	$1,115,980	$1,097,789	$1,079,895	$1,062,293	$1,044,977	$1,027,944	
(2) Incremental ROE Adder	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	
(3) Equity Ratio 1/	49.311%	51.748%	49.645%	53.310%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	
(4) Incremental Equity Return: (1) x (2) x(3)	$2,525	$5,900	$6,939	$7,084	$6,459	$6,300	$6,197	$6,096	$5,997	$5,899	$5,803	$5,708	$5,615	$5,524	$5,434	
(5) Revenue Conversion Factor	0.612	0.61200	0.60957	0.60967	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	
(6) Incremental Revenue: (4) / (5)	$4,125	$9,640	$11,384	$11,620	$10,591	$10,330	$10,162	$9,996	$9,833	$9,673	$9,515	$9,360	$9,208	$9,058	$8,910	
II. SCC Jurisdictional AFUDC Return:																
(7) Avg. Rate Base	$20,386	$14,007	$3,764	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
(8) Incremental ROE Adder	2.00%	1.00%	1.00%													
(9) Equity Ratio 1/	49.311%	51.748%	49.645%													
(10) Incremental Equity Return: (7) x (8) x (9)	$201	$72	$19	$0												
(11) Revenue Conversion Factor	0.61200	0.61200	0.60957													
(12) Incremental Revenue: (10) / (11)	$329	$118	$31	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
III. SCC Jurisdictional AFUDC Amortization																
(13) Beginning AFUDC Balance	$24,092	$24,092	$24,469	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
(14) Ratio of Non-Enhanced to Enhanced COC 2/	89.82%	89.82%	89.82%	0.00%												
(15) Begining AFUDC Balance w/o Enhancement: (13) x (14)	$21,641	$21,641	$21,979	$0												
(16) Amortization Period (Years)	3.25	3.5833	3.25													
(17) Restated Annual Amort. Expense w/o Enhancement: (15) / (16)	$6,659	$6,039	$6,763	$0												
(18) Annual Amort. Expense w/ Enhancement	$7,413	$6,723	$7,529	0												
(19) Additional Annual Amount Due to Enhancement: (18) - (17)	$754	$684	$766	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
IV Total Jurisdictional Additional Revenue Due to ROE Adder: (6) + (12) + (19)	**$5,208**	**$10,442**	**$12,181**	**$11,620**	**$10,591**	**$10,330**	**$10,162**	**$9,996**	**$9,833**	**$9,673**	**$9,515**	**$9,360**	**$9,208**	**$9,058**	**$8,910**	**$146,090**

Table 3

Dominion Virginia Power
Rider R---Bear Garden Generating Plant

	Jan 2010 Through Dec 2010	Apr 2011 Through Mar 2012	Apr 2012 Through Mar 2013	Apr 2013 Through Mar 2014	Apr 2014 Through Mar 2015	Apr 2015 Through Mar 2016	Apr 2015 Through Mar 2016	Apr 2016 Through Mar 2017	Apr 2017 Through Mar 2018	Apr 2018 Through Mar 2019	Apr 2019 Through Mar 2020	Apr 2020 Through Mar 2021	Total All Years
I.SCC Jurisdictional Original Cost Rate Base:													
(1) Avg. Rate Base	$378,324	$501,110	$395,274	$389,880	$397,808	$388,857	$380,108	$371,556	$363,196	$355,024	$347,036	$339,227	
(2) Incremental ROE Adder	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	
(3) Equity Ratio 1/	51.748%	49.645%	53.310%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	
(4) Incremental Equity Return: (1) x (2) x(3)	$1,958	$2,488	$2,107	$2,061	$2,103	$2,055	$2,009	$1,964	$1,920	$1,877	$1,834	$1,793	
(5) Revenue Conversion Factor	0.61200	0.60957	0.60967	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	
(6) Incremental Revenue: (4) / (5)	$3,199	$4,081	$3,456	$3,379	$3,448	$3,371	$3,295	$3,221	$3,148	$3,077	$3,008	$2,940	
II. SCC Jurisdictional AFUDC Return:													
(7) Avg. Rate Base	$15,858	$257	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
(8) Incremental ROE Adder	1.00%	1.00%											
(9) Equity Ratio 1/	51.748%	49.645%											
(10) Incremental Equity Return: (7) x (8) x (9)	$82	$1	$0										
(11) Revenue Conversion Factor	0.61200	0.60957											
(12) Incremental Revenue: (10) / (11)	$134	$2	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
III. SCC Jurisdictional AFUDC Amortization													
(13) Beginning AFUDC Balance	$24,507	$2,226	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
(14) Ratio of Non-Enhanced to Enhanced COC 2/	95.04%	95.04%											
(15) Begining AFUDC Balance w/o Enhancement: (13) x (14)	$23,292	$2,116	$0										
(16) Amortization Period (Years)	1.4166667	1											
(17) Restated Annual Amort. Expense w/o Enhancement: (15) / (16)	$16,441	$2,116	$0										
(18) Annual Amort. Expense w/ Enhancement	$17,299	$2,226	0										
(19) Additional Annual Amount Due to Enhancement: (18) - (17)	$858	$110	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
IV Total Jurisdictional Additional Revenue Due to ROE Adder: (6) + (12) + (19)	**$4,191**	**$4,194**	**$3,456**	**$3,379**	**$3,448**	**$3,371**	**$3,295**	**$3,221**	**$3,148**	**$3,077**	**$3,008**	**$2,940**	**$40,728**

Table 4

Dominion Virginia Power
Rider W---Warren County Generation Plant

	Apr 2012 Through Mar 2013	Apr 2013 Through Mar 2014	Apr 2014 Through Mar 2015	Apr 2015 Through Mar 2016	Apr 2015 Through Mar 2016	Apr 2016 Through Mar 2017	Apr 2017 Through Mar 2018	Apr 2018 Through Mar 2019	Apr 2019 Through Mar 2020	Apr 2020 Through Mar 2021	Apr 2021 Through Mar 2022	Apr 2022 Through Mar 2023	Total All Years
I.SCC Jurisdictional Original Cost Rate Base:													
(1) Avg. Rate Base	$257,496	$682,462	$843,977	$830,220	$816,688	$803,376	$790,281	$777,399	$764,727	$752,262	$740,000	$727,938	
(2) Incremental ROE Adder	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	
(3) Equity Ratio 1/	53.310%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	
(4) Incremental Equity Return: (1) x (2) x(3)	$1,373	$3,607	$4,461	$4,389	$4,317	$4,247	$4,177	$4,109	$4,042	$3,976	$3,912	$3,848	
(5) Revenue Conversion Factor	0.60967	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	
(6) Incremental Revenue: (4) / (5)	$2,252	$5,915	$7,315	$7,196	$7,079	$6,964	$6,850	$6,738	$6,629	$6,520	$6,414	$6,310	
II. SCC Jurisdictional AFUDC Return:													
(7) Avg. Rate Base	$3,733	$2,289	$327	$0	$0	$0	$0	$0	$0	$0	$0	$0	
(8) Incremental ROE Adder	1.00%	1.00%	1.00%										
(9) Equity Ratio 1/	53.310%	53.310%	53.310%										
(10) Incremental Equity Return: (7) x (8) x (9)	$20	$12	$2										
(11) Revenue Conversion Factor	0.60967	0.60984	0.60984										
(12) Incremental Revenue: (10) / (11)	$33	$20	$3	$0	$0	$0	$0	$0	$0	$0	$0	$0	
III. SCC Jurisdictional AFUDC Amortization													
(13) Beginning AFUDC Balance	$4,595	$5,231	$1,308	$0	$0	$0	$0	$0	$0	$0	$0	$0	
(14) Ratio of Non-Enhanced to Enhanced COC 2/	94.10%	94.10%	94.10%										
(15) Begining AFUDC Balance w/o Enhancement: (13) x (14)	$4,324	$4,922	$1,231										
(16) Amortization Period (Years)	2.667	2.667	1										
(17) Restated Annual Amort. Expense w/o Enhancement: (15) / (16)	$1,621	$1,846	$1,231										
(18) Annual Amort. Expense w/ Enhancement	1723	1962	1308										
(19) Additional Annual Amount Due to Enhancement: (18) - (17)	$102	$116	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
IV Total Jurisdictional Additional Revenue Due to ROE Adder: (6) + (12) + (19)	**$2,386**	**$6,052**	**$7,318**	**$7,196**	**$7,079**	**$6,964**	**$6,850**	**$6,738**	**$6,629**	**$6,520**	**$6,414**	**$6,310**	**$76,456**

Table 5

Dominion Virginia Power
Rider B---Bio Mass Conversion Generation Facilities

	Apr 2012 Through Mar 2013	Apr 2013 Through Mar 2014	Apr 2014 Through Mar 2015	Apr 2015 Through Mar 2016	Apr 2015 Through Mar 2016	Apr 2016 Through Mar 2017	Apr 2017 Through Mar 2018	Total All Years
I.SCC Jurisdictional Original Cost Rate Base:								
(1) Avg. Rate Base	$43,006	$104,114	$101,685	$99,313	$96,996	$94,733	$92,523	
(2) Incremental ROE Adder	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
(3) Equity Ratio 1/	53.310%	52.860%	52.860%	52.860%	52.860%	52.860%	52.860%	
(4) Incremental Equity Return: (1) x (2) x(3)	$459	$1,101	$1,075	$1,050	$1,025	$1,002	$978	
(5) Revenue Conversion Factor	0.60967	0.60984	0.60984	0.60984	0.60984	0.60984	0.60984	
(6) Incremental Revenue: (4) / (5)	$752	$1,805	$1,763	$1,722	$1,681	$1,642	$1,604	
II. SCC Jurisdictional AFUDC Return:								
(7) Avg. Rate Base	$738	$64		$0	$0	$0	$0	
(8) Incremental ROE Adder	2.00%	2.00%						
(9) Equity Ratio 1/	53.310%	53.310%						
(10) Incremental Equity Return: (7) x (8) x (9)	$8	$1	$0					
(11) Revenue Conversion Factor	0.60967	0.60984						
(12) Incremental Revenue: (10) / (11)	$13	$1	$0	$0	$0	$0	$0	
III. SCC Jurisdictional AFUDC Amortization								
(13) Beginning AFUDC Balance	$1,122	$297		$0	$0	$0	$0	
(14) Ratio of Non-Enhanced to Enhanced COC 2/	89.48%	89.48%	0.00%					
(15) Begining AFUDC Balance w/o Enhancement: (13) x (14)	$1,004	$266	$0					
(16) Amortization Period (Years)	1.433	1						
(17) Restated Annual Amort. Expense w/o Enhancement: (15) / (16)	$701	$266	$0					
(18) Annual Amort. Expense w/ Enhancement	783	297						
(19) Additional Annual Amount Due to Enhancement: (18) - (17)	$82	$31	$0	$0	$0	$0	$0	
IV Total Jurisdictional Additional Revenue Due to ROE Adder: (6) + (12) + (19)	**$847**	**$1,837**	**$1,763**	**$1,722**	**$1,681**	**$1,642**	**$1,604**	**$11,097**

Table 6

Effect of ROE Adder on Appalachian Power Generation Riders
Rider G- Dresden Generating Plant
(Virginia Jurisdictional Only)
(Dollars in Thousands)

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total All Years
I.SCC Jurisdictional Original Cost Rate Base:											
(1) Avg. Rate Base	$167,391	$160,523	$153,867	$147,470	$141,060	$136,997	$133,080	$127,092	$121,454	$116,136	
(2) Incremental ROE Adder	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	
(3) Equity Ratio 1/	43.950%	43.950%	43.950%	43.950%	43.950%	43.950%	43.950%	43.950%	43.950%	43.950%	
(4) Incremental Equity Return: (1) x (2) x(3)	$736	$705	$676	$648	$620	$602	$585	$559	$534	$510	
(5) Revenue Conversion Factor	0.606783	0.606783	0.606783	0.606783	0.606783	0.606783	0.606783	0.606783	0.606783	0.606783	
(6) Incremental Revenue: (4) / (5)	$1,212	$1,163	$1,114	$1,068	$1,022	$992	$964	$921	$880	$841	**$10,177**
II. SCC Jurisdictional AFUDC Return:											
(7) Avg. Rate Base											
(8) Incremental ROE Adder											
(9) Equity Ratio 1/											
(10) Incremental Equity Return: (7) x (8) x (9)											
(11) Revenue Conversion Factor											
(12) Incremental Revenue: (10) / (11)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
III. SCC Jurisdictional AFUDC Amortization											
(13) Beginning AFUDC Balance											
(14) Ratio of Non-Enhanced to Enhanced COC 2/											
(15) Beginning AFUDC Balance w/o Enhancement: (13) x (14)											
(16) Amortization Period (Years)											
(17) Restated Annual Amort. Expense w/o Enhancement: (15) / (16)											
(18) Annual Amort. Expense w/ Enhancement											
(19) Additional Annual Amount Due to Enhancement: (18) - (17)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
IV Total Jurisdictional Additional Revenue Due to ROE Adder: (6) + (12) + (19)	**$1,212**	**$1,163**	**$1,114**	**$1,068**	**$1,022**	**$992**	**$964**	**$921**	**$880**	**$841**	**$10,177**

TOTAL ALL-YEARS APCO

$10 Million

Dominion Virginia Power
Hypothetical Nuclear Unit
Cost = $10.000 Billion; 5-Yr Construction period; Capacity: 1,500MW
(Dollars in Thousands)

	Year -5	Year -4	Year -3	Year -2	Year -1	Year +1	Year +2	Year +3	Year +4	Year +5	Year +6	Year +7	Year +8	Year +9	Year +10	Year +11	Year +12	Total All Years
I.SCC Jurisdictional Original Cost Rate Base:																		
(1) Percent Construction	10%	10%	30%	30%	20%													
(2) Avg. Rate Base						$7,759,836	$8,148,147	$7,861,949	$7,588,926	$7,328,092	$7,078,536	$6,839,411	$6,609,934	$6,385,842	$6,162,522	$5,939,202	$5,715,882	
(3) Incremental ROE Adder						2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	
(4) Equity Ratio 1/						53.310%	53.310%	53.310%	53.310%	53.310%	53.310%	53.310%	53.310%	53.310%	53.310%	53.310%	53.310%	
(5) Incremental Equity Return: (2) x (3) x(4)						$82,735	$86,876	$83,824	$80,913	$78,132	$75,471	$72,922	$70,475	$68,086	$65,705	$63,324	$60,943	
(6) Revenue Conversion Factor						0.60967	0.60967	0.60967	0.60967	0.60967	0.60967	0.60967	0.60967	0.60967	0.60967	0.60967	0.60967	
(7) Incremental Revenue: (5) / (6)						$135,705	$142,496	$137,491	$132,716	$128,155	$123,790	$119,609	$115,596	$111,677	$107,771	$103,866	$99,960	
II. SCC Jurisdictional AFUDC Return:																		
(8) Avg. Rate Base	$850,000	$1,700,000	$4,250,000	$6,800,000	$8,500,000	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
(9) Incremental ROE Adder	2.00%	2.00%	2.00%	2.00%	2.00%													
(10) Equity Ratio 1/	53.310%	53.310%	53.310%	53.310%	53.310%													
(11) Incremental Equity Return: (8) x (9) x (10)	$9,063	$18,125	$45,314	$72,502	$90,627													
(12) Revenue Conversion Factor	0.60967	0.60967	0.60967	0.60967	0.60967													
(13) Incremental Revenue: (11) / (12)	$14,865	$29,730	$74,325	$118,919	$148,649	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
III. SCC Jurisdictional AFUDC Amortization																		
(14) Beginning AFUDC Balance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
(15) Ratio of Non-Enhanced to Enhanced COC 2/																		
(16) Begining AFUDC Balance w/o Enhancement: (14) x (15)																		
(17) Amortization Period (Years)																		
(18) Restated Annual Amort. Expense w/o Enhancement: (16) / (17)																		
(19) Annual Amort. Expense w/ Enhancement																		
(20) Additional Annual Amount Due to Enhancement: (18) - (17)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
IV Total Jurisdictional Additional Revenue Due to ROE Adder: (6) + (12) + (19)	**$14,865**	**$29,730**	**$74,325**	**$118,919**	**$148,649**	**$135,705**	**$142,496**	**$137,491**	**$132,716**	**$128,155**	**$123,790**	**$119,609**	**$115,596**	**$111,677**	**$107,771**	**$103,866**	**$99,960**	**$1,845,319**