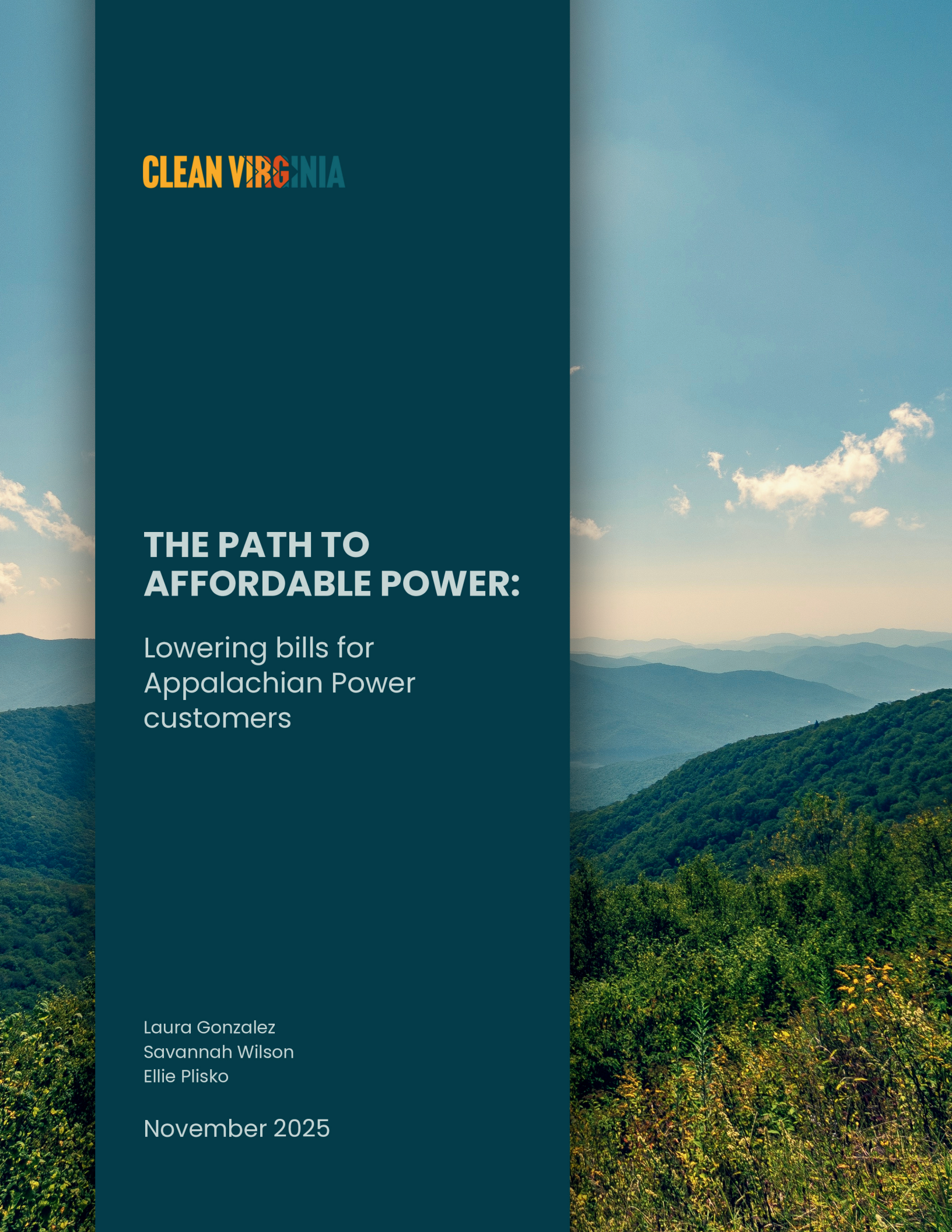

CLEAN VIRGINIA

THE PATH TO AFFORDABLE POWER:

Lowering bills for Appalachian Power customers

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Executive Summary

Families in southwest Virginia are facing some of the highest electric rates in the country.[1] **Since 2007, Appalachian Power Company (APCo) rates have increased by 158%, more than three times higher than inflation** and far above Virginia electric cooperatives' 28% average rate increase (compared through 2023).[2] This report examines the main cost drivers for APCo and what lawmakers and regulators can do to control costs.

As of mid-2024, the main components of APCo customer rates are: i) The base rate (48%) that recovers costs of legacy generation facilities including coal and hydropower plants, storm costs, and other operation and maintenance costs, ii) the fuel charge (24%) that primarily recovers coal and methane gas expenses, and iii) the transmission charge (22%) that recovers costs for PJM transmission services and local transmission projects. See Table 2. Of these, the fuel charge and transmission charge have grown most significantly in recent years. See Table 1.

Table 1: Increase in the Largest Residential Customer Charges

	2007/2009	2024	Increase
Base Rates 2007	$51.65	$82.79	**60%**
Fuel Factor 2007	$13.12	$41.39	**215%**
Transmission Rider 2009[3]	$7.42	$38.58	**420%**

Table 2: 2024 APCo Avg. Residential Bill

Charge	Monthly Cost ($)	Percentage of Monthly Bill
Base Rates	82.79	48.10%
Fuel Factor	41.39	24.05%
Transmission	38.58	22.42%
Dresden Gas CC	3.21	1.87%
Coal Ash Remediation	2.84	1.65%
Energy Efficiency & Demand Response	1.43	0.83%
RPS (VCEA)	1.22	0.71%
Rural Broadband	0.59	0.34%
PIPP	0.04	0.02%

The three most significant cost drivers for APCo are:

- **A regulatory system that incentivizes utility overspending, inflates utility profits, and puts disproportionate costs on residential customers;**
- **Overreliance on fluctuating and costly fossil fuels, particularly coal; and**
- **Growing transmission expenses.**

Key drivers of rising electric bills in APCo territory

1. Virginia's regulatory framework inflates costs and incentivizes overspending:

- APCo's regulatory framework disproportionately transfers investment risk to customers: The current system permits over-use of rate adjustment clauses (RACs), which allow the utility to recover all costs and earn a guaranteed profit, even if projects run over budget or are poorly managed. This structure disproportionately transfers investment risk from utility shareholders to customers.
- Utility profits are higher than the financial markets justify: Regulators allow APCo to earn a profit margin that is much greater than what it actually costs the company to raise money in the financial markets. This gap means customers are paying extra not to keep the lights on, but to boost utility profits.
- APCo has weak utility planning requirements that fail to incentivize affordability: APCo has weak planning requirements and is not obligated to use the most cost-effective ways to meet energy demand. This system leaves families stuck with fewer affordable options.
- APCo's system for distributing costs assigns families more than their fair share: The method APCo uses for dividing costs among residential, commercial, and industrial users is tilted against households. Alternative methods would be fairer to residential customers.

2. Customers bear the risk of volatile and expensive fossil fuel costs:

- Customers pay the full cost of spikes in fuel markets: APCo's customers bear the full risk of fuel prices going up. Virginia families and businesses have no protections against this volatility, and the utility has no incentive to pursue less expensive alternatives.
- APCo is buying unaffordable electricity from coal plants owned by its own affiliate company: APCo has been buying coal generation at above-market prices from OVEC, an affiliate of APCo's parent company.
- APCo may be running its coal plants even when uneconomic: APCo faces pressure to run its coal plants even when cheaper options are available. This practice would force customers to pay more for electricity.

3. APCo customers are faced with high capacity and transmission costs:

- APCo relies on an expensive capacity system to secure its future energy supply: These capacity costs are passed on to APCo customers. A market option may be more affordable.
- APCo residential customers are burdened with steep transmission charges: These charges may be driven by a range of causes, including low customer density, unfair distribution of regional transmission costs, inflated utility profits, and lower levels of oversight for local transmission projects.

4. Broader trends are also raising costs for APCo customers:

- More extreme weather events are raising costs for customers: Extreme weather events in APCo's territory have intensified in recent years, resulting in high damage costs that APCo customers must pay for.
- Federal policies are likely to make energy projects more expensive: Recent federal tariffs and legislation are expected to raise prices for resources and materials, and lead to costly project cancellations and delays.
- Data center expansion in the PJM region increases costs for all utilities: The combination of unprecedented levels of data center demand and supply strains in PJM is driving higher prices regionally. Even without current data center demand in APCo territory, APCo customers are still likely to feel the impact of these regional price trends.
- Changing customer dynamics could raise customer bills if not managed responsibly: Without prudent and proactive management, either customer attrition or high levels of data center demand growth in APCo territory could further increase costs for residential customers.

The requirements for new generation technologies in the Virginia Clean Economy Act (VCEA) were **not** found to make up a significant portion of customer bills. In fact, generation requirements accounted for only a fraction (0.7%) of APCo residential bills in 2024. With the anticipated increase in VCEA generation requirement costs next year, this item will constitute about 3% of the residential bill. Additionally, APCo anticipates significant fuel savings for customers from new solar, wind, and storage technologies - which require no fuel cost – moving forward.

Summary

In summary, Virginians in APCo territory are paying the price for regulatory rules that push financial risk and impacts onto APCo's customers rather than shareholders, an over-reliance on expensive fossil fuels, and high transmission expenses. Lawmakers, the governor, and regulators can take action now to bring costs under control, protect families, and build a more affordable and reliable energy system for Virginia.

Overview: Cost Drivers & Solutions - Roadmap to Affordability

APCo's regulatory framework drives up costs and pushes financial risk onto customers.

Cost Driver	Solution	Solution Drivers		
		GA	GOV	SCC
APCo has insufficient planning requirements.	Bring back and strengthen integrated resource planning rules so APCo must show how it will meet energy needs at the lowest cost.	✓	✓	
APCo's profit margin (rate of return) is too high.	Evaluate all ROE methodologies and reject those that do not reflect market conditions.			✓
APCo receives higher profits when it spends more, encouraging it to pursue high-cost projects instead of cheaper alternatives.	Establish mechanisms to address APCo's flawed incentive structure, such as multi-year rate plans, revenue decoupling, and performance-based incentives.	✓	✓	✓
Surplus charges called riders add administrative costs to bills and encourage utility overspending.	Require the bulk of costs to go through multi-year base rate reviews.	✓	✓	
Energy system costs are unfairly distributed between residential customers and larger energy consumers like data centers.	Implement a cost allocation methodology that assigns appropriate costs to large energy users, lessening the burden on families.	✓	✓	✓
Virginia law restricts third-party-owned projects, which are often cheaper than utility-owned ones.	Allow third-party owned projects to compete fairly with utility-owned projects to offer lower costs to customers.	✓	✓	

APCo customers are vulnerable to high fossil fuel prices and cost spikes.

Cost Driver	Solution	Solution Drivers		
		GA	GOV	SCC
High coal and gas prices are passed straight to customers.	Make shareholders, not just customers, share the risk of fuel price spikes to encourage utilities to manage fuel costs more responsibly.	✓		✓
APCo buys coal power at inflated prices from its own affiliate company.	Review affiliate contracts regularly and require refunds if prices are too high.			✓
APCo is pressured to run coal plants even when cheaper options exist.	Prevent APCo from charging customers for uneconomic coal use and refund customers for extra costs.			✓

SOLUTION DRIVERS KEY | **GA:** General Assembly | **GOV:** Governor | **SCC:** Regulators

Overview: Cost Drivers & Solutions - Roadmap to Affordability

APCo has high capacity and transmission costs.

Cost Driver	Solution	Solution Drivers		
		GA	GOV	SCC
APCo uses a system called Fixed Resource Requirement (FRR) rather than PJM's capacity market.	Review APCo's capacity approach and implement the lowest-cost option.	✓		✓
APCo's residential customers may be unfairly burdened by high transmission costs.	Strengthen SCC oversight of local transmission projects; push PJM for fairer cost sharing; require grid-enhancing technologies.	✓	✓	✓

Broader trends are raising costs for APCo customers.

Cost Driver	Solution	Solution Drivers		
		GA	GOV	SCC
Extreme weather events are driving up storm recovery costs, which are passed on to customers.	Require a weather resilience plan and tie utility profits to reliability.	✓		✓
Federal tariffs and loss of tax credits make energy projects more expensive.	Expand energy efficiency programs and consider state support for easily deployed energy sources.	✓	✓	
Regional data center growth and PJM interconnection delays are straining the grid and raising costs.	Push PJM for faster interconnection; require utilities to disclose PJM votes.	✓	✓	
A changing customer base and unchecked data center growth could raise bills for everyone.	Ensure data centers pay for needed upgrades; study the impacts of a changing customer base; pace data center growth so costs do not fall on families.			✓

SOLUTION DRIVERS KEY | **GA:** General Assembly | **GOV:** Governor | **SCC:** Regulators

Solutions for immediate customer relief

- **Strengthen** utility payment plans and shutoff protections
- **Bolster** energy cost relief programs for low-income households
- **Establish** on-bill financing for efficiency upgrades

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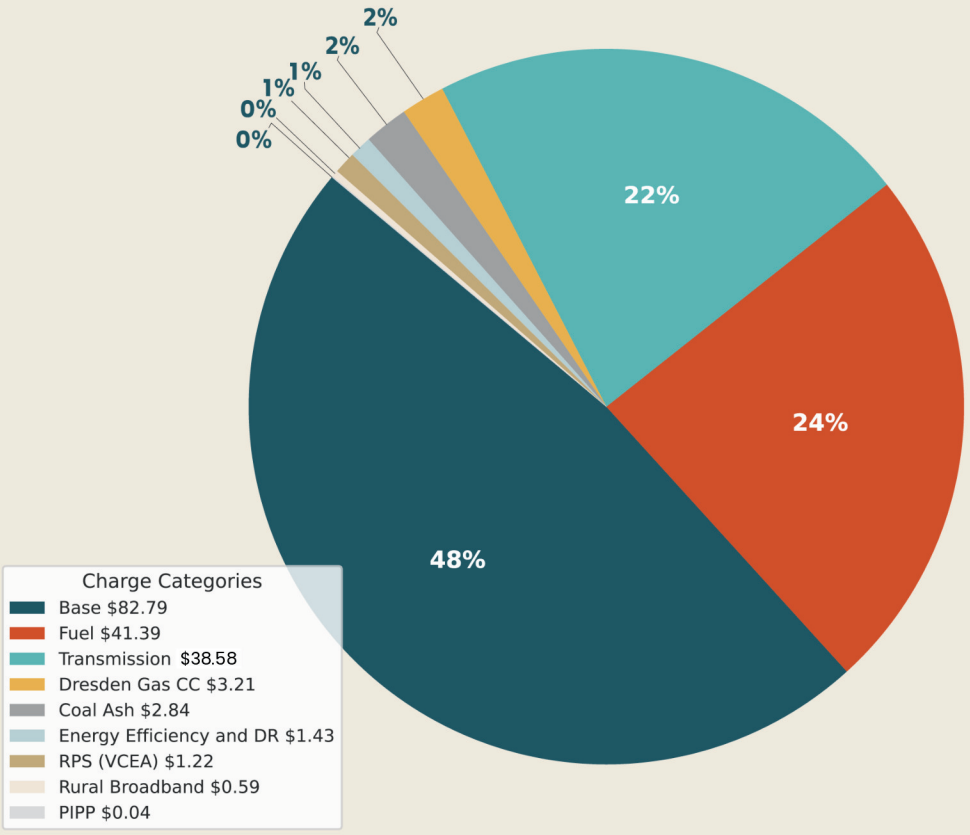
Part 1:

Understanding the Makeup of an APCo Electric Bill

Figure 1: 2024 Residential Customer Charges Based on 1000 kWh per Month ($172 total)



Appalachian Power Company (APCo) is one of three investor-owned utility (IOU) monopolies in Virginia and serves 540,000 customers. APCo customers primarily pay for utility costs through two charges: **base rates** and **riders**. See Figure 1 and Figure 2. The key difference between these two is who bears most of the financial risk: customers or shareholders.

The base rate is the traditional way for utilities to recover costs. In Virginia, it is reviewed every two years by the State Corporation Commission (SCC) in rate cases and does not automatically go up if the utility overspends. This system incentivizes the utility to control costs between rate cases and distributes risk more evenly between shareholders and customers. Key base rate cost drivers include authorized return on equity (ROE), maintenance and compliance for older infrastructure, salaries and other operating expenses, storm recovery costs, and inflation.

Riders are additional charges on customer bills that guarantee a utility's cost recovery through annual "true-ups." A "true-up" is an adjustment to align the utility's estimated costs with the actual, final figure to ensure full recovery of actual costs. This shifts investment risk from shareholders to customers, who make up for any shortfalls with higher rates the following year. Virginia has two types of riders:

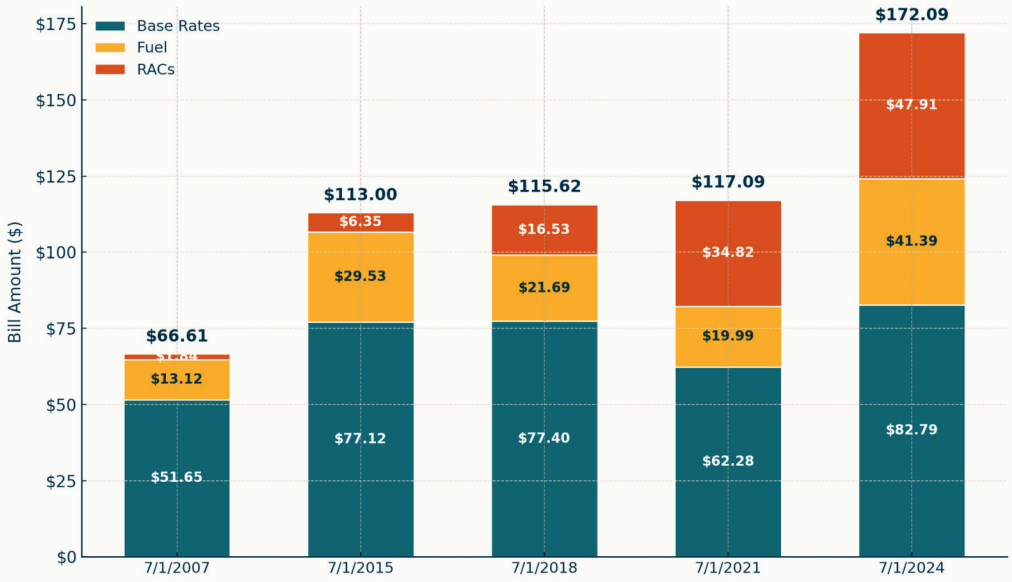
(1) Fuel rider: This rider is a pass-through cost with no built-in mechanism for cost containment. Monthly fuel costs for APCo residential customers – mainly from coal and methane gas – tripled between 2007 and 2024, rising from $13.12 to $41.39.

(2) Rate adjustment clauses (RACs): RACs recover costs and profits for new generation, transmission, and distribution investments. The transmission RAC (T-RAC), which recovers PJM transmission costs and the costs of local transmission projects, is APCo's largest RAC. The charge is now five times larger than it was in 2009, rising from $7.42 per month for the average residential customer to $38.58 per month in 2024.[4] See Table 4. Other RACs cover costs for the Dresden gas facility, coal ash remediation, and new generation expenses. See Table 3.

Table 3: 2024 Residential Bill Charges

Category	Monthly Charge ($)	Percentage of Bill	Creation Date
Base and Fuel			
Base Rates	82.79	48.1%	
Fuel Factor	41.39	24.1%	
Rate Adjustment Clauses			
Transmission	38.58	22.4%	2009
Dresden Gas CC	3.21	1.9%	2012
Coal Ash Remediation	2.84	1.7%	2021
Energy Efficiency and Demand Response	1.43	0.8%	2021
RPS (VCEA)	1.22	0.7%	2021
Rural Broadband	0.59	0.3%	2021
PIPP	0.04	0.0%	2021
Total Monthly Bill	172.09	100.0%	

Figure 2: APCo Residential Bill – Using 1,000 kWh



Adapted from Commonwealth of Virginia State Corporation Commission, Status Report: Implementation of the Virginia Electric Utility Regulation Act Pursuant to §§ 56-596 B and 30-205 of the Code of Virginia (Virginia SCC, November 2024), https://www.scc.virginia.gov/media/sccvirginiagov-home/regulated-industries/utility-regulation/energy-regulation/2024-veur.pdf, 7.

Table 4: Increases in APCo's Largest Residential Customer Charges

	2007/2009	2024	Increase	Inflation Rate (2007/2009–2024)[5]
Base Rates 2007	$51.65	$82.79	**60%**	51%
Fuel Factor 2007	$13.12	$41.39	**215%**	51%
Transmission Rider 2009	$7.42	$38.58	**420%**	46%

Because APCo has several riders that change on different timelines every year, its rates are frequently adjusted. Since mid-2024, the SCC has modified several of the charges listed in Table 3, including the base rate. Most of these changes have been small.

The SCC is currently considering multiple cases that could impact residential bills in 2026. The pending cases with the largest potential impacts are:

- Securitization of coal plant and storm recovery costs (-$5.86/month on average): Securitization is a financial tool that lets utilities convert certain large expenses into long-term, low-interest bonds with maturity times of up to 10-20 years.[6] APCo is seeking to securitize $1.22 billion in remaining costs associated with its Amos and Mountaineer coal power plants. Securitization benefits the utility by allowing it to receive a lump sum payment for these costs from bondholders. Customers are currently paying for APCo's authorized ROE (9.75%) on top of the actual costs for these plants, but with securitization, they would pay an interest rate, which is lower (around 5.5%), instead. If APCo's application is approved, an average residential customer will see net monthly savings of $5.86.[7]

- Securitization of coal plant and storm recovery costs continued: APCo also requested securitization for $140.6 million in storm costs, as opposed to the alternative of collecting these costs over 1-2 years. SCC staff criticized this proposal for potentially locking customers into paying additional financing expenses, increasing overall costs and forcing them to continue paying off the costs of a one-time event for decades.

- Fuel factor (-$10/month on average): APCo has proposed a revenue decrease in its fuel factor that would lower the average residential bill by $10 per month.[8] As a result of the fossil fuel cost spike of 2021 and 2022, APCo customers accumulated almost $361 million in debt. Even with a two-year mitigation to lessen the rate shock, APCo's fuel factor still increased by $20.17 a month in 2022.[9] Most of the reduction this year comes from customers having paid off much of this accumulated fuel debt. Notably, given that methane gas prices are projected to double between 2024 and 2026, fuel costs are likely to increase again in the near future.[10]

- Renewable Portfolio Standard (+$4.36/month on average): The 2024 Renewable Portfolio Standard (RPS) final order increased this charge by $0.05 after mid-2024.[11] APCo's 2025 RPS filing is currently pending before the SCC. If the SCC approves the filing, this charge would increase by $4.36 per month for the average residential customer. This change would bring the total monthly RPS charge up to $5.63 per month starting in March 2026.[12]

Although these anticipated changes do have some effect on the overall composition of APCo's residential customer bills, the base rate, fuel factor, and transmission rider remain the largest components of customer bills.

Part 2:

APCo's Energy Mix and Virginia Clean Economy Act (VCEA) Requirements

Generating Capacity (2024): APCo's generating capacity was 61.5% coal, 19.9% methane gas, 11% hydro, and less than 8% wind/solar.[13] See Figure 3.

Energy Generation (2024): Coal supplied an estimated 46.7% of APCo's energy, while methane gas supplied 15.5%. Renewables (wind, solar, hydro) made up 8.7%. Market purchases from PJM and third parties totaled 24.5%, and 4.6% was purchased from the Ohio Valley Electric Corporation (OVEC).[14] See Figure 4.

Figure 3: APCo Existing Capacity — Owned and Contracted 2024

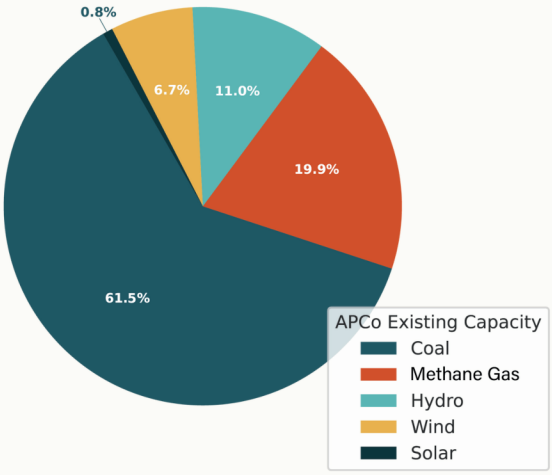
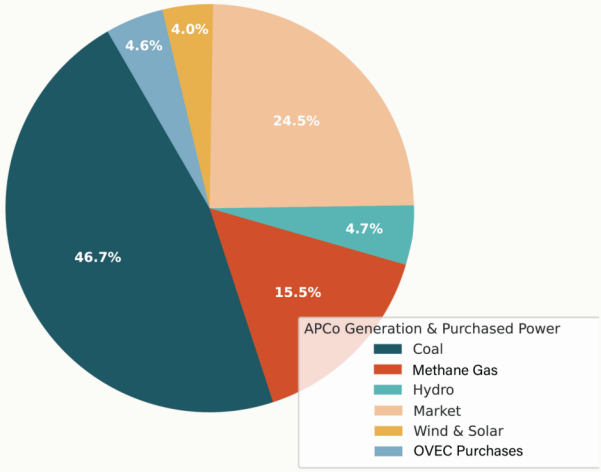


Figure 4: APCo Generation & Purchased Power by Source 2024 (MWh)



New Generation Technologies and the Virginia Clean Economy Act of 2020

The 2020 Virginia Clean Economy Act (VCEA) is a legislative framework to transition toward an electricity grid that does not emit carbon. For this goal, several transition policies were adopted for APCo and Dominion Energy.

While the 2020 law accelerated the shift to new generation technologies, solar, wind, and battery storage were already being adopted and becoming equally — and often more — cost competitive than coal and methane gas generation, driven by rapidly decreasing technology costs.[15] Fuel-free resources like solar and wind are also insulated from the unpredictability and volatility of the fossil fuel market, providing consumers with more stable and affordable long-term energy costs. In 2024, residential APCo customers paid approximately $1.22 monthly for new generation technologies, including solar, wind, and battery storage.[16]

The VCEA included policies to i) accelerate adoption of new generation technologies, ii) reduce greenhouse gas emissions, and iii) reduce unnecessary energy consumption and promote affordability.[17] The VCEA policies applicable to APCo include:

New generation technologies:

- The Renewable Portfolio Standard (RPS): Requires APCo to transition to 100% renewable energy by 2050, with yearly targets. For example, in 2025, 14% of APCo's energy sales must come from renewable sources.
- Development targets for new generation technologies:
  - By December 2030, APCo must petition for approval to construct or purchase at least 600 MW of solar or onshore wind, and by 2035 it must petition for approval for 400 MW of energy storage.
  - Currently, APCo has petitioned for and is currently developing 663 MW of solar and onshore wind, and it has petitioned for approval for 59.7 MW of storage.[18]

Reduction of greenhouse gas emissions:

- Retirement schedule for fossil fuel generation: By December 2045, both APCo and Dominion must retire all generating units in the Commonwealth that emit carbon as a by-product. Both utilities can request exceptions to this mandate if there is a threat to reliability.
- Regional Greenhouse Gas Initiative (RGGI): RGGI is a market-based program that caps and reduces carbon dioxide emissions from the power sector.[19] Virginia was part of the program from 2021 until it ceased participation in 2023. RGGI auction proceeds were allocated 50% to low-income energy efficiency and weatherization programs and 45% to the Community Flood Preparedness Fund.[20] The RGGI funds supported several resiliency and low-income efficiency programs in southwest Virginia during this period.[21]

Reduction of unnecessary energy consumption:

- Energy efficiency targets: Each year, APCo has to achieve a certain percentage of energy efficiency savings relative to its 2019 sales. The law established yearly targets for APCo from 2022 to 2025, with savings required to reach 2% by 2025. APCo has been successfully achieving and surpassing these targets.[22] After 2025, the SCC was tasked with establishing new targets; it recently established new energy savings targets for APCo of 3.00% for 2026, 3.50% for 2027, and 4.00% for 2028.[23]

Affordability:

- Percentage of income payment program (PIPP): PIPP caps the amount of money low-income families have to pay for electricity at 6% or 10% of their monthly incomes. The 10% threshold is for families that use gas for heating.

General Policy Costs and Savings

Costs for an average residential customer:	2024	2025	2026
Renewable portfolio standard and storage requirements (RPS VCEA)	$1.22	$1.27	$5.63
Energy efficiency and demand response (EE & DR)	$1.43	$2.85	N/A
Percentage of income payment program (PIPP)	$0.04	$1.32	N/A

Fossil fuel savings reflected in energy bills:

APCo forecasts substantial savings in fuel costs associated with the increasing adoption of new generation technologies. These savings start at approximately $50 million per year in 2030 and increase to $150 million per year in 2035, reaching more than $200 million per year in 2040.[24] This would amount to approximately $5, $16, and $21 of monthly bill savings in 2030, 2035, and 2040, respectively.[25]

Under the energy efficiency targets, APCo reports it will generate 457,603 MWh of annual energy savings by 2025.[26] Assuming that these savings displace coal generation, at the lower cost range of $71/MWh,[27] this amounts to roughly $32 million of annual savings, or $3.40 in monthly savings for a residential customer.[28]

Part 3:

Why APCo Customers Are Paying More and the Path Forward

Problem 1: Virginia's regulatory framework drives up costs for customers.

Background: Investor-owned utilities are incentivized to overspend. Investor-owned utilities are driven by a duty to maximize shareholder returns. The more capital these utilities spend on projects, the more profit they can earn through the "return on equity" (ROE) approved by regulators. This system creates an incentive for utilities to pursue both high ROEs in regulatory proceedings and costly, capital-intensive, utility-owned infrastructure projects. In contrast, businesses competing in an open market focus on cutting costs and lowering prices while maintaining quality to attract customers.

Virginia's electric cooperatives, which are member-owned and operate on a not-for-profit basis, provide a useful point of comparison. Co-ops do not have the same structural incentive to overbuild or overspend, since they are accountable to their member-owners rather than outside shareholders. Cooperative customers across Virginia have experienced far less dramatic bill increases than customers of investor-owned utilities over the past decade.

The role of regulators at the SCC is to balance fair profits for utilities with affordable customer rates. Over the last several decades, this balance shifted in the utilities' favor because of the outsized influence of IOUs in the legislative process. A critical turning point was the 2007 Re-Regulation Act, which weakened the SCC's authority to lower rates or set reasonable returns for APCo and Dominion, while guaranteeing utilities extra profits on new power plants without clear justification. This legislation raised costs for all customers and expanded the use of riders, which transfer significant investment risk from utility shareholders to customers, as detailed below.[29]

In 2023, the General Assembly passed a law to restore basic SCC authority over IOU rate cases.[30] Despite this improvement, problems with Virginia's regulatory framework persist. Multiple aspects of the framework exacerbate incentives to overspend, driving up customer costs. These include:

COST DRIVER 1: APCo has insufficient resource planning requirements. Virginia's resource planning process for IOUs, particularly APCo, is inadequate. The Integrated Resource Plan (IRP) is a 15-year outlook of how utilities will meet energy demand. The IRP should be a holistic tool for efficient and affordable resource planning and acquisition. However, Virginia's IRP process is nonbinding, and is disconnected from the utilities' processes of acquiring specific energy resources. As such, the IRP is an incomplete planning tool. Furthermore, APCo has not presented an IRP since 2022,[31] and in 2023 was fully exempted from filing them in the future.[32]

Other states have crafted their IRP processes as a tool for the utility, stakeholders, and regulators to determine the optimal resource mix that meets demand, addresses public interest goals, and minimizes customer costs.[33]

Solutions: Reinstate and strengthen IRP requirements for APCo to ensure the utility, the SCC, the Office of the Attorney General, and other advocates can identify a holistic and least-cost investment path to meet energy needs and lower customer bills. A strengthened IRP process should tie planning directly to the acquisition of new generation resources. APCo's IRP process should include an "all-source" competitive procurement for building new generation or replacing aging, costly-to-maintain generation. All-source competitive procurement allows all resource types to compete on an equal playing field to meet an identified need. This process has resulted in more affordable resource options for utilities in other states.[34] The IRP process should also hold the utility accountable for exploring and maximizing cost-effective solutions like the use of surplus interconnection, demand response, grid-enhancing technologies, virtual power plants, and energy efficiency.

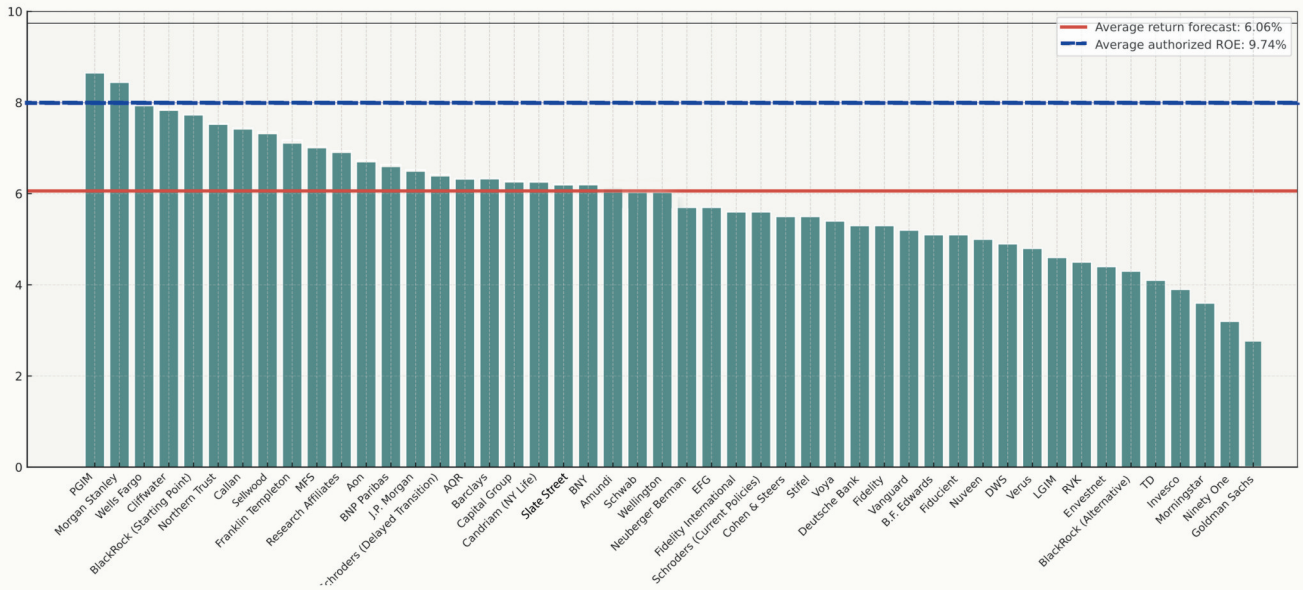
COST DRIVER 2: APCo is able to request and receive unnecessarily high profits. The return on equity (ROE) represents the percentage of profit the SCC allows a utility's shareholders to earn on the utility's capital investments.[35] The SCC is charged with the duty to strike a balance between customer affordability and the utility's ability to attract capital. However, returns approved for IOUs have far exceeded reasonable levels, given the low level of risk in monopoly utility investment.[36] In general, the potential return from an investment increases as the level of risk rises. IOUs are considered low risk, which justifies comparatively lower returns. Moreover, the proliferation of riders substantially reduces the utility's cost recovery risks, such that even lower returns would be appropriate.

APCo's high ROE is in part the result of policy mandates like the 2007 Re-Regulation Act's arbitrary ROE minimum for APCo and Dominion. This ROE minimum was in place until 2023, when reforms restored the SCC's authority to set an ROE absent this arbitrary constraint. Even after that change, APCo's allowed profit levels remain well above what would be considered reasonable for such a low-risk monopoly.

Additionally, flawed methodologies have permeated utility ROE analyses and contribute to inflated ROE results. The ROE expert for the Attorney General Office's Division of Consumer Counsel has consistently criticized the methodologies and assumptions that utility experts use for calculating ROE. For example, in APCo's 2024 rate case, the Division of Consumer Counsel's expert found several errors in APCo's analysis, including that it relied on overly optimistic growth rates and inflated interest rate projections that biased the results upward.[37]

Utility analysts have identified a systematic inflation of utility ROEs nationwide, caused by the widespread use of invalid and flawed ROE methodologies. While the average expected long-term return for firms in the competitive market is approximately 6.7%,[38] regulated utilities consistently request far higher profits, skewing final regulatory commission orders upward. For example, in 2024, APCo requested an ROE jump from 9.5% to 10.8%.[39] The SCC did not approve the full request, but still approved an increase to 9.75%, which contributed to APCo's January 2025 rate hike.[40]

Figure 5: U.S. Equity Market Long-Term (10+ Years) Expected Returns Nominal, Geometric



Source: Mark Ellis analysis of investment firm CMA forecast reports.

Figure 5 above compares long-term return forecasts from major U.S. asset managers – each projecting equity market performance over at least ten years – with the average authorized return on equity for regulated utilities during the same period. The average expected long-term market return, 6.06 percent, is 38 percent lower than utilities' average authorized ROE of 9.74 percent. Even the highest market forecast, 8.57 percent, is still 1.17 percentage points below utilities' average authorized ROE. Because regulated utilities face less risk and have more stable growth under a cost-of-service model, their returns should be lower than those of the broader market, not higher.

If more appropriate, market-based methods were used to set ROE levels, costs to residential utility customers could be significantly reduced. Utility analysts have reported that corrected ROE methodologies could save customers up to 10% annually.[41] This change would save approximately $206 per year for the average APCo residential customer.

> *Utility analysts have reported that corrected ROE methodologies could save customers up to 10% annually. This change would save approximately $206 per year for the average APCo residential customer.*

Solution: The SCC should evaluate all ROE methodologies and reject those that do not reflect market conditions.

COST DRIVER 3: APCo is incentivized to pursue high-cost projects and higher energy sales because it receives higher profits when it spends more. Under Virginia's current regulatory system, utilities are permitted to earn a certain percentage of their capital expenditures as profit. This means the total amount of money a utility is able to make in profit depends on its approved level of spending. This structure incentivizes utilities to maximize the amount they spend – including by making their energy sales as high as possible, pursuing costly projects that may not be needed, and pursuing expensive and unnecessary project upgrades.

Solutions: This unbalanced incentive system can be addressed in part by establishing multi-year rate plans to encourage cost discipline, as well as mechanisms to relieve APCo's financial pressures. Under a multi-year rate plan structure, the SCC would set a three- to five-year budget that allows the utility to earn its authorized profit if it controls expenses. Longer rate periods incentivize efficiency, as the utility must manage within its budget before rates are reset.[42]

This structure incentivizes utilities to maximize the amount they spend – including by making their energy sales as high as possible, pursuing costly projects that may not be needed, and pursuing expensive and unnecessary project upgrades.

Mechanisms to relieve APCo's financial pressures and address flawed incentives include revenue decoupling, which disconnects a utility's ability to recover costs and profits from its level of energy sales, and performance incentive mechanisms, which would adjust APCo's profit level up or down based on its performance in specific areas. Performance incentive mechanisms are already under consideration in Virginia.[43] Collectively, the tools of multi-year rate plans, decoupling, and performance incentive mechanisms are part of a regulatory construct called "performance-based regulation." In 2024, the General Assembly enacted legislation directing the SCC and the Virginia Department of Energy to study performance-based regulation; the results of this study are expected in October 2025. Fully addressing APCo's misaligned incentives will require a number of fundamental changes to the ratemaking structure, a holistic approach to energy planning, and other solutions outlined in this paper.

COST DRIVER 4: APCo's overuse of RACs transfers investment risk from shareholders to customers. Today, more than 50% of APCo's costs are recovered through riders or rate adjustment clauses (RACs), and nearly all new expenses are eligible for rider (RAC) treatment.[44] RACs allow APCo to collect exactly the amount it spends plus a guaranteed profit from its customers – even if its spending goes over budget. This "true-up" effectively eliminates financial incentives for the utility to adopt cost-saving measures.[45]

Customers pay a return on equity to compensate shareholders for bearing the financial risk of investing money in utility projects. Under the RAC system, this risk is shifted from the company's investors and utility management to customers.[46] This means customers are paying to compensate shareholders for project risk, while actually bearing that risk themselves.

Ultimately, a rate structure that overrelies on RACs promotes overspending and unfairly shifts risk to customers. RACs should be treated as an incentive to the utility and limited to strategic investments, instead of being allowed for all types of new infrastructure.[47]

Solutions: Incorporate existing RACs into the base rate and consider adopting a longer multi-year rate plan and other tools described under Cost Driver 3 to realign utility incentives and encourage cost discipline.

COST DRIVER 5: APCo's cost allocation method disadvantages residential customers. The way a utility distributes its costs among different customer types (residential, commercial, etc.) significantly impacts how much each customer pays. An SCC staff expert has found that APCo's cost allocation method disadvantages residential customers and does not reflect how utilities plan their systems.[48]

APCo uses a "six coincident peak" (6-CP) methodology, which assigns a higher portion of costs to customers with the highest demand at six peak demand points in the year, regardless of what their demand is most of the time.[49] This methodology benefits customers with consistent demand – like many industrial customers or data centers – while disadvantaging customers whose demand varies – like families. The SCC staff expert found that other methodologies would result in lower costs for residential customers, while better reflecting the planning and usage of the utility system.[50]

Solution: Legislators should urge the SCC to use its existing authority to analyze current cost allocation methods and implement fairer alternatives for residential customers.

COST DRIVER 6: Virginia places unnecessary limitations on lower-cost projects owned by third parties. The Virginia Attorney General's office has found that third-party-owned energy projects can be two to three times less expensive than projects developed by IOUs.[51] However, current law arbitrarily prohibits more than 35% of APCo and Dominion's annual solar and onshore wind generation requirements from being fulfilled by third-party owned projects.[52] The remaining 65% must be owned by the utility, even when utility-owned projects are more expensive. Utility monopolies earn a profit only from projects they own. Thus, this limitation prioritizes utilities' profits at the expense of greater affordability for customers.

> **Solution:** Remove the 35% limitation on third-party-owned projects. Third-party and utility-owned projects should be able to compete on a parity basis, to enable customers to benefit from the lowest-cost projects.

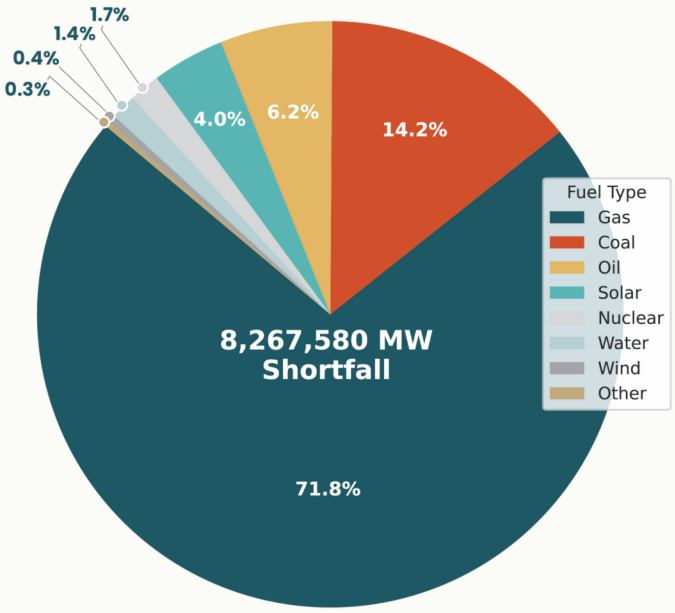
Problem 2: APCo customers are vulnerable to high fossil fuel prices.

COST DRIVER 1: The risks of highly fluctuating fossil fuel costs are borne entirely by customers.
Fossil fuel prices fluctuate significantly, which can drive up costs for ratepayers when prices spike. For instance, coal prices more than doubled in 2021, jumping from about $70/ton in January to about $145/ton in December.[53] Likewise, U.S. methane gas prices rose 540% between 2020 and 2022,[54] spurring a doubling of APCo customers' monthly fuel costs in just two years.[55] Overall, monthly fuel costs for an average APCo customer tripled between 2007 and 2024, climbing from $13.12 to $41.39.[56]

APCo passes all fossil fuel costs to customers through an annual rider, shielding shareholders from any risk. Fuel-free resources like solar and wind, by contrast, have no fuel costs and stable operating expenses. Expanding these resources would protect customers from the volatility of global fossil fuel markets and deliver more predictable long-term costs.

Solutions: Explore fuel cost sharing to shield ratepayers from the full risk of price spikes. Under this system, utility shareholders would absorb a small portion of higher-than-predicted fuel costs, motivating responsible fuel management and giving the utility a financial incentive to minimize spikes.[57]

Figure 6: Generation Shortfall MW Distribution by Fuel Type



Adapted from PJM, Winter Storm Elliott: Event Analysis and Recommendation Report (July 2023, PJM), https://www.pjm.com/-/media/DotCom/library/reports-notices/special-reports/2023/20230717-winter-storm-elliott-event-analysis-and-recommendation-report.ashx.

Legislators can also support APCo's diversification of its energy mix to reduce its heavy reliance on fossil fuel generation, which is prone to price spikes.

Additionally, a more diverse energy mix is essential to protecting reliability, as demonstrated by Winter Storm Elliott in 2022. According to PJM, 86% of the energy shortfall during Elliott was attributed to coal and gas facility failures, while wind generation performed above expectations.[58] See Figure 6.

COST DRIVER 2: APCo purchases coal power at an unnecessarily high cost from an affiliate of its own parent company. In APCo's 2024 rate case, the Attorney General's office found APCo was purchasing power at above-market prices from decades-old coal plants owned by an affiliate company, Ohio Valley Electric Corporation (OVEC).[59] This means APCo could have bought more affordable energy elsewhere; instead, it purchased from OVEC and passed the high costs from these plants on to customers.[60] The SCC's Final Order required APCo to include in its next rate case an economic analysis of the OVEC units and a description of what it is doing to ensure the costs from these plants are reasonable.[61]

> **Solutions:** Encourage the SCC to use its existing authority to commission a regular independent assessment of power purchased from companies affiliated with American Electric Power, APCo's parent company. Legislators should urge the SCC to order refunds if APCo's interaffiliate power purchases exceed market benchmarks, and prohibit APCo from recovering costs for purchases at above-market prices. Another solution is to impose a "No-Profits-to-Affiliates" rule, which would limit the profit margin APCo's affiliates can recover from Virginia customers on power sold to APCo.[62]

COST DRIVER 3: Customers may be paying for APCo to use its coal plants uneconomically. During APCo's 2024 rate case, former SCC staff member and expert witness Greg Abbott testified that APCo may be pressured to run its coal units uneconomically, because of a West Virginia Public Service Commission order requiring them to run at least 69% of the time.[63] In 2024, the West Virginia Commission disallowed APCo from recovering some of its fuel costs, likely in part because APCo had not complied with the 69% requirement.[64] Abbott argued that this situation may push APCo to run its coal units even when harmful to ratepayers. The SCC's Final Order required APCo to report on any uneconomic coal plant dispatch in its next rate case application, due May 2026.[65]

> **Solutions:** The SCC could prohibit APCo from charging customers for the costs of dispatching generating units uneconomically, as determined by the SCC. Lawmakers can also urge the SCC to issue ratepayer refunds of any charges paid to support uneconomic dispatch of generating units.

Problem 3: APCo has high capacity and transmission costs.

Background: PJM Interconnection is the largest regional transmission organization in the United States, managing the wholesale electricity markets and regional transmission projects for all or part of 13 states and Washington, D.C. PJM has two main markets, the energy market and the capacity market.

APCo participates in the PJM energy market, where it buys or sells electricity in day-ahead and real-time markets to meet customer demand. However, APCo does not participate in PJM's capacity market, which secures commitments from power suppliers to be available in advance to ensure resource availability. Instead, APCo uses the Fixed Resource Requirement (FRR) option, meaning it meets its capacity obligation with its own generation units, generation units owned by AEP affiliate companies, or bilateral contracts.

COST DRIVER 1: APCo's reliance on a Fixed Resource Requirement (FRR) increases costs for ratepayers. FRR costs for APCo are higher than PJM's capacity market prices, leading to higher costs for customers. Since 2021, APCo's FRR prices have fluctuated between about $450 and $500 per MW-day.[66] In the same period, PJM capacity prices fluctuated between $28.90 and $269.92 per MW-day.[67] Even after PJM's recent capacity auction saw prices spike to $329.17 per MW-day,[68] PJM still offers capacity prices that are lower than APCo's FRR.[69]

Solution: Request that the SCC conduct a cost-benefit analysis of APCo's strategy to meet capacity obligations and order the company to adopt the least-cost option.

COST DRIVER 2: APCo's residential customers may be unfairly burdened by high transmission costs. Energy transmission is the high-voltage, long-distance movement of energy from where it is generated to where it is needed. Transmission power lines are the biggest electrical wires, and move electricity into smaller distribution wires that connect to homes and businesses. APCo customers are paying high transmission costs; the average residential customer paid $38.58 a month in transmission charges in 2024.[70] This was an 18% increase over July 2021 costs and more than double what Dominion's average Virginia customer pays.[71]

There are several factors driving APCo's high transmission costs. First, APCo's number of customers per line mile is less than half of Dominion's.[72] Low customer density means there are fewer customers to share the costs of each mile of transmission and distribution line, which means each customer has to pay a higher portion of APCo's total line costs.

Second, many transmission charges are pooled across PJM and allocated to individual utilities based on their peak demand, rather than based on which utilities or customers are responsible for specific projects. Consumer advocates have argued that the cost allocation systems PJM uses for some projects may force customers to pay for data center infrastructure in other states that offers them few benefits.[73] Even though APCo currently serves few, if any, data centers, its customers may still face higher costs from data center transmission infrastructure elsewhere in the PJM region.

Another factor that raises transmission costs is the high profit utilities are allowed to earn on transmission expenses. APCo's transmission return on equity (ROE), set by the Federal Energy Regulatory Commission (FERC), is 11.4%.[74] This is significantly higher than the 9.75% profit it is allowed to earn on other investments and directly increases costs for customers.[75] Historically, the high risk and long delays involved in developing transmission infrastructure have been used to justify this higher ROE.[76] However, FERC has found that certain ROE methodologies unnecessarily inflate ROE results for transmission projects.[77]

Overspending on "supplemental" or local transmission projects might also be driving costs for APCo customers. Local transmission projects, planned and built by individual utilities, receive far less scrutiny than regional projects. This has led to a nationwide shift in spending away from large, cost-effective regional projects toward smaller, less cost-effective utility-driven upgrades that are rarely evaluated for efficiency or alternatives.[78] Spending on local "supplemental projects" recently rose from just 9% of PJM's total transmission spend (2005-2013) to 73% (2014-2021).[79] APCo has pursued and is currently pursuing several of these local transmission projects.[80] These project costs flow directly into customer bills under FERC's formula rate structure, often with little oversight by state regulators or consumer advocates.[81]

Finally, utilities like APCo are likely underusing tools to maximize existing transmission infrastructure for interconnecting new generation resources. SCC staff have petitioned Dominion, for example, to thoroughly analyze the potential of grid-enhancing technologies to connect more generation while controlling transmission costs.[82]

Solutions: Lawmakers should commission the SCC to conduct a thorough analysis of APCo's transmission cost drivers. This analysis should also evaluate a range of potential solutions to lower costs, including:

- Expanding SCC authority to thoroughly examine supplemental transmission projects and deny cost recovery if alternative, less expensive solutions were available but not evaluated by the utility.
- Surplus interconnection, which allows new generation sources to connect to transmission lines underused by existing power plants.[83] This maximizes existing grid capacity and decreases the need for new infrastructure.
- Grid-enhancing technologies, which boost the efficiency and capacity of existing transmission lines using tools like dynamic line ratings, power flow controls, and advanced sensors. These tools reduce transmission congestion and defer costly upgrades.
- Avenues to advocate for fairer transmission cost allocation policies in PJM and to request improvements in PJM's transmission planning processes.
- Increased competition and use of public funds for developing statewide and interstate transmission projects to lower the high ROE costs for customers.[84]

Problem 4: Broader trends are increasing APCo customers' energy costs.

In addition to the cost drivers outlined above, APCo customers are facing the impacts of trends that are increasing the cost of electricity across the country.

COST DRIVER 1: APCo customers are facing increasing costs from extreme weather. Extreme weather events in APCo's territory have intensified in recent years, resulting in higher damage costs for the utility.[85] These costs are passed on to APCo's customers. For example, in its 2023 rate case, the utility requested $37 million to cover storm recovery costs it had deferred,[86] and in a recent petition, it asked to securitize $141 million in storm recovery-related expenses.[87] Experts predict that extreme weather events will continue to become stronger and more frequent,[88] which will likely translate into even more costs for APCo customers.

> **Solutions**: Legislators could require the SCC, in coordination with utilities and state agencies, to develop a comprehensive resilience plan that addresses the electric grid impacts of increasing extreme weather events. The plan should focus on solutions that reduce these events' costs for utility customers and improve long-term grid reliability.
>
> The SCC can also advance efforts to tie APCo's authorized ROE to its reliability to encourage the utility to take actions that improve extreme weather resiliency.

COST DRIVER 2: Federal tariffs and tax credit uncertainty are likely to increase electricity prices. Recent federal actions are expected to increase costs for all ratepayers because of higher prices for materials, as well as project cancellations and delays.

New tariffs on materials like steel and imported equipment will make energy production and electric infrastructure construction and maintenance more expensive.[89] For example, Dominion has claimed that new federal tariff policies will raise the costs of its offshore wind project by $506 million.[90]

Additionally, the federal budget bill repealed tax credits for new energy projects.[91] This change makes it more difficult to develop solar and onshore wind, which are currently the most affordable and rapidly deployable sources of new electricity (ranging from $37 to $86 per MWh). When paired with battery storage, these resources increase dispatchability and remain cost-competitive (ranging from $44 to $131 per MWh).[92] In contrast, energy from gas peaker plants is much more expensive (ranging from $149 to $251 per MWh), and faces longer lead times – the wait period for gas turbines can be up to seven years.[93] By increasing energy infrastructure costs, the federal budget bill undermines affordability nationwide.

Solutions: The impacts of federal tariffs and legislation can be mitigated by:

- Significantly expanding energy efficiency programs. By reducing overall energy demand through robust energy efficiency initiatives (e.g., weatherization programs, appliance rebates), the state can lessen the potential need for new infrastructure and indirectly mitigate the affordability impacts of tariffs and federal legislation. This is in addition to other benefits of energy efficiency, like directly lowered energy bills and improved housing conditions.
- Considering targeted state subsidies for rapidly deployable energy sources to help overcome permitting delays, unlock private investment, and reduce long-term costs.

COST DRIVER 3: Explosive data center demand and supply constraints are pushing up costs for all utilities in the PJM region. The PJM region is experiencing a surge in electricity demand, primarily due to data center growth.[94] At the same time, supply is constrained by significant delays of five years or more in the PJM interconnection process,[95] and lower PJM reliability ratings for all resources.[96] As a result, PJM capacity auction prices jumped more than nine times last year and increased another 22% this year, even though these prices are still lower than APCo's FRR costs.[97]

Even though APCo is not part of the PJM capacity market, this situation ultimately increases energy costs for all utilities in the region. Experts project that without reforms, residential rates in PJM could rise almost 60% by 2040.[98] However, reforms to ensure faster interconnection of new energy projects could potentially reduce residential bills by 7% by 2040.[99]

In addition, smaller-scale resources like rooftop solar and battery storage that interconnect to utilities' distribution grids also experience long delays in coming online.

Solutions: Legislators could address state-level barriers to energy projects coming online by requesting that IOUs accelerate interconnection timelines for customer-owned projects and by implementing solutions to interconnection challenges at the local government level.

Although state legislators cannot govern PJM, they can push the organization to better address its interconnection challenges by:

- Communicating with its leadership. For example, New Jersey's congressional delegation recently wrote a letter urging PJM to address rising bills.[100]
- Requiring Virginia's IOUs – which are voting members of PJM – to disclose their votes on PJM actions and decisions. PJM's governance system allows members like APCo to vote in secret. This means utilities can vote in ways that may harm customers without accountability.[101] This year, Maryland passed a bill nearly unanimously that will require its utilities to publicly report their PJM votes.[102] Similar legislation has been proposed in West Virginia, Pennsylvania, Illinois, and Virginia.[103]

COST DRIVER 4: A changing customer base may increase costs; new data center energy sales could help, but will harm customers if not managed prudently. Declining energy sales from customers leaving APCo territory, increasing their efficiency, or generating their own electricity has the potential to increase costs for remaining customers. APCo has not presented a financial assessment of these effects, so their extent is unclear. New demand from data centers, electric vehicles, and other industries could offset customer losses. However, new load – particularly large data center load – could raise rates if it requires expensive infrastructure with costs shared across customers, as is currently happening in Dominion territory.[104]

As of mid-2024, APCo did not have any data center customers,[105] but the utility has almost 8,000 megawatts of prospective data center demand.[106] If all this prospective demand came to fruition, it would more than double the company's total demand,[107] and would likely require APCo to build large amounts of new infrastructure or increase purchases in the strained PJM market. Under the company's current cost allocation methodology and its existing incentives to overbuild infrastructure, residential customers are at risk of bearing an outsized level of new costs.

Solutions: Legislators should pave the way now for responsible data center development in APCo territory. State oversight can help pace data center development to protect residents and businesses from an unmanageable rate of growth. Legislators can also direct the SCC to evaluate APCo's current cost allocation methodologies to ensure that data centers pay their fair share for electric service, and require data centers to pay directly for any grid upgrades needed to serve them.

Additionally, lawmakers could commission an analysis of customer attrition in APCo territory and of possible solutions that would benefit affordability without harming customer self-generation and investments in energy efficiency.

Part 4:

Additional Solutions for Short-Term Customer Relief

Many of the solutions identified above, if implemented, would decrease bills over the medium and long term. Decision-makers should also consider actions to provide short-term relief to APCo customers.

SOLUTION 1: Strengthen utility payment plans and shut-off protections. A utility payment plan is an agreement between a customer and their utility company to pay an outstanding bill over an extended period. This arrangement helps customers avoid service disconnection. Offering payment plans for utility bills is a win-win for utilities and ratepayers. When some people cannot pay their bills, those costs are spread out across all other customers. With better payment plans, the utility receives more revenue and avoids raising rates to recover debt. Payment plans and disconnection protections could be improved by:

- Offering long-term payment plans of up to 24 months. Currently, the utility only offers payment plans of up to 12 months.[108]
- Offering alternatives when customers default on their payment plan and allowing renegotiation if circumstances change. Currently, a customer's payment plan is canceled after the first default.
- Capping or eliminating reconnection fees and deposit requirements to restore service. Currently, when customers seek reconnection, they have to pay late fees, reconnection fees, and a deposit that can be up to the full arrearage amount.
- Implementing incentives for customers to get back on track with a "Fresh Start" program for customers who have fallen behind on their bills, allowing them to erase their past-owed amounts after 12 months of full, on-time payments.[109]
- Requiring shareholders to contribute dedicated funding to low-income energy efficiency and bill assistance programs.[110]

SOLUTION 2: Bolster low-income energy assistance programs. Virginia currently has three main low-income utility assistance programs, in addition to a smaller program run by APCo:

- LIHEAP: The Low-Income Home Energy Assistance Program is a federally funded program that helps customers with energy bills, weatherization, and repairs.[111]
- WAP: The Weatherization Assistance Program helps install energy-saving measures, reducing customers' energy costs by an average of $372+ per year.[112]
- PIPP: The Percentage of Income Payment Program caps monthly electric payments at a percentage of income.[113]
- APCo's Neighbor-to-Neighbor program allows customers to donate to help other customers.[114]

LIHEAP, WAP, and PIPP all have strict income limits, excluding many vulnerable ratepayers.[115] Furthermore, the future of LIHEAP is uncertain.[116] The Trump administration laid off all personnel administering the program and its continuation after 2025 is in doubt, potentially leaving families that rely on it without federal support.[117] Legislators can protect families losing these benefits and provide protections to more customers by:

- Establishing a state fund to secure and expand LIHEAP and WAP programs, targeted to the zip codes with the highest energy burdens, which are mostly in southwestern Virginia.
- Creating a data center tax, with the funds supporting low-income customers who bear the greatest burden from high energy costs driven by the industry.

SOLUTION 3: Encourage APCo to institute options for on-bill financing. On-bill financing allows utility customers to make energy efficiency upgrades — like new insulation or HVAC systems — without upfront costs. Customers repay the upgrade costs through a charge on their monthly electric bill that is equal to or less than their expected energy savings, so their monthly bill does not increase. This model makes energy-saving investments more accessible. Once the upgrade is paid off, customers will see lower bills thanks to the ongoing energy savings from their investments. This practice leads to a long-term reduction in monthly utility costs.[118]

Conclusion

Since 2007, residential electric rates for APCo customers have surged by more than 140% — placing a severe and growing burden on families in southwest Virginia. This increase was not inevitable. It is a result of policy and regulatory choices: a system that shifts financial risk from shareholders to customers, an overreliance on volatile and costly fossil fuels, and rising transmission expenses.

This paper identifies the key cost drivers behind APCo's escalating rates and offers targeted solutions. To ensure affordability for Virginia ratepayers, decision-makers must act now.

Policymakers, regulators, and the executive branch have the tools to take immediate and long-term action.

- In the short term, the Commonwealth should mitigate the cost impacts of federal policy shifts and strengthen protections for lower-income households already struggling to keep up.
- In the long term, bold regulatory reform, enhanced transparency, and smarter, more cost-effective investments are essential to reversing this trend and building a fairer energy future while maintaining reliability and limiting customer risk.

Without decisive intervention, prices are likely to continue rising — deepening energy insecurity and economic hardship for hundreds of thousands of Virginians. It is within the power of the General Assembly, the governor, and the SCC to restore balance, lower costs, and ensure utility decisions prioritize affordability, reliability, and the well-being of Virginia's families — not just utility profits.

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Clean Virginia is a nonpartisan advocacy nonprofit with an affiliated political action committee, the Clean Virginia Fund. Clean Virginia works to end utility monopoly corruption in politics to promote clean, affordable energy and a government that works for all Virginians.

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