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Re: Case Comments for PUR-2020-00035
Dominion Energy Virginia's Integrated Resource Plan filing for 2020

Thomas Hadwin's Comments on Dominion's 2020 IRP
Case Number PUR-2020-00035

Overview

Energy planning and regulation must evolve in Virginia.

The 15-year development plan offered by Dominion maintains system planning and grid design concepts well suited to the conditions that existed in the mid-20th century, not what will be encountered during the next 30 years of the 21st century.

For one hundred years, what was good for the utilities was good for their customers.

Times have changed.

The 2020 Integrated Resource Plan presented by Dominion would make an excellent presentation for financial analysts and investors. But it paints a gloomy picture for its customers. Electricity prices will continue to rise for decades if Dominion's plans are implemented. Choices will remain limited and development of Virginia's energy system will stay almost entirely in the hands of a single company.

Utility ownership and control of renewable and storage technologies will greatly increase their cost and limit the ways they can be put to use. Allowing non-utility organizations to participate in developing our energy system will greatly lower the costs and boost Virginia's prosperity.

Old habits have benefited the financial health of the utility and its owners, but at the expense of its customers. Electricity rates in Virginia are in the middle of the pack. Even though we are in a favorable climate zone that should contribute to moderate prices, our residential electricity bills are the tenth highest in the nation.

Failure to recognize the changes that are occurring in our energy landscape is immediately harmful to Dominion's customers because they are obligated to pay in full for any new projects, even if they are unnecessary, or ill-conceived.

Developing this 15-year plan could also challenge our state's largest utility. Driving customers away with high prices might hobble Virginia's most important electricity provider.

Our energy planning must begin with what is best for the people, commercial enterprises, governments, and industries of Virginia, while considering the effects on our environment and state economy.

Energy is essential to our society and personal well-being. It is no longer appropriate to base our energy plans for the next 25 years solely on a document produced by a single organization that is designed to create more generation, transmission and distribution facilities to increase shareholder returns. There are a variety of ways to have a clean, reliable supply of energy in Virginia that supports the health and prosperity of our citizens. Many of those options are much cheaper than what is proposed here.

Our approach to energy issues must be revised to accomplish what is best for Virginia. Then we can ask Dominion to accomplish their share of the work and pay them fairly for it. The tail should no longer wag the dog.

Virginia's energy providers will always have an essential role to play; but not alone. The State Corporation Commission, our legislators, the governor, various state agencies, and stakeholders throughout the state should collaborate to move us forward in ways that serve us all. The energy future of Virginia is too important to be settled by a small group of people behind closed doors.

Our utilities must return to their roots as "public service companies." They were entrusted with monopoly power to be more than cash collectors for their unregulated parent companies. It starts with a plan – a good one.

Historical Perspective

For the first 100 years of utility operations, U.S. utility plans and regulatory schemes were closely aligned with economic development and improving the quality of life through electrification.

Initially, each time a new, more sophisticated generating station went in service, the price of electricity went down. Incentives were developed to encourage more electricity use to make it even cheaper. Electricity demand in the middle of the 20th century grew faster than our population and our economy.

Cheap energy built the industrial might of America.

This was turned on its head by the oil shocks of the 1970s and 1980s. The first OPEC embargo quadrupled energy prices within a few months. During this time, utilities were developing massive, extremely complex nuclear facilities that were supposed to generate electricity that was "too cheap to meter." Instead, these projects came in years behind schedule and far over budget.

As a result, for the first time new utility projects of all types resulted in a higher price for electricity. From then on, the more we used, the more expensive each unit of electricity became. The more the utilities built, the more we had to pay for our electricity.

It was a fundamental change in the business model for utilities. This crucial shift is still not widely recognized by energy executives or policymakers, even though it has been true for the past 40 years.

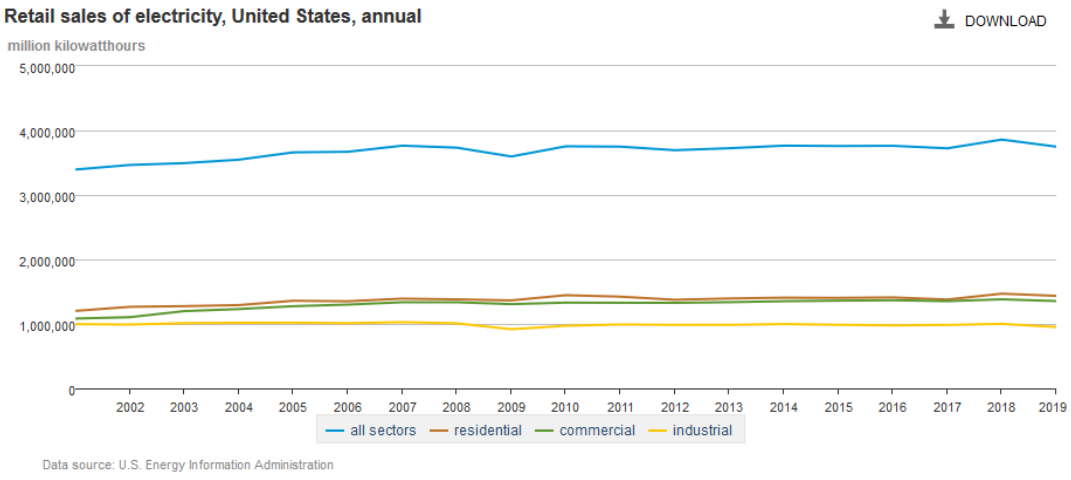
Customers began to notice that they were paying more. They wanted to keep their bills under control by using less energy. Manufacturers met their demand for more efficient appliances, air conditioners, heating units and water heaters. This slowed the growth in electricity demand.

Then the utilities noticed. Shareholders reminded them that they still wanted a steady increase in dividends. This was harder to achieve with slower growth. Unregulated holding companies were created to put several utilities under one parent company in an attempt to reduce costs, increase profits and satisfy shareholders.

Deeply imbedded in Virginia laws and regulations are incentives for investor-owned utilities to build more to earn more. This assured that utilities would expand to meet customer demand, while keeping investors happy.

Twenty years into the 21st century, in Virginia, we are still managing our energy system as if the conditions were the same as they were decades ago.

Electricity use in the U.S. has been flat since the turn of the century, despite increased population and a growing economy.



In most developed nations, using more energy is no longer a sign of progress. The most advanced countries will be those who learn to produce more goods and services using less energy, not more. The most competitive state economies will be those that do the same.

Virginia is stuck in the Past

Virginia is fortunate to be located in a mild climate that is neither extremely hot nor extremely cold. Our summer and winter peak usage of electricity is very similar. Power plants can run more hours per year, instead of being used for a peak season and sitting idle for much of the year. This spreads out the investment over more hours of operation and lowers rates.

Virginians have been told we are lucky to have lower than average rates. But, as a state, our residential rates are in the middle of the pack (27th highest out of 50). [1] Dominion says its rates are lower than average. They are slightly, but they are comparing their rates with the averages for other states. This is not a fair comparison. Rates for other investor-owned utilities are typically lower than their state's average rate too. Investor-owned utilities were formed in the early days of electrification and they picked the most densely populated, cheapest to serve areas and left the more sparsely populated, more expensive to serve rural areas for co-ops and small municipal utilities to serve. The U.S average rate is 13.26 cents per kilowatt-hour (kWh). The average is skewed because five states have rates higher than 20 cents per kWh, including Hawaii at 28.87 cents per kWh.[2]

Dominion's rates to pay for residential electricity, including fuel charges and distribution and transmission fees are about 12 cents per kWh, a bit lower than Virginia's average electricity rate of 12.28 cents per kWh. Virginia's commercial rates are the third cheapest in the nation at 7.62 cents per kWh. [3] It is harder to compare commercial rates between states because items such as demand charges and other fees are not charged in the same way from state to state.

The point is – it is not all about rates. Many Virginians use electricity (for heat pumps) to provide space heating. Residents of colder states use mostly gas and heating oil for space heating. That means Virginians use more electricity than people in other states, leading to Virginia having the tenth highest electric utility bills in the nation.[4]

This is important for our citizens. Energy costs require between 5 and 22 percent of families' total after-tax income, with the poorest Americans paying at the high end of that range.[5]

[1] Rates by State for July 2020, https://www.chooseenergy.com/electricity-rates-by-state/
[2] Id.
[3] Id
[4] Most & Least Energy-Expensive States, Adam McCann, WalletHub, July 14, 20020, https://wallethub.com/edu/energy-costs-by-state/4833/
[5] Id.

Five of the states with some of the nation's highest electricity rates have the lowest energy consumption, resulting in much lower bills. They have created effective programs that encourage energy efficiency, better building codes to reduce wasted energy, and programs to support lower-cost customer self generation that saves on energy costs. These states take a comprehensive approach to energy issues to benefit their citizens and state economies.

In Virginia, we have left it all up to our main utility. Various laws passed in Virginia since 2007 have served to set the stage for decades of increased electricity costs for Dominion customers. Many other states deregulated their utilities, by requiring their generating units to compete in energy markets instead of receiving guaranteed profits. Virginia reversed our plan to do that. Our legislators favored utility shareholders by postponing regular rate reviews, avoiding the return of money Dominion overcharged customers, curtailing regulatory oversight, and awarding Dominion ownership and control over most of the future development of renewables in the state.

Effective public relations campaigns spun the legislation in a way that misled customers into thinking that their rates would be "frozen" while each new project was awarded a guaranteed rate of return through a Rate Adjustment Clause (RAC) that required ever higher costs added to customers' bills in ways that were not obvious to them. According to Commission staff, 66.3% of a typical residential bill will be in unspecified RACs and fuel charges, by 2030. Customers have little awareness of what is going on behind the scenes with utility regulation.

Not all energy issues in Virginia are under the State Corporation Commission's purview. But no other agency has a complete view either. Bits and pieces are handled by various other organizations. The only energy plan against which Dominion's proposals are evaluated is the one developed by them. It should not be a surprise that they will promote their self-interest.

Virginia needs a plan and regulations that guide our main energy providers about how to best serve us. Without new guidance that is tuned to current conditions, Dominion will make maximum use of existing rules to serve their shareholders.

Other States are Changing

Other states have adapted their utility regulations to meet changing conditions. To maintain reasonable rates for customers, seventeen states and the District of Columbia are no longer incentivizing utilities to build new generation and other projects.

In deregulated states, profits for new generating facilities are no longer guaranteed by customers. The projects must pay for themselves with revenues earned in a competitive energy market. Only projects that have value to customers are developed. Innovative independent power producers and energy service companies can often create these projects less expensively than the utilities.

Utilities can then return to their role as public service companies. Monopoly power returns to its original role of applying only to the "wires" to avoid unnecessary duplication.

Utilities have a crucial role in our energy system, but not the only role. Expansion plans should be driven by what is best for customers. Shareholders should benefit more when customers are better served, as with other types of businesses.

Most importantly, under modern regulatory schemes used elsewhere, the utilities prosper without having to build projects that cause customers to pay more. They can earn more based on the quality of their performance. They have no reason to obstruct others from providing energy or services to their customers. Their profits are not tied to how much they build or how much electricity they sell. Shareholder interests are aligned with customer interests once again.

It is a bit more complicated to integrate numerous participants compared to letting one company do it all. However, with the correct regulatory strategy and proper price signals, the oversight of the North American Electric Reliability Council, Integrated System Operators like PJM, and state utility regulators, clean energy and reliable service can be provided at a much lower cost than with the scheme proposed by Dominion.

Without such a shift in our thinking, Virginia will head in the wrong direction. All of the states in our region (WV, NC, MD, KY, and TN) have lower rates compared to Virginia. Maryland had higher rates than Virginia a few years ago. Since then, they have deregulated their utilities and rates have declined each year as Virginia's rates climbed ever upward. Virginia's residential customers pay monthly electric bills that are 50 percent higher than what residents in DC pay.[6]

We do not need utilities to build solar, wind, or storage projects. Dominion provides no added benefits over independent providers. The utility only adds costs by putting projects in the ratebase. Dominion Energy's other subsidiaries can build these projects on an equal footing with independent providers, without the customer subsidy of guaranteed profits that comes from putting a project in the ratebase. Dominion Energy's companies do this in other states. Why not in Virginia?

We need Dominion to build a network that supports the two-way flow of energy and information. The utility can earn more by providing a platform to connect their customers with a variety of products and services and get paid for clearing the transactions.

Structural Disadvantages in Virginia

Modernizing utility regulations in other states is usually led by the executive and legislative branches. In Virginia, a one-term governor, a part-time legislature, and no limits on campaign contributions surrender control over energy policy to a few large private corporations.

Dominion regularly reminds investors and financial analysts that it is fortunate to be headquartered in a state where they have an outsized influence over energy policy.

[6] Most & Least Energy-Expensive States, Adam McCann, WalletHub, July 14, 20020, https://wallethub.com/edu/energy-costs-by-state/4833/

At the beginning of the 21st century, Dominion Energy, the unregulated parent company, received about 40 percent of its revenues from regulated or "regulated-like" activities. Over the past two decades, a long-term strategy resulted in nearly 95 percent of Dominion's revenues currently coming from regulated or "regulated-like" enterprises.

Having great influence over Virginia energy policies yielded Dominion more profits than participating in competitive energy markets or opening up access to customer-sited solar installations, or third-party participation in power purchase agreements or other types of energy services.

Shareholders did well, but at the expense of ratepayers. Laws were passed that limited the State Corporation Commission's exercise of its mandated role of balancing shareholder returns with fair rates for customers.

The 2020 IRP is an extension of the unbalanced priorities that favor shareholders over customers. This is unnecessary and potentially hazardous for the utility, as well. No company can prosper in the long run if it sets the interests of its owners against the interests of its customers. Sooner or later a day of reckoning will come.

Virginia's skewed energy policies lead to the development of faulty energy plans, as demonstrated by the 2020 IRP.

Skewed Regulatory Policies – Faulty Energy Planning

Long-term energy planning for Virginia is led by one company. Dominion, along with Old Dominion Electric Cooperative (ODEC), is the primary energy supplier to their own customers and other utilities around the state.

Restrictive supply agreements and obstructive laws limit the choices co-ops and utilities have about how best to serve their customers.

The long-term trend of higher electricity prices baked into recent state energy legislation gives customers greater reason each year to do less business with Dominion. The utility is currently incentivized to build more to earn more, even if its customers must pay more as a result.

In the analysis of the residential bill increases presented in the IRP, Dominion assumed residential sales in 2030 would be 49.12 % rather than 55.85 % of the total, which is the average of the residential sales component over the past 10 years.[7]

This underestimates the costs residential customers will have to pay if Dominion implements the proposed projects. Assuming that the average monthly residential usage is 1000 kWh also underestimates the cost impact of these plans on residents. The actual average monthly usage for Dominion residential customers is 10%-15% higher. Using unsupported assumptions rather than

[7] Pre-filed Testimony of Staff Witness Carol B. Myers Volume I (2 of 7)

actual values reduces the estimated impacts of these massively expensive proposals on residential customers. Customers should be accurately informed about the effects Dominion's proposals could have on their monthly electric bills.

A variation of the Company's recommended plan (B_{19}), based on historical values for solar capacity factors, requires additions to the ratebase of $72 billion. The present ratebase for Dominion's Virginia jurisdiction is $19.2 billion. This plan requires a 375% increase over the current ratebase. More than $166 billion would have to be repaid by Dominion customers for the projects proposed in this plan, regardless of how much they were used or whether they remain in service for their full financial life.[8]

In the face of these substantial energy cost increases, Dominion's plan expects that commercial and industrial customers will increase their usage by more than 15 percent.

That seems very unlikely.

National and multi-national corporations faced with rising costs of doing business will seek other options. Usage by all customer categories, except data centers, is declining each year in Dominion's Virginia service territory. Price conscious, well-funded businesses will invest in their own energy efficiency and self-generation projects, as well as storage solutions to reduce demand charges. None of these responses are anticipated in this planning document. Dominion assumes no energy efficiency reductions will occur beyond what they provide. Their plans forecast that customers will behave exactly as they have in the past despite rising costs.

It is more likely that customers, who are able, will reduce their need for Dominion-supplied electricity by using less, generating some of their own, and using storage and other means to reduce demand charges. This will reduce the forecasted peak loads and total energy sales. By executing this plan, Dominion will have sown the seeds of their own downfall. Those that cannot afford these options will have to shoulder a larger portion of Dominion's expenses.

Given our current regulatory scheme, the 2020 IRP anticipates that Dominion can raise prices with no consequences, even without providing any customer benefits in return. This is a flimsy premise for a multi-billion dollar plan.

The logical result of the proposed expansion plans is that Virginia's business climate, its economic competitiveness, and new job creation will be stifled in order to serve the financial goals of a single organization. There is a better way to meet our future energy needs.

Outdated Concepts Reduce Reliability and Increase Costs

Dominion's long-term plan continues 20th-century concepts well into the 21st century. In the last century, we needed utilities to develop coal and nuclear plants. Independent companies are now

[8] Based on Staff estimates for revenue requirements for ratebase additions.

the best equipped to develop the solar and wind facilities authorized by the VCEA. If Dominion owns the renewable facilities, they will use the same developers to build them; then add their costs and profits on top. Customers receive no added advantages, but pay a much higher cost.

A hybrid solution would be better. The utilities could use their ability to raise lower-cost capital to help reduce the cost of financing renewable projects. As partners in a joint venture, Dominion could receive more than its cost of capital, while charging less than what the developer normally pays. The utility could also receive the tax credits or depreciation offsets to reduce expenses and boost profits. The project could sell the output at a fixed price to the utility or direct to customers, depending on the regulatory regime. This would greatly reduce the price to customers compared to having to pay for the same project added to the ratebase.

Dominion has been threatened by concepts like this because they see them as reducing their maximum earning potential. In response, they have sponsored obstructive laws, placed low caps on net metering, and disallowed power purchase agreements with independent power producers. Revising our regulatory scheme would remove the threat posed to their current business model.

One of the greatest flaws in the Dominion plan is that solar is treated like an ordinary central station generating facility. There are some reasons for this. Certain savings exist by developing one large site compared to several smaller ones. And Dominion gets paid more for building the necessary transmission and substation facilities needed to add large solar projects at the transmission level.

However, this avoids one of the greatest advantages of solar. As a resource deployed at customer sites throughout the distribution system, solar generation reduces distribution and transmission system congestion, greatly reducing the need for new transmission and distribution lines, substations and other facilities. Smart inverters, synchrophasors, and local storage dispersed within the distribution system can provide frequency and voltage control that will improve reliability and lower costs.

Not only does this avoid disrupting undisturbed sites, it saves a lot of money. Consolidated Edison, in New York City, has encouraged its customers to add solar, energy efficiency, demand response, and local storage to avoid the need to build a billion dollar substation. New York is a deregulated state, so Con Ed considers using distributed energy resources as a way to better serve its customers and reduce their costs. In Virginia, Dominion would view the chance to build a billion dollar project as a boon to its shareholders, despite the higher costs to its customers.

Dominion has a great profit opportunity in building a modern grid in Virginia. Since the Grid Transformation and Security Act (GTSA) was passed in 2018, little transformation of Virginia's grid has occurred.

Given our current regulations, Dominion is probably reluctant to invest in making our grid capable of hosting the types of distributed resources it currently sees as a threat to building utility-scale renewable projects.

Unfortunately, adding solar at the transmission level increases dependence on the transmission system and makes the state-wide grid more vulnerable to failure. Several times in the past, small local disruptions, such as a transmission line sagging on a hot day touching a tree limb in Ohio, caused blackouts in multiple states.

In Plans C and D, Dominion's reliability response to adding more variable renewable generation is to add imported energy through a few congested transmission corridors. This makes our system more vulnerable, not less; and greatly increases costs.

We are fortunate to have the skills and financial resources of Dominion Energy Virginia. Imagine if we unleashed their potential and asked them to create a networked system of nested microgrids, on their own and with private partners. Our crucial enterprises such as first responders, key government facilities, hospitals, grocery stores and gas stations, important commercial facilities, and neighborhood shelters such as schools and churches could maintain essential operations and give access to basic needs such as food and fuel. Local generation and storage could provide a level of power within the microgrid, even when the larger grid is down. Dispersed operating portions of the grid would make it easier to restart the larger grid. This would result in a much more resilient and reliable energy system in Virginia and serve our people better at a lower cost.

Much of this could be accomplished with private investment at no upfront cost to customers. Savings would be immediate and would more than repay the costs of the projects. The higher costs associated with the customer subsidies needed with putting assets in the ratebase would be unnecessary.

Environmental Considerations

Since electricity was first generated, its benefits came at a cost to human health and environmental degradation. As demand for more electricity waned at the beginning of the 21st century, greater awareness arose about the adverse effects associated with our energy system.

It was easy to pick on coal. We saw the plumes of smoke billowing from tall smokestacks. We experienced the smog and acid rain. Mountaintops were removed to mine the coal; streams were polluted; piles of mine tailings were heaped up and abandoned; ash disposal areas overflowed into waterways. Miners suffered from black lung disease. Over time, sulfur and particulates were removed at the power plants. New regulations reduced the emissions of mercury and other toxic substances, raising costs.

Dominion and others saw advantages to switching fuels. Because of the high price of natural gas in 2008-2010, hydraulic fracturing of deep underground shale fields became economic for the first time. Wall Street pulled its money out of the failing mortgage securities market and invested in this new method of oil and gas production when prices were at an all-time high.

Together, financiers and the energy industry promoted gas as the new "bridge fuel" to a clean energy future. The CO_2 released from gas plants was half of that released from similarly sized coal plants. This lessened the concerns many had about climate effects resulting from human activities, especially from energy production and use.

Unfortunately, Dominion and the rest of the energy industry did not complete its due diligence. Firing generators with gas does reduce some of the problems associated with coal. However, producing gas using hydraulic fracturing has contaminated over one trillion gallons of fresh water. Climate risks have not been reduced by the shift to gas, according to peer-reviewed research. [9] Methane leaks in the production zones, in storage locations, and along the pipeline transportation network offset the savings in CO_2 releases that gas-fired plants offer. Twenty years after its release, methane is 86 times more potent as a greenhouse gas compared to CO_2. Methane leaks have been measured and are greater than previously estimated. They are not large and many can be remedied, but a little methane goes a long way in contributing to climate effects.

The U.S. is suffering billions in losses each year due to more frequent droughts, extreme hot- and cold-weather events, more frequent and more severe storms, widespread forest fires, floods, sea level rise and higher storm surges, and other effects contributed to by the use of fossil fuels.

Dominion benefited greatly from the shift to gas. Many of the coal plants were nearing retirement. Some were re-fired with gas and large, new gas-fired generators were built that are designed to last 40 years or more. The company will be paid for the plants that will be retired early. The switch to gas replaced them with decades of added revenues and profits. Customers must absorb the higher costs and the effects of continued fossil fuel use.

The various plans presented in the 2020 IRP show little regard for Virginia's environmental laws.

In 2020, Virginia joined the Regional Greenhouse Gas Initiative (RGGI). Despite its name, the consortium concerns itself only with limiting CO_2 emissions. The cap for carbon emissions in Virginia in 2030 is established at 19.6 million tons. According to the IRP, Dominion expects to release about 17 million tons of carbon from its facilities that year. The total cap is supposed to

[9] Committed Emissions of the U.S. Power Sector, 2000-2018, Christine Shearer, et. al., Advanced Earth and Space Science, AGU Advances Research Article, October 2020
New Study Casts Doubt On The Climate Benefits Of Natural Gas Power Plants, Alexander C. Kaufman, October 9, 2020, Huffington Post, https://www.huffpost.com/entry/gas-bridge-fuel_n_5f7f74f0c5b664e5babb0ea8?guccounter=1

be allocated among 33 different generating units, including those owned by Dominion. The Company's fossil-fired units could continue to operate as planned only if additional credits are purchased from other participants that would allow emissions above the cap.

Apparently, Dominion is undeterred by Virginia's legal mandate to reduce carbon emissions. The Company must expect to pass-through the costs of extra credits to its customers. In several of the plans presented, Dominion intends to operate 9,700 MW of fossil-fired generators beyond 2045 when the Virginia Clean Economy Act (VCEA) says they must be retired.

Two new gas-fired peaking facilities are in every plan, adding 970 MW of capacity. These units are said to be necessary to manage peak loads and variations in output from renewables. The units are scheduled to be added in 2023 and 2024 at an unspecified location.

Building new peaking units makes no sense.

Dominion has failed to take into account the decrease in electricity use due to the economic setbacks related to the pandemic. After the last recession, peak electricity use in Dominion's territory gradually declined over the past eight years (under normalized weather conditions). [10]

The scheduled operation of these units is long before any significant penetration of renewables occurs in Virginia. If peak demand is the same when the units begin operation, or lower, than what existed in 2019, then there is no need for peaking capacity beyond what already exists in the system.

If, at some time, additional peaking capacity is required, it can best be provided by storage resources. The cost of batteries is already competitive, and they are continuing to drop in price. They provide faster response and other services that fossil-fired peaking units do not.

Dominion projects that gas prices will rise well above present levels, which would make the gas-fired peakers even less competitive. Dominion might see higher fuel prices as a cost to be borne by its customers. The nearly $2 billion in lifetime revenues from adding the new gas turbines to the ratebase would be seen as a bonus to its shareholders.[11]

It is difficult to see how the Commission could justify such an investment, however. According to the VCEA, these units would have to be retired about halfway through their normal operating life. It would be improper to ask ratepayers to pay in full for an already expensive solution for one-half of a useful service life. Approving these peaking units would create a burden for customers.

The Virginia Clean Economy Act was proposed by several organizations to speed up the sluggish pace of adding renewable clean energy sources in Virginia rather than extending our

[10] Testimony of Rachel Wilson on Behalf of the Sierra Club
[11] Pre-filed Testimony of Staff Witness Carol B. Myers Volume I (2 of 7)

dependence of fossil fuels. The purpose of the legislation was to reduce the climate effects of our future energy system.

Other states began this journey some time ago. Many created regulatory regimes where the clean energy attributes of renewables could also be enjoyed at a cost savings for customers compared to utility fossil-fired projects placed in the ratebase.

It seems that Dominion saw that a similar development in Virginia might threaten its ability to extract maximum profits using Virginia's existing laws and regulations. As a result, it appears they commandeered the legislative process.[12]

It is possible to have met the intent of the clean energy goals of the VCEA at a faster pace and at much lower cost without adding new generation to the ratebase. Other states have revised regulations so that renewable generation can be developed by independent providers or unregulated utility subsidiaries on an equal footing. Customers do not subsidize the utilities by guaranteeing profits that give them an unfair advantage over other businesses.

Under modern regulatory schemes used in other states, the best developers build the projects.

Rates remain stable without additions to the ratebase. Utilities can provide price signals that encourage solar developers to build in the locations most helpful to the grid. Areas are identified where distributed resources such as solar and storage can reduce distribution or transmission congestion and avoid expenditures for expensive line construction, new substations and other facilities.

This savings is counter-balanced by the investments required to make the grid capable of handling the two-way flow of energy and information required to make the system work in an even more reliable fashion.

The net benefit, or cost, is identified for various regions and this becomes an incentive, or cost, to those who want to add these resources to their home or business, or provide the output directly to the utility or a customer. Each customer chooses what is best for them and is responsible for the investment and receives the benefits. No other customer is required to pay more because of someone else's choice.

Several well-developed methods (especially the one developed by the Rocky Mountain Institute) exist to make these calculations.

[12] Power Play: Inside the Dominion lobbying blitz that's going to raise your electric bills, Patrick Wilson, October 9, 2020, Richmond Times Dispatch, https://richmond.com/news/state-and-regional/power-play-inside-the-dominion-lobbying-blitz-thats-going-to-raise-your-electric-bills/article_febc3bc7-37cd-5ff8-90d6-fd303849765d.html#tracking-source=home-top-story

With the right regulatory scheme and proper price signals, this self-organizing system of distributed installations is far better optimized than a chunky central-station design selected by utility planners to optimize shareholder value.

Some of Dominion's plans limited the addition of solar to 480 MW per year. Its model was forced to select ill-conceived, expensive projects such the new peaking units and the SW Virginia pumped storage project. The optimizing value of the PLEXOS model was underutilized.

No other state along the Atlantic Coast is allowing a utility to develop their offshore wind projects. The world-class offshore wind developers come from Europe with years of experience. They are partnering with highly-qualified U.S. companies to build competitively priced, reliable projects. Other states require the independent developers to be responsible for the risks (storm damage, cost overruns, etc.) and bid their output at a fixed price.

Dominion expects Phase I of its offshore wind project in the federal waters off Virginia will cost $8 billion. They will hire a qualified developer to construct the project.

In other states, the developer would use this cost as a basis to develop a price for its electricity. Let's say it is in the range of 4-5 cents per kWh. The energy could be sold to the utilities or direct to customers, depending on the regulations in the state.

If it happened this way in Virginia, Dominion would treat the $.05 /kWh like a fuel cost. They would make no added profit from it and it would become a cost of business when calculating rates.

There is a great difference in what Dominion was able to accomplish with its involvement in writing changes to the VCEA. Now, Dominion will build the first phase of the offshore wind project for $8 billion. Placing this amount in the ratebase will require Dominion customers to repay the Company a stream of payments that have a net present value of $18.56 billion, which includes billions in profit. This will be guaranteed income to the company from its own separate Rate Adjustment Clause. This is such an attractive project for the Company they want to repeat it by adding another 2,640 MW of offshore wind in Phase II.

Dominion will sell the energy from that facility at the rates established for its various customer classes. The rates in 2026 and 2027, when the facility goes into service, will be set based on what revenues are required for the Company to pay its expenses, plus an authorized rate of return (profit). The Commission Staff has estimated that residential bills in 2030, based on the plan recommended by Dominion, will be $771.24 to $807.84 higher per year than they are today.[13]

This is an expensive way to add renewable energy to Virginia. States with up-to-date regulations are finding that distributed renewable solutions can save customers money. Presently, our choices are constrained in Virginia.

[13] Pre-filed Testimony of Staff Witness Carol B. Myers Volume I (2 of 7)

Choosing clean energy solutions is not the cause of higher future energy costs. It is because we favor utility shareholders over our citizens and businesses in Virginia that creates higher energy prices. It is time to return to a balance between returns to shareholders and fair customer prices.

There is a way to pay our utilities a fair return and give them a system in which they can prosper. And we can increase the flexibility and reliability of our service to customers in ways that save them money. We just need to update the way we do things in Virginia.

The State Corporation Commission cannot do this on its own. We need a collaborate effort aimed at creating a better outcome for all.

Dominion Depends on Growth

Promoting widespread electrification improved peoples' lives and built a strong industrial America in the 20th century.

Our nationwide telecommunication network was once mostly under the control of a single company – Bell Telephone. Choices were few. Long-distance calls cost a lot and for many years required calling an operator. But the monopoly did avoid the duplication of wires.

Our economy changed as a result of last century's progress. Most of our basic industries have moved offshore seeking lower-cost labor. We are now primarily a service economy where productivity is paramount.

The utility regulations that served us last century are now sending the wrong signals.

In the 1960s, computers occupied entire buildings. Now, much more powerful devices fit in our pocket and cost a tiny fraction of the price.

The telephone monopoly was deregulated and together with the computer industry gave us the internet, cell phones, portable computers, wireless devices, and today's crucial service – zoom calls.

Higher productivity results in greater prosperity. In the energy business, higher productivity means producing more goods and services using less energy. This is Virginia's pathway to greater economic competitiveness.

Traveling this path invites innovative companies to do businesses here. Research and development firms want to be part of the action. High-tech manufacturers will be drawn here if we have the infrastructure and educated workforce to support them.

Saving energy provides long-term careers in the building trades and other areas compared to our traditional energy projects that provide just a few months of work for those who already have a job. Solar installers and wind turbine technicians are two of the fastest growing job categories in the nation. Millions are employed making new and retrofitted buildings more efficient. These

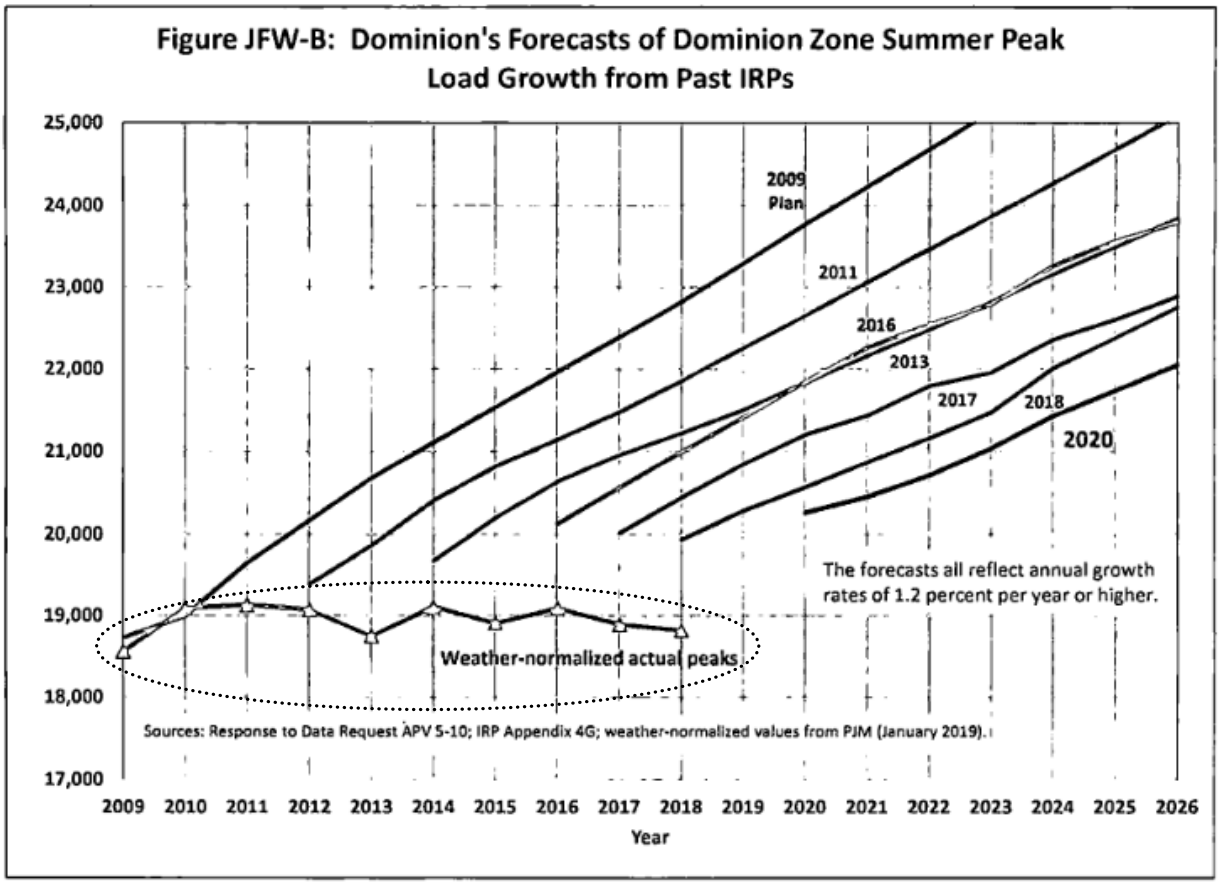
activities not only create more jobs but save us money. Virginia can be a leader in this region if we make it a priority.

Instead, we have elected to maintain a regulatory structure that pays more to our main utility only when it builds something new. Building more costs us more and is contrary to the move towards higher energy productivity.

Having a single company determine our energy system creates something like the grocery stores in the old Soviet Union – high prices and not many choices. Dominion deserves the chance to show its full capabilities. The people and businesses in Virginia deserve lower prices and more energy options.

Without new regulations attuned to the current conditions, Dominion must make the most of the regulations designed for the 20th century. And they have done that. The 2020 long-term plan proposes a massive building spree of new facilities of all types.

To justify building more, Dominion must show that more is needed. The plan always starts with a forecast of future demand that shows energy usage rising off the charts year after year. However, for the past ten years, what really happened is remarkably different from what was forecast.



Unsupported Assumptions

The load forecast is the foundation of the planning process. If the forecast is wrong, then all of the plans built upon it are wrong.

After reviewing the 2018 IRP, the Commission determined that Dominion's forecasting methodology was flawed and directed Dominion to use the PJM forecast in the future. In 2018, PJM's forecast showed little change in future electricity use in Dominion's service territory.

Dominion used PJM's forecast for the 15-year plan in 2020 IRP, but PJM greatly altered the way the forecast was done without providing much explanation about the changes.

PJM is facing difficulty. They will have nearly 60 percent more capacity than they need to meet their expected peak demand in 2027.[14] This is far more than is needed for reserves (14.9%). Perhaps the member utilities have lobbied PJM to boost their forecast to allow the utilities to add the planned (mostly gas-fired) projects.

PJM will have 35% more capacity than it needs to meet peak requirements in 2023.[15] It seems our region is at the mercy of poor planning and the utilities' appetite for more. Customers and state economies will pay the price. Having sufficient capacity available in our region is not an issue.

In the 2020 IRP, Dominion forecasts a compound average growth rate of 1.0% in future summer peak demand and 1.3% in energy requirements. This is uncomfortably similar to past 1.2% or higher increases that so greatly missed the mark over the past 11 years (shown in Figure JFW-B above).

How can we base Virginia's energy plans over the next 15-25 years on such fictional forecasts?

Once this imaginary bar is set, Dominion is free to pour forth a series of new projects to fill a gap that does not exist.

Dominion admits that the effects of Covid on future energy use were not considered in the preparation of the forecast. School and business closures in Virginia did not occur until late in the planning process.

[14] "Overpowered: Why a US gas building spree continues despite electricity glut," Stephanie Tsao and Richard Martin, December 2, 2019, S&P Global Market Intelligence, https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/54188928

[15] Id.

The pandemic has reduced energy use.[16] Often our usage doesn't return to previous levels after an economic setback. It took ten years after the last recession to return to pre-recession use.[17]

Customers will respond to the substantial rate increases that will occur if Dominion's plans are implemented. They will add self-generation to reduce dependence on Dominion supplied electricity. The cheapest option is to use less energy through more efficient use. Both of these choices will reduce demand from Dominion. Such an outcome is not considered in the forecast. Dominion expects customers to behave exactly as they always have. Actual demand over the past ten years in Dominion's service territory shows that is no longer true.

Good energy efficiency projects provide significant long-term savings. Businesses and governments often pay nothing up front and have immediate savings.

Residential customers usually must make an initial investment that returns itself in a few years and then provides long-term savings. Customers could make use of a Dominion program that the VCEA requires. But Dominion has a history of not being very good at providing energy efficiency programs. Well-recognized nationwide surveys regularly put Dominion near the bottom of a group of 50 or so major utilities in providing effective energy efficiency programs.

Perhaps this is by design. Dominion knows that greater energy efficiency reduces revenues and peak loads.

When Dominion funds a new project we pay more for it. As with Dominion ownership of solar and wind facilities, the utility's energy efficiency investments are put in the ratebase (or a RAC) and customers must repay several times the original cost. This reduces the customer benefit of utility-funded energy efficiency programs (although the shareholders like it).

There are lower-cost ways of promoting energy efficiency in Virginia. The DMME fund is one option. Another choice might be to create a fund that would provide low-cost loans to qualified customers. If possible, this fund could be authorized for use with 401(k) portfolios giving Virginia citizens a better return while helping their neighbors in return. Maybe the Virginia retirement plan or state university endowments could invest some of their assets in the same way. Why not improve our energy system in ways that benefit us all?

Dominion's approach to meeting peak demand is firmly planted in the 20th century. Historically, utilities developed a variety of supply-side resources to meet changes in demand. As electricity use changed during the day different types of generating units met the need. Some units ran all

[16] "WoodMac: Coronavirus Will Undercut North American Power Demand through 2021," Rob Whaley and Paul Taube, April 7, 2020, Greentech Media, https://www.greentechmedia.com/articles/read/coronavirus-will-undercut-power-demand-from-east-to-wecc

[17] "Recession and Recovery: Lessons From the 2010 BP Statistical Review of World Energy," Christof Rühl and Joseph Giljum, 4th quarter 2010, International Association for Energy Economics Energy Forum, pp 9-14, https://www.iaee.org/documents/2010FallEnergyForum.pdf

day long (baseload); some ran mostly during waking hours (intermediate load), and some ran only for a short time when demand was high (peaking units). Dominion customers must pay for each unit in full no matter how much it runs or whether it retires early. Operating costs such as payroll, fuel and maintenance are paid for separately.

Modern system designs are switching this around. Now demand is often adjusted to meet changes in supply. On a sunny day, solar output might be high. If demand is not as high, this zero marginal cost electricity might be wasted. Instead, a battery (a new demand) can be used to match the excess output and store it for use when more supply is needed. When energy use is high, instead of utilizing expensive sources of supply such as peaking units, demand from water heaters, furnaces or air conditioners can be turned off for 15 minutes on a rotating basis so comfort is unaffected. This avoids the need for the utility to build a new power plant that might be used less than 10% of the time. This saves customers money and is better for the environment.

Dominion's has recognized some demand-side management contributions in its planning. However, the Company assumed diminished value for batteries and failed to consider their declining cost. Instead it appears they forced their model to select the option of building new peaking units and a new pumped hydro storage facility that costs nearly twice as much as batteries.

Data centers are the only source of growth

According to the testimony of James Wilson, growth in the Dominion Zone in the past few years has been entirely due to added demand from data centers. The peak loads of all other customer categories have been declining. Dominion estimates that about 30% of its commercial demand is attributed to data centers.[18]

Even though the entire growth in demand that supports the plans in this IRP is based on projected growth in data center demand, no customer surveys or any forward-looking research has been undertaken to verify future data center demand.

The assumed increase in data center demand is based solely on historical information.

This assumption is contrary to specific information presented to the SCC by data center owners.[19] The letter identifies that "the data center industry is at the forefront of innovative energy technologies" and that advancements in this area will "lower future load requirements for data centers." The letter goes on to say that the "energy demand of an average data center facility is likely to decline over time, requiring utilities to adapt to flat or declining load growth." The data center owners advised the regulators "to consider these advancements before building out expensive fossil-fired peaking plants that could become obsolete and therefore a burden on ratepayers."

[18] Dominion Q1 2020 Earnings Call Slide 7
[19] Data Center Comments on Case No. PUR-2018-00065, September 17, 2018, Submission ID 15280

The leading data center owners design their own custom server arrays and will change an entire building full of units if they can gain an efficiency advantage, even if the equipment is just a few years old. The latest technology uses a liquid cooling system in the multi-processor blades that are at the heart of the data servers. This will make the cooling process much more efficient, requiring less electricity to operate the center.

Although advances in artificial intelligence and cloud computing are increasing the demand for data centers, that might not result in increased peak demand in Dominion's Virginia service territory.

Northern Virginia was by far the largest data center market in 2019. But perhaps half or more of the data centers in Virginia were built in the service territories of electric cooperatives, not Dominion. Dominion Energy Virginia's share of the DOM Zone market is decreasing. This could indicate that more of the new data centers in Virginia might be built in service territories outside of Dominion's LSE zone.

Recently, new data center construction has shifted to other regions. Only 22% of capacity under construction is occurring in Northern Virginia, while Northern California has surpassed us with 33% of new data center construction.[20] More than 25 states now offer tax incentives to attract new data centers.

In 2018, PJM held data center load constant after 2024, because no data was available to project demand beyond that date. For the 2020 IRP, there is still no data to forecast data center demand growth, but this time PJM used the Company's forecast up to 2024, then allowed its model to project loads through 2035. This adjusted peak demand by over 500 MW each year in 2024, 2025, and 2026.

The entire projected increase in peak demand that underlies this IRP is based on PJM's guess about Dominion's guess as to how much data center growth will occur in Dominion's Virginia service territory. It is not good policy to base billions of dollars of future investment on such an uncertain forecast that hangs on one single assumption being correct.

The data center owners themselves informed the SCC that they should not count on much data center demand growth in Virginia. And data center construction trends reveal that if new data centers are built, they might not be in Virginia, or in Dominion's territory, if they are.

Making accurate forecasts about future energy use is challenging. But we have recent information that we are certain about, such as flat growth in electricity demand in the U.S. for more than a decade, ten years of stable or declining demand in Dominion Energy Virginia's service territory (normalized for weather), a statement from data center owners indicating stable or declining future energy use, trends that more new data center construction is occurring in

[20] Research and Markets, *Data Center Market in US-Industry Outlook and Forecast 2020-2025 (April 2020), https://www.researchandmarkets.com/reports/5018698/data-center-market-in-us-industry-outlook-and*

areas other than Virginia, and excepting data centers - all other categories of Dominion's customers are using less energy each year.

What we know indicates that our population and our economy can grow, without the need for more electricity. Keeping demand the same will reduce our costs, making us more prosperous.

This scenario works better for us, but not Dominion. They are always going to be conscientious about providing an adequate supply of electricity. But we have given them a set of regulations that encourage them to build more to prosper – to our disadvantage. It is not good for the people of Virginia and their largest utility to be at odds like this.

If Dominion were to make a more realistic load forecast, they would be unable to justify the new projects that generate more profits. Something has to change.

Businesses leaders, policymakers, legislators, and customers must realize that placing Dominion's investments in solar, wind, storage and energy efficiency in the ratebase costs much more than other ways of doing it. If Virginians could shift their mindset about energy, perhaps they would be less willing to support legislation that says it is "in the public interest" for Dominion to build these projects without any evidence that such a proclamation is true. Such legislative edicts limit the SCC from using an evidentiary process to determine the facts of the matter. Without access to their full authority, the Commission is unable to properly balance shareholder interests with fair prices to customers.

What we fail to recognize is that Virginia's best interest is being sacrificed in this process too. We do not have to choose between a healthy utility and a healthy state economy. Currently, our energy policies favor only the utility. Plans in this IRP will cause energy cost increases that will make Virginia increasingly less competitive compared to its neighboring states.

We can make a transition to a clean energy economy; create a more reliable energy system; create plenty of new jobs and economic opportunities; and maintain successful utilities and energy service providers in ways that cost a lot less than what is proposed in this IRP; and more quickly too.

Until we revise our regulations so that Dominion no longer has an incentive to over-forecast and over-build, it is likely a utility-led planning process will always start with over-estimated demand growth.

Generation Additions

As mentioned earlier, Virginia will benefit the most by keeping our energy demand stable or declining even as we begin to electrify our transportation sector. That means our current power plants can continue to serve us and assure a reliable supply of electricity for the entire 15-year planning period and beyond. If Dominion's existing power plants can meet our demand now, and

we do not increase that demand, what we have today will be sufficient in the future, even if no output from renewables is available.

As we make the transition to cleaner sources of electricity, the conventional units would be used less, until all are retired in 2045. Dominion will be paid in full for these units, so they might as well be available to provide energy when renewable generation is less plentiful.

Commercial enterprises, first responders, government offices, hospitals, schools, and universities could be the first to add significant amounts of solar at customer sites throughout the distribution system.

The easiest way to accomplish this would be with direct to customer power purchase agreements (PPAs), as many other states are doing. That would avoid the huge price increases that customers would have to bear if Dominion built solar facilities and put them in the rate base. Each customer would have the choice to select what is best for them.

Distributing these medium-sized solar installations throughout the distribution system would avoid the extra expense of all of the transmission additions in Dominion's plan. Many of the commercial sites might elect to add some high-efficiency local generation that would further reduce their costs. Coupled with a local microgrid, this would allow them operate when the larger grid was down. Without added costs to other customers, this would greatly increase grid reliability, especially for crucial functions. The huge losses that commercial enterprises incur when the grid is down could be avoided.

Independent developers and Dominion (without adding to the ratebase) could add some utility-scale solar facilities where they would best reduce transmission and distribution congestion. Output could be sold to the utility or direct to large customers via PPAs. Dominion would be paid for the use of its lines and perhaps an added profit for facilitating the transactions.

The commercial and governmental sites would likely add storage resources for backup power and shifting peak demand. Because about half of commercial utility bills are for a demand charge, any reductions in peak demand provide great savings to the customers. These resources could be managed by energy aggregators (or Dominion) who could bid the storage resources into the emerging wholesale market to add profits and further reduce customer costs.

Residential customers could access solar through neighborhood or community solar facilities. This would reduce the cost of residential solar and avoid the complications associated with rooftop installations and financing issues related to residential solar today. The local solar installers should see even more business and have lower costs. The developer of the community solar could have a direct to customer PPA or an arrangement with the utility. The billing would be done through the utility and paid back to the developer, saving costs and maintaining the utility relationship with the customer, plus an added profit.

As cleaner sources of energy achieve higher market penetration and peak loads decline, the older, less efficient fossil-fired generation could be easily retired. Those units do not run very often now. With the peak shifted and reduced, they would not be missed. The Commission would decide how best to spread out the balance due to the utility for units that retire early in ways that are fair to the utility, but not burdensome for the customers.

With such a scheme, reliability increases without huge price increases. We shift to clean energy and stimulate our economy with new local jobs and vibrant communities.

The SCC might be concerned how the legacy costs would be dealt with in this scenario without overburdening some ratepayers. In the system described above, every customer still obtains value from being connected to the utility. As we know very well today, networks and connections have value. Even if some customers require less electricity from Dominion, there is still a way to equitably allocate the value of access to the wires and available generation. It will be far easier to share responsibility for paying down a ratebase of $19 billion rather than add nearly $200 billion in new required customer repayments, as Dominion's Plan D requires.

This would be harmful to our state economy as well as Dominion.

Dominion might argue that such a change would limit their profit opportunities. But many other states have made shifts similar to this and their utilities remain financially healthy. Despite what Dominion's unregulated parent company might think - utilities do not exist to maximize shareholder returns at customers' expense.

Utilities were formed as public service companies to provide what is now an essential service. Each utility was granted a monopoly (originally only for the wires) and a designated service territory. The "utility compact" involved the utility accepting that fair rates to customers would be determined by a regulatory body in exchange for fair returns to shareholders.

When things turned upside down 40 years ago and the unit price of electricity started going up with each new utility project, holding companies moved in and scooped up struggling utilities. Utility holding company executives' main job now is to increase shareholder value, by obtaining ever higher revenues and profits from utility customers.

The "utility compact" has been subverted. Laws in Virginia have been passed that declare certain projects to be "in the public interest" limiting the normal regulatory oversight by the SCC. We need to return to balance not only for Virginians but to maintain the long-term financial health of our most important utility. Lawmakers might come to realize they must serve the long-term interests of their constituents too and not just the short-term desires of the utility. A proper balance serves us all.

Southwest Virginia

Our fellow citizens in Southwest Virginia have encountered financial challenges in keeping their communities thriving with the decline of coal mining, tobacco farming and other activities. Some political horse-trading has occurred in the state legislature to get projects approved for the region that would add jobs and tax revenues.

One such project is a pumped hydro energy storage facility similar to, but about one-tenth the size of the project built in Bath County in the 1980s. Dominion's current proposal is to build a 300 MW pumped storage facility in Tazewell County at a cost of $2.89 billion. The storage facility would begin operation in 2029.

The main attractions of the project for the area are the $12 million per year in taxes from the facility, temporary jobs and added economic activity during construction, and perhaps a few dozen permanent jobs.

Virginia legislators deemed the project to be "in the public interest" when it was added to the Grid Transformation and Security Act in 2018. But is it?

Normally, all state residents are taxed to provide funds to promote economic development throughout the state. Certainly, residents in southwest Virginia are deserving of the state's attention in trying to revitalize their region. But no politician likes to raise taxes.

Instead, the legislators added this project as part of major state energy legislation without evaluation of its costs or benefits.

The cost of this facility would be higher than any other facility in Dominion's current system. Witness Karl Rebago says its cost per unit of energy produced is equal to the projected cost of small modular nuclear reactors. These units are not commercially available because of their unfinished design and high costs.

Dominion's customers, who comprise about two-thirds of Virginia's population, would be asked to repay the company a net present value of $9.78 billion for the facility according to the IRP. This is an outrageous extraction of wealth from the people of Virginia to help southwest Virginia, especially without citizens' knowledge or consent.

Southwest Virginia will receive only $12 million per year from this mountain of cash. Billions of dollars will flow to Dominion shareholders.

The Company expects to use the new facility only 8.3% of the time. This would begin to occur when the Company's use of the existing pumped storage facility in Bath would be declining, leaving ample storage capacity without adding a new project.

Even the Company is skeptical that the Tazewell project is a good idea. Its estimates show the cost of the pumped storage project would be nearly twice their high current estimates for using

batteries of equivalent size. Battery prices are continuing to decline and are likely to be at least half the current cost by 2029. Battery resources would be located in the Company's service territory and would not require expensive transmission lines to connect them to the system. They would also provide additional services that the pumped storage facility cannot for about one-quarter of the price.

Dominion had to force its model to put the Tazewell plant in each of its plans. It has no economic justification to be part of our energy future; especially since it would disrupt thousands of acres of Virginia farmland and forests without a benefit.

This is not the first time that deals like this have been struck. Earlier, Dominion obtained support for its plans from legislators in southwest Virginia. In exchange, the Virginia City Hybrid Energy Center (VCHEC) was developed in Wise County in 2013. It was one of the last coal plants built in the U.S. at a price of $1.8 billion. Dominion received a bonus for a plant that burns mostly coal, waste coal, and some wood chips. Just that extra bonus will cost ratepayers $146 million.[21]

In February 2020, the Commission awarded Dominion $195 million in rate recovery for the VCHEC for the year, $20 million less than the year before. It is the single largest generation charge on a residential customer's bill. This is for a power plant that barely runs. In the 2020 IRP, Dominion identified that the facility would run 5.7% of the time in 2020, 10.8% in 2025, and 3.7% of the time in 2030. No wonder Dominion wanted to close it.

But lawmakers from the region objected. During negotiations regarding the VCEA, it appears that legislators from southwest Virginia threw their support behind Dominion's commandeering of the VCEA that would allow the Company to own and control the development of renewables in Virginia. In return, rather than closing the plant by 2030, the VCEA was rewritten to authorize the coal plant to continue operation until 2045.

The $6 million per year that the region receives in taxes from the facility is important to them.[22] It keeps teachers and government employees on the payroll. But is it worth the price to the rest of us?

In the IRP, Dominion identifies that between now and 2029 the plant has a *negative* net present value of $472 million. If carried out through 2045 that negative value might approach $1 billion. As with the pumped storage project in Tazewell, this money is being extracted from the Virginia

[21] Power Play: Inside the Dominion lobbying blitz that's going to raise your electric bills, Patrick Wilson, October 9, 2020, Richmond Times Dispatch, https://richmond.com/news/state-and-regional/power-play-inside-the-dominion-lobbying-blitz-thats-going-to-raise-your-electric-bills/article_febc3bc7-37cd-5ff8-90d6-fd303849765d.html#tracking-source=home-top-story

[22] Virginia legislature torn over keeping a Dominion coal plant running past 2030, Iulia Gheorghiu, March 3, 2020, Utility Dive, https://www.utilitydive.com/news/virginia-legislature-torn-over-dominion-coal-plant-2030-retirement/573364/

economy in order to provide southwest Virginia with a few million dollars per year in taxes, and to provide shareholders with significant amounts of added dividends.

These are clear examples as to why it is bad practice to make energy policy in the back rooms of the state legislature.

We can find much less expensive and more effective means of aiding communities in southwest Virginia - without sending our money to out-of-state shareholders.

Offshore Wind

As previously noted, authorizing Dominion to build 2,640 MW of offshore wind greatly increases its cost to customers compared to having an independent developer build the project and sell the output at a fixed price. All of the other states on the East Coast developing offshore wind projects are using independent developers and fixed price bids.

No other state is allowing their utilities to own the project and put it in the ratebase. Doing so in Virginia also exposes customers to added costs such as storm damage, cost overruns, unexpected maintenance expenses, etc. In other states, all of these issues are the responsibility of the independent developer and are included in their fixed price contract.

The VCEA identifies 3,000 MW of offshore wind to be "in the public interest" limiting the SCC's ability to determine if costs are prudent and appropriate to pass through to ratepayers.

Phase I of the project, built in three stages in 2026 and 2027 provides 2,640 MW of offshore wind capacity. Construction will cost $8.01 billion that will require customers to repay the Company a net present value of $18.56 billion, including profit.

The IRP presents Dominion's plans to build a second 2,640 MW offshore wind project costing $9.18 billion that will require customers to repay the Company a net present value of $18.57 billion. Most of this added capacity does not appear to have the "in the public interest" exemption of Phase I.

This might allow the Commission to deny the project if it is too expensive compared to other alternatives. By the time Phase II would commence, Virginia could revise its regulations so that Dominion would operate the project as a merchant generator, greatly lowering the cost of its energy to customers.

Dominion owns the lease for the offshore rights in federal waters. The Company is unlikely to allow an independent developer to own and operate Phase II of the project. The Commission should explore all of the options that would permit Dominion to profit, but not by requiring the exorbitant repayment associated with Phase I.

Nuclear License Renewals

The future of the aging Surry and North Anna nuclear facilities poses some difficult questions.

Can the units be refurbished to operate safely longer than any nuclear plant has ever operated? This is a question that must be resolved by the Nuclear Regulatory Commission. They are predisposed to say yes. But the nuclear industry is in decline in the U.S.

Major American nuclear manufacturers have gone bankrupt. Many other companies involved in nuclear maintenance and repairs are losing business. Most existing nuclear facilities are closing as they reach the end of their operating licenses. It is too expensive to update them and they are already having trouble competing in the wholesale energy market with lower cost gas-fired units and renewables.

Many states have provided multi-million dollar subsidies to keep their nuclear plants open for a several more years. The Speaker of the Illinois House, along with four associates, was charged with taking $60 million from a utility in exchange for passing a nuclear bailout. This is "a vivid illustration of how utilities routinely exert financial and political power to shield themselves from the risks of doing business, often at the expense of consumers" according to the news article.[23] A few days later similar scandals rocked Ohio.

Rather than close plants that cannot make a profit, utilities are seeking subsidies. Dominion owns the Millstone nuclear plant in Connecticut, once called the "most profitable nuclear plant in the U.S." by the Wall Street Journal. The Company threatened to shutter the plant if it did not receive a subsidy. It came in the form of a special contract with the state.

The subsidies for nuclear plants (and other types of plants) in Virginia are provided by the customers in the form of RACs which guarantee the price of the project will be repaid plus a hefty profit, regardless of how much the plant operates.

Wherever they come from, subsidies distort the energy market. If some states provide certain types of units with subsidies, it is difficult for prices to properly regulate the market. PJM is considering implementing a Minimum Offer Price Rule (MOPR) to deal with this, but its implementation is controversial and not yet settled.

Dominion expects to spend $3.44 billion to refurbish the units, requiring customers to repay $7.61 billion for just 20 years of service. When the license extension expires, the plants would have operated for 80 years, twice the length of time for which they were designed. This is a

[23] Illinois and Ohio Bribery Scandals Show Perils of Mixing Utilities and Politics, Dan Gearino, July 26, 2020, Inside Climate News, https://insideclimatenews.org/news/25072020/ohio-illinois-bribery-scandals-utilities-climate-change-commonwealth-edison-firstenergy-householder

special challenge for nuclear units because exposure to radiation makes metals more brittle and equipment must tolerate more stress than is usually encountered in other types of plants that are typically retired after 40-50 years of service.

Anyone who has worked on nuclear projects knows that they succumb to significant cost overruns and schedule delays. The refurbished nuclear units will likely produce some of the most expensive electricity on Dominion's system, after factoring in the final cost of the RACs plus operating expenses.

The Company should be asked if they would be willing to invest in the upgrades if they had to operate the facilities as a merchant generator. If the Company could not operate the plants at a competitive cost, why should we ask customers to subsidize them?

Some groups might respond that the nuclear units are a low carbon source of energy. A good deal of carbon is released mining the uranium, processing it and fabricating the nuclear fuel rods. But no carbon is released when the nuclear fuel is used to generate electricity. That is why nuclear output is recognized as a zero carbon source in the VCEA.

By the time we get to 2032 when the first Surry unit must have its extended license or 2040 when the last North Anna unit must have its extended license, we may have several methods of producing "dispatchable" energy that would be much cheaper than what the nuclear units provide. But we can't wait too long. Nuclear projects require a long lead time and Dominion is already spending money with the expectation that they will get it back, plus a profit.

They were able to recover $320 million for the North Anna 3 project, which resulted in nothing of value to customers.

One of the difficulties is that nuclear units are an increasingly bad fit for a dynamic modern energy system. U.S. nuclear units are not flexible in their operation. They cannot easily adjust their output as other types of generation can. They are either on or off, with not much in between.

We need to give this issue more attention soon; or be prepared to pay for some very expensive electricity from the nuclear units. We could be getting drawn in with seemingly affordable estimates only to be presented with the real costs when it is too late to do anything else. Other states will have retired their nuclear units by the 2030s or arranged to extract billions from their citizens to keep the nuclear units running and the utilities' coffers full.

Recommended Actions

The plans described in Dominion's 2020 Integrated Resource Plan fail to serve the best interests of the people of Virginia; and might not result in the best outcome for Dominion. Accordingly, the following actions are recommended:

1. Delay acceptance of the IRP until its major flaws are remedied. This would involve the following actions:
    a. Revise the load forecast to reflect actual experience over the past ten years with flat or declining peak loads (normalized for weather) in the DOM LSE Zone.
    b. Research and verify likely growth in data center energy use in the DOM LSE. This should include research with data centers to identify expected trends in energy use, not just expected data center additions in Dominion's territory.
    c. Examine and justify PJM's revised forecasting methods.

2. Require new PLEXOS modeling runs.
    a. There should be at least one Alternative Plan that does not force the acceptance of the new peaking units and the SW Virginia pumped storage hydro project.
    b. Remove the limit of 480 MW of solar in the base case. An option should be run with all solar at current PPA prices versus the COS Company-owned option that fully includes the RAC charges as well as any operating and maintenance charges. The public should be able to see the difference in the price of solar purchased by the Company via a PPA compared to Company-owned solar fully loaded with required repayments for the RAC plus any other expenses. Provide supporting data to verify the assumptions.

3. Reset thinking about Virginia being an advantageous energy cost state:

Residential Energy Rates by State (cents/kWh) – July 2020[24]

Virginia 12.28

North Carolina	11.25	Kentucky	10.55
West Virginia	11.69	Tennessee	10.77
Maryland	12.24	South Carolina	12.36

4. Convene a discussion with state agencies, legislative leaders, utilities, and major stakeholders to explore alternative means of assuring adequate supplies of clean energy at a lower cost, while maintaining effective, financially healthy utilities.

[24] Rates by State for July 2020, https://www.chooseenergy.com/electricity-rates-by-state/, Last updated October 1, 2020

Respectfully submitted:

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October 19, 2020

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