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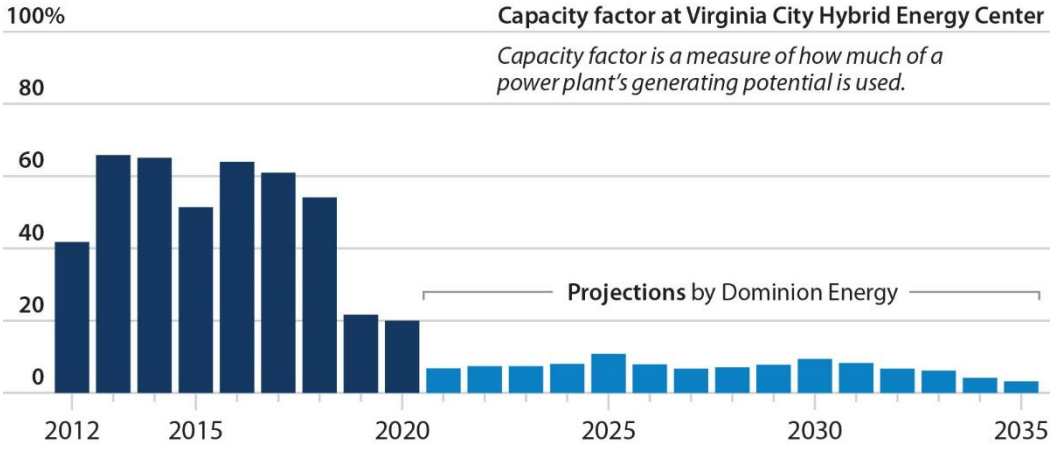
Virginia Coal Plant's Future Isn't Bright: Preparation for Transition Should Commence Now

Executive Summary

The **Virginia City Hybrid Energy Center (VCHEC)**, an 8-year-old, 624-megawatt coal-fired power plant in Wise County, Va., built and run by **Dominion Energy** through its subsidiary **Virginia Electric & Power Co.**, is struggling to compete with other regional sources of power generation. Market and policy forces will continue to work against the plant, keeping it at risk of closure for the foreseeable future.

Virginia City Plant To Be Idle Most of the Time, Dominion Says

The owner of the Virginia City Hybrid Energy Center, a coal- and wood-waste power plant, expects to run the facility at less than 10 percent of its potential every year through 2035.



Notes: Capacity factor for 2012 is for July–December (the plant went into service in July 2012); 2020 reflects actual capacity factor for January–September, the latest available figures.

Sources: S&P Global; IEEFA calculations; 2020 IRP filing by Dominion Energy IEEFA

A Nonessential Plant

VCHEC ran at 19.86% capacity during the first eight months of this year. At its peak performance in 2013 and 2014, it operated at slightly more than 65% of its capacity, but has fallen off over the past two years, to 54% in 2018 and 22% in 2019. If it remains online—which is unlikely—Virginia Power estimates its annual capacity factor will average less than 7.7% over the next 10 years, meaning its output will be almost insignificant.

Preparing for Closure

Economic-transition models around the early closures of **Navajo Generating Station** in Arizona, the **San Juan power plant** in New Mexico, the **Centralia Coal Plant** in Washington, and part of the **Comanche Generating Station** in Colorado can serve as models for responsible change. Closure of VCHEC will cause local economic pain but ignoring the likely possibility will only lead to unnecessarily abrupt consequences.

Dominion's Transparency

Lawyers for Dominion have argued that it is in no one's interest for the company to reveal financial information on VCHEC. Quite the opposite is true, however, as the community around VCHEC will face a needlessly sudden economic hit in terms of jobs and tax revenues if it is not informed about the likely future of the plant. VCHEC employs 153 full-time workers, supports an additional 350 to 400 jobs in the area, generates as much as $8.5 million in local tax revenues to Wise County and the town of St. Paul, and creates as much as $40 million annually in local economic activity. Dominion's cooperation and partnership will be necessary to support the community's preparation for plant closure and transition.

Virginia City Hybrid Energy Center (VCHEC)

Number of employees	153
Number of other jobs supported	350 - 400
Local tax revenues generated	$6 million - $8.5 million
Local economic activity generated	$25 million - $40 million

Sources: Dominion Energy, Utility Dive.

Virginia Power-Generation Trends Mirror National Ones

The decline of VCHEC is not occurring in isolation. Coal plant closures have become an almost weekly occurrence in the U.S. as cheaper forms of generation come online and as capital markets abandon coal in line with investor and customer preferences. While market forces are driving change, policy is a factor as well, and this is as true in Virginia as it is anywhere. Enactment of the **Virginia Clean Energy Act** in April signalled the beginning of the end of coal-fired electricity generation by Virginia power producers, of which Dominion is the largest.

Conclusion

Local and state officials and other community leaders in Wise County should be planning now for the local economic impacts of VCHEC's closure by requiring full transparency from Dominion on its plans for the plant and by aggressively pressing for serious reinvestment in the local economy.

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Overview

The last coal-fired power plant to come online in Virginia—and one of the newest in the country—is operating at marginal capacity and remains online only because it is being financed through a largely hidden ratepayer subsidy to its owner.

The **Virginia City Hybrid Energy Center** (VCHEC),[1] a $1.8 billion, one-unit, 624-megawatt (MW) project built and run by **Dominion Energy** through its subsidiary **Virginia Electric & Power Co.**, began operation in 2012. In February 2020, the **Virginia State Corporation Commission (SCC)** awarded Dominion a rate rider of nearly $195 million to keep VCHEC solvent.[2] As a result, the average Dominion residential customer in Virginia is now paying about $50 per year to subsidize the plant,[3] a situation that brings potentially costly regulatory risks to the company if it keeps the plant open.

A combination of market and policy forces is fast eroding VCHEC's viability. Like other utility companies around the country, Dominion is changing how it generates electricity, and the state of Virginia is now mandating a hard pivot from traditional sources of electricity generation to solar, wind (mostly offshore), and utility-scale battery storage. That leaves VCHEC, which was already cost-ineffective, more untenable than ever.

The plant is a casualty of broad changes that heavily favor renewables, as noted in a mid-November industry assessment of the power-generation business:

> *"Amid a broader energy utility sector transition—from emissions-intensive operations, declining technology and installation costs—state renewable portfolio standards and customer demand for cleaner sources of electricity continue to be among the driving forces behind the addition of regulated and contracted wind and solar energy to utilities generating portfolios."*[4]

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[1] While the name includes the word "hybrid," the term in this usage is outdated. "Hybrid" in current electricity-generation parlance applies more typically to power plants that have a renewable energy component, that is, some portion of generation capacity dedicated to utility-scale wind or solar and, increasingly, utility-scale battery storage. VCHEC does burn some waste wood, which is designated sometimes as a renewable source, but is not on par in any zero-fuel-cost, clean-energy sense of the word "renewable" with solar or wind.
[2] Virginia State Corporation Commission. Application of Virginia Electric and Power Company for revision of rate adjustment clause: Rider S. February 20, 2020.
[3] Associated Press. In Virginia, a push to save country's 'cleanest' coal plant. February 28, 2020.
[4] S&P Global Market Intelligence. Renewables capex set to reach $14.6B in 2020 as utilities hone investment plans. November 19, 2020.

In October 2020 testimony before the SCC, a Dominion executive summed up the regional state of play affecting VCHEC:

> *"The Company, the Commonwealth of Virginia, and the State of North Carolina have all committed to a cleaner energy future. The Company has already begun to transition its system—generation, transmission, and distribution—to achieve this cleaner future. It is important to recognize, however, that this future will require a fundamental and transformational change to the existing electric system, and likely cannot be accomplished over the long term based on today's technologies."*[5]

VCHEC, then, is underproducing, is providing a product that is no longer in demand, and is on a likely course for near-future retirement. (Of note also is the fact that the precarious status of the plant is not a result of the recently enacted Virginia Clean Economy Act, as the plant's low usage pre-dates that law.)

A Nonessential Plant

VCHEC ran at 19.86% capacity during the first eight months of this year, according to the most recent data from **S&P Global Financial Intelligence**, and it produced no power at all in May and June.

At its peak performance in 2013 and 2014, it operated at slightly more than 65% of its capacity, but has fallen off over the past two years, running at 54% in 2018 and 22% in 2019.6 By comparison, the average capacity factor for coal-fired power plants nationally in 2019 was 47.5%.7 If it remains online, the utility project it will average a capacity factor of less than 7.7% over the next 10 years.8,9 By 2035, the plant's capacity factor is expected to total just 3.2%, or only about 20MW of its nameplate 624MW generation capacity. Its output will be all but insignificant on the grid, which is run by the 13-state PJM Interconnection and has access to 180,000MW of other generation capacity.10

In a public hearing in August, the deputy director of the SCC's **Division of Utility Regulation** described VCHEC's increasingly untenable stature:

> *"VCHEC is not competitive with the market, or not expected to be competitive with the market about 94 to 97 percent of the time. Fuel suppliers can easily glean from this public information that VCHEC is not,*

[5] Virginia State Corporation Commission. Rebuttal Testimony. October 13, 2020.
[6] S&P Global Market Intelligence: Power Plant Briefing Book.
[7] Energy Information Administration. Capacity Factors for Utility Scale Generators Primarily Using Fossil Fuels. December 1, 2020.
[8] Virginia State Corporation Commission. Reply of the Office of Attorney General's Division of Consumer Counsel on Motion for Ruling of Confidentiality of Information. August 4, 2020.
[9] Virginia State Corporation Commission. 2020 Integrated Resource Plan of Virginia Electric and Power Company, Appendix 5D. May 1, 2020.
[10] PJM. PJM – At a Glance. December 2, 2020.

> *quote, in the money most of the time, meaning that the unit is at risk of being retired… The economics shows that it should be retired."*[11]

The plant—which burns primarily coal but also waste wood and coal waste known as gob—will have an estimated negative net present value (NPV) of $472 million over the next decade,[12] making it the worst-performing financially of Dominion's 38 power generation plants.[13] One recent analysis suggests that Dominion would save $3.3 billion over the next 15 years if it were to retire VCHEC and the coal-fired **Mount Storm plant** in Grant County, W.Va.[14] Mount Storm, the biggest plant in Dominion's fleet, runs three units with a total generation capacity of 1,676MW. It operated at capacity factors of 38% and 31%, respectively in 2018 and 2019, and at 36.3% through the first eight months of 2020.[15]

Commission filings emphasize how running VCHEC makes little financial sense by pointing out, for instance, that keeping it online will cost 22 times what it would cost to operate the underperforming two-unit **Clover plant** in Halifax County, which had a capacity factor in 2019 of less than 17% and which Dominion's integrated resource plan (IRP) indicates will close by 2025.

The comparison with Clover sets up a potential confrontation with state utility regulators, who have traditionally been supportive of Dominion policies. But it will be hard even for them to ignore the economics, which clearly put VCHEC under the gun.

The threat for Dominion is underscored by a regulatory reference document published by S&P: "If a utility performs a generation unit retirement analysis and that analysis shows that the correct economic decision calls for retiring a unit, and the utility instead chooses to ignore the analysis and run the uneconomic unit anyways, then the utility could be at risk of the commission finding such a decision was imprudent in future cost recovery proceedings."[16]

VCHEC's underperformance, coupled with shrinking utility industry appetite and demand for coal-powered electricity, shows clearly that there is no sensible business case for keeping the plant open other than to profit Dominion shareholders through ratepayer-subsidized dollars.

Preparing for Closure

According to Dominion testimony before the SCC, the VCHEC facility employs 153 full-time workers, supports an additional 350 to 400 jobs in the area, generates as much as $8.5 million, or 15% of the budget, in annual tax revenues

[11] Virginia State Corporation Commission. Transcript of Hearing Conducted on August 20, 2020.
[12] Virginia State Corporation Commission. Prefiled Staff Testimony. September 29, 2020.
[13] *Ibid*.
[14] Virginia State Corporation Commission. Direct Testimony of Rachel Wilson on Behalf of the Sierra Club. September 15, 2020.
[15] S&P Global Market Intelligence: Power Plant Briefing Book
[16] *Ibid*.

to Wise County and the town of St. Paul, and creates as much as $40 million annually in local economic activity.[17]

Clearly, closure of the plant will cause local economic losses. However, with sufficient planning, the consequences can be mitigated.

State and county officials can and should immediately take three concrete steps toward preparing for closure:

- Acknowledge the plant's likely imminent retirement.
- Begin planning how to mitigate the loss of jobs and tax revenue—and how best to remediate the site.
- Demand *full transparency* and *serious local reinvestment* from Dominion.

Models for responsible community transition aren't numerous, but they do exist:

- **Arizona Public Service**, the biggest utility in the state, is proposing reinvesting $144 million in small communities on tribal and non-tribal lands over 10 years after the closure of the 2,409MW **Navajo Generating Station** in 2019 and in anticipation of early retirement of the 1,540MW **Four Corners power plant**. The initiative, which has gone to regulators for approval, is meant to encourage responsible local transition in communities that played such a key role in the electrification of Arizona.[18] The following summation distills the APS commitment in a way that speaks to possibilities for coalfield communities nationally: "The plan would not only provide large investments in the **Navajo Nation**, **Hopi tribe** and **Joseph City** area, but also includes plans to retain workers, electrify regions of the Navajo reservation that are off the power grid, and develop renewable energy projects like solar and wind plants. The plan represents a massive investment in communities that have suffered economically as the U.S. shifts its reliance on fossil fuels to newer technologies and reflects a commitment from the utility that it intends to continue down a path toward 100% carbon free electricity."[19]
- In Washington, a deal between the state and **TransAlta Centralia Generation**, owner of the 1,340MW **Centralia Coal Plant**, will close the plant by 2025 or sooner, under terms that require $55 million in various forms of local reinvestment by TransAlta. The agreement, codified in law, requires TransAlta "to contribute $30 million in a community investment fund to help with economic development and energy efficiency projects, as well as $25 million in an energy technology transition fund, to be spent on supporting innovative energy technologies and companies in Washington

[17] Virginia State Corporation Commission. Rebuttal Testimony. October 13, 2020.
[18] Arizona Corporation Commission. DOCKET NO. E-01345A-19-0236 Arizona Public Service Company's Notice of Filing. November 6, 2020.
[19] Arizona Republic. APS offering $144M to Arizona tribes and others affected by coal plant closures. November 6, 2020.

state." A **Centralia Coal Transition Grants** initiative run by TransAlta from its Centralia office began making grants in 2016 and is dedicating $10 million to grants awarded by a locally appointed **Weatherization Board**; $20 million through an **Economic and Community Development Board**; and $25 million through an **Energy Technology Board**. The framework established by the Centralia deal is notable for the time it allows for transition: Talks between the company and the state that began a decade ago yielded transition projects that began to unfold in 2016 and that will continue to roll out into the mid-2020s.[20]

- The **Colorado Public Utilities Commission** has agreed to a plan by **Xcel Energy** to close two of three units at the 1,426MW **Comanche Generating Station** and replace them with 1,800MW of wind and solar power, gaining "increased operational flexibility and reliability by pairing increased renewable generation with dispatchable battery storage and flexible gas generation." The PUC accepted the proposal after Xcel pitched its benefits on several points, including ratepayer savings totaling $200 million and a total of $2.5 billion in power-generation modernization investments across eight Colorado counties. The plan presumes tax base benefits and individual career gains: "While there is no guarantee that job losses caused by the retirement of the Comanche units will be remedied with new jobs associated with the selected resources proposed to be built in the Pueblo area, the $670 million of investment associated with 525MW of new PV solar and 225MW of storage is considerable." Part of the initiative centers on creating electricity generation at a low enough cost to keep a long-time steel mill in town.

- In the Ohio River Valley of Ohio, Kentucky and West Virginia, a group of mayors are proposing a **"Marshall Plan for Middle America,"**[21] calling for public and private investment totaling $60 billion in energy transition initiatives across the region. "In catalyzing the development of more sustainable energy infrastructure through cross-sectoral regional collaboration, it is possible to build on historic and emerging strengths in these communities," the plan states. It emphasizes employment, estimating the potential for direct renewable-energy job creation at a rate of 270,000 annually through the 2020s.

Dominion's Transparency

VCHEC's situation is more precarious than has been publicly acknowledged by Dominion. The company, over objections by the **Virginia Office of the Attorney General**, has attempted to keep classified the results of analyses of VCHEC's negative NPV.

[20] IEEFA. The Case (and the Mechanisms) for Utility-Company Reinvestment in Arizona's Coalfield Communities. February 2020.
[21] University of Pittsburgh. Marshall Plan for Middle America. November 12, 2020.

In defending its strategy, a lawyer for Dominion argued that transparency would harm its competitiveness and would somehow not be in the best interest of the communities affected.

> *"Requiring the public disclosure of the unit-specific NPVs, particularly highly negative NPVs, without proper explanation and context may lead employees, local governments, businesses, and suppliers to assume that the company will retire specific units. This will unnecessarily create disruption for these*
>
> *communities in which the units operate."*[22]

An SCC hearing examiner disputed Dominion's logic, ruling in September that the results of the analyses be released and that such transparency would hurt neither the company nor the community.[23] Indeed, such transparency will be vital to ensuring that Wise County has the tools and information necessary to engage in transition planning—in partnership with Dominion—to prepare for the plant's closure and site clean-up.

State Trends Mirror National Ones

The decline of VCHEC mirrors a larger trend that has seen coal decline not just in the Commonwealth of Virginia but nationally, as well.

Examples abound.[24] **Idaho Power** announced in a recent integrated resource plan revision that it will exit from most of its stake in the **Jim Bridger plant** in Wyoming by 2026.[25] **PacifiCorp** announced last year it will get out of its share of 16 of its 24 units by 2030 at coal-fired plants in Arizona, Colorado, Montana and Wyoming. **Alliant Energy** is closing the 249MW **Lansing plant** in Iowa by the end of next year. **Platte River Power Authority** in Colorado will close its 280MW Rawhide plant by 2030. **WE Energies** will retire the 1,103MW **South Oak Creek plant** in Wisconsin by 2024. **Southwestern Electric Power Co**. will retire the 721MW **Pirkey plant** in 2023 and the 1,056MW Welsh plant by 2028 (both are in Texas). **Gulf Power** stopped coal-fired generation at its 924MW **Crist plant** in Florida in October. **Talen Energy** will cease coal operations at three plants with more than 3.6GW of capacity in Pennsylvania and Maryland. Xcel will convert its 1,018MW **Harrington plant** in Texas to gas by the beginning of 2025.

In Virginia, coal accounted for 44% of electricity generation in 2008.[26] By 2019, that figure had dropped to 4% as electricity providers transitioned to gas and renewables.[27] Dominion already has announced plans to deactivate the two remaining coal-fired units (combined 1,032MW capacity) at the **Chesterfield plant**

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[22] Virginia State Corporation Commission. Transcript of Hearing Conducted on August 20, 2020.
[23] Virginia State Corporation Commission. Hearing Examiner's Ruling. September 2, 2020.
[24] IEEFA. Coal plants close as renewable energy construction rises. November 20, 2020.
[25] IEEFA. Idaho Power IRP should be required reading for Wyoming regulators, politicians. November 4, 2020.
[26] Virginia Department of Mines, Minerals and Energy. Virginia Energy Plan. October 1, 2014.
[27] U.S. Energy Information Administration. Virginia State Profile and Energy Estimates. October 2020.

in Chesterfield County by May 31, 2023.[28] The two other original coal-fired units at Chesterfield were retired in March 2019. Additionally, **Birchwood Power Partners**, citing "market trends and facility economics,"[29] announced earlier this year that it plans to close the 242MW **Birchwood Power Facility** in King George County, about 60 miles south of Washington, D.C.[30] That retirement will occur several months ahead of the expiration of the plant's 25-year power purchase agreement with **Con Edison Energy**, which was originally struck with Dominion in November 1996.

Birchwood—which is owned equally by **Electric Power Development Co., Japan**, and **General Electric**—has said it plans to give each of the plant's approximately 40 employees a "comprehensive severance packaging, including transition support" to other employment.[31] This is an offer that can best be described as minimal, however, lacking as it does in any actual local long-term reinvestment. The Birchwood plant accounts for more than $1 million per year in property taxes, a revenue stream the county hopes will continue, given the land's high industrial value due to its proximity to a substation and a railroad line, and the possibility that it will be retrofitted as a utility-scale battery storage operation and/or a utility-scale solar farm.[32] Dominion earlier this year put out a request for development proposals for 1,000MW of solar and wind capacity and 250MW of storage,[33] the largest such request in company history, and Birchwood is believed to have submitted one or more bids in response.

Renewable energy—mostly from biomass—provided 5.8% of Virginia's electricity in 2017, ranking the state 38th in the nation for renewable energy production.[34] Because it is carbon-based and has limited fuel sources, biomass does not have a particularly promising future anywhere. A Virginia law will shut it down by 2028, but there is plenty of room for the buildout of other types of utility-scale renewable generation, especially given the **Virginia Clean Economy Act**,35 which requires that Virginia's electricity industry be fully decarbonized by 2045.

Conclusion

It remains only a matter of time before the Virginia City Hybrid Energy Center is retired, leading to the loss of hundreds of jobs and millions of dollars in local annual tax revenues.

Community leaders and state and local elected officials should be planning now for

[28] PJM. Generation Deactivations. October 2020.
[29] S&P Global Market Intelligence. Birchwood Power Partners announces retirement of 242-MW coal plant in Virginia. February 25, 2020.
[30] *Ibid*.
[31] *Ibid*.
[32] Interview with Nick Minor, director of economic development, King George County, Virginia. October 2020.
[33] Dominion. Solar, Onshore Wind, and Energy Storage Proposals. November 2020.
[34] 24/7 Wall Street. States Producing the Most Renewable Energy. July 24, 2019.
[35] Virginia Legislative Information System. Virginia Clean Economy Act, Summary as Passed. April 11, 2020.

the transition.

Prudent first steps would include requiring *full transparency from Dominion* with regard to its plans for the power plant and requiring *reinvestment in the Wise County economy*.

Further, as more and more carbon-emitting power plants in Virginia close in the years ahead, elected officials statewide would do well to view Wise County as an example of how communities will be affected by this ongoing transition, and use it as a springboard to develop policies to support responsible change.

About IEEFA

The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. www.ieefa.org

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