May 2025

Institute for Energy Economics and Financial Analysis

West Virginia Ratepayers Footing the Bill for Infrastructure Build Out

Reform Needed in PJM's Transmission Cost Allocation Process

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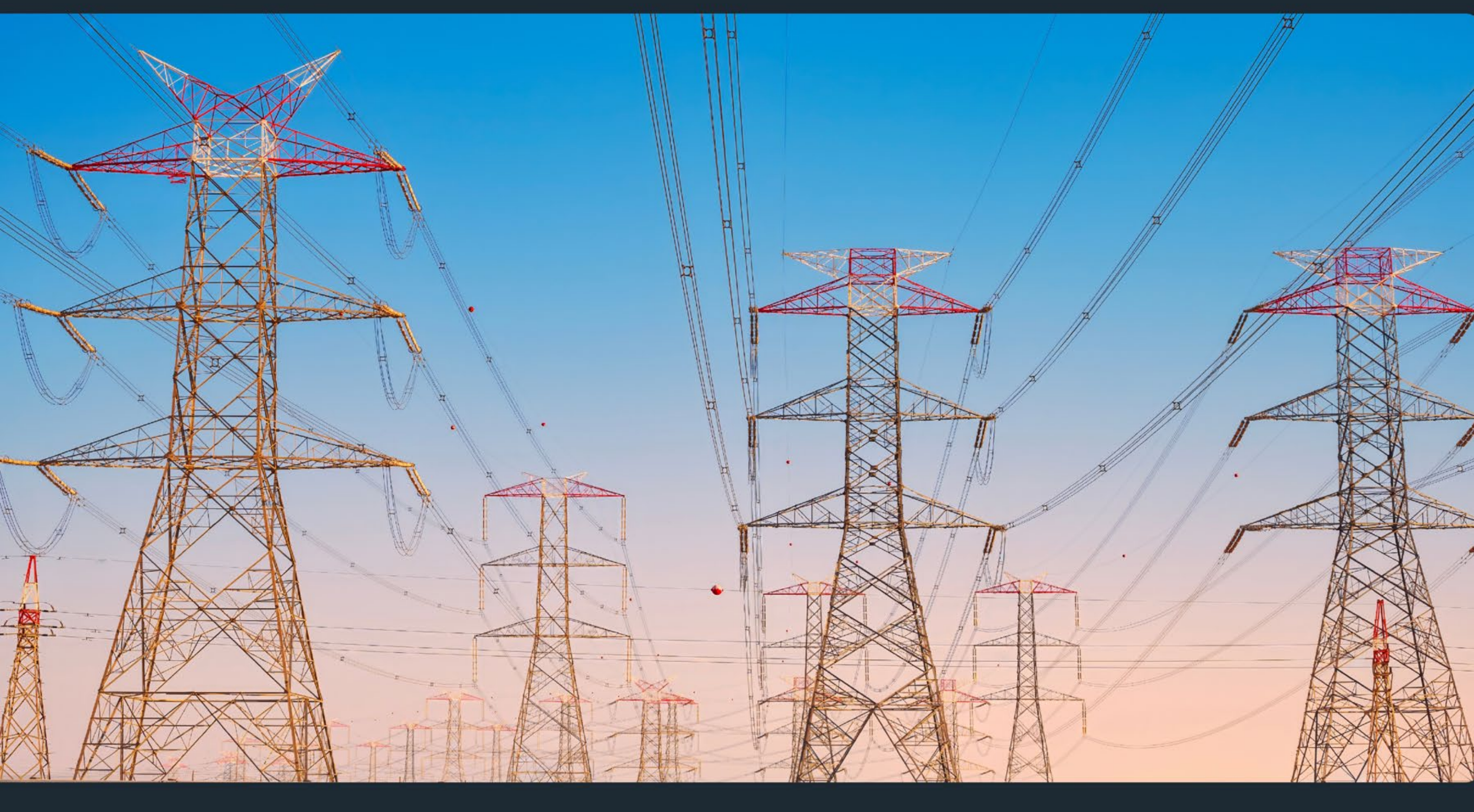

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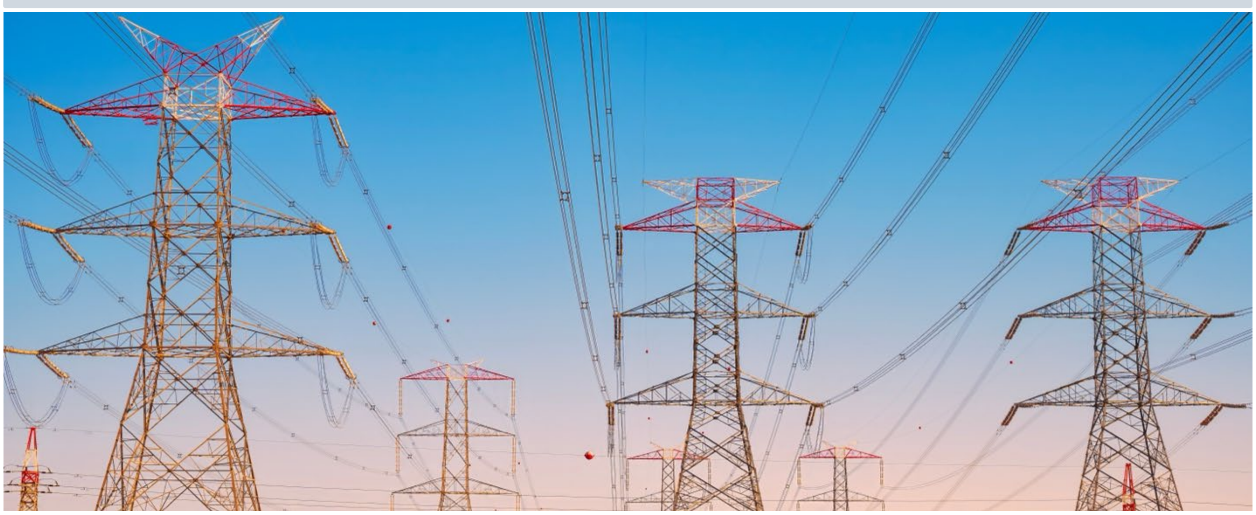
Over the last two to three years, utilities have been increasing their load forecasts, in large part due to new demands from proposed data centers.

One of the new challenges posed by the rapid growth in data centers is the question of whether other ratepayers will pay for infrastructure needed only for data centers.

An IEEFA analysis has found West Virginia electricity customers will pay more than $440 million for two proposed transmission lines to support data centers.

The analysis points to the need to reform PJM's transmission cost allocation methodology in light of the growing demands from data centers.



Executive Summary

The electric utility industry is forecasting rapid electricity demand growth from data centers, marking a sharp contrast with the past couple of decades of essentially flat electricity demand in the United States. Utilities and regulators are scrambling to address this new demand from data centers, which often require significantly larger amounts of power than typical industrial loads.

One of the new challenges posed by the rapid growth in data centers is the question of cross-subsidization, i.e., whether other ratepayers are or will be unfairly paying for electrical infrastructure needed only for data centers. This briefing note looks at this question with respect to the buildout of electric transmission within the mid-Atlantic region, considering two high-voltage transmission lines proposed through West Virginia as a case study. We find:

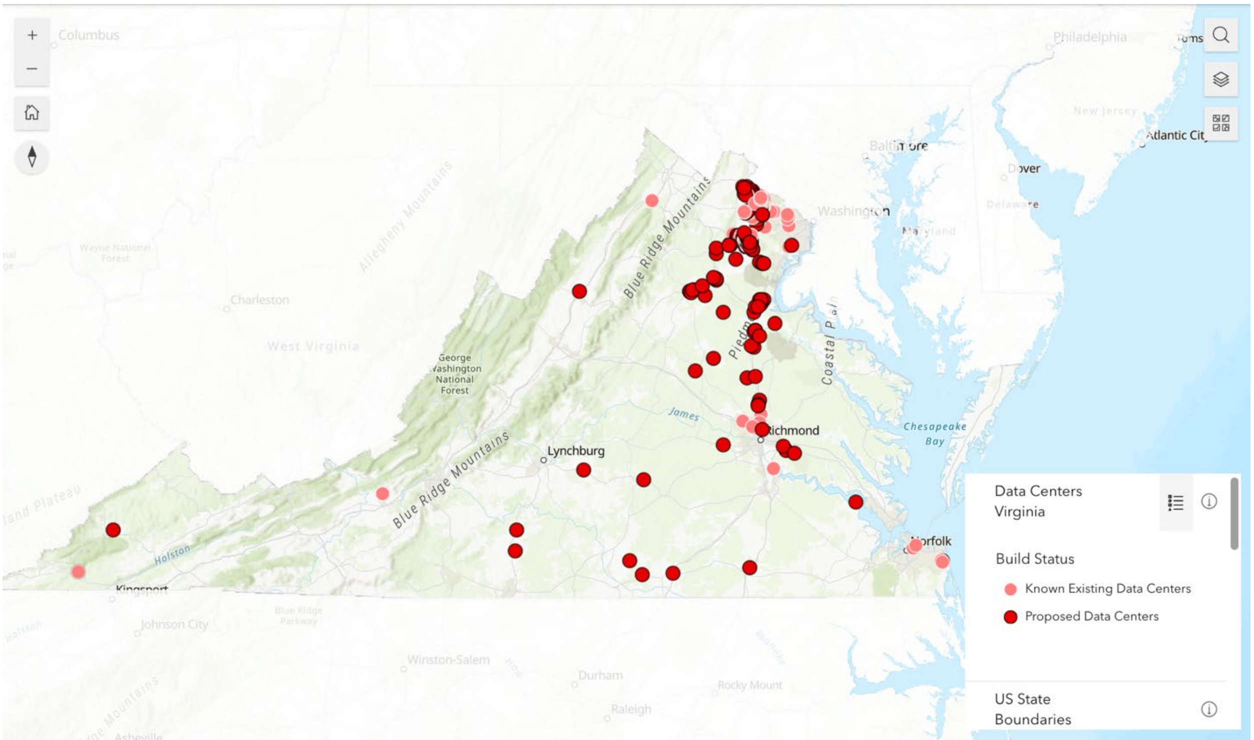
- The Mid-Atlantic Reliability Link and Valley Link transmission lines, both of which would cut through parts of West Virginia, have been proposed as part of regional grid operator PJM's Regional Transmission Expansion Plan (RTEP).
- Both lines were proposed in response to forecasts of rapidly growing electricity demand in northern Virginia, largely driven by data centers.
- West Virginia electricity customers will pay more than $440 million for the two lines.
- PJM's RTEP process should be reformed so that ratepayers across the PJM footprint are not bearing costs associated with transmission infrastructure that is driven by data centers and by state policy decisions to attract more data centers.

Data Center Growth and PJM's Electric Transmission Planning Process

For almost two decades, electricity demand across the United States—including in the mid-Atlantic region—has remained essentially flat. Over the last two to three years, however, utilities have been increasing their load forecasts, in large part due to new demands from proposed data centers. PJM Interconnection LLC, the grid operator whose territory spans all or parts of 13 states in the mid-Atlantic, Midwest and Washington D.C., has cited data center demand growth as a key challenge.[1] Growth is particularly concentrated in northern Virginia, which has the highest concentration of data centers in the world. As of 2023, data centers had already accounted for 26% of Virginia's total electricity consumption.[2]

[1] PJM Inside Lines. 2025 Long-Term Load Forecast Report Predicts Significant Increase in Electricity Demand. January 30, 2025.
[2] Electric Power Research Institute. Powering Intelligence: Analyzing Artificial Intelligence and Data Center Energy Consumption. May 2024.

Figure 1: Existing and Proposed Data Centers

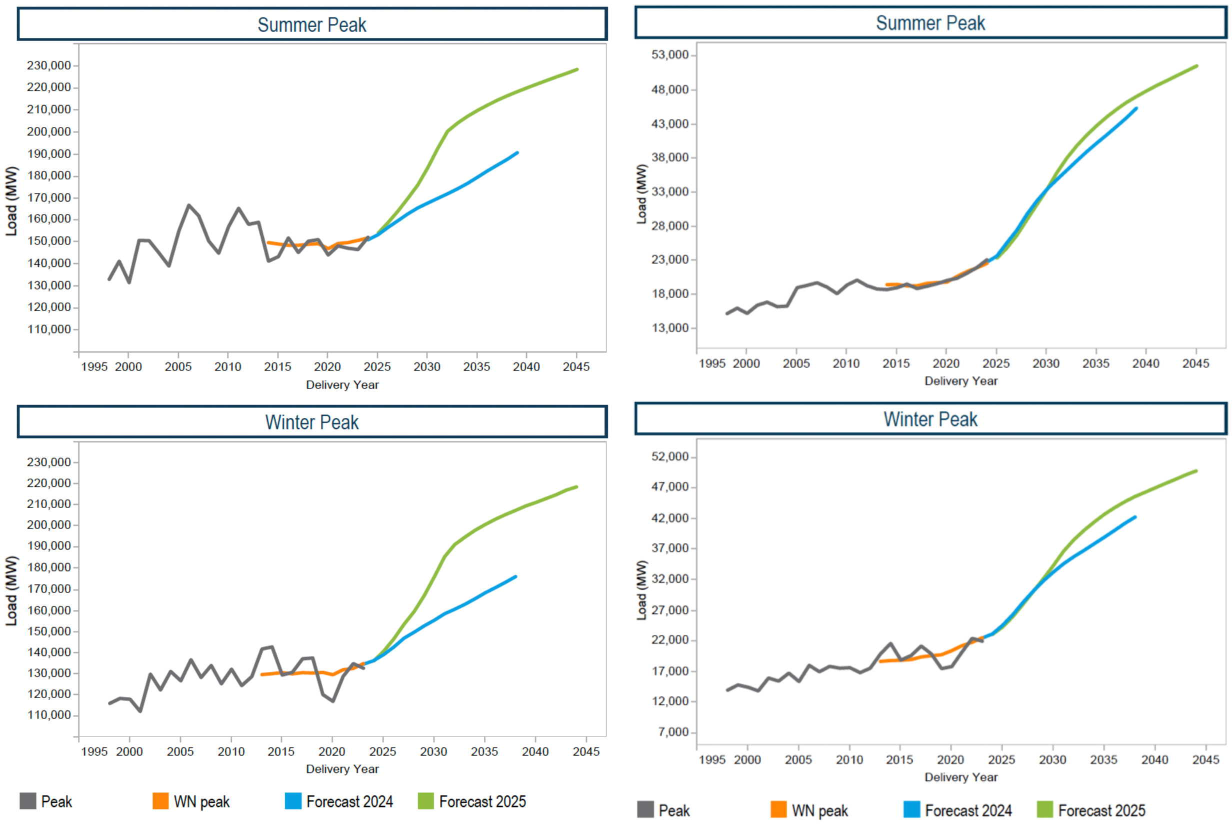


Source: Piedmont Environmental Council.

The following figures from PJM's 2025 load forecast illustrate how load forecasts have been rapidly increased for the region and for PJM's Dominion Zone (which encompasses most of Virginia and part of North Carolina). For PJM, winter peak electricity demand is forecast to increase almost 70% by 2045. Meanwhile, peak electricity demand in the Dominion Zone is projected to more than double by 2045. According to an IEEFA analysis, data centers represent at least 85% of the projected load increase in the Dominion Zone.[3]

[3] IEEFA. Data Centers Drive Buildout of Gas Power Plants and Pipelines in the Southeast. January 2025.

Figure 2: Forecasts of Winter and Summer Peak Demand From PJM's 2025 Load Forecast



Source: PJM's 2025 Load Forecast.
Note: The graphs on the left show projected winter and summer peak demand for PJM as a whole; the graphs on the right show the Dominion Zone.[4]

A January 2025 IEEFA report highlighted that traditional utility methods of cost allocation are not well-suited for data centers.[5] Typically, the costs of a utility's capital investments (in generation, transmission and/or distribution) are allocated across the utility's customer base, with a "class cost of service" study conducted to estimate how much should be allotted to each customer class (residential, commercial, industrial, etc). This methodology makes sense in that a major piece of infrastructure is typically going to serve the utility's load generally, and cannot be attributed to any specific customer.[6] In the case of data centers, however, when one large data center can have an energy demand comparable to a city, new electrical infrastructure might well be needed that would not be necessary in the absence of the data center. In such cases, the bedrock ratemaking principle of "cost causation," i.e., that costs should be assigned to the entities that cause those costs to be incurred,[7] would suggest that such infrastructure costs should be charged directly to the data center.

[4] PJM Interconnection. PJM Long-Term Forecast Report. January 2025.
[5] IEEFA. Data centers drive buildout of gas power plants and pipelines in the Southeast. January 2025.
[6] The exceptions are interconnection costs (for example, the transmission or substation upgrades needed to connect a new power plant to the grid), which are charged to the entity that causes the utility to incur those costs.
[7] USAID. Primer on Rate Design for Cost-Reflective Tariffs. January 2021, p. 14.

In practice, however, this does not necessarily occur.[8] In the last couple of years, some utilities have designed new tariffs specifically for large load customers (mainly data centers), in recognition of the fact that traditional cost allocation methods to industrial customers are inadequate for data centers.[9] As this report explains in greater detail, traditional methods of cost allocation for major new transmission projects in PJM have not yet been reconsidered in light of the new challenges posed by data center demand growth.

The January 2025 IEEFA report also emphasized the possibility that demand forecasts for data centers may turn out to be overstated, due to potential utility overestimation of data center demand and due to financial weaknesses in the artificial intelligence (AI) business model. This issue of utility over-forecasting of data center demand was recently highlighted by Joseph Dominguez, the CEO of Constellation Energy, a major electric generation company, on the company's first quarter 2025 earnings call. Dominguez pointed out that three regional grid operators—MISO, PJM, and ERCOT—which collectively account for less than half of national power demand, "are projecting demand growth notably higher than a wide range of consultants for the entirety of the U.S. It's hard not to conclude that the headlines are inflated."[10]

Inflated or not, forecasts of rapid electricity demand in PJM, as shown in Figure 1, are currently driving decisions to build billions of dollars' worth of electrical infrastructure, including new transmission.

How Do New Transmission Lines Get Built in PJM?

As a regional transmission organization regulated by the Federal Energy Regulatory Commission (FERC), PJM is responsible for planning electric transmission within its footprint.

PJM regularly publishes a transmission expansion plan, based on a modeling exercise that assesses whether the existing system is adequate to support future changes to generation (addition and/or retirements of power plants) and load.[11]

When PJM finds that there is a need for transmission to address future violations (i.e., voltage or current outside of the appropriate ranges), reduce congestion or otherwise improve operational performance, it invites transmission companies to propose solutions—which could mean new

[8] Even in situations where the data center is required to contribute directly to the cost of new infrastructure, the contract between the data center and the utility may not be long enough to fully recover the costs, leaving ratepayers on the hook for stranded costs. See, for example, Case U-37425 before the Louisiana Public Service Commission in which Entergy Louisiana is seeking commission approval to build three new gas-fired power plants to serve a proposed data center. The proposed contract with the data center can be terminated after 15 years, while the power plants would have a useful life of at least 30 years.

[9] For an overview, see: Stacy Sherwood. Review of Large Load Tariffs to Identify Safeguards and Protections for Existing Ratepayers. January 2025.

[10] Constellation Energy. Constellation Energy Corporation (CEG) Q1 2025 Earnings Call Transcript. May 6, 2025.

[11] It is worth noting that PJM does not exercise direct control over generation, instead managing the energy and capacity markets that are supposed to ensure that generators are adequately compensated and sufficient new capacity comes online.

substations, new transmission lines, and/or upgrades to existing lines and substations.[12] These different proposals are then assessed by PJM's Transmission Expansion Advisory Committee (TEAC), which recommends a set of solutions to PJM's Board of Managers. If a project is given the green light by PJM's Board of Managers, the transmission company assigned to the project (usually, but not always, the company that proposed it) must then apply to the relevant state regulatory commissions for certificates of public convenience and necessity to build the lines in those states.

In addition to these so-called "baseline upgrades," the RTEP process also identifies "network projects" that are needed to interconnect a specific new generator (and are paid for by that new facility).

Who Pays for Baseline Transmission Projects in PJM?

The cost of baseline transmission projects that are approved through PJM's RTEP process are allocated across the PJM footprint according to the following methodology: 50% of the costs are allocated to the PJM transmission zones that are expected to benefit from the transmission line,[13] and 50% are spread across all transmission zones in PJM, with each zone receiving a pro rata share based on its share of PJM peak demand. PJM files its proposed cost allocation for RTEP projects with FERC to confirm that the cost allocation is aligned with the approved methodology just described. In addition, individual projects can seek additional financial incentives from FERC (see Appendix 1).

The exception to this cost-allocation methodology are so-called "public policy" transmission projects. These are projects proposed by a particular state to meet that state's policy goals; such projects are entirely paid for by utilities within the relevant state.[14] In practice, this designation has applied only to transmission lines for offshore wind projects in New Jersey. Virginia's efforts to continue attracting new data center development via tax incentives, on the other hand, are not considered "public policy" even though they are resulting in substantial increases to electric load in Virginia that is a major driver of new transmission lines across other states.

The Maryland Office of People's Counsel (OPC) has recently argued that Maryland ratepayers are unfairly subsidizing the cost of new transmission in PJM that is driven by Virginia's data center demands, contrary to the ratemaking principle of "cost causation" described above, i.e., that the entities responsible for imposing costs on the system should assume those costs. Specifically, the

[12] The RTEP process does not allow generation alternatives to participate, which has been criticized by PJM's Market Monitor ("The MMU [Market Monitoring Unit] recommends the creation of a mechanism to permit a direct comparison, or competition, between transmission and generation alternatives, including which alternative is less costly and who bears the risks associated with each alternative." See: Monitoring Analytics. State of the Market Report for PJM. March 2025, p. 654. Additionally, PJM has been criticized for not adequately considering non-transmission alternatives as part of the RTEP process. See: Renewable Energy World. FERC approves PJM's $796M transmission plan, thwarting Maryland officials. November 2023.

[13] This is the case even when only a portion of the zone is benefitting from the project. For example, the Dominion Zone stretches into North Carolina, while the projects discussed in this report are primarily driven by data center needs in northern Virginia.

[14] PJM Interconnection. Consideration of Federal and State Public Policy Initiatives Through PJM's Long-Term Regional Transmission Planning Process. December 2023, p. 7.

OPC argued with respect to PJM's most recent set of RTEP projects that the "allocation of cost responsibility for these transmission projects under the PJM Tariff will unfairly and disproportionately shift the responsibility for a substantial portion of these costs to ratepayers in Maryland. That shift is contrary to bedrock principles of electric-transmission cost allocation."[15]

Similarly, FERC Commissioner Mark Christie has argued that PJM's definition of "public policy" transmission projects should be revisited to more accurately reflect how state policies are driving transmission projects outside their state borders.[16]

In the next section, we present a case study of the financial impact of two transmission lines proposed via PJM's most recent RTEP processes on ratepayers in West Virginia, a state without a significant data center load.[17] The findings underscore the need for reform in PJM's transmission cost allocation process.

Case Study: Impact of MidAtlantic Resiliency Link and Valley Link on West Virginia Electricity Customers

Within the past couple of years, PJM's transmission planning process has resulted in two major new transmission projects proposed that would cut paths through parts of West Virginia into northern Virginia.

MidAtlantic Resiliency Link

In December 2023, PJM published a "Reliability Analysis" that emphasized data centers as the driver of transmission expansion: "In July 2022, PJM directed an immediate need transmission enhancement project to enable the integration of the forecasted data center load up to and including year 2025. Since then, data center loads within northern Virginia have been increasing at an unprecedented rate, and new data center load is being proposed in Maryland near the Doubs substation ... In an effort to stay ahead of these rapid increases, PJM continued its consultation efforts with Transmission and Distribution Owners in the area to refine its forecast and further enhance its need assessment."[18] PJM identified "high data center load growth activity" and the "high

[15] Federal Energy Regulatory Commission. Comments of the Maryland Office of People's Counsel, Docket ER25-1811-000l. April 2025, p. 4.
[16] Federal Energy Regulatory Commission. Commissioner Christie's Concurrence in PJM Transmission Cost Allocations in ER24-843. April 2024.
[17] Electric Power Research Institute. Powering Intelligence: Analyzing Artificial Intelligence and Data Center Energy Consumption. May 2024, p. 28.
[18] PJM Interconnection. Reliability Analysis Report, 2022 RTEP Window 3. December 2023, p. 4.

demand for west to east power flow and into the APS [western Maryland] and northern Virginia networks" as key drivers of need for transmission enhancements.[19,20]

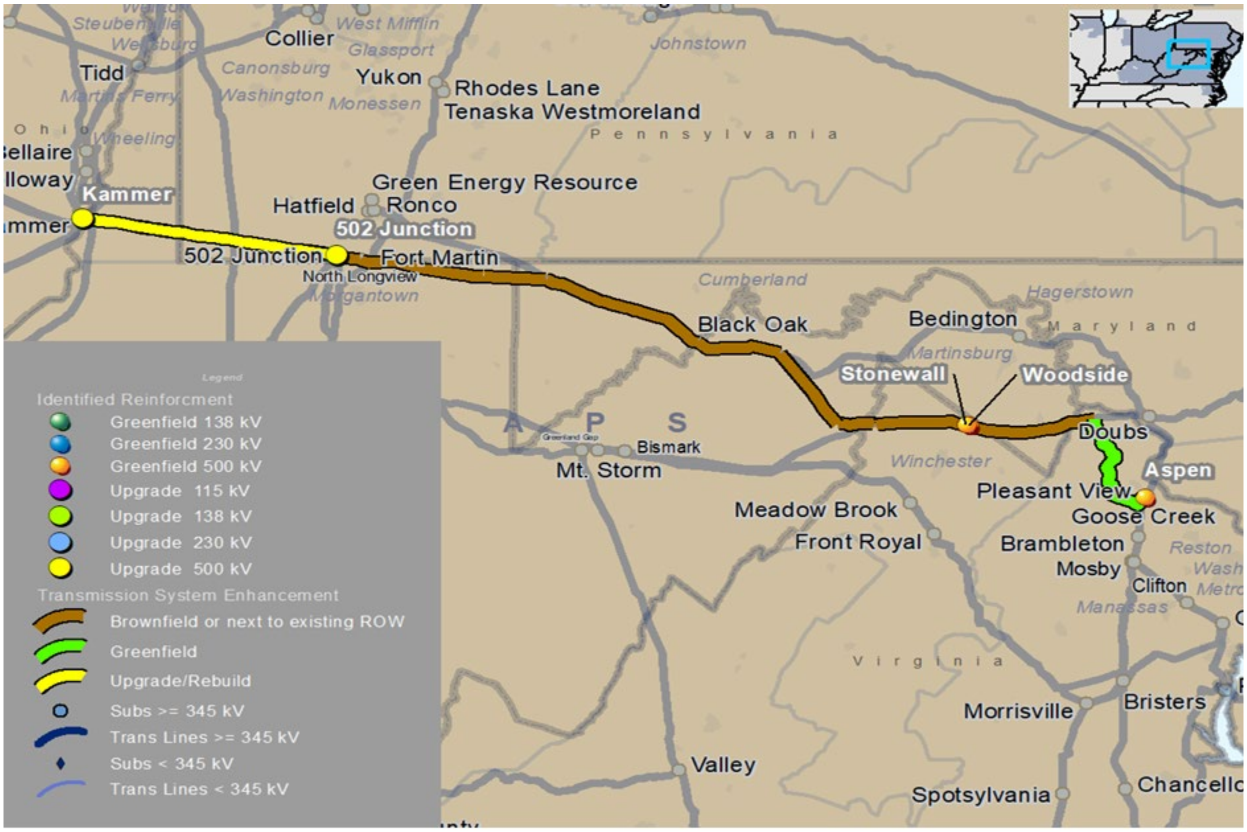
PJM selected a proposal from NextEra to build a line starting at the 502 Junction substation in southwestern Pennsylvania, through parts of West Virginia and Maryland, into the Goose Creek substation in northern Virginia (see map below). PJM found that NextEra's proposed transmission line "offers the needed reliability reinforcement to serve both the West to east transfer need and also provide a third 500 kV supply source into the northern Dominion load center region."[21] The project was approved by PJM's Board of Managers in December 2023.

PJM divided the scope of work for the project between three different transmission owners: NextEra, FirstEnergy and Dominion. The bulk of the line is to be built by NextEra, but FirstEnergy is in charge of the portion through northern Virginia and Jefferson County, W.Va., (from Gore to Doubs), with Dominion in charge of certain substation upgrades. NextEra's section of the project is estimated to cost $512.6 million, FirstEnergy's $392.6 million and Dominion's $35.6 million, for a total estimated cost of $940.8 million.[22,23] A subsequent re-route increased the cost estimate to $1.1 billion.[24] The two maps that follow show the original route and the proposed re-route. PJM's required in-service date for the project is June 1, 2027, although it noted that the date is "very aggressive for the proposed scope of the project considering the significant permitting and land acquisition challenges associated with the proposed 500 kV greenfield line routes through four states."[25]

NextEra has named its portion of the line the Mid-Atlantic Resiliency Link (MARL). FirstEnergy has not named its section of the line; in the remainder of this report, will use MARL to refer to the entire project, including the NextEra, FirstEnergy and Dominion components.

[19] PJM Interconnection. Reliability Analysis Report, 2022 RTEP Window 3. December 2023, pp. 4 and 36.
[20] FirstEnergy similarly emphasized in its application for incentive rates for its portion of the project that the need for the project is "based, in large part, on unprecedented load growth demand resulting from data center loads in Northern Virginia." (FirstEnergy application, FERC docket ER24-1998).
[21] PJM Interconnection. Reliability Analysis Report, 2022 RTEP Window 3. December 2023, p. 36.
[22] For purposes of this report, we are omitting a $0.1 million portion of the project that was assigned to AEP (an upgrade of the existing Kammer to 502 Junction line shown in yellow on the map).
[23] Transmission Expansion Advisory Committee. Reliability Analysis Update. December 5, 2023, p. 63-66.
[24] Transmission Expansion Advisory Committee. Reliability Analysis Update. July 9, 2024, pp. 43-44.
[25] PJM Interconnection. Constructability & Financial Analysis Final Report, 2022 RTEP Window 3. 2023, p. 62.

Figure 3: PJM's High-Level Map of the MARL Project, Showing the Project's Originally Proposed Route

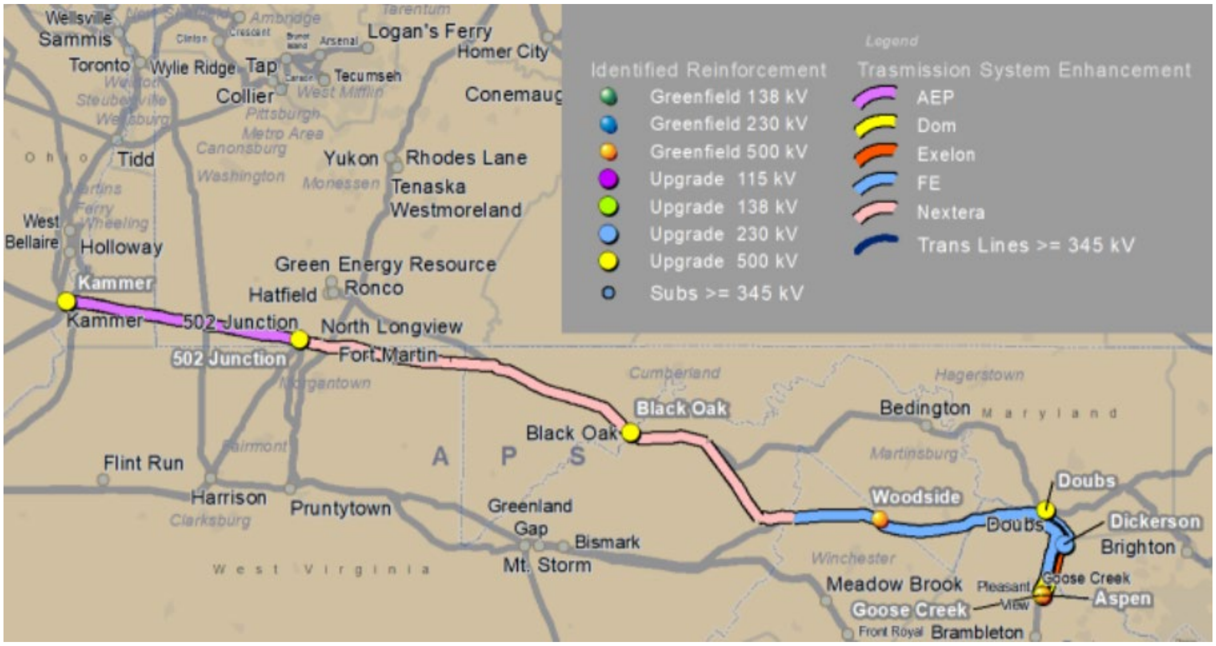


Source: PJM Reliability Analysis Update.

Note: The majority of the project is designated as being on "existing rights of way" although the project would require an expansion of those rights of way. The portion from Kammer to 502 Junction, shown in yellow, represents a $0.1 million upgrade to the existing line, not new construction.[26]

[26] Transmission Expansion Advisory Committee. Reliability Analysis Update. December 5, 2023, p. 61.

Figure 4: PJM's High-Level Map of MARL, After the Proposed Re-Routing, Showing Which Company Is Responsible for Each Section[27]



Source: PJM Reliability Analysis Update.

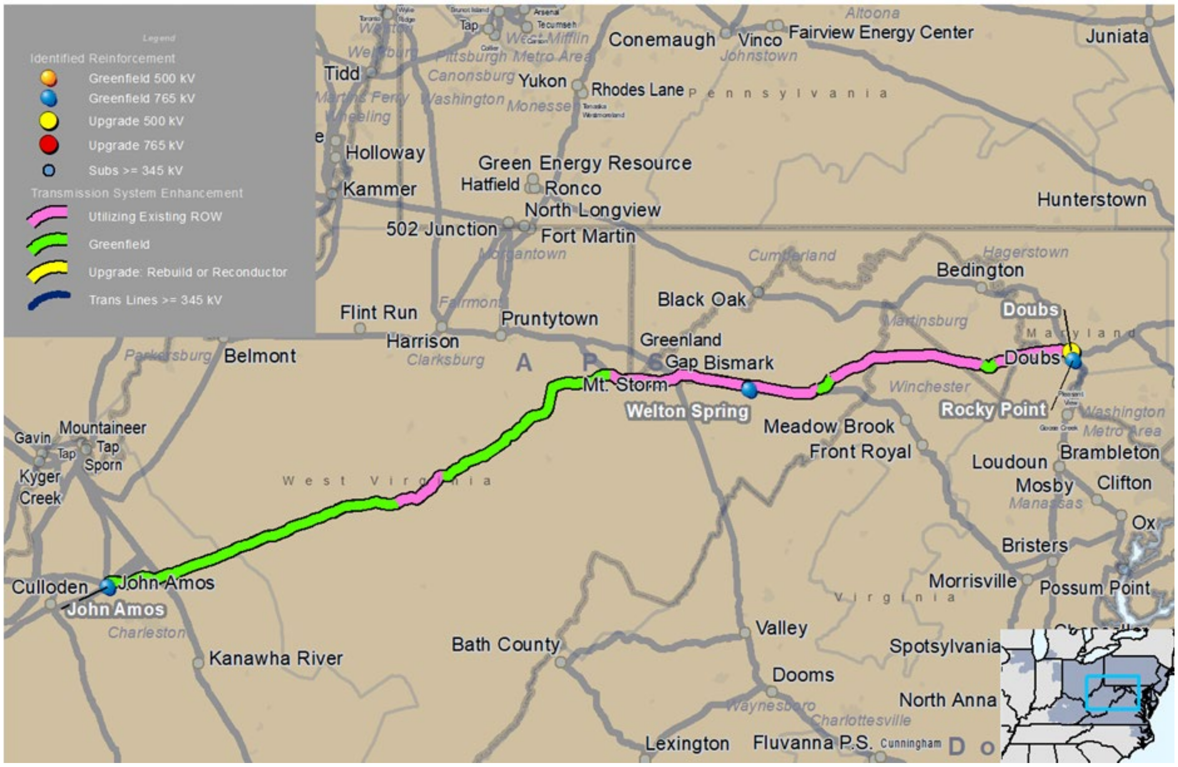
Valley Link

PJM's 2024 RTEP process identified additional needs for west-to-east power transfer capacity, driven by load growth "attributed primarily to data centers and some electrification/EV loads."[28] As noted previously, more than 85% of the load growth in PJM's Dominion Zone is attributable to data centers. The 765 kV Valley Link transmission line was proposed in response to the need identified in the 2024 RTEP, originating at the Amos substation (adjacent to the John Amos coal-fired power plant) in West Virginia and terminating at a proposed new substation called Rocky Point in Frederick County, Md., just across the state line from Loudon County, Virginia's data center alley.

As can be seen from the figure below, Valley Link would be a mix of new, greenfield transmission and expansion of existing rights-of-way. The proposed route appears identical to the Potomac-Appalachian Transmission Highline (PATH) transmission project that was proposed in 2009 but never built.

[27] Transmission Expansion Advisory Committee. Reliability Analysis Update. July 9, 2024, p. 43.
[28] Transmission Expansion Advisory Committee. Reliability Analysis Update. January 6, 2025, p. 9.

Figure 5: PJM's High-Level Depiction of the Route of the Valley Link Transmission Line[29]



Source: PJM Reliability Analysis Report for 2024 RTEP Window 1.

Valley Link is to be constructed by a joint venture of Transource (American Electric Power's transmission subsidiary, with a 36% equity share in the joint venture), FirstEnergy (34%) and Dominion (30%).[30] Its "required in-service date" is June 1, 2029, but its projected in-service date is Dec. 1, 2029,[31] which PJM also describes as "very aggressive for the proposed scope of the project, considering the significant permitting, engineering and construction, and land acquisition risks associated with the greenfield routing with a total of 261 miles of 765 kV construction."[32] According to the project developers, the expected capital cost is $1.9 billion, although a PJM independent estimate arrived at a capital cost of almost $2.3 billion.[33]

In short, both MARL and Valley Link represent major new investments in high voltage transmission that are designed to increase west-to-east power transfer capacity into northern Virginia, due to forecasted rapid growth in electricity demand that is almost entirely attributable to data centers.

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[29] PJM Interconnection. Reliability Analysis Report, 2024 RTEP Window 1. February 10, 2025, p. 61.
[30] Federal Energy Regulatory Commission. Valley Link Transmission Maryland, LLC, Valley Link Transmission Virginia, LLC, and Valley Link Transmission West Virginia, LLC Formula Rate Filing and Request for Authorization of Transmission Rate Incentive, FERC Docket ER25-1633. March 2025.
[31] PJM Interconnection. Reliability Analysis Report, 2024 RTEP Window 1. February 10, 2025, pp. 60-61.
[32] PJM Interconnection. Constructability & Financial Analysis Final Report, 2024 RTEP Window 1. December 2024, p. 24.
[33] Ibid.

Cost to West Virginia Ratepayers

West Virginia ratepayers are served by subsidiaries of two utility holding companies: FirstEnergy (whose subsidiaries Monongahela Power and Potomac Edison serve roughly the northern and eastern parts of the state except for part of the northern panhandle) and American Electric Power (whose subsidiaries Appalachian Power and Wheeling Power serve the southwestern portion of the state and part of the northern panhandle).[34]

To calculate the cost of the MARL and Valley Link transmission lines that will be reflected in the rates that customers of these utilities will pay, IEEFA first estimated the annual cost (or revenue requirement) of each of the two transmission lines during their useful life, and then estimated how the costs would be allocated to the West Virginia utilities. These calculations are provided in Appendix 1.

The following table summarizes the estimated costs to all West Virginia ratepayers and specifically to residential ratepayers. These are likely underestimates, given that they do not include "construction work in progress" (i.e., construction cost financing) which ratepayers will also pay, for the Valley Link project and the NextEra portion of the MARL line (see Appendix 1).

Table 1: Estimated Costs in Millions to All West Virginia Ratepayers

	MARL	Valley Link
FirstEnergy WV customers	$164.86	$222.79
- *FirstEnergy WV residential customers*	$55.55	$75.07
AEP WV customers	$19.68	$36.27
- *AEP WV residential customers*	$5.87	$10.82

In short, IEEFA's analysis finds that West Virginia ratepayers will pay more than $440 million over the next 40 years for two high-voltage transmission projects to be built across the state because of rapidly growing power demand in northern Virginia, which is almost entirely attributable to data centers. In addition, West Virginia ratepayers (along with other ratepayers across PJM) bear the risk of construction cost overruns on the projects and will also be on the hook for paying for project costs even if one or both of the projects is ultimately cancelled.

[34] There are also a couple of very small rural electric cooperatives in West Virginia that are not included in this analysis.

Conclusion: The Need for Reform of PJM's Transmission Cost Allocation Process

These projects are but one example of how ratepayers are subsidizing electrical infrastructure projects that likely would not be needed without the addition of massive data center loads. The upfront capital cost of the projects included in this case study represents just 27% of the total capital investment in new transmission lines proposed in PJM's most recent RTEP processes,[35] the cost of which will be borne by ratepayers across PJM. The most recent RTEP process does not address transmission needs beyond 2032,[36] but as shown in Figure 1, PJM forecasts significant load growth beyond 2032. Under PJM's existing transmission cost allocation methodology, West Virginia ratepayers, and others across PJM, will bear additional costs in the future for transmission needs associated with data centers, if forecasts of data center-driven load growth in northern Virginia over the next 20 years materialize.

The forecasts of rapidly growing data center loads, as well as the risk of stranded infrastructure costs if such loads do not fully materialize, call into question traditional methods of utility cost allocation. In particular, PJM's transmission cost allocation methods implicitly assumed that regional transmission costs could not be attributed to a single new user or class of users, an assumption that does not appear to hold true in the most recent RTEP processes. PJM's transmission cost allocation methodology also does not account for the fact that Virginia has made policy decisions to encourage a massive buildout of data centers, a decision that imposes costs outside of its state borders. Unless PJM changes course, ratepayers across the region will continue subsidizing the tech industry's electrical infrastructure demands.

[35] Transmission Expansion Advisory Committee. Transmission Expansion Advisory Committee (TEAC) Recommendations to the PJM Board. December 2023, p.1. Also see: Transmission Expansion Advisory Committee. Transmission Expansion Advisory Committee (TEAC) Recommendations to the PJM Board. February 2025, p. 2.
[36] PJM Interconnection. Reliability Analysis Report, 2024 RTEP Window 1. February 10, 2025, p. 6.

Appendix 1: Allocation of the Costs of MARL and Valley Link to West Virginia Ratepayers

To calculate how much of the cost of the MARL and Valley Link transmission lines will be reflected in West Virginia customer rates, IEEFA first estimated the annual cost (or revenue requirement) of each of the two transmission lines during their useful life, and then estimated how these costs would be allocated to the West Virginia utilities.

The main categories of expenses that comprise the annual revenue requirement are the return on the transmission owners' capital investment, depreciation, operation and maintenance, and taxes:

- Return on capital investment: This requires first estimating the net book value of the transmission line in any given year, i.e., its original capital cost less depreciation. IEEFA assumed a straight-line depreciation of 2.5% per year (a depreciable life of 40 years).[37] The net book value is then multiplied by the transmission owners' rate of return, which is calculated as the weighted average return on equity and cost of debt (weighted based on the percentage of equity and percentage of debt in the company's capital structure).
- Depreciation: As noted above, annual depreciation is assumed to be 2.5% per year of the original capital cost.
- Operation and maintenance, plus property taxes: These factors are assumed to be 3.5% the original capital cost in the first year and then increased with inflation.[38]
- Income taxes: The combined rate of federal and state income taxes is estimated at 25%-27%, depending on the utility.[39]

[37] See example: MISO. Transmission Cost Estimation Guide.
[38] The 3.5% estimate is based on the existing transmission formula rates for FirstEnergy subsidiary Potomac Edison and for American Electric Power. It is within the range found by MISO for midwestern states as well (See Table 5.2 of https://cdn.misoenergy.org/20240131%20PSC%20Item%2005%20Transmission%20Cost%20Estimation%20Guide%20for%20MTEP24%20-%20Redline631529.pdf).
[39] Income taxes for the utilities involved in these transmission line projects (NextEra, FirstEnergy – Potomac Edison, and the three Valley Link companies) were extracted from the companies' most recent transmission formula rates, available at: https://www.pjm.com/markets-and-operations/billing-settlements-and-credit/formula-rates.

The following table summarizes the assumptions used for the NextEra and FirstEnergy portions of MARL and for Valley Link:

Table 2: Assumptions Used in Estimating the Annual Revenue Requirement for the MARL and Valley Link Transmission Lines

	MARL: NextEra	**MARL: FirstEnergy WV**	**Valley Link**
Upfront capital cost ($ millions)	$441	$652	$1,959
Capital structure			
- *% debt*	36%	51%	47.3%
- *% equity*	64%	49%	52.7%
- *Cost of debt*	6%	4%	4.21%
- *Return on equity*	12.00%	10.45%	11.40%
Rate of return	9.84%	7.40%	8.00%
Annual depreciation rate	2.5%	2.5%	2.5%
Operation & maintenance and property taxes[40]	3.5%	3.5%	3.5%
Income tax rate	25%	27.06%	26.27%

[40] Expressed as percentage of first-year book value, and escalated annually with inflation (2%/year).

IEEFA estimates that the total cost of the MARL transmission project to be recovered from PJM ratepayers over 40 years is $5.4 billion ($3.5 billion in 2024 dollars), and the total cost of the Valley Link transmission project is $9.7 billion ($6.1 billion in 2024 dollars). Note that this cost estimate does not include some of the incentives that each project has requested from FERC. Both NextEra (for its portion of MARL) and Valley Link have applied for, and NextEra has already been granted:[41]

- The ability to recover project abandonment costs from ratepayers. This means that if the project is not completed and placed into service, the transmission owners can still charge ratepayers for costs incurred before the abandonment date. In the case of the failed PATH project, an abandonment incentive cost PJM ratepayers approximately $250 million.[42] FERC also granted the incentive to FirstEnergy for its portion of MARL.[43]
- Construction Work in Progress (CWIP). This refers to the transmission owners' ability to recover a return on the capital invested in the project while it is under construction.

Valley Link also requested additional incentives, including a 50-basis point adder to its return on equity as a new member of PJM (even though each of the companies that comprises the Valley Link consortium is already a member of PJM). This adder for Valley Link is included in Table 1, above.

[41] 186 FERC ¶ 61,052 (Order on Transmission Rate Incentives), and Valley Link Transmission Maryland, LLC, Valley Link Transmission Virginia, LLC, and Valley Link Transmission West Virginia, LLC, Formula Rate Filing and Request for Authorization of Transmission Rate Incentives, FERC Docket No. ER25-1633, March 14, 2025.
[42] Federal Energy Regulatory Commission. Commissioner Christie's Concurrence to Letter Order Approving PATH Settlement, ER12-2708-010, et al. December 2023.
[43] 189 FERC ¶ 61,161.

The reports of PJM's TEAC Committee recommending each of these projects for PJM Board of Managers approval provide a detailed breakdown of the allocation of project costs to the different transmission zones in PJM.[44,45] The following table provides the cost allocations to the relevant transmission zones, the APS Zone (which includes FirstEnergy's West Virginia companies) and the AEP Zone (which includes AEP's West Virginia companies):

Table 3: Percentage of Transmission Line Costs Allocated to the APS (FirstEnergy) and AEP Transmission Zones

	% allocated to APS Zone	% allocated to AEP Zone
MARL	19.5%	6.5%
Valley Link	15.3%	6.9%

IEEFA estimated the cost allocation to the FirstEnergy's West Virginia utilities based on their current share of total APS Zone load and assuming flat demand in the West Virginia service territory, in accord with FirstEnergy's most recent integrated resource plan in West Virginia.[46] Under these assumptions, FirstEnergy's WV customers would pay approximately $390 million of the cost of MARL and Valley Link. This is a conservative assumption because it assumes that there is no load growth in West Virginia; if West Virginia load growth keeps pace with projected load growth in the APS zone as a whole,[47] FirstEnergy's West Virginia customers would pay $490 million over the next 40 years.

Similarly, IEEFA estimated the allocation to the West Virginia jurisdictions of Appalachian Power and Wheeling Power based on those utilities' current load share in the AEP transmission zone and assuming flat load growth in West Virginia, in accordance with Appalachian Power's most recent integrated resource plan.[48] Under these assumptions, AEP ratepayers will pay $56 million for the MARL and Valley Link projects. Alternatively, if load growth in Appalachian Power's service territory keeps pace with forecasted growth in the AEP zone as a whole, West Virginia ratepayers would be $85 million.

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[44] Transmission Expansion Advisory Committee. Transmission Expansion Advisory Committee (TEAC) Recommendations to the PJM Board. December 2023, p.1. Also see: Transmission Expansion Advisory Committee. Transmission Expansion Advisory Committee (TEAC) Recommendations to the PJM Board. February 2025, p. 2.
[45] PJM Interconnection. PJM Zones.
[46] First Energy. Monongahela Power and Potomac Edison Integrated Resource Plan. December 2020.
[47] For projected load growth in the APS and AEP transmission zones, see: PJM Interconnection. PJM Long-Term Load Forecast Report. January 2025.
[48] American Electric Power. Notice to the Public of a Filing by Appalachian Power Company of its Integrated Resource Plan, Case No. PUR-2022-00051. April 29, 2022.

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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