ADDRESSING DATA CENTER ENERGY DEMAND

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WHY IT MATTERS

Understanding the impacts of data center growth on the electric system and the associated risks to Virginians is a critical undertaking.

A single data center can use as much energy as thousands of households; in fact, a large "hyperscale" data center can consume over 100 megawatts of power,[1] which equates to the power consumed by approximately 80,000 households.

Virginia is already home to the largest concentration of data centers in the world.[2] The Commonwealth currently has hundreds of data centers,[3] and the industry is expected to further grow with the expansion of artificial intelligence. A recent report by Virginia's Joint Legislative Audit and Review Commission (JLARC) found that data centers could almost double the state's energy use in the next decade.[4]

Regular Virginians face a significant risk if this data center growth occurs. As JLARC concluded, "[i]t will be difficult to supply enough energy to keep pace with growing data center demand, so energy prices are likely to increase for all customers."[5] For example, according to JLARC, data centers could drive up Dominion Energy's residential bills by $444 per year by 2040.[6]

To the extent this data center demand does materialize, new resources will be needed to power it. Independent modelling shows the more affordable, reliable way to meet the demand is through clean energy and storage (see Battery Storage, page 107).[7] Dominion's latest proposed plan, however, suggests building multiple new gas plants, which would place further financial risk on ratepayers and increase public health harms. For example, gas prices are projected to nearly double this year and continue climbing in 2026,[8] subjecting regular Virginians to increasingly unpredictable and high utility bills. Furthermore, fossil fuel facilities such as gas plants and pipelines emit pollutants that are harmful to nearby communities and accelerate climate change. If Dominion's gas plan were accepted, Virginia communities would be saddled with $7.4-$13.9 billion in health harms just through 2039.[9]

Non-utility companies are also proposing polluting projects to serve data centers. For example, last year the corporation Balico proposed a data center campus with 3.5 gigawatts of gas power plants in Pittsylvania County – the equivalent of more than half of Dominion's proposed gas buildout on a single site.[10]

Even if data center growth does not fully materialize – which is a real possibility, given the uncertainties in the data center market[11] – Virginians still face significant risk. Data center load may be lower than projected for various reasons, including speculative data center projects failing to proceed,[12] advances in computing equipment reducing electricity requirements, or a single big technology company changing its business plans.[13] If utilities rush to build new gas plants and other infrastructure for demand that doesn't materialize, regular Virginians may be left footing the bill for potentially billions of dollars of unnecessary utility investment.[14]

CURRENT LANDSCAPE

For years, statewide tax incentives and active recruitment by both state and local economic development offices have encouraged data centers to locate in Virginia, predominantly Northern Virginia.[15] On the one hand, data centers bring in significant personal property taxes to localities. On the other hand, data centers receive by far the largest tax break in Virginia, on the sales and use tax that would otherwise apply to their expensive computing equipment.

The recent JLARC report highlighted Virginia's sales and use tax exemption as one of the top factors influencing data center siting decisions. Virginia lost out on almost $1 billion in tax revenues in fiscal year 2023 because of the data center tax exemption, with 82% of that tax handout going to just the five top data center companies. JLARC concluded that the exemption only provides "moderate economic benefits and return in revenue" and "does not pay for itself when considering just the state portion of the exemption cost and the state return in revenue."

The State Corporation Commission (SCC) also plays an important role in managing the risks and costs associated with data center energy demands. The Commission regulates utilities like Dominion to ensure that they comply with laws like the Virginia Clean Economy Act, that they make reasonable investments based on future uncertainties and other risks, and that different types of customers pay their fair share of costs. All of these responsibilities come with heightened importance given the scale and pace of projected data center growth.

OPPORTUNITIES

Reevaluating the incentives available to data centers, including the sales and use tax exemption, could be

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one approach to responsibly managing growth of the expanding industry in Virginia. The current approach continues to attract significant development without asking for much in return. With its outsized market share, Virginia could be more selective in the types of data centers it is attracting. For example, incentives could be provided only to those data centers that can demonstrate their facility will meet certain environmentally responsible standards.

Meanwhile, there are opportunities for the Commission and other decision-makers to protect regular Virginians from unfairly bearing the risks and costs driven by data center growth. These opportunities include evaluating and addressing whether large energy users like data centers should be a separate electric utility rate class, whether traditional cost allocation methodologies are fairly distributing the huge costs being driven by data centers, and whether utility contracts with data center companies could be updated to better protect regular customers. It also includes steps to improve understanding of and address the Virginia data center industry's regional and statewide energy impacts.

TOP TAKEAWAYS

Understanding the impacts of data center growth on the electric system and the associated risks to Virginians is a critical undertaking. Virginians face financial, environmental, and health risks from potentially unsustainable data center growth; utility plans powered by gas rather than affordable clean energy and storage; and a potentially overbuilt system in the event data center demands fail to materialize.

Data center growth is likely to increase utility bills for Virginians. Decision-makers have tools available to safeguard non-data center customers in the face of rising costs and to ensure sustainable and responsible data center growth in the future.

Reevaluating incentive structures such as the sales and use tax exemption, with a focus on sustainability standards, could help ensure the sustainable growth of the industry.

ENDNOTES

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