BOARD OF COUNTY COMMISSIONERS

SPECIAL MEETING

SCHOOL BOARD ADMINISTRATIVE COMPLEX

372 WEST DUVAL STREET
LAKE CITY, FL. 32055

July 23, 2026 at 5:30 PM

AGENDA

Opportunity for public comment shall be in accordance with Rule 4.704. Each person who wishes to address the Commission regarding the Consent Agenda or any Discussion and Action Agenda Item shall complete one comment card for each item and submit the card or cards to County staff in the front of the meeting room.Cards shall be submitted before the meeting is called to order.

Rules of decorum and rules for public participation are attached to the agenda handouts.

Invocation (Commissioner Murphy)

Pledge to U.S. Flag

Discussion and Action Items

(1) Data Center Discussion (p.1)

(2) FY 2026-2027 Budget - Set Millage General Operations at 7.8150 (p.216)

(3) FY 2026-2027 Columbia County Industrial Park Budget - Set Millage at 7.8150 (p.219)

Open Public Comments to the Board – 3 Minute Limit

Adjournment

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
AGENDA ITEM REQUEST FORM

Department:	BCC Administration	**Meeting Date:**	7/23/2026

1. Nature and purpose of agenda item:

Data Center Discussion

2. Recommended Motion/Action:

Discussion

3. Fiscal impact on current budget:

This item has no effect on the current budget.

Data Center Community Impact Resources

Examples and data points highlighting the economic and community benefits of data centers across U.S. communities.

Economic & Tax Impact

Strong Tax Contributions with limited strain on services
Data centers provide significant tax contributions without placing a high burden on localities for public services. For example, this report from the Northern Virginia Technology Council report shows that in Loudoun County, data centers pay $26 for every dollar of local public services required. In Prince William County, the ratio is $13 to $1. There's some other good tax data in that report.

Major contributors to local budgets
Tax revenue from data centers account for 38% of Loudoun County's General Fund.

Direct financial relief for residents
From the Mecklenburg County Administrator's budget presentation: "Thus, under this Budget, the average taxpaying household in the "county" part of Mecklenburg County will be asked to contribute almost $100 less than last year! That is the 'Data Center Dividend.'"

[**In other words]** In Mecklenburg County, the county's most recent budget featured what they call a "data center dividend" that included $1.5 million in tax cuts including a reduction in personal property tax, elimination of vehicle registration fee, and elimination of the consumer utility tax.

Community Investment & Local Benefits

Supporting housing affordability and local development
Henrico County is channeling new tax revenue from more than $1 billion in local data-center investments from companies like Meta and Google into an Affordable Housing Trust Fund. Instead of waiting on slow, rigid federal programs, the fund directly cuts the price of new homes so local workers earning 60% to 120% of area median income can actually buy houses near their jobs.

Energy Affordability & Cost Allocation

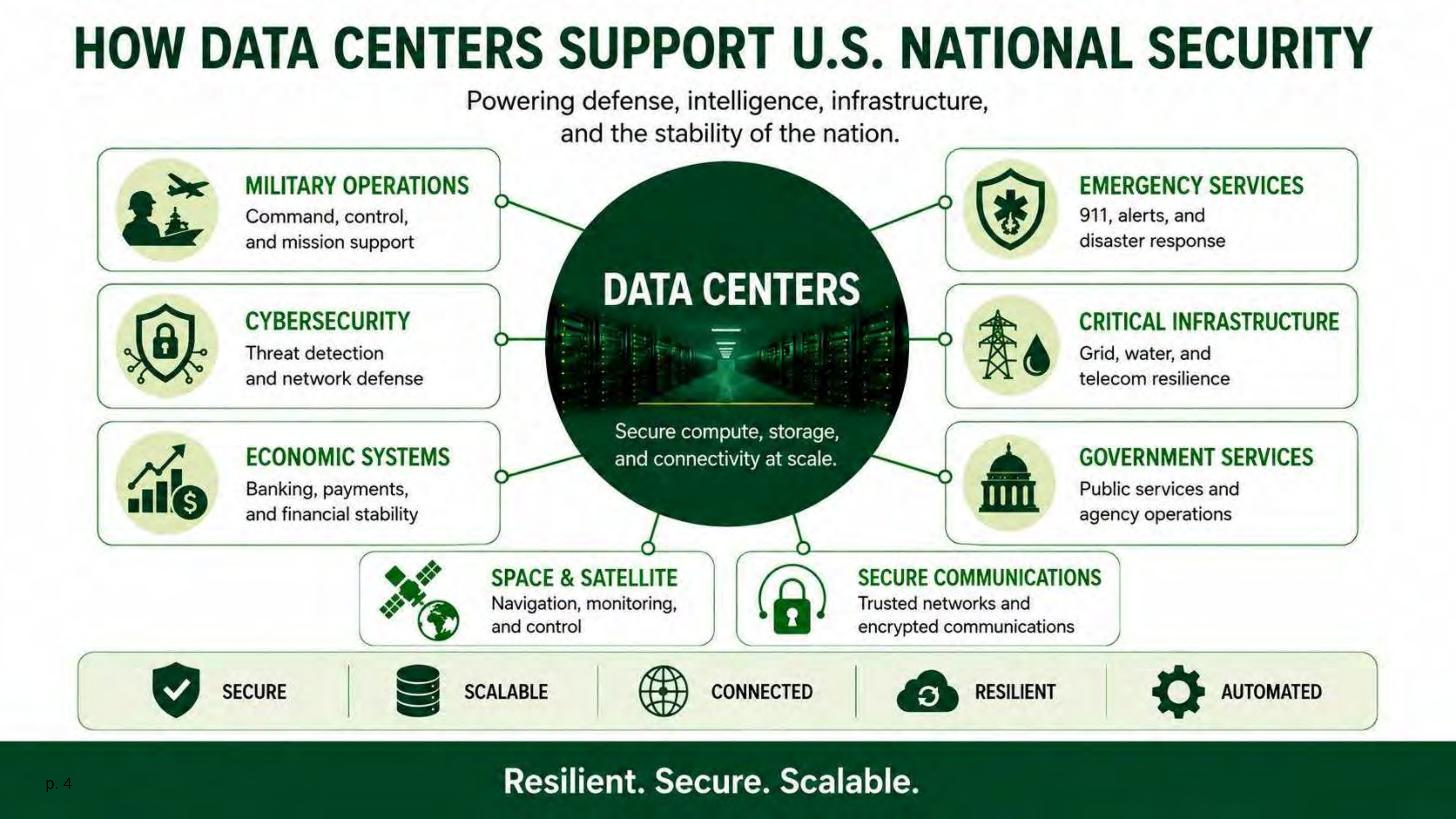
Costs are being fairly allocated
An independent review in Virginia by the Joint Legislative Audit and Review Commission (JLARC) found that current rate structures appropriately assign costs to customers, including data centers. The report states "current rates appropriately allocate costs to the customers responsible for incurring them, including data center customers." While the report emphasizes a need to continue reviewing current practices and consider alternative approaches as system growth continues, it is important to note that the existing cost allocation and rate review practices have worked to date.

The same has also been found in other critical data center markets like Arizona, where the Arizona Corporation Commission (ACC) stated that "To date in Arizona, the data center industry is paying its fair share of expansion of power generation and infrastructure under existing utility rate structures and Commission practices."

Potential to lower or stabilize energy costs
From a PG&E press release: Growth in data center demand is good news for all PG&E customers. PG&E estimates for every 1,000 MW (or 1 GW) of new electric demand from data centers it serves, PG&E electric customers may save between 1-2% on their monthly bill in the long term, while serving those customers with some of the cleanest electricity in the United States.

Additional Resources & Perspectives

- Op-eds: LaPorte, Arizona, Red Oak
- The DCC LinkedIn page shares positive stories, including community impact stories.


HOW DATA CENTERS SUPPORT U.S. NATIONAL SECURITY
Powering defense, intelligence, infrastructure, and the stability of the nation.
MILITARY OPERATIONS
Command, control, and mission support
CYBERSECURITY
Threat detection and network defense
ECONOMIC SYSTEMS
Banking, payments, and financial stability
DATA CENTERS
Secure compute, storage, and connectivity at scale.
EMERGENCY SERVICES
911, alerts, and disaster response
CRITICAL INFRASTRUCTURE
Grid, water, and telecom resilience
GOVERNMENT SERVICES
Public services and agency operations
SPACE & SATELLITE
Navigation, monitoring, and control
SECURE COMMUNICATIONS
Trusted networks and encrypted communications
SECURE
SCALABLE
CONNECTED
RESILIENT
AUTOMATED
Resilient. Secure. Scalable.

Economic Contributions of Data Centers in the United States

2023 - 2024

Prepared for The Data Center Coalition

May 2026

Contents

Economic Contributions of Data Centers in the United States

About

The Data Center Coalition (DCC) engaged PwC to quantify the economic contributions of the U.S. data center industry. This report presents PwC's contribution assessments for 2023 and 2024 at the national and state levels.

DCC is the membership association for the U.S. data center industry and represents the industry's interests through a range of activities, including public policy and energy advocacy, thought leadership, stakeholder outreach, and community engagement.

www.datacentercoalition.org

At PwC, our purpose is to build trust in society and solve important problems. We are a network of firms in 136 countries with over 364,000 people who help organizations and individuals create the value they are looking for, by delivering quality in Assurance, Tax, and Advisory services.

www.pwc.com/US

Acronyms

AI	Artificial intelligence
BEA	United States Bureau of Economic Analysis
BLS	United States Bureau of Labor Statistics
DCC	Data Center Coalition
GDP	Gross domestic product
IT	Information technology
NAICS	North American Industry Classification System
NAPCS	North American Product Classification System

Executive summary

Data centers play an increasingly prominent role in digital infrastructure across many industries, reflecting rising data volumes and expanded use of technologies such as real-time analytics, AI, and cloud computing. In 2023 and 2024, increased adoption of AI coincided with higher demand for compute-intensive data center capacity, contributing to elevated levels of investment during the study period.

Reflecting changes in how data center services are organized and delivered, this analysis adopts an expanded, function-based definition of the data center sector that captures data center services wherever they are produced, rather than limiting measurement to a single industry classification. Under this definition, the industry's role extends beyond physical infrastructure, with associated economic activity observed across multiple sectors of the economy. This expanded definition reallocates existing economic activity across industries rather than introducing new activity, ensuring that economy-wide totals are preserved.

Economic contribution

As summarized in **Table E-1**, including direct, indirect, and induced effects from data center construction and operations, the total number of jobs supported by the industry nationwide increased from 4.7 million in 2023 to 5.5 million in 2024 (17 percent growth). At the national level, each direct job in the data center industry is estimated to support 4.5 additional jobs in the broader U.S. economy in 2024. These employment effects are distributed across many sectors, reflecting the industry's diverse economic linkages.

These broad employment effects also translate into substantial labor income and GDP contributions, underscoring the industry's extensive upstream and household spending linkages. Driven by the compensation levels associated with the industry and its supply chain, the total labor income supported by the industry (including the direct, indirect, and induced effects) rose from $431.1 billion in 2023 to $525.3 billion in 2024 (22 percent growth). Furthermore, the sector's total contribution to the U.S. economy's value added, or GDP, grew from $768.0 billion in 2023 to $926.9 billion in 2024 (21 percent growth), highlighting its measurable influence on overall national economic output.[1]

[1]. Value added is a term commonly used by economists to describe how much an industry contributes to a nation's or state's GDP. It represents the additional value created at a particular stage of production. Value added is measured as the difference between the total revenue of the industry and the total cost of its materials, supplies, and services purchased from other businesses, other than capital goods. Value added can also be derived as the sum of employee compensation, proprietors' income, pretax income to capital owners from property (including depreciation), and taxes on production and imports (including excise taxes, property taxes, fees, licenses, sales taxes, and custom duties paid by businesses).

Table E-1.− The economic contributions of the U.S. data center industry, 2023-2024

Item	2023	2024	Growth
Employment (jobs)[1]			
Direct Contribution	**1,004,780**	**1,005,080**	**0%**
Indirect and Induced Contribution	3,709,500	4,490,020	21%
Operational	2,609,390	2,778,900	6%
Capital spending	1,100,110	1,711,120	56%
Total Contribution[4]	**4,714,280**	**5,495,100**	**17%**
Labor Income ($billions)[2]			
Direct Contribution	**$148.5**	**$164.4**	**11%**
Indirect and Induced Contribution	$282.6	$360.9	28%
Operational	$179.7	$197.7	10%
Capital spending	$102.9	$163.2	59%
Total Contribution[4]	**$431.1**	**$525.3**	**22%**
Value Added ($billions)[3]			
Direct Contribution	**$274.7**	**$301.7**	**10%**
Indirect and Induced Contribution	$493.3	$625.1	27%
Operational	$325.0	$358.0	10%
Capital spending	$168.2	$267.1	59%
Total Contribution[4]	**$768.0**	**$926.9**	**21%**

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

1. Employment is defined as the number of payroll and self-employed jobs, including part-time jobs.
2. Labor income is defined as wages, salaries, and benefits as well as proprietors' income.
3. Value added refers to the additional value created at a particular stage of production. It is measured as the difference between the total revenue of the industry and the total cost of its materials, supplies, and services purchased from other businesses, other than capital goods.
4. Total contribution includes direct, indirect, and induced contributions. Direct contributions are those occurring directly within the data center industry. Indirect contributions are those occurring within other businesses as part of the supply chain to the data center industry. Induced contributions are those arising from household spending of income earned from the data center industry or its supply chain.

Tax contribution

Displayed in **Table E-2** below, the data center industry's total contribution to government revenues at the federal, state, and local level, including direct, indirect, and induced contributions, increased from $164.7 billion in 2023 to $204.4 billion in 2024 (24 percent growth). These tax contributions reflect the broad economic activity supported by data center operations and their supply chains. At the state and local level, these revenues help fund public services, such as education, infrastructure, and public safety, thereby contributing to local public service funding.

Table E-2. The U.S. data center industry's tax contribution, 2023-2024[1]

Item	2023	2024	Growth
Total Contribution ($billions)	**$164.7**	**$204.4**	**24%**
Social Insurance Contributions	$48.2	$58.6	22%
Personal Income Taxes	$20.3	$24.7	21%
Sales/Use Taxes	$44.5	$55.0	24%
Property Taxes	$19.4	$24.9	28%
Corporate Income Taxes	$22.6	$28.9	28%
Other payments	$9.7	$12.3	27%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

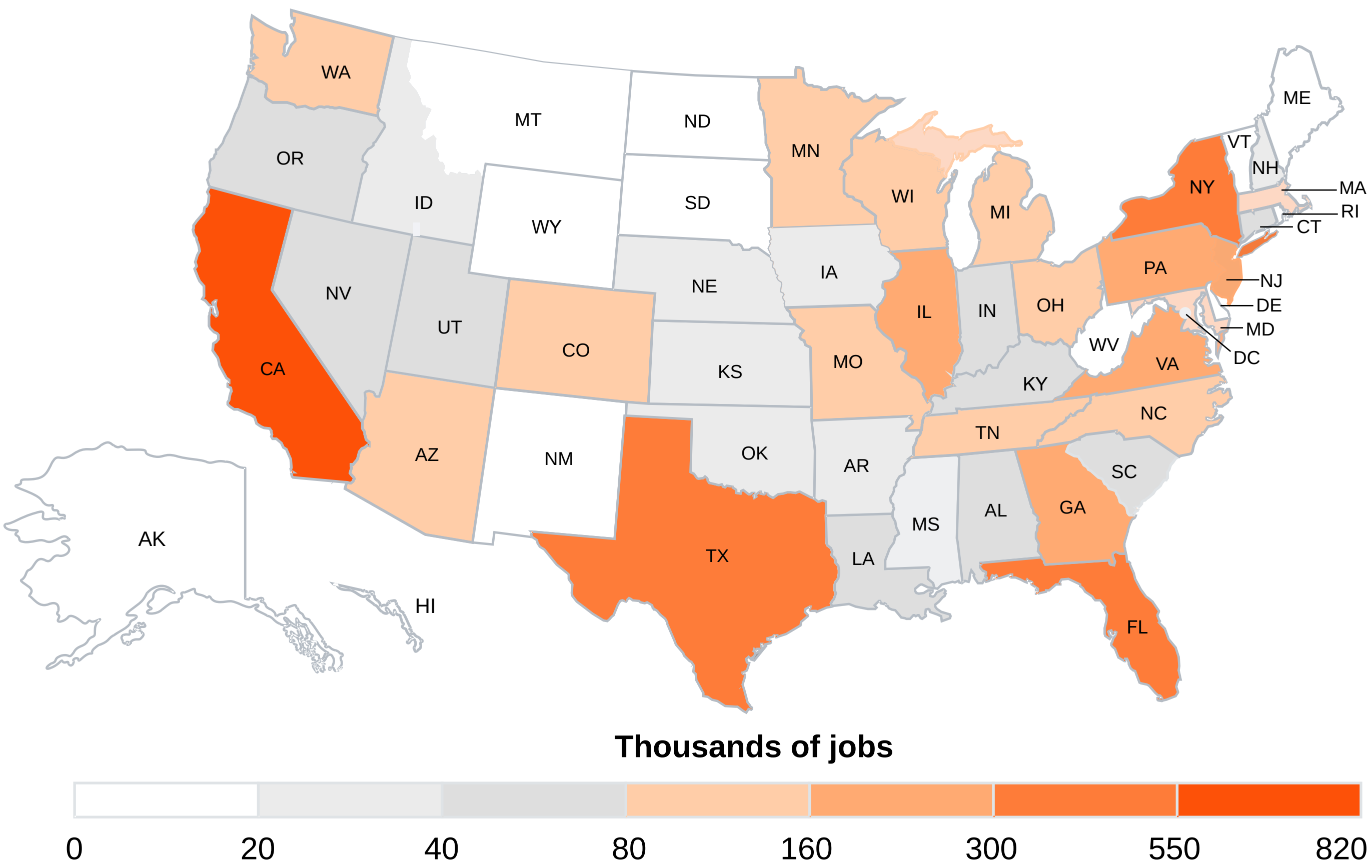
1. Tax contribution includes all federal, state, and local taxes directly or indirectly resulting from the U.S. data center industry's construction and operations (including direct, indirect, and induced economic effects). Tax contributions are estimated using government tax receipts data; as reported, tax receipts reflect revenues collected and are therefore net of incentives, credits, and abatements.

State-level contribution

The data center industry operates in all 50 states and the District of Columbia. The latest data show that in 49 states and the District of Columbia, the data center industry directly provided at least 1,000 jobs in each jurisdiction in 2024 (see Appendix **Table A-2a**). Including direct, indirect, induced, and cross-state spillover effects, the data center industry supported at least 10,000 total jobs in all but four states in 2024. The top 10 states with total jobs (including the cross-state spillover effects) supported by the data center industry in 2024 were: California (818,160 jobs), Texas (548,110), Florida (400,100), New York (312,380), Georgia (230,140), Virginia (201,100), Illinois (200,040), Pennsylvania (182,580), New Jersey (172,020), and North Carolina (159,710). These states tend to have large and diversified economies, substantial data center activity, or strong supply-chain linkages, which are factors that help explain the magnitude of their total estimated employment effects.

Figure E-1. Total employment supported by the data center industry by state, 2024

(With cross-state spillover effects)



Source: PwC calculations using the IMPLAN modeling system and public data.

I. Introduction

The rapid advancement of digital technologies and the growth of data-driven industries have coincided with increased deployment of data center infrastructure across the U.S. economy. Serving as infrastructure for cloud computing, AI, and digital communications, data centers support the storage, processing, and transmission of large data volumes. During 2023 and 2024, increased AI workloads, continued expansion of hyperscale facilities, and deployment of edge computing were associated with changes in industry investment and operational patterns. At the same time, rising energy costs and geopolitical considerations were observed to influence operational efficiency, resilience, and sustainability considerations.

DCC engaged PwC to examine the economic contribution of the U.S. data center industry at the national and state levels for 2023 and 2024, building on prior PwC analysis covering the period from 2017 through 2023.[2] Reflecting the evolving structure of the industry, this study adopts an expanded, function-based definition of the data center sector that captures data center services wherever they are produced, rather than limiting measurement to a single industry classification.

The growth and development of data centers during this period supported a wide range of employment opportunities, from facility operations and infrastructure management to specialized roles in information technology and data services. Beyond direct employment, the industry stimulated economic activity across related sectors, including construction, telecommunications, power infrastructure, and manufacturing.

This report is organized as follows: **Section II** defines the data center industry for this study. **Section III** presents PwC's estimates of the industry's total economic contributions at the national and state level for 2023 and 2024. More detailed state-level results are presented in **Appendix A**, while **Appendix B** describes the data sources and methodology used in the analysis.

[2] PwC, Economic Contributions of Data Centers in the United States, January 2025. Available at: **https://www.datacentercoalition.org/reports-and-publications.**

II. Industry overview

Data centers are part of the modern digital economy, providing the infrastructure services required to store, process, and transmit data at scale. At their core, data centers deliver compute, storage, networking, hosting, and continuous operational control, which are used by cloud computing, artificial intelligence, digital communications, and data-intensive applications across virtually every sector of the economy.

While early data centers were closely associated with discrete physical facilities housing computing equipment, the industry has evolved into a distributed infrastructure production system. Today, data center services are delivered through a combination of hyperscale facilities, colocation environments, edge deployments, and managed infrastructure operations. These services rely increasingly on software-defined systems and monitoring tools to meet operational requirements related to uptime, performance, and system continuity.

Reflecting this evolution, data center services are no longer produced exclusively within establishments classified under a single industry code. While NAICS code 518210 (Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services) remains the core classification for data center operators, a growing share of data center service delivery occurs within establishments classified under adjacent IT services and infrastructure-management industries. In these cases, firms may deliver functionally identical data center services—including responsibility for uptime, availability, and operational control—despite being classified outside NAICS code 518210.

For the purposes of this study, the data center industry is therefore defined using an expanded, function-based approach that captures data center services wherever they are produced, rather than limiting measurement to a single establishment-based classification. Under this definition, the industry encompasses all activities that are economically inseparable from the delivery of core data center infrastructure services, while continuing to exclude upstream suppliers (such as utilities, construction, and equipment manufacturing) and application layer or end-user services.

This function-based perspective is intended to provide a representation of how data center services are organized, delivered, and scaled in practice. It also ensures that the industry's economic contribution is measured consistently across organizational structures, ownership models, and service-delivery arrangements.

Enterprise

A company-owned data center used for internal data processes.

Hyperscale

A data center containing at least 5,000 servers, spanning a minimum of 10,000 square feet and offering at least 40MW of capacity.

Multitenant

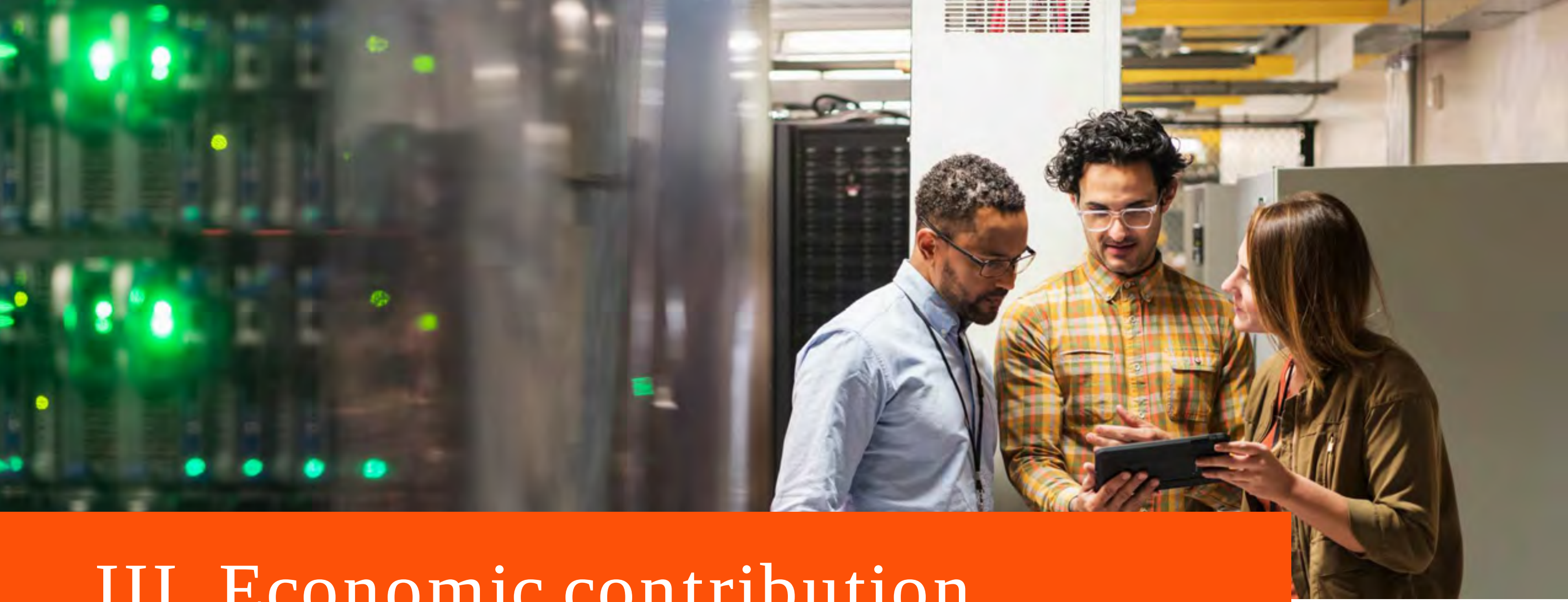
A data center that leases equipment or bandwidth to other companies.

Edge

A smaller data center located as close to the end user as possible, typically used to support Internet of Things and other low-latency demands.

Data center services are delivered through a variety of deployment and operating models. While these models differ in scale, ownership, and configuration, they all support the delivery of core data center infrastructure services as defined in this study. Common data center deployment models include enterprise, hyperscale, multitenant (colocation), and edge data centers.

Under the expanded, function-based definition used in this analysis, data center services delivered through each of these models are included wherever they are produced, including when operational responsibilities are embedded within establishments classified outside NAICS code 518210.



III. Economic contribution

Methodology at a glance

- The analysis uses 2023-2024 industry-level employment, labor income, and other data from the U.S. Census Bureau, BEA, and BLS.
- Economic effects are measured using an input–output modeling framework, which captures activity directly associated with data centers and the additional activity supported throughout the supply chain and through household spending.
- **Direct effects:** Employment, labor income, value added, and tax payments within the data center industry.
- **Indirect effects:** Economic activity supported through in-state supplier purchases (e.g., construction, utilities, professional services).
- **Induced effects:** Economic activity supported when workers in direct and supplier industries spend their earnings.

To measure the economic activity of the U.S. data center industry, we considered four metrics: employment, labor income, value added, and tax payments, as defined below.

Employment	The number of full-time and part-time payroll and self-employed jobs averaged over the year.
Labor income	Total wages, salaries, and benefits, as well as proprietors' income.
Value added	The total output of each sector less the associated value of intermediate inputs.[3] The sum of the value added across all sectors in the economy is GDP. An industry's value added represents its contribution to GDP.
Tax payments	Fiscal support through taxes to the federal government and state and local governments.

[3] Intermediate inputs are goods and services that are used in the production process to produce other goods or services. Bureau of Economic Analysis "What are intermediate inputs?" **https://www.bea.gov/help/faq/185.**

U.S. results

Table III-1. The economic contribution of the U.S. data center industry 2023-2024

At the national level, each direct job in the data center industry is estimated to support 4.5 jobs elsewhere in the U.S. economy in 2024.

Item	2023	2024	Growth
Employment (jobs)[1]			
Direct Contribution	**1,004,780**	**1,005,080**	**0%**
Indirect and Induced Contribution	3,709,500	4,490,020	21%
Operational	2,609,390	2,778,900	6%
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Total Contribution[4]	**4,714,280**	**5,495,100**	**17%**
Labor Income ($billions)[2]			
Direct Contribution	**$148.5**	**$164.4**	**11%**
Indirect and Induced Contribution	$282.6	$360.9	28%
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Total Contribution[4]	**$431.1**	**$525.3**	**22%**
Value Added ($billions)[3]			
Direct Contribution	**$274.7**	**$301.7**	**10%**
Indirect and Induced Contribution	$493.3	$625.1	27%
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Total Contribution[4]	**$768.0**	**$926.9**	**21%**

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

1. Employment is defined as the number of payroll and self-employed jobs, including part-time jobs.
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3. Value added refers to the additional value created at a particular stage of production. It is measured as the difference between the total revenue of the industry and the total cost of its materials, supplies, and services purchased from other businesses, other than capital goods.
4. Total contribution includes direct, indirect, and induced contributions. Direct contributions are those occurring directly within the data center industry. Indirect contributions are those occurring within other businesses as part of the supply chain to the data center industry. Induced contributions are those arising from household spending of income earned from the data center industry or its supply chain.

How to interpret the results

- Results represent economic activity supported by the data center industry, not activity newly created or guaranteed in future periods.
- Estimates are for 2023-2024 only and should not be interpreted as forecasts of future economic activity.
- The analysis captures backward linkages—supply-chain activity and household spending—not the downstream economic activity enabled by data center services ("forward linkages").
- Indirect and induced effects reflect average purchasing and spending patterns from the latest IMPLAN model.

Employment

Direct employment in the U.S. data center industry surpassed 1 million jobs in both 2023 and 2024 (**see Table III-1**). Including direct, indirect, and induced effects from data center construction and operations, the industry supported 4.7 million jobs nationwide in 2023 and 5.5 million in 2024 (17 percent growth). This suggests that, at the national level, each direct job in the data center industry supports 4.5 jobs elsewhere in the U.S. economy in 2024 (including both operational and capital spending effects) for an employment multiplier of 5.5.[4]

The jobs supported elsewhere in the economy are a result of the indirect effect (jobs existing to produce goods and services needed in the supply chain of the data center industry), as well as the induced effect (jobs estimated to result from additional household spending of income earned from the data center industry and its supply chain).

Labor income

Direct labor income earned in the data center industry increased from $148.5 billion in 2023 to $164.4 billion in 2024 (11 percent growth), driven primarily by rising compensation levels across key occupational categories. Including the direct, indirect, and induced effects, the industry's total annual contribution to national labor income from its operations and capital investments grew from $431.1 billion in 2023 to $525.3 billion in 2024 (22 percent growth), outpacing the rate of direct labor income growth and underscoring the strength of the industry's supply chain and household spending linkages. The labor income multiplier, including both operational and capital spending effects, was 3.2 in 2024, meaning that for each dollar of labor income in the U.S. data center industry, an additional $2.20 was generated elsewhere in the U.S. economy.[5] This reflects the breadth of the industry's supply chain and the relatively high compensation levels across its supplier industries, which together amplify downstream consumer spending and broader economic activity.

[4] The employment multiplier based on only the operational effect was 3.8 in 2024.

[5] The labor income multiplier based on only the operational effect was 2.2 in 2024.

Value added

Direct value added (i.e., contribution to GDP) generated by the data center industry rose from $274.7 billion in 2023 to $301.7 billion in 2024 (10 percent growth), driven by increased operational output and higher levels of capital investment. Including the direct, indirect, and induced effects, the industry's total annual contribution to U.S. value added from its ongoing operations and capital investments increased from $768.0 billion in 2023 to $926.9 billion in 2024 (21 percent growth), more than double the rate of direct value added growth, highlighting the significant ripple effects the industry generates across the broader economy. The value added multiplier, including both operational and capital spending effects, was 3.1, meaning that for each dollar of direct value added in the U.S. data center industry, an additional $2.10 was supported elsewhere in the U.S. economy.[6] This underscores the extent to which the industry's economic footprint extends well beyond its own operations, stimulating activity across a wide network of supplier industries and consumer-facing sectors.

Taxes

The industry's estimated total fiscal support to federal, state, and local governments increased from $164.7 billion in 2023 to $204.4 billion in 2024 (24 percent growth) (**see Table III-2**, below), representing the fastest rate of growth among the key economic indicators examined in this study. These revenues encompass tax payments and other fiscal contributions associated with direct, indirect, and induced economic activity. At the federal level, these payments flow into overall government receipts. At the state and local levels, they contribute to general revenue streams that support a range of public services such as public education, infrastructure maintenance (like roads and public transportation), and public health services. It is important to note that the estimated tax contributions reflect the scale of economic activity associated with the industry, rather than the allocation of government funds to specific programs.

Table III-2.− The U.S. data center industry's tax contribution, 2023-2024[1]

Item	2023	2024	Growth
Total Contribution ($billions)	**$164.7**	**$204.4**	**24%**
Social Insurance Contributions	$48.2	$58.6	22%
Personal Income Taxes	$20.3	$24.7	21%
Sales/Use Taxes	$44.5	$55.0	24%
Property Taxes	$19.4	$24.9	28%
Corporate Income Taxes	$22.6	$28.9	28%
Other payments	$9.7	$12.3	27%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

1. Tax contribution includes all federal, state, and local taxes directly or indirectly resulting from the U.S. data center industry's construction and operations (including direct, indirect, and induced economic effects). Tax contributions are estimated using government tax receipts data; as reported, tax receipts reflect revenues collected and are therefore net of incentives, credits, and abatements.

[6] The value added multiplier based on only the operational effect was 2.2 in 2024.

Sector distribution of employment contribution

This study finds that the indirect and induced employment effects generated by the U.S. data center industry span a wide range of sectors, reflecting both the industry's upstream supply chain needs and the household spending supported by data center–related income.

As shown in **Table III-3**, nearly 60 percent of all indirect and induced jobs occur in the services sector—by far the largest share. This concentration arises from two sources: (1) the industry's reliance on service-oriented suppliers such as professional, technical, and administrative services, and (2) induced spending by households, which primarily flows to consumer-facing services such as accommodations, food services, and healthcare. The combined effect of these indirect and induced channels results in a service-heavy distribution that mirrors the structure of the broader U.S. economy.

Beyond services, the remaining employment effects highlight the diverse linkages the data center industry maintains with the rest of the economy. Approximately 10.8 percent of the indirect and induced jobs arise in finance, insurance, real estate, rental, and leasing, reflecting the importance of data centers to financial services infrastructure, real estate operations, leasing activities, and other business-support functions. Meanwhile, wholesale and retail trade (9.9 percent) and transportation and warehousing (7.3 percent) capture the additional goods movement, logistics activity, household retail demand, and supply chain purchase stimulated by data center operations and work spending.

The remaining effects—spanning information (5.1 percent), manufacturing (4.5 percent), and construction (3.7 percent)—reflect the specialized equipment, technology services, and capital-intensive infrastructure required to support the data center sector, including servers, storage devices, electrical systems, fiber installation, and facility construction. Even smaller sectors such as agriculture, utilities, and mining each receive a measurable share, underscoring just how deeply the data center ecosystem reaches into every corner of the national economy.

Industry distributions of the indirect and induced contributions for labor income and value added are similar, since the economic indicators of jobs, labor income, and value added are closely related to one another.

Taken together, these results show that the data center industry's indirect and induced employment effects are both broad and structurally aligned with the U.S. economy, which is dominated by service industries but also relies on a complex network of goods-producing and distribution sectors. The distribution in **Table III-3** therefore illustrates not only the industry's deep supply chain integration, but also the wide ripple effects driven by the spending of its workforce and the industries that support it.

Table III-3.− Distribution of Indirect and Induced Activity Generated by the U.S. Data Center Industry, 2023-2024: Employment

(Total number and percent by industry)

Item	2023	2024
Total (jobs)	**3,709,500**	**4,490,020**
Services	56.5%	56.3%
Finance, insurance, real estate, rental and leasing	11.2%	10.8%
Wholesale trade	10.0%	9.9%
Transportation and warehousing	7.7%	7.3%
Information	4.7%	5.1%
Manufacturing	4.3%	4.5%
Construction	3.1%	3.7%
Agriculture, forestry and fishing	1.1%	1.0%
Other	0.9%	0.8%
Utilities	0.3%	0.3%
Mining	0.2%	0.2%
Total	**100.0%**	**100.0%**

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

State results

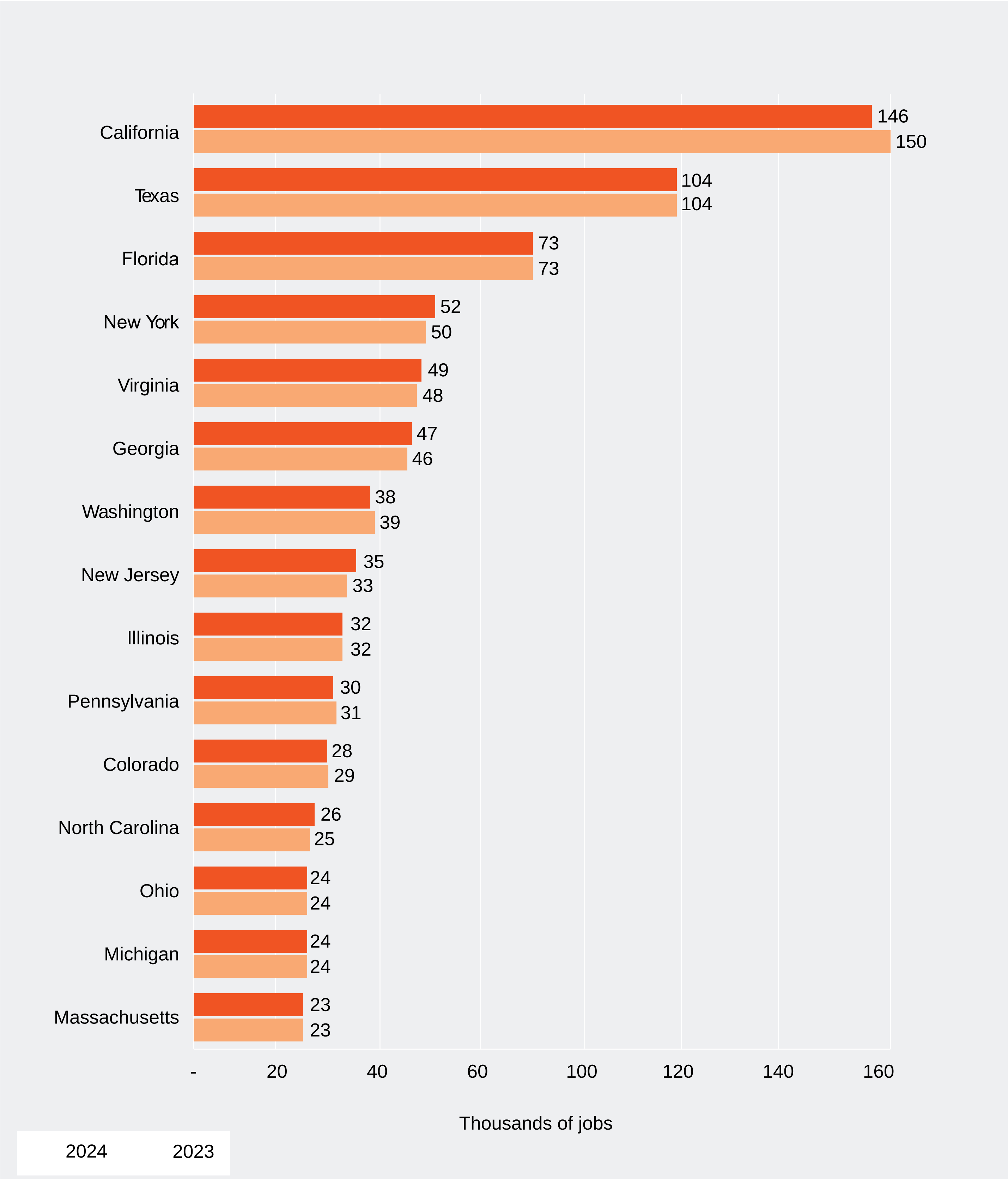
The economic contribution of the data center industry varies from state to state, depending on each state's population, natural resources, industry mix, wage structure, spending and saving patterns, and connections to other economies. For this study, the economic contribution reported for each state includes the data center industry's direct, indirect, and induced contributions in the state based on the data center industry's operations in the state.

In addition, we have quantified the indirect and induced spillover effects received by a state attributable to the national data center industry's direct activity in all other states. Economic activity often does not confine itself to state boundaries. Businesses, labor, and consumers frequently cross state lines, meaning that the economic effects of a project can extend beyond the originating state. By including cross-state spillovers, the study provides a more comprehensive picture of the total economic effect.

Figures III-1, III-2, and **III-3,** below, present the employment, labor income, and value added in 2023-2024 for the top 15 states ranked by direct contributions (details for all states are available in **Appendix A**).

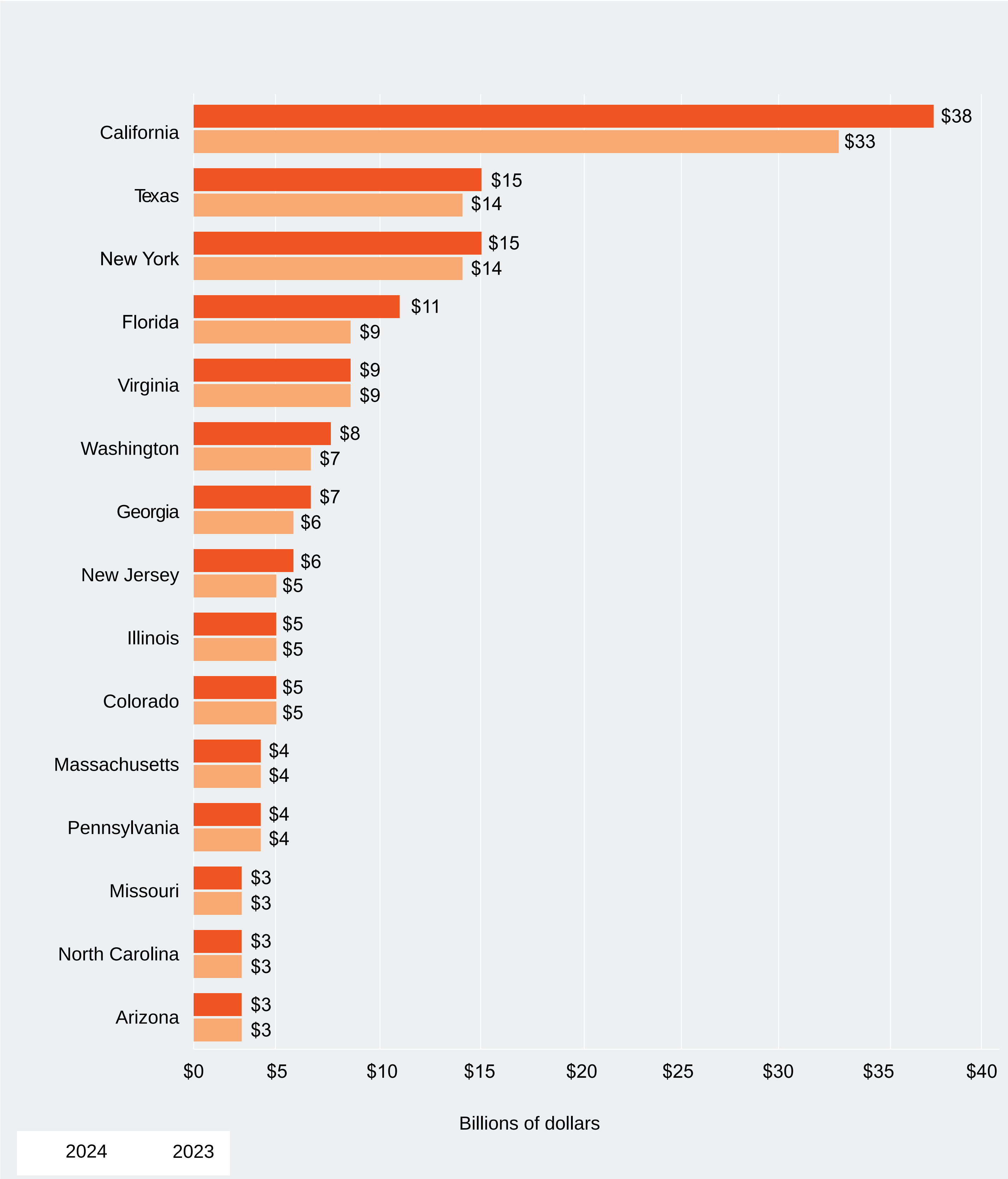
The figures indicate that California ranks above all other states in terms of direct contributions of the data center industry, with 150,000 and 146,000 direct jobs in 2023 and 2024, respectively. The industry's direct labor income in California was $33 billion in 2023 and $38 billion in 2024. The direct value added in California for the data center industry was $64 billion in 2023 and $72 billion in 2024. Other states with large direct contributions include Texas, Florida, New York, Virginia, Georgia, Washington, New Jersey, and Illinois, each with at least 30,000 jobs directly attributable to the data center industry in both 2023 and 2024.

Figure III-1. The data center industry’s direct contribution in top 15 states: employment, 2023-2024



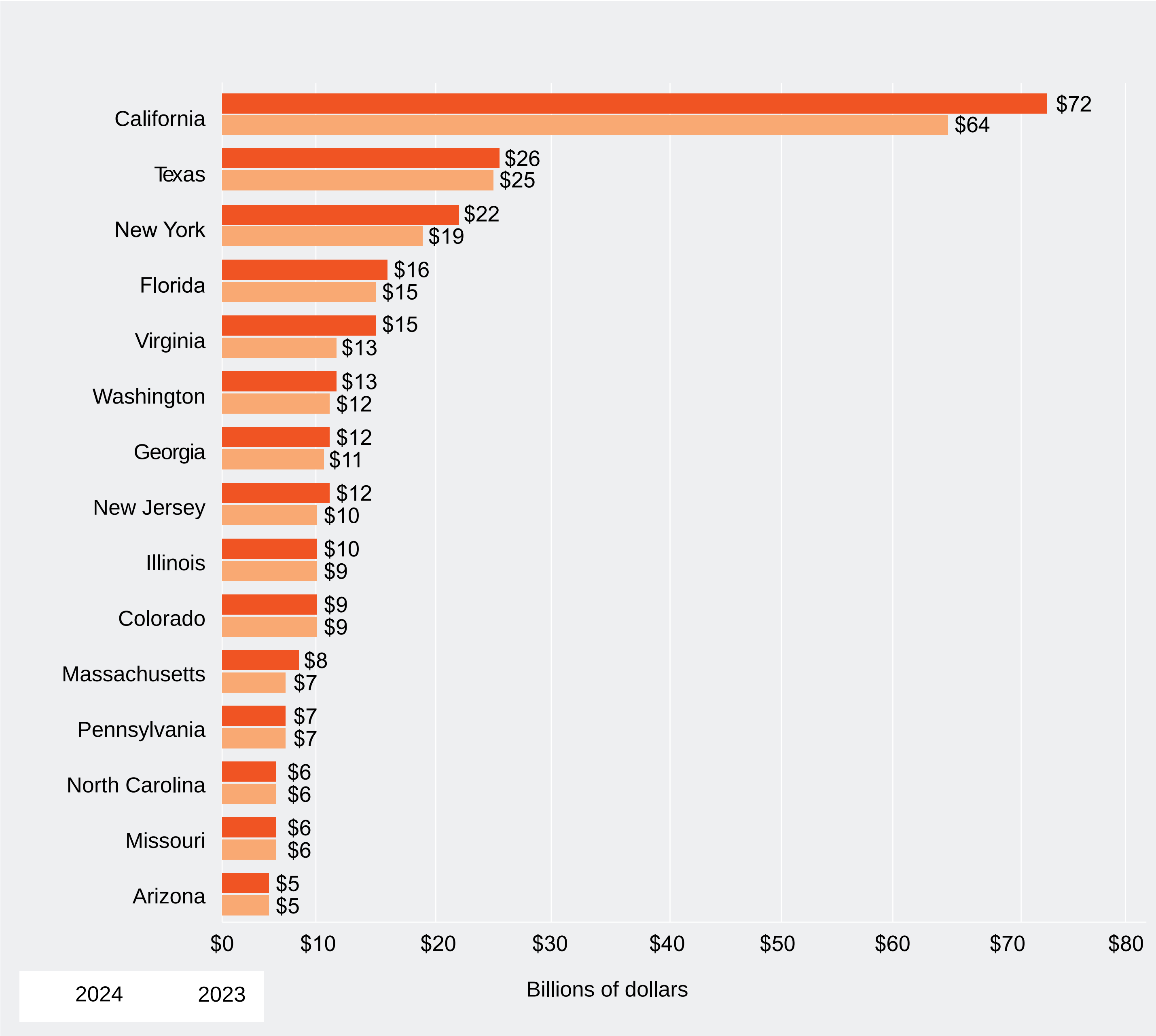
Source: PwC calculations using the IMPLAN modeling system and public data. See **Table A-1a** and **Table A-2a** in Appendix A for underlying figures.

Figure III-2. The data center industry's direct contribution in top 15 states: labor income, 2023-2024



Source: PwC calculations using the IMPLAN modeling system and public data. See **Table A-1a** and **Table A-2a** in Appendix A for underlying figures.

Figure III-3. The data center industry's direct contribution in top 15 states: value added, 2023-2024

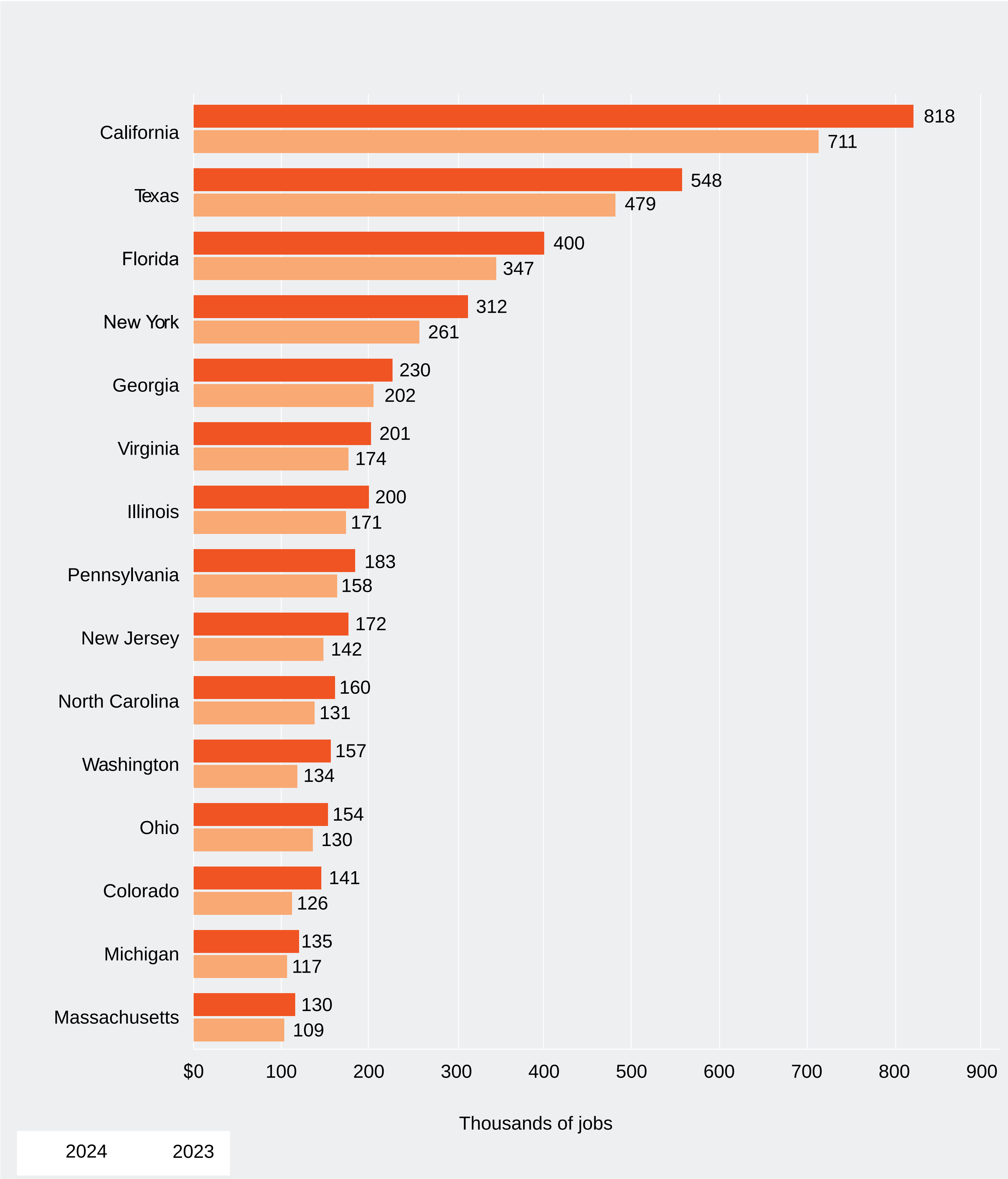


Source: PwC calculations using the IMPLAN modeling system and public data. See Table A-1a and Table A-2a in Appendix A for underlying figures.

Figures III-4a through **III-6a**, below, present the total contributions of the data center industry by state, including direct, indirect, and induced contributions. These figures also include the cross-state spillover effects received by each state. Detailed state-level results with the cross-state spillover effects can be found in **Appendix A.**

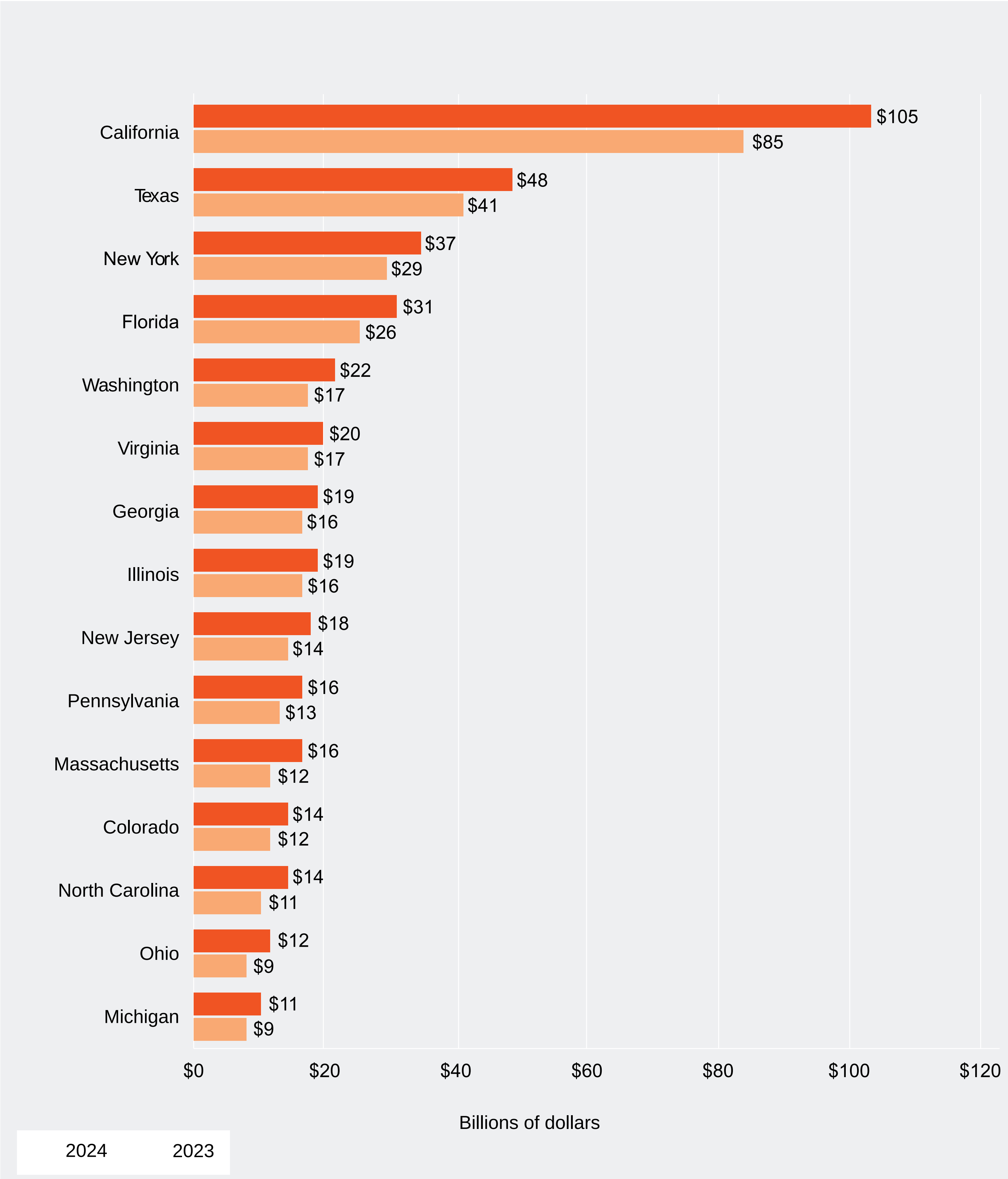
Looking at the top 15 states in terms of total employment attributable to the data center industry, **Figure III-4a**, below, indicates that California ranks highest by this measure as well, followed by Texas, Florida, New York, and Georgia. These states also rank high in terms of labor income and value added attributable to the data center industry (see **Figures III-5a** and **III-6a**, below). These patterns reflect each state's economic scale, industry mix, and data center activity.

Figure III-4a. The data center industry's total contribution in top 15 states: employment, 2023-2024: with cross-state spillover effects



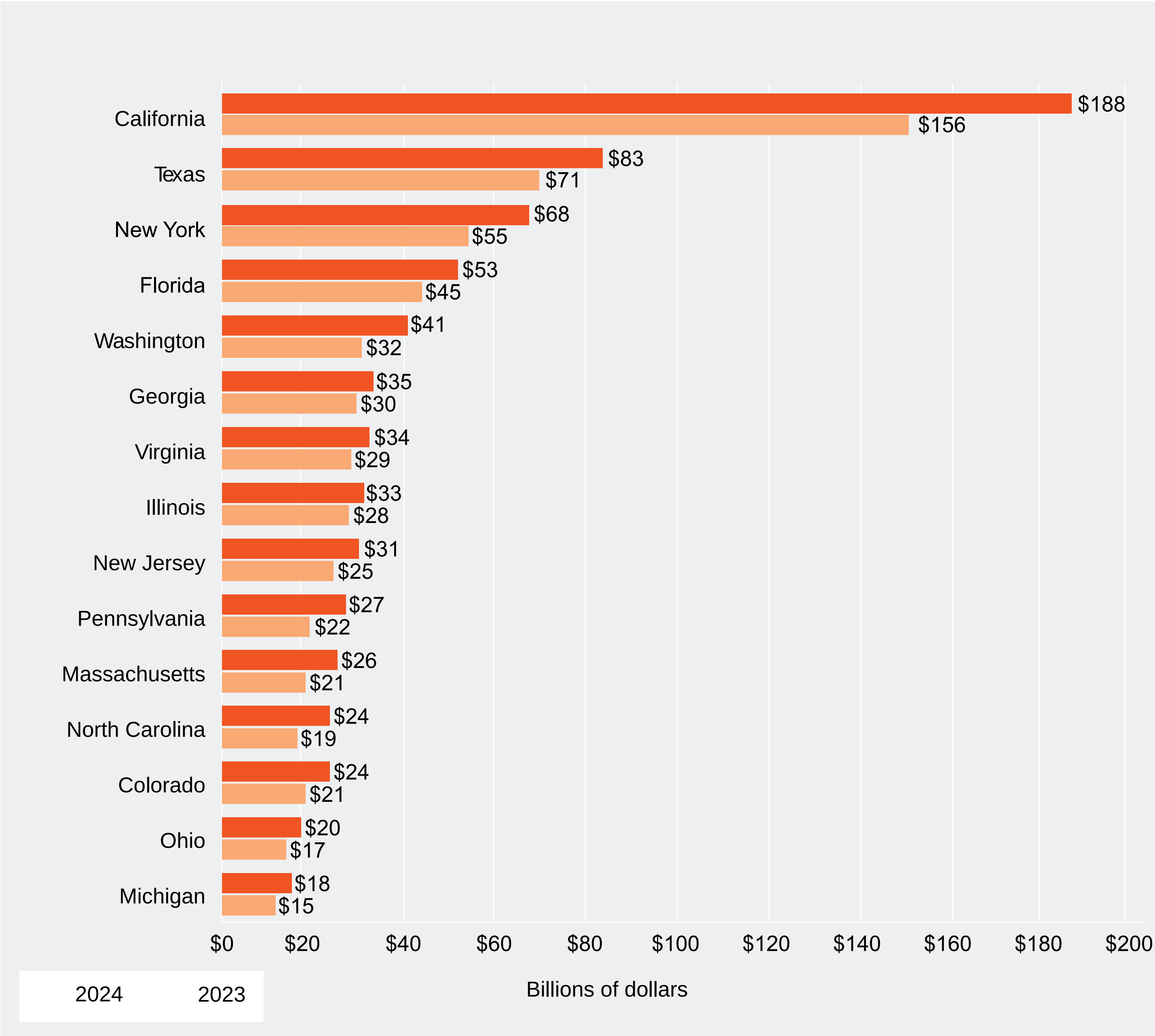
Source: PwC calculations using the IMPLAN modeling system and public data. See Table A-1a and Table A-2a in Appendix A for underlying figures.

Figure III-5a. The data center industry's total contribution in top 15 states: labor income, 2023-2024: with cross-state spillover effects



Source: PwC calculations using the IMPLAN modeling system and public data. See **Tables A-1a and A-2a** in Appendix A for underlying figures.

Figure III-6a. The data center industry's total contribution in top 15 states: value added, 2023-2024: with cross-state spillover effects

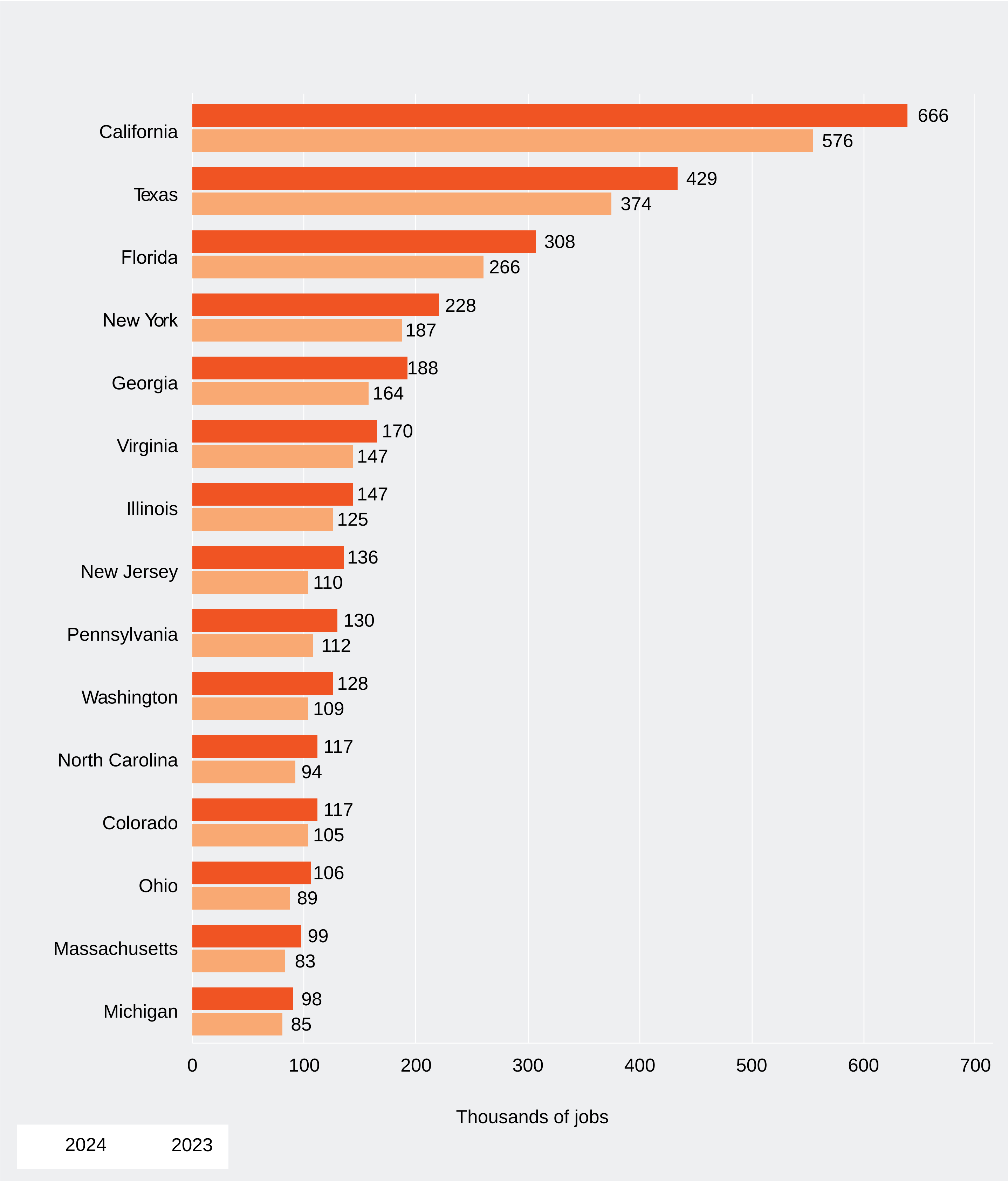


Source: PwC calculations using the IMPLAN modeling system and public data. See Tables A-1a and A-2a in Appendix A for underlying figures.

To demonstrate the magnitude of the effect of including the spillover effects, DCC requested a presentation of the results with and without them. **Figures III-4b** through **III-6b**, below, present the total contributions of the data center industry by state, including direct, indirect, and induced contributions, but these figures do not include any cross-state spillover effects received by each state. Detailed state-level results without the cross-state spillover effects can be found in **Appendix A.**

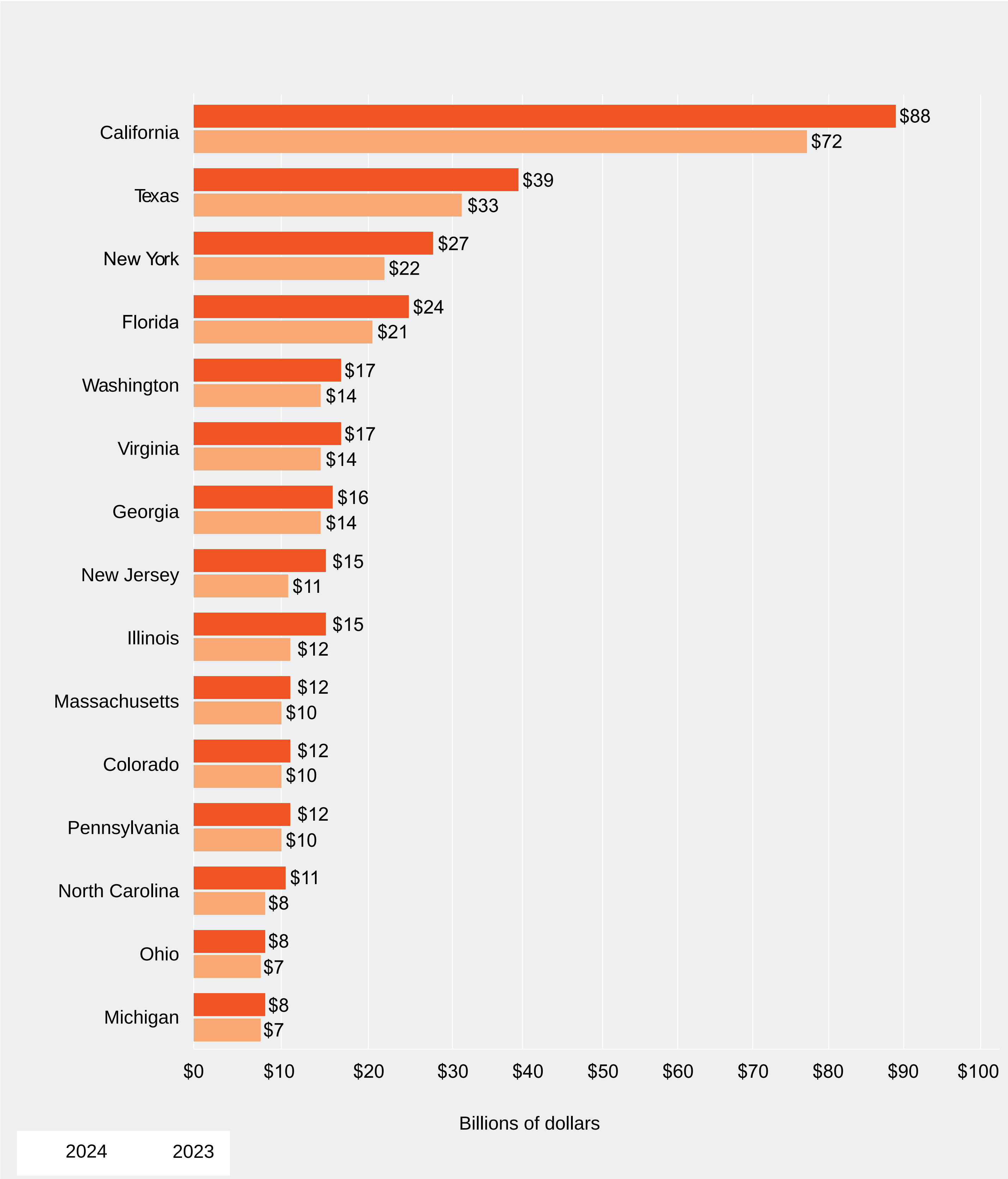
Similar to the results that include cross-state spillover effects, the top states in terms of total employment attributable to the data center industry are California, Texas, Florida, New York, and Georgia, depicted in **Figure III-4b**. These states also rank high in terms of labor income and value added attributable to the data center industry, though the orders differ by metric (see **Figures III-5b** and **III-6b**, below).

Figure III-4b. The data center industry's total contribution in top 15 states: employment, 2023-2024: without cross-state spillover effects



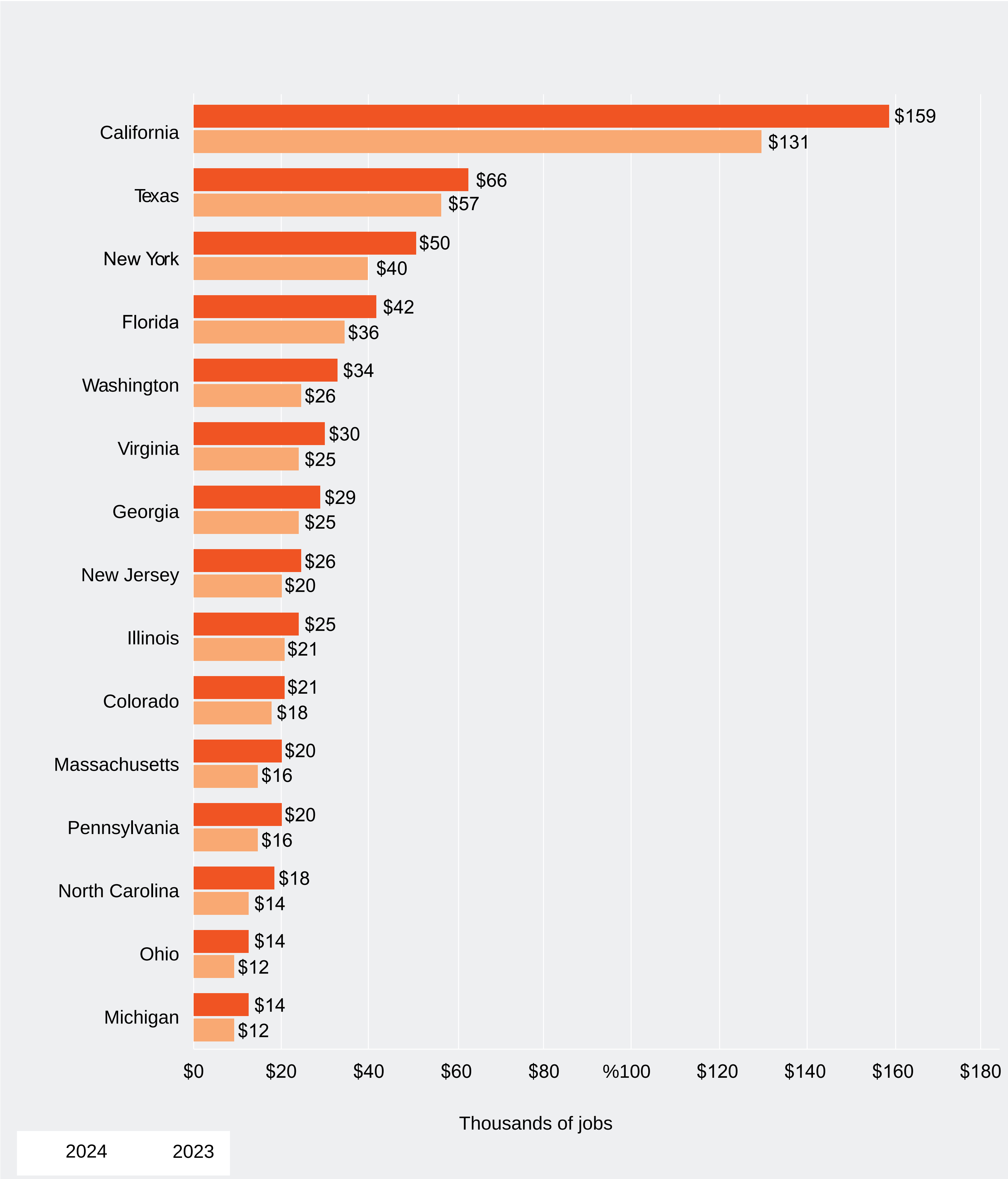
Source: PwC calculations using the IMPLAN modeling system and public data. See **Tables A-1b and A-2b** in Appendix A for underlying figures.

Figure III-5b. The data center industry's total contribution in top 15 states: labor income, 2023-2024: without cross-state spillover effects



Source: PwC calculations using the IMPLAN modeling system and public data. See Tables A-1b and A-2b in Appendix A for underlying figures.

Figure III-6b. The data center industry's total contribution in top 15 states: value added, 2023-2024: without cross-state spillover effects



Source: PwC calculations using the IMPLAN modeling system and public data. See Tables A-1b and A-2b in Appendix A for underlying figures.

IV. Conclusion

Data centers play a central role in digital infrastructure that supports a wide range of activities, including business operations, healthcare, government services, and communications. During 2023 and 2024, the U.S. data center industry experienced increases across all key economic indicators, including employment, labor income, GDP, and government revenues.

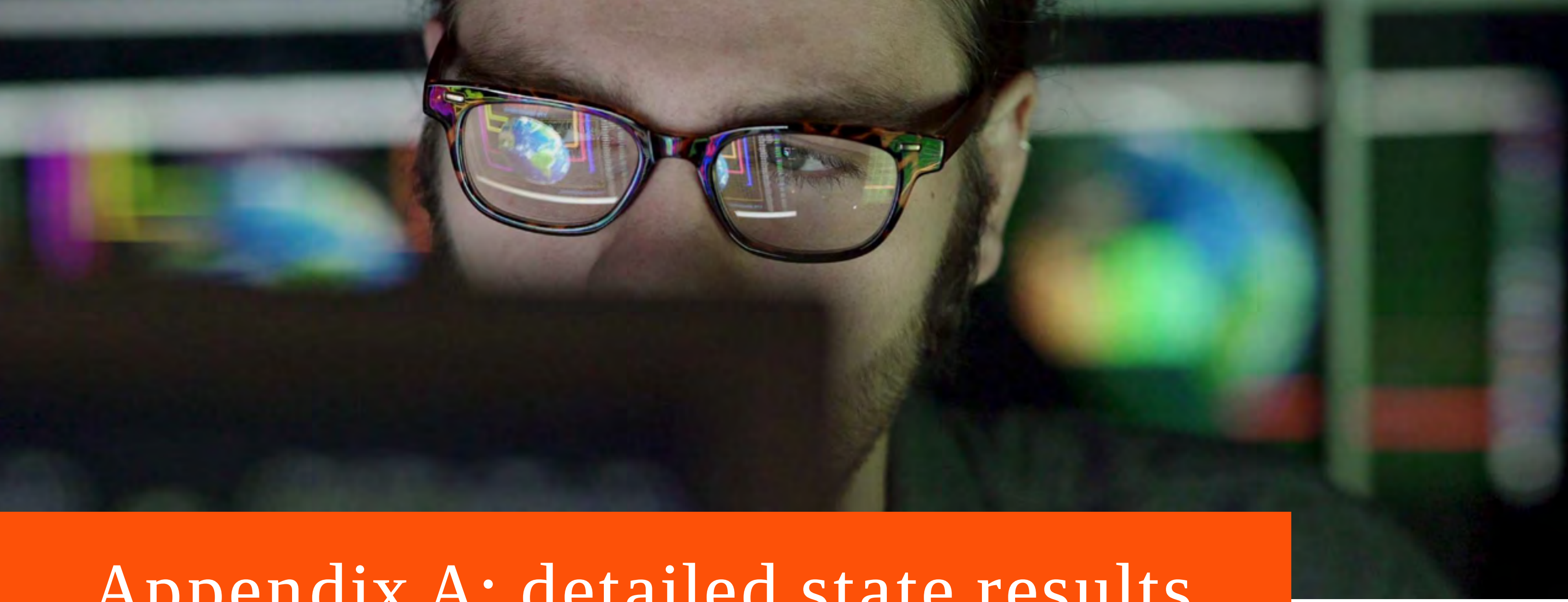
In both 2023 and 2024, direct employment in the data center industry surpassed 1 million jobs, reflecting the sector's scale and stability. When indirect and induced effects are considered, the total number of jobs supported by the industry nationwide increased from 4.7 million in 2023 to 5.5 million in 2024 (17 percent growth). On average, each direct data center job supported 4.5 additional jobs elsewhere in the economy in 2024, underscoring the sector's employment multiplier and its broad linkages across industries.

The industry's total contribution to labor income increased from $431.1 billion in 2023 to $525.3 billion in 2024 (22 percent growth). Over the same period, its overall contribution to U.S. GDP (including direct, indirect, and induced effects) rose from $768.0 billion to $926.9 billion (21 percent growth). These changes are consistent with increased investment and rising labor productivity within the sector, as well as its expanding role in generating economic value throughout the broader economy.

In addition, the data center industry generated substantial fiscal contributions, with an estimated $164.7 billion in federal, state, and local government revenues in 2023 and $204.4 billion in 2024 (24 percent growth). These revenues support public services and infrastructure across the country.

State-level analysis indicates that the economic contributions of the data center industry are widespread, with meaningful effects on employment, labor income, and GDP in every state. States with particularly large effects include California, Texas, Florida, New York, Georgia, Virginia, Illinois, Pennsylvania, New Jersey, North Carolina, Washington, Ohio, Colorado, Michigan, and Massachusetts, reflecting factors such as the concentration of data center facilities, the size of state economies, and the density of supporting supply chain activity in these states.

Overall, this report quantifies the scale and breadth of economic activity associated with the U.S. data center industry during 2023 and 2024. The analysis is descriptive in nature and does not assess policy outcomes, societal benefits, or future industry performance



Appendix A: detailed state results

Table A-1a. The data center industry's economic contribution by state in 2023: with cross-state spillover effects

(Jobs; millions of dollars)

State	Employment		Labor income		Value added	
	Direct	Total	Direct	Total	Direct	Total
Alabama	9,170	45,100	$872	$2,950	$1,425	$5,053
Alaska	940	5,610	$98	$471	$193	$820
Arizona	21,530	101,200	$2,744	$8,127	$4,914	$14,538
Arkansas	7,640	32,920	$825	$2,247	$1,657	$4,174
California	150,450	710,620	$33,002	$85,445	$63,883	$155,738
Colorado	29,330	126,010	$4,572	$12,002	$8,507	$20,997
Connecticut	9,170	38,990	$1,272	$3,687	$2,224	$6,411
Delaware	1,650	9,490	$180	$735	$351	$1,518
District of Columbia	7,910	21,200	$1,508	$3,227	$2,150	$4,719
Florida	72,570	347,350	$8,637	$25,786	$15,199	$45,274
Georgia	46,420	201,740	$6,157	$16,265	$11,328	$29,634
Hawaii	2,930	13,910	$286	$1,011	$485	$1,814
Idaho	3,980	20,850	$392	$1,442	$747	$2,541
Illinois	32,080	171,110	$4,833	$15,759	$8,908	$27,541
Indiana	10,980	61,380	$1,009	$4,314	$1,622	$7,438
Iowa	5,560	31,190	$639	$2,238	$1,411	$4,437
Kansas	6,100	31,070	$657	$2,240	$1,083	$3,810
Kentucky	8,600	42,790	$863	$3,004	$1,416	$5,003
Louisiana	8,160	41,700	$689	$2,597	$1,202	$4,852
Maine	2,600	13,940	$273	$989	$433	$1,671
Maryland	20,350	83,070	$2,558	$7,217	$4,074	$12,026
Massachusetts	23,200	109,420	$3,985	$12,462	$6,948	$20,905
Michigan	23,590	117,050	$2,803	$8,982	$4,981	$15,388
Minnesota	14,530	78,030	$2,023	$6,853	$3,564	$11,623
Mississippi	3,120	20,310	$224	$1,042	$391	$1,888

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Appendix A: detailed state results

Table A-1a. The data center industry's economic contribution by state in 2023: with cross-state spillover effects

(Jobs; millions of dollars)

State	Employment		Labor income		Value added	
	Direct	Total	Direct	Total	Direct	Total
Missouri	23,080	97,520	$3,410	$8,136	$6,318	$14,386
Montana	1,650	10,690	$149	$677	$275	$1,182
Nebraska	5,500	25,150	$613	$1,912	$1,226	$3,737
Nevada	6,850	38,690	$802	$2,900	$1,833	$5,659
New Hampshire	4,720	20,620	$662	$1,943	$1,109	$3,203
New Jersey	32,810	142,000	$5,215	$14,072	$9,615	$24,540
New Mexico	3,470	15,930	$288	$1,015	$567	$1,909
New York	50,490	261,310	$9,289	$29,344	$18,939	$55,072
North Carolina	24,520	131,380	$2,973	$10,795	$5,684	$19,279
North Dakota	1,150	7,110	$100	$522	$169	$913
Ohio	24,450	130,440	$2,556	$9,386	$4,439	$16,688
Oklahoma	5,930	33,680	$447	$2,062	$791	$3,634
Oregon	15,230	66,580	$2,268	$5,931	$4,542	$10,771
Pennsylvania	30,590	157,520	$3,798	$13,356	$6,754	$22,388
Rhode Island	2,160	11,360	$262	$889	$420	$1,458
South Carolina	10,790	54,240	$1,162	$3,746	$1,917	$6,562
South Dakota	1,310	8,260	$112	$523	$196	$994
Tennessee	15,830	84,050	$1,952	$6,623	$3,776	$11,918
Texas	103,860	478,880	$14,340	$40,738	$24,850	$70,887
Utah	12,910	56,670	$1,410	$4,435	$2,694	$8,237
Vermont	1,520	7,630	$152	$539	$263	$911
Virginia	47,870	174,480	$7,414	$16,624	$13,170	$28,755
Washington	38,550	133,780	$5,875	$16,932	$11,653	$32,214
West Virginia	2,710	13,130	$246	$870	$416	$1,529
Wisconsin	13,340	71,670	$1,839	$5,757	$3,872	$10,713
Wyoming	950	5,430	$75	$327	$130	$611
Total	**1,004,780**	**4,714,280**	**$148,508**	**$431,148**	**$274,710**	**$767,964**

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding. The spillover effect refers to the indirect and induced effects in a state attributable to the national data center industry's direct activity in all other states.

Table A-1b. The data center industry's economic contribution by state in 2023: without cross-state spillover effects

(Jobs; millions of dollars)

State	Employment		Labor income		Value added	
	Direct	Total	Direct	Total	Direct	Total
Alabama	9,170	29,720	$872	$2,036	$1,425	$3,426
Alaska	940	3,040	$98	$233	$193	$451
Arizona	21,530	77,500	$2,744	$6,477	$4,914	$11,551
Arkansas	7,640	23,320	$825	$1,668	$1,657	$3,190
California	150,450	576,000	$33,002	$71,610	$63,883	$131,305
Colorado	29,330	104,560	$4,572	$10,349	$8,507	$18,130
Connecticut	9,170	25,400	$1,272	$2,556	$2,224	$4,318
Delaware	1,650	5,710	$180	$445	$351	$849
District of Columbia	7,910	16,550	$1,508	$2,545	$2,150	$3,727
Florida	72,570	266,410	$8,637	$20,503	$15,199	$36,154
Georgia	46,420	164,340	$6,157	$13,622	$11,328	$24,949
Hawaii	2,930	8,590	$286	$658	$485	$1,143
Idaho	3,980	14,020	$392	$1,053	$747	$1,815
Illinois	32,080	125,020	$4,833	$11,969	$8,908	$20,931
Indiana	10,980	37,330	$1,009	$2,778	$1,622	$4,439
Iowa	5,560	19,000	$639	$1,478	$1,411	$2,892
Kansas	6,100	20,240	$657	$1,618	$1,083	$2,601
Kentucky	8,600	27,900	$863	$2,088	$1,416	$3,389
Louisiana	8,160	26,660	$689	$1,702	$1,202	$3,006
Maine	2,600	8,900	$273	$683	$433	$1,103
Maryland	20,350	63,020	$2,558	$5,695	$4,074	$9,385
Massachusetts	23,200	82,630	$3,985	$9,760	$6,948	$16,278
Michigan	23,590	84,800	$2,803	$6,792	$4,981	$11,655
Minnesota	14,530	56,020	$2,023	$5,162	$3,564	$8,736
Mississippi	3,120	10,830	$224	$596	$391	$1,030

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Table A-1b. The data center industry's economic contribution by state in 2023: without cross-state spillover effects

(Jobs; millions of dollars)

State	Employment		Labor income		Value added	
	Direct	Total	Direct	Total	Direct	Total
Missouri	23,080	76,970	$3,410	$6,827	$6,318	$12,116
Montana	1,650	6,300	$149	$441	$275	$735
Nebraska	5,500	17,200	$613	$1,371	$1,226	$2,607
Nevada	6,850	23,940	$802	$1,909	$1,833	$3,859
New Hampshire	4,720	15,530	$662	$1,576	$1,109	$2,511
New Jersey	32,810	109,930	$5,215	$11,453	$9,615	$19,940
New Mexico	3,470	9,890	$288	$640	$567	$1,224
New York	50,490	187,150	$9,289	$21,518	$18,939	$39,971
North Carolina	24,520	94,170	$2,973	$8,139	$5,684	$14,378
North Dakota	1,150	3,850	$100	$287	$169	$471
Ohio	24,450	88,880	$2,556	$6,616	$4,439	$11,505
Oklahoma	5,930	20,210	$447	$1,274	$791	$2,180
Oregon	15,230	51,640	$2,268	$4,881	$4,542	$8,949
Pennsylvania	30,590	111,520	$3,798	$9,793	$6,754	$16,462
Rhode Island	2,160	7,510	$262	$636	$420	$1,016
South Carolina	10,790	36,950	$1,162	$2,687	$1,917	$4,617
South Dakota	1,310	4,360	$112	$318	$196	$508
Tennessee	15,830	57,960	$1,952	$5,035	$3,776	$8,699
Texas	103,860	374,320	$14,340	$33,009	$24,850	$56,662
Utah	12,910	44,130	$1,410	$3,515	$2,694	$6,545
Vermont	1,520	5,050	$152	$389	$263	$632
Virginia	47,870	146,670	$7,414	$14,403	$13,170	$25,129
Washington	38,550	108,550	$5,875	$13,535	$11,653	$26,290
West Virginia	2,710	8,240	$246	$566	$416	$971
Wisconsin	13,340	50,140	$1,839	$4,303	$3,872	$8,155
Wyoming	950	2,960	$75	$180	$130	$326
Total	**1,004,780**	**3,541,530**	**$148,508**	**$339,371**	**$274,710**	**$602,910**

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding. The spillover effect refers to the indirect and induced effects in a state attributable to the national data center industry's direct activity in all other states.

Table A-2a. The data center industry's economic contribution by state in 2024: with cross-state spillover effects

(Jobs; millions of dollars)

State	Employment		Labor income		Value added	
	Direct	Total	Direct	Total	Direct	Total
Alabama	9,340	53,770	$930	$3,626	$1,513	$6,176
Alaska	940	6,770	$106	$590	$206	$1,020
Arizona	20,640	114,970	$2,950	$9,653	$5,229	$17,073
Arkansas	7,100	36,860	$818	$2,574	$1,622	$4,699
California	145,820	818,160	$37,691	$104,514	$71,712	$188,259
Colorado	28,470	141,490	$4,841	$14,075	$8,907	$24,228
Connecticut	9,710	47,710	$1,451	$4,666	$2,534	$8,073
Delaware	1,770	11,620	$202	$933	$384	$1,897
District of Columbia	7,730	23,960	$1,607	$3,810	$2,282	$5,552
Florida	73,330	400,100	$9,267	$30,685	$16,166	$53,368
Georgia	47,230	230,140	$6,758	$19,260	$12,262	$34,701
Hawaii	2,780	16,140	$294	$1,214	$500	$2,170
Idaho	4,150	25,560	$444	$1,848	$877	$3,252
Illinois	32,100	200,040	$5,248	$19,104	$9,618	$33,020
Indiana	11,050	73,770	$1,062	$5,355	$1,699	$9,208
Iowa	5,690	37,770	$726	$2,821	$1,605	$5,523
Kansas	6,190	37,470	$727	$2,810	$1,211	$4,790
Kentucky	8,620	50,370	$877	$3,620	$1,417	$5,966
Louisiana	7,970	49,260	$714	$3,176	$1,232	$5,896
Maine	2,470	16,480	$282	$1,204	$458	$2,035
Maryland	21,370	99,250	$2,868	$8,945	$4,588	$14,893
Massachusetts	23,020	129,760	$4,484	$15,629	$7,784	$26,014
Michigan	23,520	135,110	$2,912	$10,669	$5,113	$18,054
Minnesota	14,890	92,610	$2,210	$8,419	$3,896	$14,179
Mississippi	3,030	24,650	$231	$1,304	$405	$2,345

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Table A-2a. The data center industry's economic contribution by state in 2024: with cross-state spillover effects

(Jobs; millions of dollars)

State	Employment		Labor income		Value added	
	Direct	Total	Direct	Total	Direct	Total
Missouri	22,660	108,800	$3,455	$9,191	$6,373	$16,069
Montana	1,700	13,150	$170	$871	$313	$1,504
Nebraska	4,600	27,960	$564	$2,198	$1,187	$4,313
Nevada	6,610	46,170	$959	$3,690	$2,190	$7,116
New Hampshire	4,780	24,100	$688	$2,326	$1,138	$3,787
New Jersey	35,180	172,020	$6,311	$17,890	$11,653	$31,090
New Mexico	3,920	19,750	$345	$1,307	$660	$2,419
New York	51,700	312,380	$10,735	$36,623	$21,613	$67,909
North Carolina	25,750	159,710	$3,419	$13,825	$6,475	$24,390
North Dakota	1,130	8,650	$103	$662	$168	$1,143
Ohio	24,120	153,850	$2,744	$11,531	$4,757	$20,342
Oklahoma	5,550	39,490	$466	$2,528	$808	$4,419
Oregon	15,450	77,640	$2,538	$7,210	$5,057	$12,995
Pennsylvania	29,640	182,580	$4,032	$16,117	$7,146	$26,800
Rhode Island	2,190	13,580	$277	$1,090	$442	$1,772
South Carolina	10,780	63,960	$1,257	$4,586	$2,047	$7,964
South Dakota	1,380	10,180	$124	$667	$214	$1,257
Tennessee	15,690	98,070	$2,063	$7,915	$3,920	$14,057
Texas	103,700	548,110	$15,239	$48,240	$26,124	$82,922
Utah	13,140	66,960	$1,577	$5,541	$2,985	$10,137
Vermont	1,520	9,150	$166	$672	$291	$1,127
Virginia	49,000	201,100	$8,287	$20,023	$14,727	$34,278
Washington	38,450	156,500	$6,820	$21,554	$13,446	$41,115
West Virginia	2,820	15,810	$276	$1,090	$460	$1,901
Wisconsin	13,720	84,950	$2,011	$7,044	$4,154	$12,865
Wyoming	1,000	6,680	$92	$426	$140	$777
Total	**1,005,080**	**5,495,100**	**$164,417**	**$525,326**	**$301,708**	**$926,858**

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding. The spillover effect refers to the indirect and induced effects in a state attributable to the national data center industry's direct activity in all other states.

Table A-2b. The data center industry's economic contribution by state in 2024: without cross-state spillover effects

(Jobs; millions of dollars)

State	Employment		Labor income		Value added	
	Direct	Total	Direct	Total	Direct	Total
Alabama	9,340	36,150	$930	$2,523	$1,513	$4,208
Alaska	940	3,830	$106	$297	$206	$573
Arizona	20,640	87,760	$2,950	$7,656	$5,229	$13,457
Arkansas	7,100	25,760	$818	$1,870	$1,622	$3,510
California	145,820	665,500	$37,691	$88,175	$71,712	$159,162
Colorado	28,470	116,980	$4,841	$12,084	$8,907	$20,750
Connecticut	9,710	32,170	$1,451	$3,344	$2,534	$5,560
Delaware	1,770	7,290	$202	$579	$384	$1,089
District of Columbia	7,730	18,610	$1,607	$2,988	$2,282	$4,354
Florida	73,330	307,590	$9,267	$24,265	$16,166	$42,336
Georgia	47,230	187,660	$6,758	$16,073	$12,262	$29,087
Hawaii	2,780	9,990	$294	$786	$500	$1,360
Idaho	4,150	17,760	$444	$1,389	$877	$2,375
Illinois	32,100	147,230	$5,248	$14,531	$9,618	$25,054
Indiana	11,050	46,070	$1,062	$3,526	$1,699	$5,573
Iowa	5,690	23,850	$726	$1,913	$1,605	$3,676
Kansas	6,190	25,030	$727	$2,067	$1,211	$3,320
Kentucky	8,620	33,210	$877	$2,508	$1,417	$4,003
Louisiana	7,970	31,880	$714	$2,085	$1,232	$3,651
Maine	2,470	10,680	$282	$836	$458	$1,345
Maryland	21,370	76,350	$2,868	$7,094	$4,588	$11,697
Massachusetts	23,020	99,120	$4,484	$12,375	$7,784	$20,370
Michigan	23,520	98,030	$2,912	$8,015	$5,113	$13,518
Minnesota	14,890	67,460	$2,210	$6,401	$3,896	$10,707
Mississippi	3,030	13,710	$231	$768	$405	$1,303

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Table A-2b. The data center industry's economic contribution by state in 2024: without cross-state spillover effects (continued)

(Jobs; millions of dollars)

State	Employment		Labor income		Value added	
	Direct	Total	Direct	Total	Direct	Total
Missouri	22,660	85,260	$3,455	$7,618	$6,373	$13,338
Montana	1,700	8,120	$170	$588	$313	$962
Nebraska	4,600	18,690	$564	$1,530	$1,187	$2,932
Nevada	6,610	29,310	$959	$2,500	$2,190	$4,973
New Hampshire	4,780	18,290	$688	$1,898	$1,138	$2,941
New Jersey	35,180	135,790	$6,311	$14,828	$11,653	$25,632
New Mexico	3,920	12,880	$345	$850	$660	$1,599
New York	51,700	227,910	$10,735	$27,399	$21,613	$49,925
North Carolina	25,750	117,280	$3,419	$10,630	$6,475	$18,452
North Dakota	1,130	4,870	$103	$378	$168	$604
Ohio	24,120	106,000	$2,744	$8,184	$4,757	$14,058
Oklahoma	5,550	23,890	$466	$1,583	$808	$2,651
Oregon	15,450	60,620	$2,538	$5,956	$5,057	$10,790
Pennsylvania	29,640	129,600	$4,032	$11,806	$7,146	$19,611
Rhode Island	2,190	9,180	$277	$785	$442	$1,235
South Carolina	10,780	44,120	$1,257	$3,301	$2,047	$5,603
South Dakota	1,380	5,710	$124	$432	$214	$669
Tennessee	15,690	68,100	$2,063	$6,081	$3,920	$10,168
Texas	103,700	428,660	$15,239	$38,982	$26,124	$65,840
Utah	13,140	52,620	$1,577	$4,399	$2,985	$8,065
Vermont	1,520	6,170	$166	$493	$291	$789
Virginia	49,000	169,560	$8,287	$17,325	$14,727	$29,929
Washington	38,450	127,700	$6,820	$17,363	$13,446	$33,772
West Virginia	2,820	10,210	$276	$723	$460	$1,228
Wisconsin	13,720	60,330	$2,011	$5,297	$4,154	$9,775
Wyoming	1,000	3,830	$92	$250	$140	$432
Total	**1,005,080**	**4,154,370**	**$164,417**	**$415,328**	**$301,708**	**$728,011**

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding. The spillover effect refers to the indirect and induced effects in a state attributable to the national data center industry's direct activity in all other states.

Table A-3. The data center industry's state and local tax contribution by state in 2023: with and without cross-state spillover effects

(Millions of dollars)

State	Without spillover effects			With spillover effects		
	State	Local	Total	State	Local	Total
Alabama	$198	$104	$302	$291	$154	$444
Alaska	$17	$14	$30	$38	$31	$69
Arizona	$554	$362	$916	$669	$437	$1,106
Arkansas	$222	$59	$281	$319	$85	$403
California	$8,725	$3,907	$12,632	$10,414	$4,663	$15,077
Colorado	$751	$825	$1,576	$799	$877	$1,676
Connecticut	$287	$159	$446	$438	$242	$679
Delaware	$39	$10	$49	$98	$26	$124
District of Columbia	$0	$298	$298	$0	$293	$293
Florida	$1,569	$1,557	$3,125	$1,795	$1,781	$3,576
Georgia	$1,006	$826	$1,832	$1,231	$1,011	$2,242
Hawaii	$114	$44	$157	$177	$68	$245
Idaho	$129	$39	$168	$170	$51	$221
Illinois	$1,366	$900	$2,267	$1,685	$1,110	$2,796
Indiana	$271	$140	$411	$429	$222	$651
Iowa	$134	$91	$224	$225	$153	$378
Kansas	$155	$78	$233	$231	$116	$347
Kentucky	$241	$108	$350	$325	$146	$470
Louisiana	$150	$103	$253	$254	$175	$429
Maine	$84	$51	$135	$122	$73	$195
Maryland	$539	$381	$920	$738	$522	$1,260
Massachusetts	$1,061	$514	$1,575	$1,293	$626	$1,919
Michigan	$801	$411	$1,212	$888	$455	$1,344
Minnesota	$698	$244	$942	$849	$297	$1,146
Mississippi	$78	$32	$109	$136	$55	$191

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Table A-3. The data center industry's state and local tax contribution by state in 2023: with and without cross-state spillover effects (continued)

(Millions of dollars)

State	Without spillover effects			With spillover effects		
	State	Local	Total	State	Local	Total
Missouri	$536	$462	$999	$636	$549	$1,185
Montana	$54	$22	$76	$81	$32	$113
Nebraska	$89	$61	$151	$173	$119	$292
Nevada	$203	$92	$294	$341	$154	$495
New Hampshire	$88	$112	$201	$107	$136	$243
New Jersey	$1,425	$974	$2,399	$1,651	$1,129	$2,780
New Mexico	$131	$47	$178	$205	$74	$280
New York	$2,246	$2,264	$4,510	$3,266	$3,292	$6,558
North Carolina	$737	$429	$1,165	$970	$564	$1,534
North Dakota	$40	$11	$50	$74	$20	$94
Ohio	$512	$441	$954	$747	$643	$1,390
Oklahoma	$107	$70	$177	$190	$125	$315
Oregon	$592	$358	$951	$730	$442	$1,172
Pennsylvania	$1,035	$695	$1,730	$1,304	$876	$2,181
Rhode Island	$78	$41	$119	$100	$53	$153
South Carolina	$239	$164	$403	$339	$233	$572
South Dakota	$18	$16	$35	$37	$33	$69
Tennessee	$398	$199	$597	$565	$283	$848
Texas	$2,066	$2,180	$4,246	$2,430	$2,565	$4,994
Utah	$312	$196	$508	$412	$259	$671
Vermont	$76	$16	$92	$100	$21	$121
Virginia	$1,426	$975	$2,401	$1,574	$1,076	$2,650
Washington	$1,289	$744	$2,033	$1,670	$964	$2,635
West Virginia	$73	$29	$101	$112	$44	$157
Wisconsin	$501	$255	$756	$628	$320	$947
Wyoming	$21	$9	$30	$40	$18	$58
Total	**$33,478**	**$22,120**	**$55,598**	**$42,095**	**$27,693**	**$69,788**

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding. The spillover effect refers to the indirect and induced effects in a state attributable to the national data center industry's direct activity in all other states.

Table A-4. The data center industry's state and local tax contribution by state in 2024: with and without cross-state spillover effects

(Millions of dollars)

State	Without spillover effects			With spillover effects		
	State	Local	Total	State	Local	Total
Alabama	$241	$128	$369	$361	$191	$552
Alaska	$23	$19	$42	$48	$40	$88
Arizona	$607	$397	$1,004	$780	$510	$1,289
Arkansas	$246	$65	$311	$377	$100	$477
California	$9,752	$4,367	$14,119	$12,652	$5,665	$18,317
Colorado	$817	$897	$1,714	$915	$1,005	$1,920
Connecticut	$337	$186	$524	$546	$301	$847
Delaware	$48	$13	$61	$123	$32	$154
District of Columbia	$0	$296	$296	$0	$331	$331
Florida	$1,793	$1,780	$3,573	$2,118	$2,101	$4,219
Georgia	$1,127	$925	$2,052	$1,464	$1,202	$2,666
Hawaii	$127	$49	$176	$211	$81	$292
Idaho	$163	$49	$212	$218	$65	$283
Illinois	$1,543	$1,017	$2,560	$2,006	$1,321	$3,327
Indiana	$304	$157	$461	$521	$270	$790
Iowa	$159	$108	$266	$279	$190	$469
Kansas	$192	$97	$289	$295	$148	$443
Kentucky	$285	$128	$414	$392	$176	$567
Louisiana	$182	$125	$307	$313	$215	$528
Maine	$102	$61	$162	$148	$89	$237
Maryland	$628	$444	$1,072	$912	$646	$1,558
Massachusetts	$1,253	$607	$1,859	$1,606	$778	$2,384
Michigan	$879	$450	$1,330	$1,030	$528	$1,558
Minnesota	$801	$280	$1,081	$1,030	$361	$1,390
Mississippi	$100	$41	$140	$170	$69	$240

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Table A-4. The data center industry's state and local tax contribution by state in 2024: with and without cross-state spillover effects (continued)

(Millions of dollars)

State	Without spillover effects			With spillover effects		
	State	Local	Total	State	Local	Total
Missouri	$567	$489	$1,057	$724	$625	$1,349
Montana	$70	$28	$99	$103	$41	$145
Nebraska	$98	$67	$165	$206	$141	$348
Nevada	$253	$114	$367	$419	$189	$608
New Hampshire	$97	$125	$222	$124	$159	$284
New Jersey	$1,623	$1,110	$2,733	$2,053	$1,404	$3,456
New Mexico	$151	$55	$206	$254	$92	$346
New York	$2,544	$2,565	$5,109	$3,994	$4,026	$8,020
North Carolina	$879	$512	$1,391	$1,216	$708	$1,924
North Dakota	$54	$15	$68	$93	$25	$118
Ohio	$585	$504	$1,088	$909	$783	$1,692
Oklahoma	$124	$82	$206	$233	$154	$387
Oregon	$669	$404	$1,073	$891	$539	$1,429
Pennsylvania	$1,169	$785	$1,954	$1,551	$1,042	$2,593
Rhode Island	$91	$48	$140	$121	$64	$185
South Carolina	$283	$195	$478	$411	$283	$694
South Dakota	$21	$19	$40	$45	$40	$85
Tennessee	$417	$209	$625	$655	$328	$983
Texas	$2,193	$2,315	$4,508	$2,792	$2,947	$5,739
Utah	$370	$233	$604	$506	$318	$824
Vermont	$90	$19	$108	$122	$25	$147
Virginia	$1,590	$1,087	$2,677	$1,858	$1,271	$3,129
Washington	$1,529	$883	$2,411	$2,154	$1,244	$3,397
West Virginia	$88	$34	$122	$139	$55	$194
Wisconsin	$566	$288	$855	$751	$382	$1,133
Wyoming	$26	$11	$37	$51	$22	$73
Total	**$37,857**	**$24,880**	**$62,737**	**$50,888**	**$33,321**	**$84,209**

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding. The spillover effect refers to the indirect and induced effects in a state attributable to the national data center industry's direct activity in all other states.

Table A-5: The economic contribution of the data center industry in Alabama, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	9,170	9,340	2%
	Indirect and induced without the spillover effect[a]	20,550	26,810	30%
	Operational	11,090	11,580	4%
	Capital spending	9,460	15,230	61%
	Total contribution without the spillover effect[a]	29,720	36,150	22%
	Cross-state spillover	15,380	17,620	15%
	Total contribution with the spillover effect[a]	45,100	53,770	19%
Labor income ($millions)	Direct contribution	$872	$930	7%
	Indirect and induced without the spillover effect[a]	$1,165	$1,593	37%
	Operational	$543	$584	8%
	Capital spending	$621	$1,009	62%
	Total contribution without the spillover effect[a]	$2,036	$2,523	24%
	Cross-state spillover	$914	$1,103	21%
	Total contribution with the spillover effect[a]	$2,950	$3,626	23%
GDP ($millions)	Direct contribution	$1,425	$1,513	6%
	Indirect and induced without the spillover effect[a]	$2,001	$2,695	35%
	Operational	$1,018	$1,094	7%
	Capital spending	$983	$1,601	63%
	Total contribution without the spillover effect[a]	$3,426	$4,208	23%
	Cross-state spillover	$1,628	$1,968	21%
	Total contribution with the spillover effect[a]	$5,053	$6,176	22%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$198	$241	22%
	Local, without cross-state spillover effect[a]	$104	$128	22%
	State and local, without cross-state spillover effect[a]	$302	$369	22%
	State, with cross-state spillover effect[a]	$291	$361	24%
	Local, with cross-state spillover effect[a]	$154	$191	24%
	State and local, with cross-state spillover effect[a]	$444	$552	24%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Alabama (without the cross-state spillover effect) increased by 22 percent from 29,720 jobs in 2023 to 36,150 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Alabama was 45,100 jobs and 53,770 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Alabama (without the cross-state spillover effect) increased by 24 percent from $2.0 billion in 2023 to $2.5 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Alabama was $3.0 billion and $3.6 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Alabama (without the cross-state spillover effect) increased by 23 percent from $3.4 billion in 2023 to $4.2 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Alabama was $5.1 billion and $6.2 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Alabama (without the cross-state spillover effect) of $369 million in 2024 would have been sufficient to fund over half of the state's spending on fire protection safety, including fire inspection and investigation; support of volunteer fire forces; and other fire prevention activities, based on the latest available government spending data (2023).

Table A-6: The economic contribution of the data center industry in Alaska, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	940	940	0%
	Indirect and induced without the spillover effect[a]	2,100	2,890	38%
	Operational	950	1,000	5%
	Capital spending	1,150	1,890	64%
	Total contribution without the spillover effect[a]	3,040	3,830	26%
	Cross-state spillover	2,570	2,940	14%
	Total contribution with the spillover effect[a]	5,610	6,770	21%
Labor income ($millions)	Direct contribution	$98	$106	8%
	Indirect and induced without the spillover effect[a]	$134	$191	42%
	Operational	$56	$65	16%
	Capital spending	$79	$126	60%
	Total contribution without the spillover effect[a]	$233	$297	28%
	Cross-state spillover	$238	$293	23%
	Total contribution with the spillover effect[a]	$471	$590	25%
GDP ($millions)	Direct contribution	$193	$206	7%
	Indirect and induced without the spillover effect[a]	$259	$367	42%
	Operational	$109	$116	6%
	Capital spending	$149	$251	68%
	Total contribution without the spillover effect[a]	$451	$573	27%
	Cross-state spillover	$369	$447	21%
	Total contribution with the spillover effect[a]	$820	$1,020	24%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$17	$23	39%
	Local, without cross-state spillover effect[a]	$14	$19	39%
	State and local, without cross-state spillover effect[a]	$30	$42	39%
	State, with cross-state spillover effect[a]	$38	$48	28%
	Local, with cross-state spillover effect[a]	$31	$40	28%
	State and local, with cross-state spillover effect[a]	$69	$88	28%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Alaska (without the cross-state spillover effect) increased by 26 percent from 3,040 jobs in 2023 to 3,830 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Alaska was 5,610 jobs and 6,770 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Alaska (without the cross-state spillover effect) increased by 28 percent from $233 million in 2023 to $297 million in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Alaska was $471 million and $590 million in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Alaska (without the cross-state spillover effect) increased by 27 percent from $451 million in 2023 to $573 million in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Alaska was $820 million and $1.0 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Alaska (without the cross-state spillover effect) of $42 million in 2024 would have been sufficient to fund all of the state's provision and support of public library facilities and services, based on the latest available government spending data (2023).

Table A-7: The economic contribution of the data center industry in Arizona, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	21,530	20,640	-4%
	Indirect and induced without the spillover effect[a]	55,970	67,120	20%
	Operational	38,060	38,930	2%
	Capital spending	17,910	28,190	57%
	Total contribution without the spillover effect[a]	77,500	87,760	13%
	Cross-state spillover	23,700	27,210	15%
	Total contribution with the spillover effect[a]	101,200	114,970	14%
Labor income ($millions)	Direct contribution	$2,744	$2,950	7%
	Indirect and induced without the spillover effect[a]	$3,733	$4,706	26%
	Operational	$2,336	$2,478	6%
	Capital spending	$1,397	$2,228	59%
	Total contribution without the spillover effect[a]	$6,477	$7,656	18%
	Cross-state spillover	$1,650	$1,998	21%
	Total contribution with the spillover effect[a]	$8,127	$9,653	19%
GDP ($millions)	Direct contribution	$4,914	$5,229	6%
	Indirect and induced without the spillover effect[a]	$6,636	$8,228	24%
	Operational	$4,413	$4,672	6%
	Capital spending	$2,224	$3,555	60%
	Total contribution without the spillover effect[a]	$11,551	$13,457	17%
	Cross-state spillover	$2,987	$3,616	21%
	Total contribution with the spillover effect[a]	$14,538	$17,073	17%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$554	$607	10%
	Local, without cross-state spillover effect[a]	$362	$397	10%
	State and local, without cross-state spillover effect[a]	$916	$1,004	10%
	State, with cross-state spillover effect[a]	$669	$780	17%
	Local, with cross-state spillover effect[a]	$437	$510	17%
	State and local, with cross-state spillover effect[a]	$1,106	$1,289	17%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Arizona (without the cross-state spillover effect) increased by 13 percent from 77,500 jobs in 2023 to 87,760 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Arizona was 101,200 jobs and 114,970 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Arizona (without the cross-state spillover effect) increased by 18 percent from $6.5 billion in 2023 to $7.7 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Arizona was $8.1 billion and $9.7 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Arizona (without the cross-state spillover effect) increased by 17 percent from $11.6 billion in 2023 to $13.5 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Arizona was $14.5 billion and $17.1 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Arizona (without the cross-state spillover effects) of $1.0 billion in 2024 would have been sufficient to fund all of the state's expenditures on financing, construction acquisition, maintenance or operation of hospital facilities and provision of hospital care, based on the latest available government spending data (2023).

Table A-8: The economic contribution of the data center industry in Arkansas, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	7,640	7,100	-7%
	Indirect and induced without the spillover effect[a]	15,680	18,660	19%
	Operational	9,800	9,430	-4%
	Capital spending	5,880	9,230	57%
	Total contribution without the spillover effect[a]	23,320	25,760	10%
	Cross-state spillover	9,600	11,100	16%
	Total contribution with the spillover effect[a]	32,920	36,860	12%
Labor income ($millions)	Direct contribution	$825	$818	-1%
	Indirect and induced without the spillover effect[a]	$843	$1,052	25%
	Operational	$482	$486	1%
	Capital spending	$362	$566	57%
	Total contribution without the spillover effect[a]	$1,668	$1,870	12%
	Cross-state spillover	$579	$704	22%
	Total contribution with the spillover effect[a]	$2,247	$2,574	15%
GDP ($millions)	Direct contribution	$1,657	$1,622	-2%
	Indirect and induced without the spillover effect[a]	$1,533	$1,888	23%
	Operational	$917	$913	0%
	Capital spending	$617	$975	58%
	Total contribution without the spillover effect[a]	$3,190	$3,510	10%
	Cross-state spillover	$985	$1,189	21%
	Total contribution with the spillover effect[a]	$4,174	$4,699	13%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$222	$246	11%
	Local, without cross-state spillover effect[a]	$59	$65	11%
	State and local, without cross-state spillover effect[a]	$281	$311	11%
	State, with cross-state spillover effect[a]	$319	$377	18%
	Local, with cross-state spillover effect[a]	$85	$100	18%
	State and local, with cross-state spillover effect[a]	$403	$477	18%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Arkansas (without the cross-state spillover effect) increased by 10 percent from 23,320 jobs in 2023 to 25,760 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Arkansas was 32,920 jobs and 36,860 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Arkansas (without the cross-state spillover effect) increased by 12 percent from $1.7 billion in 2023 to $1.9 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Arkansas was $2.2 billion and $2.6 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Arkansas (without the cross-state spillover effect) increased by 10 percent from $3.2 billion in 2023 to $3.5 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Arkansas was $4.2 billion and $4.7 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Arkansas (without the cross-state spillover effect) of $311 million in 2024 would have been sufficient to fund all of the state's social insurance administration expenditures and construction, maintenance, operation, and support of airport facilities, based on the latest available government spending data (2023).

Table A-9: The economic contribution of the data center industry in California, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	150,450	145,820	-3%
	Indirect and induced without the spillover effect[a]	425,550	519,680	22%
	Operational	307,050	332,620	8%
	Capital spending	118,500	187,060	58%
	Total contribution without the spillover effect[a]	576,000	665,500	16%
	Cross-state spillover	134,620	152,660	13%
	Total contribution with the spillover effect[a]	710,620	818,160	15%
Labor income ($millions)	Direct contribution	$33,002	$37,691	14%
	Indirect and induced without the spillover effect[a]	$38,608	$50,484	31%
	Operational	$23,753	$26,658	12%
	Capital spending	$14,855	$23,826	60%
	Total contribution without the spillover effect[a]	$71,610	$88,175	23%
	Cross-state spillover	$13,834	$16,339	18%
	Total contribution with the spillover effect[a]	$85,445	$104,514	22%
GDP ($millions)	Direct contribution	$63,883	$71,712	12%
	Indirect and induced without the spillover effect[a]	$67,422	$87,450	30%
	Operational	$42,862	$48,172	12%
	Capital spending	$24,561	$39,279	60%
	Total contribution without the spillover effect[a]	$131,305	$159,162	21%
	Cross-state spillover	$24,432	$29,097	19%
	Total contribution with the spillover effect[a]	$155,738	$188,259	21%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$8,725	$9,752	12%
	Local, without cross-state spillover effect[a]	$3,907	$4,367	12%
	State and local, without cross-state spillover effect[a]	$12,632	$14,119	12%
	State, with cross-state spillover effect[a]	$10,414	$12,652	21%
	Local, with cross-state spillover effect[a]	$4,663	$5,665	21%
	State and local, with cross-state spillover effect[a]	$15,077	$18,317	21%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in California (without the cross-state spillover effect) increased by 16 percent from 576,000 jobs in 2023 to 665,500 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in California was 710,620 jobs and 818,160 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in California (without the cross-state spillover effect) increased by 23 percent from $71.6 billion in 2023 to $88.2 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in California was $85.4 billion and $104.5 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in California (without the cross-state spillover effect) increased by 21 percent from $131.3 billion in 2023 to $159.2 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in California was $155.7 billion and $188.3 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in California (without the cross-state spillover effect) of $14.1 billion in 2024 would have been sufficient to fund over one-fifth of the state's higher education expenditures, including degree granting institutions which provide academic training above grade 12, based on the latest available government spending data (2023).

Table A-10: The economic contribution of the data center industry in Colorado, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	29,330	28,470	-3%
	Indirect and induced without the spillover effect[a]	75,230	88,510	18%
	Operational	54,190	55,490	2%
	Capital spending	21,040	33,020	57%
	Total contribution without the spillover effect[a]	104,560	116,980	12%
	Cross-state spillover	21,450	24,510	14%
	Total contribution with the spillover effecta	126,010	141,490	12%
Labor income ($millions)	Direct contribution	$4,572	$4,841	6%
	Indirect and induced without the spillover effect[a]	$5,777	$7,243	25%
	Operational	$3,634	$3,830	5%
	Capital spending	$2,143	$3,413	59%
	Total contribution without the spillover effect[a]	$10,349	$12,084	17%
	Cross-state spillover	$1,653	$1,991	20%
	Total contribution with the spillover effect[a]	$12,002	$14,075	17%
GDP ($millions)	Direct contribution	$8,507	$8,907	5%
	Indirect and induced without the spillover effect[a]	$9,623	$11,843	23%
	Operational	$6,461	$6,824	6%
	Capital spending	$3,162	$5,020	59%
	Total contribution without the spillover effect[a]	$18,130	$20,750	14%
	Cross-state spillover	$2,867	$3,478	21%
	Total contribution with the spillover effect[a]	$20,997	$24,228	15%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$751	$817	9%
	Local, without cross-state spillover effect[a]	$825	$897	9%
	State and local, without cross-state spillover effect[a]	$1,576	$1,714	9%
	State, with cross-state spillover effect[a]	$799	$915	15%
	Local, with cross-state spillover effect[a]	$877	$1,005	15%
	State and local, with cross-state spillover effect[a]	$1,676	$1,920	15%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Colorado (without the cross-state spillover effect) increased by 12 percent from 104,560 jobs in 2023 to 116,980 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Colorado was 126,010 jobs and 141,490 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Colorado (without the cross-state spillover effect) increased by 17 percent from $10.3 billion in 2023 to $12.1 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Colorado was $12.0 billion and $14.1 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Colorado (without the cross-state spillover effect) increased by 14 percent from $18.1 billion in 2023 to $20.8 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Colorado was $21.0 billion and $24.2 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Colorado (without the cross-state spillover effect) of $1.7 billion in 2024 would have been sufficient to fund over three-fourths of the state's education services other than elementary, secondary, and higher education, based on the latest available government spending data (2023).

Table A-11: The economic contribution of the data center industry in Connecticut, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	9,170	9,710	6%
	Indirect and induced without the spillover effect[a]	16,230	22,460	38%
	Operational	7,670	8,560	12%
	Capital spending	8,560	13,900	62%
	Total contribution without the spillover effect[a]	25,400	32,170	27%
	Cross-state spillover	13,590	15,540	14%
	Total contribution with the spillover effect[a]	38,990	47,710	22%
Labor income ($millions)	Direct contribution	$1,272	$1,451	14%
	Indirect and induced without the spillover effect[a]	$1,284	$1,893	47%
	Operational	$452	$521	15%
	Capital spending	$832	$1,372	65%
	Total contribution without the spillover effect[a]	$2,556	$3,344	31%
	Cross-state spillover	$1,132	$1,322	17%
	Total contribution with the spillover effect[a]	$3,687	$4,666	27%
GDP ($millions)	Direct contribution	$2,224	$2,534	14%
	Indirect and induced without the spillover effect[a]	$2,094	$3,025	44%
	Operational	$849	$988	16%
	Capital spending	$1,245	$2,037	64%
	Total contribution without the spillover effect[a]	$4,318	$5,560	29%
	Cross-state spillover	$2,093	$2,514	20%
	Total contribution with the spillover effect[a]	$6,411	$8,073	26%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$287	$337	17%
	Local, without cross-state spillover effect[a]	$159	$186	17%
	State and local, without cross-state spillover effect[a]	$446	$524	17%
	State, with cross-state spillover effect[a]	$438	$546	25%
	Local, with cross-state spillover effect[a]	$242	$301	25%
	State and local, with cross-state spillover effect[a]	$679	$847	25%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Connecticut (without the cross-state spillover effect) increased by 27 percent from 25,400 jobs in 2023 to 32,170 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Connecticut was 38,990 jobs and 47,710 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Connecticut (without the cross-state spillover effect) increased by 31 percent from $2.6 billion in 2023 to $3.3 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Connecticut was $3.7 billion and $4.7 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Connecticut (without the cross-state spillover effect) increased by 29 percent from $4.3 billion in 2023 to $5.6 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Connecticut was $6.4 billion and $8.1 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Connecticut (without the cross-state spillover effects) of $524 million in 2024 would have been sufficient to fund over one-third of the state's outpatient health services, other than hospital care, based on the latest available government spending data (2023).

Table A-12: The economic contribution of the data center industry in Delaware, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	1,650	1,770	7%
	Indirect and induced without the spillover effect[a]	4,060	5,520	36%
	Operational	2,000	2,150	8%
	Capital spending	2,060	3,370	64%
	Total contribution without the spillover effect[a]	5,710	7,290	28%
	Cross-state spillover	3,780	4,330	15%
	Total contribution with the spillover effecta	9,490	11,620	22%
Labor income ($millions)	Direct contribution	$180	$202	12%
	Indirect and induced without the spillover effect[a]	$265	$377	43%
	Operational	$112	$116	4%
	Capital spending	$153	$262	71%
	Total contribution without the spillover effect[a]	$445	$579	30%
	Cross-state spillover	$290	$354	22%
	Total contribution with the spillover effect[a]	$735	$933	27%
GDP ($millions)	Direct contribution	$351	$384	10%
	Indirect and induced without the spillover effect[a]	$498	$705	41%
	Operational	$223	$246	10%
	Capital spending	$275	$459	67%
	Total contribution without the spillover effect[a]	$849	$1,089	28%
	Cross-state spillover	$669	$807	21%
	Total contribution with the spillover effect[a]	$1,518	$1,897	25%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$39	$48	24%
	Local, without cross-state spillover effect[a]	$10	$13	24%
	State and local, without cross-state spillover effect[a]	$49	$61	24%
	State, with cross-state spillover effect[a]	$98	$123	24%
	Local, with cross-state spillover effect[a]	$26	$32	24%
	State and local, with cross-state spillover effect[a]	$124	$154	24%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Delaware (without the cross-state spillover effect) increased by 28 percent from 5,710 jobs in 2023 to 7,290 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Delaware was 9,490 jobs and 11,620 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Delaware (without the cross-state spillover effect) increased by 30 percent from $445 million in 2023 to $580 million in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Delaware was $735 million and $933 million in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Delaware (without the cross-state spillover effect) increased by 28 percent from $849 million in 2023 to $1.1 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Delaware was $1.5 billion and $1.9 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Delaware (without the cross-state spillover effect) of $61 million in 2024 would have been sufficient to fund all of the state's expenditures on the provision and support of public library facilities and services and the construction, maintenance, operation, and support of airport facilities, based on the latest available government spending data (2023).

Table A-13: The economic contribution of the data center industry in the District of Columbia, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	7,910	7,730	-2%
	Indirect and induced without the spillover effect[a]	8,640	10,880	26%
	Operational	5,050	5,230	4%
	Capital spending	3,590	5,650	57%
	Total contribution without the spillover effect[a]	16,550	18,610	12%
	Cross-state spillover	4,650	5,350	15%
	Total contribution with the spillover effect[a]	21,200	23,960	13%
Labor income ($millions)	Direct contribution	$1,508	$1,607	7%
	Indirect and induced without the spillover effect[a]	$1,038	$1,382	33%
	Operational	$519	$553	6%
	Capital spending	$519	$829	60%
	Total contribution without the spillover effect[a]	$2,545	$2,988	17%
	Cross-state spillover	$682	$822	20%
	Total contribution with the spillover effect[a]	$3,227	$3,810	18%
GDP ($millions)	Direct contribution	$2,150	$2,282	6%
	Indirect and induced without the spillover effect[a]	$1,577	$2,072	31%
	Operational	$836	$896	7%
	Capital spending	$741	$1,176	59%
	Total contribution without the spillover effect[a]	$3,727	$4,354	17%
	Cross-state spillover	$992	$1,197	21%
	Total contribution with the spillover effect[a]	$4,719	$5,552	18%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	N/A	N/A	N/A
	Local, without cross-state spillover effect[a]	$298	$296	-1%
	State and local, without cross-state spillover effect[a]	$298	$296	-1%
	State, with cross-state spillover effect[a]	N/A	N/A	N/A
	Local, with cross-state spillover effect[a]	$293	$331	13%
	State and local, with cross-state spillover effect[a]	$293	$331	13%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in the District of Columbia (without the cross-state spillover effect) increased by 12 percent from 16,550 jobs in 2023 to 18,610 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in the District of Columbia was 21,200 jobs and 23,960 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in the District of Columbia (without the cross-state spillover effect) increased by 17 percent from $2.5 billion in 2023 to $3.0 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in the District of Columbia was $3.2 billion and $3.8 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in the District of Columbia (without the cross-state spillover effect) increased by 17 percent from $3.7 billion in 2023 to $4.4 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in the District of Columbia was $4.7 billion and $5.6 billion in 2023 and 2024, respectively.
4. The industry's total local tax contribution in the District of Columbia (without the cross-state spillover effects) of $296 million in 2024 would have been sufficient to fund all of the state's higher education expenditures and provision and support of public library facilities, based on the latest available government spending data (2023).

Table A-14: The economic contribution of the data center industry in Florida, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	72,570	73,330	1%
	Indirect and induced without the spillover effect[a]	193,840	234,260	21%
	Operational	133,750	139,390	4%
	Capital spending	60,090	94,870	58%
	Total contribution without the spillover effect[a]	266,410	307,590	15%
	Cross-state spillover	80,940	92,510	14%
	Total contribution with the spillover effect[a]	347,350	400,100	15%
Labor income ($millions)	Direct contribution	$8,637	$9,267	7%
	Indirect and induced without the spillover effect[a]	$11,866	$14,998	26%
	Operational	$7,544	$8,082	7%
	Capital spending	$4,322	$6,916	60%
	Total contribution without the spillover effect[a]	$20,503	$24,265	18%
	Cross-state spillover	$5,283	$6,420	22%
	Total contribution with the spillover effect[a]	$25,786	$30,685	19%
GDP ($millions)	Direct contribution	$15,199	$16,166	6%
	Indirect and induced without the spillover effect[a]	$20,955	$26,170	25%
	Operational	$13,965	$14,993	7%
	Capital spending	$6,990	$11,177	60%
	Total contribution without the spillover effect[a]	$36,154	$42,336	17%
	Cross-state spillover	$9,120	$11,032	21%
	Total contribution with the spillover effect[a]	$45,274	$53,368	18%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$1,569	$1,793	14%
	Local, without cross-state spillover effect[a]	$1,557	$1,780	14%
	State and local, without cross-state spillover effect[a]	$3,125	$3,573	14%
	State, with cross-state spillover effect[a]	$1,795	$2,118	18%
	Local, with cross-state spillover effect[a]	$1,781	$2,101	18%
	State and local, with cross-state spillover effect[a]	$3,576	$4,219	18%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Florida (without the cross-state spillover effect) increased by 15 percent from 266,410 jobs in 2023 to 307,590 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Florida was 347,350 jobs and 400,100 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Florida (without the cross-state spillover effect) increased by 18 percent from $20.5 billion in 2023 to $24.3 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Florida was $25.8 billion and $30.7 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Florida (without the cross-state spillover effect) increased by 17 percent from $36.2 billion in 2023 to $42.3 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Florida was $45.3 billion and $53.4 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Florida (without the cross-state spillover effect) of $3.6 billion in 2024 would have been sufficient to fund nearly one-fourth of the state's financing, construction acquisition, maintenance or operation of hospital facilities, provision of hospital care, and support of public or private hospitals, based on the latest available government spending data (2023).

Table A-15: The economic contribution of the data center industry in Georgia, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	46,420	47,230	2%
	Indirect and induced without the spillover effect[a]	117,920	140,430	19%
	Operational	87,180	92,090	6%
	Capital spending	30,740	48,340	57%
	Total contribution without the spillover effect[a]	164,340	187,660	14%
	Cross-state spillover	37,400	42,480	14%
	Total contribution with the spillover effect[a]	201,740	230,140	14%
Labor income ($millions)	Direct contribution	$6,157	$6,758	10%
	Indirect and induced without the spillover effect[a]	$7,466	$9,315	25%
	Operational	$5,080	$5,517	9%
	Capital spending	$2,385	$3,798	59%
	Total contribution without the spillover effect[a]	$13,622	$16,073	18%
	Cross-state spillover	$2,642	$3,188	21%
	Total contribution with the spillover effect[a]	$16,265	$19,260	18%
GDP ($millions)	Direct contribution	$11,328	$12,262	8%
	Indirect and induced without the spillover effect[a]	$13,620	$16,824	24%
	Operational	$9,659	$10,509	9%
	Capital spending	$3,962	$6,315	59%
	Total contribution without the spillover effect[a]	$24,949	$29,087	17%
	Cross-state spillover	$4,686	$5,614	20%
	Total contribution with the spillover effect[a]	$29,634	$34,701	17%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$1,006	$1,127	12%
	Local, without cross-state spillover effect[a]	$826	$925	12%
	State and local, without cross-state spillover effect[a]	$1,832	$2,052	12%
	State, with cross-state spillover effect[a]	$1,231	$1,464	19%
	Local, with cross-state spillover effect[a]	$1,011	$1,202	19%
	State and local, with cross-state spillover effect[a]	$2,242	$2,666	19%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Georgia (without the cross-state spillover effect) increased by 14 percent from 164,340 jobs in 2023 to 187,660 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Georgia was 201,740 jobs and 230,140 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Georgia (without the cross-state spillover effect) increased by 18 percent from $13.6 billion in 2023 to $16.1 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Georgia was $16.3 billion and $19.3 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Georgia (without the cross-state spillover effect) increased by 17 percent from $24.9 billion in 2023 to $29.1 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Georgia was $29.6 billion and $34.7 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Georgia (without the cross-state spillover effect) of $2.1 billion in 2024 would have been sufficient to fund nearly one-third of the state's construction, maintenance, and operation of highways, streets, and related structures, including toll highways, bridges, tunnels, ferries, and street lighting, based on the latest available government spending data (2023).

Table A-16: The economic contribution of the data center industry in Hawaii, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	2,930	2,780	-5%
	Indirect and induced without the spillover effect[a]	5,660	7,210	27%
	Operational	3,040	3,010	-1%
	Capital spending	2,620	4,200	60%
	Total contribution without the spillover effect[a]	8,590	9,990	16%
	Cross-state spillover	5,320	6,150	16%
	Total contribution with the spillover effect[a]	13,910	16,140	16%
Labor income ($millions)	Direct contribution	$286	$294	3%
	Indirect and induced without the spillover effect[a]	$371	$492	32%
	Operational	$184	$190	3%
	Capital spending	$188	$302	61%
	Total contribution without the spillover effect[a]	$658	$786	20%
	Cross-state spillover	$354	$428	21%
	Total contribution with the spillover effect[a]	$1,011	$1,214	20%
GDP ($millions)	Direct contribution	$485	$500	3%
	Indirect and induced without the spillover effect[a]	$658	$860	31%
	Operational	$349	$357	2%
	Capital spending	$309	$503	63%
	Total contribution without the spillover effect[a]	$1,143	$1,360	19%
	Cross-state spillover	$670	$810	21%
	Total contribution with the spillover effect[a]	$1,814	$2,170	20%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$114	$127	12%
	Local, without cross-state spillover effect[a]	$44	$49	12%
	State and local, without cross-state spillover effect[a]	$157	$176	12%
	State, with cross-state spillover effect[a]	$177	$211	19%
	Local, with cross-state spillover effect[a]	$68	$81	19%
	State and local, with cross-state spillover effect[a]	$245	$292	19%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Hawaii (without the cross-state spillover effect) increased by 16 percent from 8,590 jobs in 2023 to 9,990 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Hawaii was 13,910 jobs and 16,140 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Hawaii (without the cross-state spillover effect) increased by 20 percent from $658 million in 2023 to $786 million in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Hawaii was $1.0 billion and $1.2 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Hawaii (without the cross-state spillover effect) increased by 19 percent from $1.1 billion in 2023 to $1.4 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Hawaii was $1.8 billion and $2.2 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Hawaii (without the cross-state spillover effect) of $176 million in 2024 would have been sufficient to fund over half of the state's fire protection services including fire fighting organization and auxiliary services; fire inspection and investigation; support of volunteer fire forces; and other fire prevention activities, based on the latest available government spending data (2023).

Table A-17: The economic contribution of the data center industry in Idaho, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	3,980	4,150	4%
	Indirect and induced without the spillover effect[a]	10,040	13,610	36%
	Operational	5,320	5,980	12%
	Capital spending	4,720	7,630	62%
	Total contribution without the spillover effect[a]	14,020	17,760	27%
	Cross-state spillover	6,830	7,800	14%
	Total contribution with the spillover effect[a]	20,850	25,560	23%
Labor income ($millions)	Direct contribution	$392	$444	13%
	Indirect and induced without the spillover effect[a]	$661	$946	43%
	Operational	$287	$328	14%
	Capital spending	$374	$618	65%
	Total contribution without the spillover effect[a]	$1,053	$1,389	32%
	Cross-state spillover	$389	$459	18%
	Total contribution with the spillover effect[a]	$1,442	$1,848	28%
GDP ($millions)	Direct contribution	$747	$877	17%
	Indirect and induced without the spillover effect[a]	$1,068	$1,498	40%
	Operational	$525	$602	15%
	Capital spending	$543	$895	65%
	Total contribution without the spillover effect[a]	$1,815	$2,375	31%
	Cross-state spillover	$726	$877	21%
	Total contribution with the spillover effect[a]	$2,541	$3,252	28%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$129	$163	26%
	Local, without cross-state spillover effect[a]	$39	$49	26%
	State and local, without cross-state spillover effect[a]	$168	$212	26%
	State, with cross-state spillover effect[a]	$170	$218	28%
	Local, with cross-state spillover effect[a]	$51	$65	28%
	State and local, with cross-state spillover effect[a]	$221	$283	28%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Idaho (without the cross-state spillover effect) increased by 27 percent from 14,020 jobs in 2023 to 17,760 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Idaho was 20,850 jobs and 25,560 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Idaho (without the cross-state spillover effect) increased by 32 percent from $1.1 billion in 2023 to $1.4 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Idaho was $1.4 billion and $1.8 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Idaho (without the cross-state spillover effect) increased by 31 percent from $1.8 billion in 2023 to $2.4 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Idaho was $2.5 billion and $3.3 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Idaho (without the cross-state spillover effect) of $212 million in 2024 would have been sufficient to fund all of the state's construction, maintenance, operation, and support of airport facilities and one-fourth of expenditures on fire fighting organization and auxiliary services, based on the latest available government spending data (2023).

Table A-18: The economic contribution of the data center industry in Illinois, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	32,080	32,100	0%
	Indirect and induced without the spillover effect[a]	92,940	115,130	24%
	Operational	60,900	64,210	5%
	Capital spending	32,040	50,920	59%
	Total contribution without the spillover effect[a]	125,020	147,230	18%
	Cross-state spillover	46,090	52,810	15%
	Total contribution with the spillover effect[a]	171,110	200,040	17%
Labor income ($millions)	Direct contribution	$4,833	$5,248	9%
	Indirect and induced without the spillover effect[a]	$7,136	$9,283	30%
	Operational	$4,215	$4,573	8%
	Capital spending	$2,920	$4,709	61%
	Total contribution without the spillover effect[a]	$11,969	$14,531	21%
	Cross-state spillover	$3,790	$4,574	21%
	Total contribution with the spillover effect[a]	$15,759	$19,104	21%
GDP ($millions)	Direct contribution	$8,908	$9,618	8%
	Indirect and induced without the spillover effect[a]	$12,022	$15,436	28%
	Operational	$7,498	$8,159	9%
	Capital spending	$4,525	$7,277	61%
	Total contribution without the spillover effect[a]	$20,931	$25,054	20%
	Cross-state spillover	$6,610	$7,967	21%
	Total contribution with the spillover effect[a]	$27,541	$33,020	20%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$1,366	$1,543	13%
	Local, without cross-state spillover effect[a]	$900	$1,017	13%
	State and local, without cross-state spillover effect[a]	$2,267	$2,560	13%
	State, with cross-state spillover effect[a]	$1,685	$2,006	19%
	Local, with cross-state spillover effect[a]	$1,110	$1,321	19%
	State and local, with cross-state spillover effect[a]	$2,796	$3,327	19%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Illinois (without the cross-state spillover effect) increased by 18 percent from 125,020 jobs in 2023 to 147,230 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Illinois was 171,110 jobs and 200,040 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Illinois (without the cross-state spillover effect) increased by 21 percent from $12.0 billion in 2023 to $14.5 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Illinois was $15.8 billion and $19.1 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Illinois (without the cross-state spillover effect) increased by 20 percent from $20.9 billion in 2023 to $25.1 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Illinois was $27.5 billion and $33.0 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Illinois (without the cross-state spillover effect) of $2.6 billion in 2024 would have been sufficient to fund over one-third of the state's police protection expenditures including police patrols and communications, crime prevention activities, detention and custody of persons awaiting trial, traffic safety, and vehicular inspection, based on the latest available government spending data (2023).

Table A-19: The economic contribution of the data center industry in Indiana, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	10,980	11,050	1%
	Indirect and induced without the spillover effect[a]	26,350	35,020	33%
	Operational	12,940	13,280	3%
	Capital spending	13,410	21,740	62%
	Total contribution without the spillover effect[a]	37,330	46,070	23%
	Cross-state spillover	24,050	27,700	15%
	Total contribution with the spillover effect[a]	61,380	73,770	20%
Labor income ($millions)	Direct contribution	$1,009	$1,062	5%
	Indirect and induced without the spillover effect[a]	$1,769	$2,463	39%
	Operational	$761	$804	6%
	Capital spending	$1,008	$1,659	65%
	Total contribution without the spillover effect[a]	$2,778	$3,526	27%
	Cross-state spillover	$1,536	$1,830	19%
	Total contribution with the spillover effect[a]	$4,314	$5,355	24%
GDP ($millions)	Direct contribution	$1,622	$1,699	5%
	Indirect and induced without the spillover effect[a]	$2,817	$3,874	38%
	Operational	$1,309	$1,383	6%
	Capital spending	$1,508	$2,491	65%
	Total contribution without the spillover effect[a]	$4,439	$5,573	26%
	Cross-state spillover	$3,000	$3,636	21%
	Total contribution with the spillover effect[a]	$7,438	$9,208	24%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$271	$304	12%
	Local, without cross-state spillover effect[a]	$140	$157	12%
	State and local, without cross-state spillover effect[a]	$411	$461	12%
	State, with cross-state spillover effect[a]	$429	$521	21%
	Local, with cross-state spillover effect[a]	$222	$270	21%
	State and local, with cross-state spillover effect[a]	$651	$790	21%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Indiana (without the cross-state spillover effect) increased by 23 percent from 37,330 jobs in 2023 to 46,070 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Indiana was 61,380 jobs and 73,770 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Indiana (without the cross-state spillover effect) increased by 27 percent from $2.8 billion in 2023 to $3.5 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Indiana was $4.3 billion and $5.4 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Indiana (without the cross-state spillover effect) increased by 26 percent from $4.4 billion in 2023 to $5.6 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Indiana was $7.4 billion and $9.2 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Indiana (without the cross-state spillover effect) of $461 million in 2024 would have been sufficient to fund nearly all of the state's provision and support of public library facilities and services and all of veterans' services expenditures not classified under public welfare or other functions, based on the latest available government spending data (2023).

Table A-20: The economic contribution of the data center industry in Iowa, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	5,560	5,690	2%
	Indirect and induced without the spillover effect[a]	13,440	18,160	35%
	Operational	7,020	7,700	10%
	Capital spending	6,420	10,460	63%
	Total contribution without the spillover effect[a]	19,000	23,850	26%
	Cross-state spillover	12,190	13,920	14%
	Total contribution with the spillover effect[a]	31,190	37,770	21%
Labor income ($millions)	Direct contribution	$639	$726	14%
	Indirect and induced without the spillover effect[a]	$839	$1,186	41%
	Operational	$376	$416	11%
	Capital spending	$463	$770	66%
	Total contribution without the spillover effect[a]	$1,478	$1,913	29%
	Cross-state spillover	$761	$909	19%
	Total contribution with the spillover effect[a]	$2,238	$2,821	26%
GDP ($millions)	Direct contribution	$1,411	$1,605	14%
	Indirect and induced without the spillover effect[a]	$1,482	$2,071	40%
	Operational	$704	$798	13%
	Capital spending	$778	$1,273	64%
	Total contribution without the spillover effect[a]	$2,892	$3,676	27%
	Cross-state spillover	$1,544	$1,847	20%
	Total contribution with the spillover effect[a]	$4,437	$5,523	24%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$134	$159	19%
	Local, without cross-state spillover effect[a]	$91	$108	19%
	State and local, without cross-state spillover effect[a]	$224	$266	19%
	State, with cross-state spillover effect[a]	$225	$279	24%
	Local, with cross-state spillover effect[a]	$153	$190	24%
	State and local, with cross-state spillover effect[a]	$378	$469	24%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Iowa (without the cross-state spillover effect) increased by 26 percent from 19,000 jobs in 2023 to 23,850 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Iowa was 31,190 jobs and 37,770 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Iowa (without the cross-state spillover effect) increased by 29 percent from $1.5 billion in 2023 to $1.9 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Iowa was $2.2 billion and $2.8 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Iowa (without the cross-state spillover effect) increased by 27 percent from $2.9 billion in 2023 to $3.7 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Iowa was $4.4 billion and $5.5 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Iowa (without the cross-state spillover effect) of $266 million in 2024 would have been sufficient to fund over two-thirds of the state's fire protection expenditures including fire inspection and investigation; support of volunteer fire forces; and other fire prevention activities, based on the latest available government spending data (2023).

Table A-21: The economic contribution of the data center industry in Kansas, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	6,100	6,190	1%
	Indirect and induced without the spillover effect[a]	14,140	18,840	33%
	Operational	7,400	7,960	8%
	Capital spending	6,740	10,880	61%
	Total contribution without the spillover effect[a]	20,240	25,030	24%
	Cross-state spillover	10,830	12,440	15%
	Total contribution with the spillover effect[a]	31,070	37,470	21%
Labor income ($millions)	Direct contribution	$657	$727	11%
	Indirect and induced without the spillover effect[a]	$961	$1,339	39%
	Operational	$434	$483	11%
	Capital spending	$527	$856	63%
	Total contribution without the spillover effect[a]	$1,618	$2,067	28%
	Cross-state spillover	$623	$743	19%
	Total contribution with the spillover effect[a]	$2,240	$2,810	25%
GDP ($millions)	Direct contribution	$1,083	$1,211	12%
	Indirect and induced without the spillover effect[a]	$1,518	$2,109	39%
	Operational	$713	$794	11%
	Capital spending	$805	$1,315	63%
	Total contribution without the spillover effect[a]	$2,601	$3,320	28%
	Cross-state spillover	$1,208	$1,470	22%
	Total contribution with the spillover effect[a]	$3,810	$4,790	26%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$155	$192	24%
	Local, without cross-state spillover effect[a]	$78	$97	24%
	State and local, without cross-state spillover effect[a]	$233	$289	24%
	State, with cross-state spillover effect[a]	$231	$295	28%
	Local, with cross-state spillover effect[a]	$116	$148	28%
	State and local, with cross-state spillover effect[a]	$347	$443	28%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Kansas (without the cross-state spillover effect) increased by 24 percent from 20,240 jobs in 2023 to 25,030 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Kansas was 31,070 jobs and 37,470 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Kansas (without the cross-state spillover effect) increased by 28 percent from $1.6 billion in 2023 to $2.1 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Kansas was $2.2 billion and $2.8 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Kansas (without the cross-state spillover effect) increased by 28 percent from $2.6 billion in 2023 to $3.3 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Kansas was $3.8 billion and $4.8 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Kansas (without the cross-state spillover effects) of $289 million in 2024 would have been sufficient to fund all of the state's provision and support of public library facilities and services and construction, maintenance, operation, and support of airport facilities, based on the latest available government spending data (2023).

Table A-22: The economic contribution of the data center industry in Kentucky, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	8,600	8,620	0%
	Indirect and induced without the spillover effect[a]	19,300	24,590	27%
	Operational	10,400	10,340	-1%
	Capital spending	8,900	14,250	60%
	Total contribution without the spillover effect[a]	27,900	33,210	19%
	Cross-state spillover	14,890	17,160	15%
	Total contribution with the spillover effect[a]	42,790	50,370	18%
Labor income ($millions)	Direct contribution	$863	$877	2%
	Indirect and induced without the spillover effect[a]	$1,225	$1,631	33%
	Operational	$585	$592	1%
	Capital spending	$640	$1,040	63%
	Total contribution without the spillover effect[a]	$2,088	$2,508	20%
	Cross-state spillover	$917	$1,112	21%
	Total contribution with the spillover effect[a]	$3,004	$3,620	20%
GDP ($millions)	Direct contribution	$1,416	$1,417	0%
	Indirect and induced without the spillover effect[a]	$1,974	$2,586	31%
	Operational	$1,014	$1,030	2%
	Capital spending	$959	$1,556	62%
	Total contribution without the spillover effect[a]	$3,389	$4,003	18%
	Cross-state spillover	$1,614	$1,963	22%
	Total contribution with the spillover effect[a]	$5,003	$5,966	19%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$241	$285	18%
	Local, without cross-state spillover effect[a]	$108	$128	18%
	State and local, without cross-state spillover effect[a]	$350	$414	18%
	State, with cross-state spillover effect[a]	$325	$392	21%
	Local, with cross-state spillover effect[a]	$146	$176	21%
	State and local, with cross-state spillover effect[a]	$470	$567	21%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Kentucky (without the cross-state spillover effect) increased by 19 percent from 27,900 jobs in 2023 to 33,210 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Kentucky was 42,790 jobs and 50,370 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Kentucky (without the cross-state spillover effect) increased by 20 percent from $2.1 billion in 2023 to $2.5 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Kentucky was $3.0 billion and $3.6 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Kentucky (without the cross-state spillover effect) increased by 18 percent from $3.4 billion in 2023 to $4.0 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Kentucky was $5.0 billion and $6.0 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Kentucky (without the cross-state spillover effects) of $414 million in 2024 would have been sufficient to fund nearly all of the state's expenditures on the construction, maintenance, operation, and support of airport facilities, based on the latest available government spending data (2023).

Table A-23: The economic contribution of the data center industry in Louisiana, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	8,160	7,970	-2%
	Indirect and induced without the spillover effect[a]	18,500	23,910	29%
	Operational	9,570	9,590	0%
	Capital spending	8,930	14,320	60%
	Total contribution without the spillover effect[a]	26,660	31,880	20%
	Cross-state spillover	15,040	17,380	16%
	Total contribution with the spillover effect[a]	41,700	49,260	18%
Labor income ($millions)	Direct contribution	$689	$714	4%
	Indirect and induced without the spillover effect[a]	$1,013	$1,371	35%
	Operational	$472	$487	3%
	Capital spending	$541	$884	63%
	Total contribution without the spillover effect[a]	$1,702	$2,085	22%
	Cross-state spillover	$896	$1,092	22%
	Total contribution with the spillover effect[a]	$2,597	$3,176	22%
GDP ($millions)	Direct contribution	$1,202	$1,232	2%
	Indirect and induced without the spillover effect[a]	$1,804	$2,419	34%
	Operational	$887	$925	4%
	Capital spending	$918	$1,495	63%
	Total contribution without the spillover effect[a]	$3,006	$3,651	21%
	Cross-state spillover	$1,846	$2,245	22%
	Total contribution with the spillover effect[a]	$4,852	$5,896	22%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$150	$182	22%
	Local, without cross-state spillover effect[a]	$103	$125	22%
	State and local, without cross-state spillover effect[a]	$253	$307	22%
	State, with cross-state spillover effect[a]	$254	$313	23%
	Local, with cross-state spillover effect[a]	$175	$215	23%
	State and local, with cross-state spillover effect[a]	$429	$528	23%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Louisiana (without the cross-state spillover effect) increased by 20 percent from 26,660 jobs in 2023 to 31,880 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Louisiana was 41,700 jobs and 49,260 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Louisiana (without the cross-state spillover effect) increased by 22 percent from $1.7 billion in 2023 to $2.1 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Louisiana was $2.6 billion and $3.2 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Louisiana (without the cross-state spillover effect) increased by 21 percent from $3.0 billion in 2023 to $3.7 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Louisiana was $4.9 billion and $5.9 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Louisiana (without the cross-state spillover effects) of $307 million in 2024 would have been sufficient to fund over one-third of the state's fire fighting organization and auxiliary services, based on the latest available government spending data (2023).

Table A-24: The economic contribution of the data center industry in Maine, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	2,600	2,470	-5%
	Indirect and induced without the spillover effect[a]	6,300	8,210	30%
	Operational	3,310	3,400	3%
	Capital spending	2,990	4,810	61%
	Total contribution without the spillover effect[a]	8,900	10,680	20%
	Cross-state spillover	5,040	5,800	15%
	Total contribution with the spillover effect[a]	13,940	16,480	18%
Labor income ($millions)	Direct contribution	$273	$282	3%
	Indirect and induced without the spillover effect[a]	$410	$555	35%
	Operational	$198	$205	3%
	Capital spending	$213	$350	65%
	Total contribution without the spillover effect[a]	$683	$836	22%
	Cross-state spillover	$306	$368	20%
	Total contribution with the spillover effect[a]	$989	$1,204	22%
GDP ($millions)	Direct contribution	$433	$458	6%
	Indirect and induced without the spillover effect[a]	$670	$887	32%
	Operational	$357	$372	4%
	Capital spending	$314	$515	64%
	Total contribution without the spillover effect[a]	$1,103	$1,345	22%
	Cross-state spillover	$568	$691	22%
	Total contribution with the spillover effect[a]	$1,671	$2,035	22%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$84	$102	20%
	Local, without cross-state spillover effect[a]	$51	$61	20%
	State and local, without cross-state spillover effect[a]	$135	$162	20%
	State, with cross-state spillover effect[a]	$122	$148	21%
	Local, with cross-state spillover effect[a]	$73	$89	21%
	State and local, with cross-state spillover effect[a]	$195	$237	21%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Maine (without the cross-state spillover effect) increased by 20 percent from 8,900 jobs in 2023 to 10,680 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Maine was 13,940 jobs and 16,480 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Maine (without the cross-state spillover effect) increased by 22 percent from $683 million in 2023 to $836 million in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Maine was $989.0 million and $1.2 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Maine (without the cross-state spillover effect) increased by 22 percent from $1.1 billion in 2023 to $1.3 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Maine was $1.7 billion and $2.0 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Maine (without the cross-state spillover effect) of $162 million in 2024 would have been sufficient to fund nearly all of the state's financing, construction acquisition, maintenance or operation of hospital facilities including provision of hospital care, based on the latest available government spending data (2023).

Table A-25: The economic contribution of the data center industry in Maryland, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	20,350	21,370	5%
	Indirect and induced without the spillover effect[a]	42,670	54,980	29%
	Operational	26,340	28,980	10%
	Capital spending	16,330	26,000	59%
	Total contribution without the spillover effect[a]	63,020	76,350	21%
	Cross-state spillover	20,050	22,900	14%
	Total contribution with the spillover effect[a]	83,070	99,250	19%
Labor income ($millions)	Direct contribution	$2,558	$2,868	12%
	Indirect and induced without the spillover effect[a]	$3,137	$4,226	35%
	Operational	$1,719	$1,947	13%
	Capital spending	$1,418	$2,280	61%
	Total contribution without the spillover effect[a]	$5,695	$7,094	25%
	Cross-state spillover	$1,522	$1,851	22%
	Total contribution with the spillover effect[a]	$7,217	$8,945	24%
GDP ($millions)	Direct contribution	$4,074	$4,588	13%
	Indirect and induced without the spillover effect[a]	$5,311	$7,109	34%
	Operational	$3,044	$3,455	14%
	Capital spending	$2,267	$3,654	61%
	Total contribution without the spillover effect[a]	$9,385	$11,697	25%
	Cross-state spillover	$2,642	$3,196	21%
	Total contribution with the spillover effect[a]	$12,026	$14,893	24%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$539	$628	16%
	Local, without cross-state spillover effect[a]	$381	$444	16%
	State and local, without cross-state spillover effect[a]	$920	$1,072	16%
	State, with cross-state spillover effect[a]	$738	$912	24%
	Local, with cross-state spillover effect[a]	$522	$646	24%
	State and local, with cross-state spillover effect[a]	$1,260	$1,558	24%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Maryland (without the cross-state spillover effect) increased by 21 percent from 63,020 jobs in 2023 to 76,350 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Maryland was 83,070 jobs and 99,250 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Maryland (without the cross-state spillover effect) increased by 25 percent from $5.7 billion in 2023 to $7.1 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Maryland was $7.2 billion and $8.9 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Maryland (without the cross-state spillover effect) increased by 25 percent from $9.4 billion in 2023 to $11.7 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Maryland was $12.0 billion and $14.9 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Maryland (without the cross-state spillover effect) of $1.1 billion in 2024 would have been sufficient to fund over one-third of the state's outpatient health services, other than hospital care, based on the latest available government spending data (2023).

Table A-26: The economic contribution of the data center industry in Massachusetts, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	23,200	23,020	-1%
	Indirect and induced without the spillover effect[a]	59,430	76,100	28%
	Operational	36,490	39,510	8%
	Capital spending	22,940	36,590	60%
	Total contribution without the spillover effect[a]	82,630	99,120	20%
	Cross-state spillover	26,790	30,640	14%
	Total contribution with the spillover effect[a]	109,420	129,760	19%
Labor income ($millions)	Direct contribution	$3,985	$4,484	13%
	Indirect and induced without the spillover effect[a]	$5,775	$7,891	37%
	Operational	$2,893	$3,238	12%
	Capital spending	$2,882	$4,653	61%
	Total contribution without the spillover effect[a]	$9,760	$12,375	27%
	Cross-state spillover	$2,702	$3,254	20%
	Total contribution with the spillover effect[a]	$12,462	$15,629	25%
GDP ($millions)	Direct contribution	$6,948	$7,784	12%
	Indirect and induced without the spillover effect[a]	$9,330	$12,586	35%
	Operational	$4,974	$5,572	12%
	Capital spending	$4,356	$7,014	61%
	Total contribution without the spillover effect[a]	$16,278	$20,370	25%
	Cross-state spillover	$4,627	$5,644	22%
	Total contribution with the spillover effect[a]	$20,905	$26,014	24%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$1,061	$1,253	18%
	Local, without cross-state spillover effect[a]	$514	$607	18%
	State and local, without cross-state spillover effect[a]	$1,575	$1,859	18%
	State, with cross-state spillover effect[a]	$1,293	$1,606	24%
	Local, with cross-state spillover effect[a]	$626	$778	24%
	State and local, with cross-state spillover effect[a]	$1,919	$2,384	24%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Massachusetts (without the cross-state spillover effect) increased by 20 percent from 82,630 jobs in 2023 to 99,120 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Massachusetts was 109,420 jobs and 129,760 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Massachusetts (without the cross-state spillover effect) increased by 27 percent from $9.8 billion in 2023 to $12.4 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Massachusetts was $12.5 billion and $15.6 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Massachusetts (without the cross-state spillover effect) increased by 25 percent from $16.3 billion in 2023 to $20.4 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Massachusetts was $20.9 billion and $26.0 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Massachusetts (without the cross-state spillover effect) of $1.9 billion in 2024 would have been sufficient to fund over one-fourth of the state's higher education expenditures including degree granting institutions which provide academic training above grade 12, based on the latest available government spending data (2023).

Table A-27: The economic contribution of the data center industry in Michigan, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	23,590	23,520	0%
	Indirect and induced without the spillover effect[a]	61,210	74,510	22%
	Operational	39,260	39,780	1%
	Capital spending	21,950	34,730	58%
	Total contribution without the spillover effect[a]	84,800	98,030	16%
	Cross-state spillover	32,250	37,080	15%
	Total contribution with the spillover effect[a]	117,050	135,110	15%
Labor income ($millions)	Direct contribution	$2,803	$2,912	4%
	Indirect and induced without the spillover effect[a]	$3,989	$5,103	28%
	Operational	$2,304	$2,396	4%
	Capital spending	$1,685	$2,707	61%
	Total contribution without the spillover effect[a]	$6,792	$8,015	18%
	Cross-state spillover	$2,190	$2,655	21%
	Total contribution with the spillover effect[a]	$8,982	$10,669	19%
GDP ($millions)	Direct contribution	$4,981	$5,113	3%
	Indirect and induced without the spillover effect[a]	$6,674	$8,405	26%
	Operational	$4,075	$4,253	4%
	Capital spending	$2,599	$4,152	60%
	Total contribution without the spillover effect[a]	$11,655	$13,518	16%
	Cross-state spillover	$3,733	$4,536	22%
	Total contribution with the spillover effect[a]	$15,388	$18,054	17%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$801	$879	10%
	Local, without cross-state spillover effect[a]	$411	$450	10%
	State and local, without cross-state spillover effect[a]	$1,212	$1,330	10%
	State, with cross-state spillover effect[a]	$888	$1,030	16%
	Local, with cross-state spillover effect[a]	$455	$528	16%
	State and local, with cross-state spillover effect[a]	$1,344	$1,558	16%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Michigan (without the cross-state spillover effect) increased by 16 percent from 84,800 jobs in 2023 to 98,030 jobs in 2024. Including the cross-state spillover effects, the industry's total annual employment contribution in Michigan was 117,050 jobs and 135,110 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Michigan (without the cross-state spillover effect) increased by 18 percent from $6.8 billion in 2023 to $8.0 billion in 2024. Including the cross-state spillover effects, the industry's total annual labor income contribution in Michigan was $9.0 billion and $10.7 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Michigan (without the cross-state spillover effect) increased by 16 percent from $11.7 billion in 2023 to $13.5 billion in 2024. Including the cross-state spillover effects, the industry's total annual GDP contribution in Michigan was $15.4 billion and $18.1 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution (without the cross-state spillover effects) of $1.3 billion in Michigan in 2024 would have been sufficient to fund over one-third of the state's police protection expenditures including police patrols and communications, crime prevention activities, detention and custody of persons awaiting trial, traffic safety, and vehicular inspection, based on the latest available government spending data (2023).

Table A-28: The economic contribution of the data center industry in Minnesota, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	14,530	14,890	2%
	Indirect and induced without the spillover effect[a]	41,490	52,570	27%
	Operational	26,120	28,020	7%
	Capital spending	15,370	24,550	60%
	Total contribution without the spillover effect[a]	56,020	67,460	20%
	Cross-state spillover	22,010	25,150	14%
	Total contribution with the spillover effect[a]	78,030	92,610	19%
Labor income ($millions)	Direct contribution	$2,023	$2,210	9%
	Indirect and induced without the spillover effect[a]	$3,139	$4,191	34%
	Operational	$1,725	$1,904	10%
	Capital spending	$1,415	$2,288	62%
	Total contribution without the spillover effect[a]	$5,162	$6,401	24%
	Cross-state spillover	$1,690	$2,019	19%
	Total contribution with the spillover effect[a]	$6,853	$8,419	23%
GDP ($millions)	Direct contribution	$3,564	$3,896	9%
	Indirect and induced without the spillover effect[a]	$5,171	$6,812	32%
	Operational	$3,024	$3,345	11%
	Capital spending	$2,147	$3,467	61%
	Total contribution without the spillover effect[a]	$8,736	$10,707	23%
	Cross-state spillover	$2,888	$3,471	20%
	Total contribution with the spillover effect[a]	$11,623	$14,179	22%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$698	$801	15%
	Local, without cross-state spillover effect[a]	$244	$280	15%
	State and local, without cross-state spillover effect[a]	$942	$1,081	15%
	State, with cross-state spillover effect[a]	$849	$1,030	21%
	Local, with cross-state spillover effect[a]	$297	$361	21%
	State and local, with cross-state spillover effect[a]	$1,146	$1,390	21%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Minnesota (without the cross-state spillover effect) increased by 20 percent from 56,020 jobs in 2023 to 67,460 jobs in 2024. Including the cross-state spillover effects, the industry's total annual employment contribution in Minnesota was 78,030 jobs and 92,610 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Minnesota (without the cross-state spillover effect) increased by 24 percent from $5.2 billion in 2023 to $6.4 billion in 2024. Including the cross-state spillover effects, the industry's total annual labor income contribution in Minnesota was $6.9 billion and $8.4 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution (without the cross-state spillover effect) in Minnesota increased by 23 percent from $8.7 billion in 2023 to $10.7 billion in 2024. Including the cross-state spillover effects, the industry's total annual GDP contribution in Minnesota was $11.6 billion and $14.2 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution (without the cross-state spillover effects) of $1.1 billion in Minnesota in 2024 would have been sufficient to fund nearly three-fourths of the state's education services other than elementary, secondary, and higher education, based on the latest available government spending data (2023)

Table A-29: The economic contribution of the data center industry in Mississippi, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	3,120	3,030	-3%
	Indirect and induced without the spillover effect[a]	7,710	10,680	39%
	Operational	3,110	3,110	0%
	Capital spending	4,600	7,570	65%
	Total contribution without the spillover effect[a]	10,830	13,710	27%
	Cross-state spillover	9,480	10,940	15%
	Total contribution with the spillover effect[a]	20,310	24,650	21%
Labor income ($millions)	Direct contribution	$224	$231	3%
	Indirect and induced without the spillover effect[a]	$372	$537	44%
	Operational	$127	$130	3%
	Capital spending	$245	$407	66%
	Total contribution without the spillover effect[a]	$596	$768	29%
	Cross-state spillover	$447	$535	20%
	Total contribution with the spillover effect[a]	$1,042	$1,304	25%
GDP ($millions)	Direct contribution	$391	$405	4%
	Indirect and induced without the spillover effect[a]	$639	$898	41%
	Operational	$261	$264	1%
	Capital spending	$378	$634	68%
	Total contribution without the spillover effect[a]	$1,030	$1,303	26%
	Cross-state spillover	$858	$1,042	21%
	Total contribution with the spillover effect[a]	$1,888	$2,345	24%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$78	$100	29%
	Local, without cross-state spillover effect[a]	$32	$41	29%
	State and local, without cross-state spillover effect[a]	$109	$140	29%
	State, with cross-state spillover effect[a]	$136	$170	26%
	Local, with cross-state spillover effect[a]	$55	$69	26%
	State and local, with cross-state spillover effect[a]	$191	$240	26%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Mississippi (without the cross-state spillover effect) increased by 27 percent from 10,830 jobs in 2023 to 13,710 jobs in 2024. Including the cross-state spillover effects, the industry's total annual employment contribution in Mississippi was 20,310 jobs and 24,650 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Mississippi (without the cross-state spillover effect) increased by 29 percent from $596 million in 2023 to $768 million in 2024. Including the cross-state spillover effects, the industry's total annual labor income contribution in Mississippi was $1.0 billion and $1.3 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution (without the cross-state spillover effect) in Mississippi increased by 26 percent from $1.0 billion in 2023 to $1.3 billion in 2024. Including the cross-state spillover effects, the industry's total annual GDP contribution in Mississippi was $1.9 billion and $2.3 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution (without the cross-state spillover effects) of $140 million in Mississippi in 2024 would have been sufficient to fund all of the state's provision and support of public library facilities and services and all veterans' services expenditures not classified under public welfare or other functions, based on the latest available government spending data (2023).

Table A-30: The economic contribution of the data center industry in Missouri, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	23,080	22,660	-2%
	Indirect and induced without the spillover effect[a]	53,890	62,600	16%
	Operational	38,590	38,650	0%
	Capital spending	15,300	23,950	57%
	Total contribution without the spillover effect[a]	76,970	85,260	11%
	Cross-state spillover	20,550	23,540	15%
	Total contribution with the spillover effect[a]	97,520	108,800	12%
Labor income ($millions)	Direct contribution	$3,410	$3,455	1%
	Indirect and induced without the spillover effect[a]	$3,417	$4,163	22%
	Operational	$2,253	$2,312	3%
	Capital spending	$1,164	$1,852	59%
	Total contribution without the spillover effect[a]	$6,827	$7,618	12%
	Cross-state spillover	$1,309	$1,573	20%
	Total contribution with the spillover effect[a]	$8,136	$9,191	13%
GDP ($millions)	Direct contribution	$6,318	$6,373	1%
	Indirect and induced without the spillover effect[a]	$5,798	$6,965	20%
	Operational	$4,005	$4,122	3%
	Capital spending	$1,793	$2,844	59%
	Total contribution without the spillover effect[a]	$12,116	$13,338	10%
	Cross-state spillover	$2,271	$2,731	20%
	Total contribution with the spillover effect[a]	$14,386	$16,069	12%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$536	$567	6%
	Local, without cross-state spillover effect[a]	$462	$489	6%
	State and local, without cross-state spillover effect[a]	$999	$1,057	6%
	State, with cross-state spillover effect[a]	$636	$724	14%
	Local, with cross-state spillover effect[a]	$549	$625	14%
	State and local, with cross-state spillover effect[a]	$1,185	$1,349	14%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Missouri (without the cross-state spillover effect) increased by 11 percent from 76,970 jobs in 2023 to 85,260 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Missouri was 97,520 jobs and 108,800 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Missouri (without the cross-state spillover effect) increased by 12 percent from $6.8 billion in 2023 to $7.6 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Missouri was $8.1 billion and $9.2 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Missouri (without the cross-state spillover effect) increased by 10 percent from $12.1 billion in 2023 to $13.3 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Missouri was $14.4 billion and $16.1 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Missouri (without the cross-state spillover effect) of $1.1 billion in 2024 would have been sufficient to fund over one-fourth of the state's construction, maintenance, and operation of highways, streets, and related structures, including toll highways, bridges, tunnels, ferries, street lighting and snow and ice removal, based on the latest available government spending data (2023).

Table A-31: The economic contribution of the data center industry in Montana, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	1,650	1,700	3%
	Indirect and induced without the spillover effect[a]	4,650	6,420	38%
	Operational	2,200	2,400	9%
	Capital spending	2,450	4,020	64%
	Total contribution without the spillover effect[a]	6,300	8,120	29%
	Cross-state spillover	4,390	5,030	15%
	Total contribution with the spillover effect[a]	10,690	13,150	23%
Labor income ($millions)	Direct contribution	$149	$170	14%
	Indirect and induced without the spillover effect[a]	$291	$419	44%
	Operational	$121	$133	10%
	Capital spending	$170	$286	68%
	Total contribution without the spillover effect[a]	$441	$588	34%
	Cross-state spillover	$237	$282	19%
	Total contribution with the spillover effect[a]	$677	$871	29%
GDP ($millions)	Direct contribution	$275	$313	14%
	Indirect and induced without the spillover effect[a]	$460	$650	41%
	Operational	$212	$237	12%
	Capital spending	$248	$413	67%
	Total contribution without the spillover effect[a]	$735	$962	31%
	Cross-state spillover	$447	$542	21%
	Total contribution with the spillover effect[a]	$1,182	$1,504	27%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$54	$70	30%
	Local, without cross-state spillover effect[a]	$22	$28	30%
	State and local, without cross-state spillover effect[a]	$76	$99	30%
	State, with cross-state spillover effect[a]	$81	$103	28%
	Local, with cross-state spillover effect[a]	$32	$41	28%
	State and local, with cross-state spillover effect[a]	$113	$145	28%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Montana (without the cross-state spillover effect) increased by 29 percent from 6,300 jobs in 2023 to 8,120 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Montana was 10,690 jobs and 13,150 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Montana (without the cross-state spillover effect) increased by 34 percent from $441 million in 2023 to $588 million in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Montana was $677.1 million and $871 million in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Montana (without the cross-state spillover effect) increased by 31 percent from $735 million in 2023 to $962 million in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Montana was $1.2 billion and $1.5 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Montana (without the cross-state spillover effect) of $99 million in Montana in 2024 would have been sufficient to fund nearly all of the state's construction, maintenance, operation, and support of airport facilities, based on the latest available government spending data (2023).

Table A-32: The economic contribution of the data center industry in Nebraska, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	5,500	4,600	-16%
	Indirect and induced without the spillover effect[a]	11,700	14,090	20%
	Operational	6,600	6,080	-8%
	Capital spending	5,100	8,010	57%
	Total contribution without the spillover effect[a]	17,200	18,690	9%
	Cross-state spillover	7,950	9,270	17%
	Total contribution with the spillover effect[a]	25,150	27,960	11%
Labor income ($millions)	Direct contribution	$613	$564	-8%
	Indirect and induced without the spillover effect[a]	$758	$967	28%
	Operational	$370	$353	-5%
	Capital spending	$388	$614	58%
	Total contribution without the spillover effect[a]	$1,371	$1,530	12%
	Cross-state spillover	$541	$667	23%
	Total contribution with the spillover effect[a]	$1,912	$2,198	15%
GDP ($millions)	Direct contribution	$1,226	$1,187	-3%
	Indirect and induced without the spillover effect[a]	$1,381	$1,745	26%
	Operational	$708	$675	-5%
	Capital spending	$673	$1,070	59%
	Total contribution without the spillover effect[a]	$2,607	$2,932	12%
	Cross-state spillover	$1,130	$1,381	22%
	Total contribution with the spillover effect[a]	$3,737	$4,313	15%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$89	$98	9%
	Local, without cross-state spillover effect[a]	$61	$67	9%
	State and local, without cross-state spillover effect[a]	$151	$165	9%
	State, with cross-state spillover effect[a]	$173	$206	19%
	Local, with cross-state spillover effect[a]	$119	$141	19%
	State and local, with cross-state spillover effect[a]	$292	$348	19%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Nebraska (without the cross-state spillover effect) increased by 9 percent from 17,200 jobs in 2023 to 18,690 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Nebraska was 25,150 jobs and 27,960 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Nebraska (without the cross-state spillover effect) increased by 12 percent from $1.4 billion in 2023 to $1.5 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Nebraska was $1.9 billion and $2.2 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Nebraska (without the cross-state spillover effect) increased by 12 percent from $2.6 billion in 2023 to $2.9 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Nebraska was $3.7 billion and $4.3 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Nebraska (without the cross-state spillover effect) of $165 million in 2024 would have been sufficient to fund over one-fourth of the state's expenditures on police protection, including police patrols and communications, crime prevention activities, traffic safety, and vehicular inspection, based on the latest available government spending data (2023).

Table A-33: The economic contribution of the data center industry in Nevada, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	6,850	6,610	-4%
	Indirect and induced without the spillover effect[a]	17,090	22,700	33%
	Operational	9,850	10,970	11%
	Capital spending	7,240	11,730	62%
	Total contribution without the spillover effect[a]	23,940	29,310	22%
	Cross-state spillover	14,750	16,860	14%
	Total contribution with the spillover effect[a]	38,690	46,170	19%
Labor income ($millions)	Direct contribution	$802	$959	20%
	Indirect and induced without the spillover effect[a]	$1,107	$1,541	39%
	Operational	$576	$666	16%
	Capital spending	$531	$875	65%
	Total contribution without the spillover effect[a]	$1,909	$2,500	31%
	Cross-state spillover	$991	$1,190	20%
	Total contribution with the spillover effect[a]	$2,900	$3,690	27%
GDP ($millions)	Direct contribution	$1,833	$2,190	20%
	Indirect and induced without the spillover effect[a]	$2,027	$2,783	37%
	Operational	$1,126	$1,302	16%
	Capital spending	$901	$1,481	64%
	Total contribution without the spillover effect[a]	$3,859	$4,973	29%
	Cross-state spillover	$1,799	$2,143	19%
	Total contribution with the spillover effect[a]	$5,659	$7,116	26%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$203	$253	25%
	Local, without cross-state spillover effecta	$92	$114	25%
	State and local, without cross-state spillover effect[a]	$294	$367	25%
	State, with cross-state spillover effect[a]	$341	$419	23%
	Local, with cross-state spillover effect[a]	$154	$189	23%
	State and local, with cross-state spillover effect[a]	$495	$608	23%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Nevada (without the cross-state spillover effect) increased by 22 percent from 23,940 jobs in 2023 to 29,310 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Nevada was 38,690 jobs and 46,170 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Nevada (without the cross-state spillover effect) increased by 31 percent from $1.9 billion in 2023 to $2.5 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Nevada was $2.9 billion and $3.7 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Nevada (without the cross-state spillover effect) increased by 29 percent from $3.9 billion in 2023 to $5.0 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Nevada was $5.7 billion and $7.1 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Nevada (without the cross-state spillover effect) of $367 million in 2024 would have been sufficient to fund over one-fourth of the state's expenditures toward financing, construction acquisition, maintenance or operation of hospital facilities, provision of hospital care, and support of public or private hospitals, based on the latest available government spending data (2023).

Table A-34: The economic contribution of the data center industry in New Hampshire, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	4,720	4,780	1%
	Indirect and induced without the spillover effect[a]	10,810	13,510	25%
	Operational	6,460	6,600	2%
	Capital spending	4,350	6,910	59%
	Total contribution without the spillover effect[a]	15,530	18,290	18%
	Cross-state spillover	5,090	5,810	14%
	Total contribution with the spillover effect[a]	20,620	24,100	17%
Labor income ($millions)	Direct contribution	$662	$688	4%
	Indirect and induced without the spillover effect[a]	$914	$1,211	32%
	Operational	$463	$484	5%
	Capital spending	$451	$727	61%
	Total contribution without the spillover effect[a]	$1,576	$1,898	20%
	Cross-state spillover	$367	$427	16%
	Total contribution with the spillover effect[a]	$1,943	$2,326	20%
GDP ($millions)	Direct contribution	$1,109	$1,138	3%
	Indirect and induced without the spillover effect[a]	$1,402	$1,802	29%
	Operational	$791	$832	5%
	Capital spending	$610	$970	59%
	Total contribution without the spillover effect[a]	$2,511	$2,941	17%
	Cross-state spillover	$692	$846	22%
	Total contribution with the spillover effect[a]	$3,203	$3,787	18%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$88	$97	11%
	Local, without cross-state spillover effect[a]	$112	$125	11%
	State and local, without cross-state spillover effect[a]	$201	$222	11%
	State, with cross-state spillover effect[a]	$107	$124	17%
	Local, with cross-state spillover effect[a]	$136	$159	17%
	State and local, with cross-state spillover effect[a]	$243	$284	17%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in New Hampshire (without the cross-state spillover effect) increased by 18 percent from 15,530 jobs in 2023 to 18,290 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in New Hampshire was 20,620 jobs and 24,100 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in New Hampshire (without the cross-state spillover effect) increased by 20 percent from $1.6 billion in 2023 to $1.9 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in New Hampshire was $1.9 billion and $2.3 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in New Hampshire (without the cross-state spillover effect) increased by 17 percent from $2.5 billion in 2023 to $2.9 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in New Hampshire was $3.2 billion and $3.8 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in New Hampshire (without the cross-state spillover effect) of $222 million in 2024 would have been sufficient to fund nearly one-fourth of the state's construction, maintenance, and operation of highways, streets, and related structures, based on the latest available government spending data (2023).

Table A-35: The economic contribution of the data center industry in New Jersey, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	32,810	35,180	7%
	Indirect and induced without the spillover effect[a]	77,120	100,610	30%
	Operational	52,530	61,350	17%
	Capital spending	24,590	39,260	60%
	Total contribution without the spillover effect[a]	109,930	135,790	24%
	Cross-state spillover	32,070	36,230	13%
	Total contribution with the spillover effect[a]	142,000	172,020	21%
Labor income ($millions)	Direct contribution	$5,215	$6,311	21%
	Indirect and induced without the spillover effect[a]	$6,238	$8,517	37%
	Operational	$3,829	$4,615	21%
	Capital spending	$2,409	$3,902	62%
	Total contribution without the spillover effect[a]	$11,453	$14,828	29%
	Cross-state spillover	$2,619	$3,063	17%
	Total contribution with the spillover effect[a]	$14,072	$17,890	27%
GDP ($millions)	Direct contribution	$9,615	$11,653	21%
	Indirect and induced without the spillover effect[a]	$10,325	$13,979	35%
	Operational	$6,650	$8,035	21%
	Capital spending	$3,675	$5,944	62%
	Total contribution without the spillover effect[a]	$19,940	$25,632	29%
	Cross-state spillover	$4,600	$5,458	19%
	Total contribution with the spillover effect[a]	$24,540	$31,090	27%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$1,425	$1,623	14%
	Local, without cross-state spillover effect[a]	$974	$1,110	14%
	State and local, without cross-state spillover effect[a]	$2,399	$2,733	14%
	State, with cross-state spillover effect[a]	$1,651	$2,053	24%
	Local, with cross-state spillover effect[a]	$1,129	$1,404	24%
	State and local, with cross-state spillover effect[a]	$2,780	$3,456	24%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in New Jersey (without the cross-state spillover effect) increased by 24 percent from 109,930 jobs in 2023 to 135,790 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in New Jersey was 142,000 jobs and 172,020 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in New Jersey (without the cross-state spillover effect) increased by 29 percent from $11.5 billion in 2023 to $14.8 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in New Jersey was $14.1 billion and $17.9 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in New Jersey (without the cross-state spillover effect) increased by 29 percent from $19.9 billion in 2023 to $25.6 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in New Jersey was $24.5 billion and $31.1 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in New Jersey (without the cross-state spillover effect) of $2.7 billion in 2024 would have been sufficient to fund over half of the state's expenditures on construction, maintenance, and operation of highways, streets, and related structures, including toll highways, bridges, tunnels, ferries, street lighting and snow and ice removal, based on the latest available government spending data (2023).

Table A-36: The economic contribution of the data center industry in New Mexico, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	3,470	3,920	13%
	Indirect and induced without the spillover effect[a]	6,420	8,960	40%
	Operational	3,130	3,570	14%
	Capital spending	3,290	5,390	64%
	Total contribution without the spillover effect[a]	9,890	12,880	30%
	Cross-state spillover	6,040	6,870	14%
	Total contribution with the spillover effect[a]	15,930	19,750	24%
Labor income ($millions)	Direct contribution	$288	$345	20%
	Indirect and induced without the spillover effect[a]	$351	$505	44%
	Operational	$160	$188	18%
	Capital spending	$191	$317	66%
	Total contribution without the spillover effect[a]	$640	$850	33%
	Cross-state spillover	$375	$457	22%
	Total contribution with the spillover effect[a]	$1,015	$1,307	29%
GDP ($millions)	Direct contribution	$567	$660	16%
	Indirect and induced without the spillover effect[a]	$656	$939	43%
	Operational	$306	$359	17%
	Capital spending	$350	$580	66%
	Total contribution without the spillover effect[a]	$1,224	$1,599	31%
	Cross-state spillover	$686	$820	20%
	Total contribution with the spillover effect[a]	$1,909	$2,419	27%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$131	$151	16%
	Local, without cross-state spillover effect[a]	$47	$55	16%
	State and local, without cross-state spillover effect[a]	$178	$206	16%
	State, with cross-state spillover effect[a]	$205	$254	24%
	Local, with cross-state spillover effect[a]	$74	$92	24%
	State and local, with cross-state spillover Weffect[a]	$280	$346	24%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in New Mexico (without the cross-state spillover effect) increased by 30 percent from 9,890 jobs in 2023 to 12,880 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in New Mexico was 15,930 jobs and 19,750 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in New Mexico (without the cross-state spillover effect) increased by 33 percent from $640 million in 2023 to $850 million in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in New Mexico was $1.0 billion and $1.3 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in New Mexico (without the cross-state spillover effect) increased by 31 percent from $1.2 billion in 2023 to $1.6 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in New Mexico was $1.9 billion and $2.4 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in New Mexico (without the cross-state spillover effect) of $206 million in 2024 would have been sufficient to fund all of the state's expenditures on construction, maintenance, operation, and support of airport facilities and all provision and support of public library facilities and services, based on the latest available government spending data (2023).

Table A-37: The economic contribution of the data center industry in New York, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	50,490	51,700	2%
	Indirect and induced without the spillover effect[a]	136,660	176,210	29%
	Operational	86,930	96,490	11%
	Capital spending	49,730	79,720	60%
	Total contribution without the spillover effect[a]	187,150	227,910	22%
	Cross-state spillover	74,160	84,470	14%
	Total contribution with the spillover effect[a]	261,310	312,380	20%
Labor income ($millions)	Direct contribution	$9,289	$10,735	16%
	Indirect and induced without the spillover effect[a]	$12,229	$16,663	36%
	Operational	$6,794	$7,786	15%
	Capital spending	$5,435	$8,878	63%
	Total contribution without the spillover effect[a]	$21,518	$27,399	27%
	Cross-state spillover	$7,827	$9,225	18%
	Total contribution with the spillover effect[a]	$29,344	$36,623	25%
GDP ($millions)	Direct contribution	$18,939	$21,613	14%
	Indirect and induced without the spillover effect[a]	$21,033	$28,312	35%
	Operational	$12,336	$14,164	15%
	Capital spending	$8,697	$14,149	63%
	Total contribution without the spillover effect[a]	$39,971	$49,925	25%
	Cross-state spillover	$15,101	$17,984	19%
	Total contribution with the spillover effect[a]	$55,072	$67,909	23%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$2,246	$2,544	13%
	Local, without cross-state spillover effect[a]	$2,264	$2,565	13%
	State and local, without cross-state spillover effect[a]	$4,510	$5,109	13%
	State, with cross-state spillover effect[a]	$3,266	$3,994	22%
	Local, with cross-state spillover effect[a]	$3,292	$4,026	22%
	State and local, with cross-state spillover effect[a]	$6,558	$8,020	22%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in New York (without the cross-state spillover effect) increased by 22 percent from 187,150 jobs in 2023 to 227,910 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in New York was 261,310 jobs and 312,380 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in New York (without the cross-state spillover effect) increased by 27 percent from $21.5 billion in 2023 to $27.4 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in New York was $29.3 billion and $36.6 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in New York (without the cross-state spillover effect) increased by 25 percent from $40.0 billion in 2023 to $49.9 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in New York was $55.1 billion and $67.9 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in New York (without the cross-state spillover effect) of $5.1 billion in 2024 would have been sufficient to fund over one-fourth of the state's expenditures on higher education, including degree granting institutions which provides academic training above grade 12 and over one-third of the state's expenditures toward the construction of airports, based on the latest available government spending data (2023).

Table A-38: The economic contribution of the data center industry in North Carolina, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	24,520	25,750	5%
	Indirect and induced without the spillover effect[a]	69,650	91,530	31%
	Operational	40,570	44,820	10%
	Capital spending	29,080	46,710	61%
	Total contribution without the spillover effect[a]	94,170	117,280	25%
	Cross-state spillover	37,210	42,430	14%
	Total contribution with the spillover effect[a]	131,380	159,710	22%
Labor income ($millions)	Direct contribution	$2,973	$3,419	15%
	Indirect and induced without the spillover effect[a]	$5,167	$7,211	40%
	Operational	$2,428	$2,761	14%
	Capital spending	$2,738	$4,450	63%
	Total contribution without the spillover effect[a]	$8,139	$10,630	31%
	Cross-state spillover	$2,656	$3,195	20%
	Total contribution with the spillover effect[a]	$10,795	$13,825	28%
GDP ($millions)	Direct contribution	$5,684	$6,475	14%
	Indirect and induced without the spillover effect[a]	$8,694	$11,977	38%
	Operational	$4,417	$5,038	14%
	Capital spending	$4,277	$6,939	62%
	Total contribution without the spillover effect[a]	$14,378	$18,452	28%
	Cross-state spillover	$4,901	$5,938	21%
	Total contribution with the spillover effect[a]	$19,279	$24,390	27%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$737	$879	19%
	Local, without cross-state spillover effect[a]	$429	$512	19%
	State and local, without cross-state spillover effect[a]	$1,165	$1,391	19%
	State, with cross-state spillover effect[a]	$970	$1,216	25%
	Local, with cross-state spillover effect[a]	$564	$708	25%
	State and local, with cross-state spillover effect[a]	$1,534	$1,924	25%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in North Carolina (without the cross-state spillover effect) increased by 25 percent from 94,170 jobs in 2023 to 117,280 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in North Carolina was 131,380 jobs and 159,710 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in North Carolina (without the cross-state spillover effect) increased by 31 percent from $8.1 billion in 2023 to $10.6 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in North Carolina was $10.8 billion and $13.8 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in North Carolina (without the cross-state spillover effect) increased by 28 percent from $14.4 billion in 2023 to $18.5 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in North Carolina was $19.3 billion and $24.4 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in North Carolina (without the cross-state spillover effect) of $1.4 billion in 2024 would have been sufficient to fund nearly half of the state's education services other than elementary, secondary, and higher education, based on the latest available government spending data (2023).

Table A-39: The economic contribution of the data center industry in North Dakota, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	1,150	1,130	-2%
	Indirect and induced without the spillover effect[a]	2,700	3,740	39%
	Operational	1,050	1,030	-2%
	Capital spending	1,650	2,710	64%
	Total contribution without the spillover effect[a]	3,850	4,870	26%
	Cross-state spillover	3,260	3,780	16%
	Total contribution with the spillover effect[a]	7,110	8,650	22%
Labor income ($millions)	Direct contribution	$100	$103	4%
	Indirect and induced without the spillover effect[a]	$187	$275	47%
	Operational	$60	$63	5%
	Capital spending	$127	$212	66%
	Total contribution without the spillover effect[a]	$287	$378	32%
	Cross-state spillover	$235	$284	21%
	Total contribution with the spillover effect[a]	$522	$662	27%
GDP ($millions)	Direct contribution	$169	$168	-1%
	Indirect and induced without the spillover effect[a]	$303	$436	44%
	Operational	$105	$100	-4%
	Capital spending	$198	$336	70%
	Total contribution without the spillover effect[a]	$471	$604	28%
	Cross-state spillover	$441	$539	22%
	Total contribution with the spillover effect[a]	$913	$1,143	25%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$40	$54	36%
	Local, without cross-state spillover effect[a]	$11	$15	36%
	State and local, without cross-state spillover effect[a]	$50	$68	36%
	State, with cross-state spillover effect[a]	$74	$93	25%
	Local, with cross-state spillover effect[a]	$20	$25	25%
	State and local, with cross-state spillover effect[a]	$94	$118	25%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in North Dakota (without the cross-state spillover effect) increased by 26 percent from 3,850 jobs in 2023 to 4,870 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in North Dakota was 7,110 jobs and 8,650 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in North Dakota (without the cross-state spillover effect) increased by 32 percent from $287 million in 2023 to $378 million in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in North Dakota was $521.7 million and $662 million in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in North Dakota (without the cross-state spillover effect) increased by 28 percent from $471 million in 2023 to $604 million in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in North Dakota was $912.6 million and $1.1 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in North Dakota (without the cross-state spillover effect) of $68 million in 2024 would have been sufficient to fund nearly all of the state's expenditures on fire protection and other fire prevention activities, based on the latest available government spending data (2023).

Table A-40: The economic contribution of the data center industry in Ohio, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	24,450	24,120	-1%
	Indirect and induced without the spillover effect[a]	64,430	81,880	27%
	Operational	37,550	38,900	4%
	Capital spending	26,880	42,980	60%
	Total contribution without the spillover effect[a]	88,880	106,000	19%
	Cross-state spillover	41,560	47,850	15%
	Total contribution with the spillover effect[a]	130,440	153,850	18%
Labor income ($millions)	Direct contribution	$2,556	$2,744	7%
	Indirect and induced without the spillover effect[a]	$4,059	$5,440	34%
	Operational	$2,068	$2,210	7%
	Capital spending	$1,991	$3,231	62%
	Total contribution without the spillover effect[a]	$6,616	$8,184	24%
	Cross-state spillover	$2,770	$3,347	21%
	Total contribution with the spillover effect[a]	$9,386	$11,531	23%
GDP ($millions)	Direct contribution	$4,439	$4,757	7%
	Indirect and induced without the spillover effect[a]	$7,066	$9,302	32%
	Operational	$3,925	$4,200	7%
	Capital spending	$3,142	$5,102	62%
	Total contribution without the spillover effect[a]	$11,505	$14,058	22%
	Cross-state spillover	$5,183	$6,284	21%
	Total contribution with the spillover effect[a]	$16,688	$20,342	22%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$512	$585	14%
	Local, without cross-state spillover effect[a]	$441	$504	14%
	State and local, without cross-state spillover effect[a]	$954	$1,088	14%
	State, with cross-state spillover effect[a]	$747	$909	22%
	Local, with cross-state spillover effect[a]	$643	$783	22%
	State and local, with cross-state spillover effect[a]	$1,390	$1,692	22%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Ohio (without the cross-state spillover effect) increased by 19 percent from 88,880 jobs in 2023 to 106,000 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Ohio was 130,440 jobs and 153,850 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Ohio (without the cross-state spillover effect) increased by 24 percent from $6.6 billion in 2023 to $8.2 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Ohio was $9.4 billion and $11.5 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Ohio (without the cross-state spillover effect) increased by 22 percent from $11.5 billion in 2023 to $14.1 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Ohio was $16.7 billion and $20.3 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Ohio (without the cross-state spillover effect) of $1.1 billion in 2024 would have been sufficient to fund all of the state's expenditures on the construction, maintenance, operation, and support of airport facilities and all of the state's provision and support of public library facilities and services, based on the latest available government spending data (2023).

Table A-41: The economic contribution of the data center industry in Oklahoma, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	5,930	5,550	-6%
	Indirect and induced without the spillover effect[a]	14,280	18,340	28%
	Operational	7,120	6,830	-4%
	Capital spending	7,160	11,510	61%
	Total contribution without the spillover effect[a]	20,210	23,890	18%
	Cross-state spillover	13,470	15,600	16%
	Total contribution with the spillover effect[a]	33,680	39,490	17%
Labor income ($millions)	Direct contribution	$447	$466	4%
	Indirect and induced without the spillover effect[a]	$827	$1,118	35%
	Operational	$374	$369	-1%
	Capital spending	$453	$748	65%
	Total contribution without the spillover effect[a]	$1,274	$1,583	24%
	Cross-state spillover	$788	$944	20%
	Total contribution with the spillover effect[a]	$2,062	$2,528	23%
GDP ($millions)	Direct contribution	$791	$808	2%
	Indirect and induced without the spillover effect[a]	$1,389	$1,843	33%
	Operational	$665	$658	-1%
	Capital spending	$724	$1,185	64%
	Total contribution without the spillover effect[a]	$2,180	$2,651	22%
	Cross-state spillover	$1,455	$1,768	21%
	Total contribution with the spillover effect[a]	$3,634	$4,419	22%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$107	$124	16%
	Local, without cross-state spillover effect[a]	$70	$82	16%
	State and local, without cross-state spillover effect[a]	$177	$206	16%
	State, with cross-state spillover effect[a]	$190	$233	23%
	Local, with cross-state spillover effect[a]	$125	$154	23%
	State and local, with cross-state spillover effect[a]	$315	$387	23%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Oklahoma (without the cross-state spillover effect) increased by 18 percent from 20,210 jobs in 2023 to 23,890 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Oklahoma was 33,680 jobs and 39,490 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Oklahoma (without the cross-state spillover effect) increased by 24 percent from $1.3 billion in 2023 to $1.6 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Oklahoma was $2.1 billion and $2.5 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Oklahoma (without the cross-state spillover effect) increased by 22 percent from $2.2 billion in 2023 to $2.7 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Oklahoma was $3.6 billion and $4.4 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Oklahoma (without the cross-state spillover effect) of $206 million in 2024 would have been sufficient to fund all of the state's social insurance administration expenditures and over half of the state's spending on construction, maintenance, operation, and support of airport facilities, based on the latest available government spending data (2023).

Table A-42: The economic contribution of the data center industry in Oregon, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	15,230	15,450	1%
	Indirect and induced without the spillover effect[a]	36,410	45,170	24%
	Operational	24,660	26,580	8%
	Capital spending	11,750	18,590	58%
	Total contribution without the spillover effect[a]	51,640	60,620	17%
	Cross-state spillover	14,940	17,020	14%
	Total contribution with the spillover effect[a]	66,580	77,640	17%
Labor income ($millions)	Direct contribution	$2,268	$2,538	12%
	Indirect and induced without the spillover effect[a]	$2,613	$3,419	31%
	Operational	$1,564	$1,744	12%
	Capital spending	$1,050	$1,674	60%
	Total contribution without the spillover effect[a]	$4,881	$5,956	22%
	Cross-state spillover	$1,051	$1,254	19%
	Total contribution with the spillover effect[a]	$5,931	$7,210	22%
GDP ($millions)	Direct contribution	$4,542	$5,057	11%
	Indirect and induced without the spillover effect[a]	$4,407	$5,734	30%
	Operational	$2,693	$2,996	11%
	Capital spending	$1,715	$2,738	60%
	Total contribution without the spillover effect[a]	$8,949	$10,790	21%
	Cross-state spillover	$1,823	$2,205	21%
	Total contribution with the spillover effect[a]	$10,771	$12,995	21%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$592	$669	13%
	Local, without cross-state spillover effect[a]	$358	$404	13%
	State and local, without cross-state spillover effect[a]	$951	$1,073	13%
	State, with cross-state spillover effect[a]	$730	$891	22%
	Local, with cross-state spillover effect[a]	$442	$539	22%
	State and local, with cross-state spillover effect[a]	$1,172	$1,429	22%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Oregon (without the cross-state spillover effect) increased by 17 percent from 51,640 jobs in 2023 to 60,620 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Oregon was 66,580 jobs and 77,640 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Oregon (without the cross-state spillover effect) increased by 22 percent from $4.9 billion in 2023 to $6.0 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Oregon was $5.9 billion and $7.2 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Oregon (without the cross-state spillover effect) increased by 21 percent from $8.9 billion in 2023 to $10.8 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Oregon was $10.8 billion and $13.0 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Oregon (without the cross-state spillover effect) of $1.1 billion in 2024 would have been sufficient to fund over one-third of the state's police protection, firefighting organization, and auxiliary services, based on the latest available government spending data (2023).

Table A-43: The economic contribution of the data center industry in Pennsylvania, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	30,590	29,640	-3%
	Indirect and induced without the spillover effect[a]	80,930	99,960	24%
	Operational	50,440	51,550	2%
	Capital spending	30,490	48,410	59%
	Total contribution without the spillover effect[a]	111,520	129,600	16%
	Cross-state spillover	46,000	52,980	15%
	Total contribution with the spillover effect[a]	157,520	182,580	16%
Labor income ($millions)	Direct contribution	$3,798	$4,032	6%
	Indirect and induced without the spillover effect[a]	$5,995	$7,774	30%
	Operational	$3,384	$3,566	5%
	Capital spending	$2,611	$4,208	61%
	Total contribution without the spillover effect[a]	$9,793	$11,806	21%
	Cross-state spillover	$3,564	$4,311	21%
	Total contribution with the spillover effect[a]	$13,356	$16,117	21%
GDP ($millions)	Direct contribution	$6,754	$7,146	6%
	Indirect and induced without the spillover effect[a]	$9,709	$12,465	28%
	Operational	$5,692	$6,000	5%
	Capital spending	$4,017	$6,465	61%
	Total contribution without the spillover effect[a]	$16,462	$19,611	19%
	Cross-state spillover	$5,926	$7,189	21%
	Total contribution with the spillover effect[a]	$22,388	$26,800	20%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$1,035	$1,169	13%
	Local, without cross-state spillover effect[a]	$695	$785	13%
	State and local, without cross-state spillover effect[a]	$1,730	$1,954	13%
	State, with cross-state spillover effect[a]	$1,304	$1,551	19%
	Local, with cross-state spillover effect[a]	$876	$1,042	19%
	State and local, with cross-state spillover effect[a]	$2,181	$2,593	19%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Pennsylvania (without the cross-state spillover effect) increased by 16 percent from 111,520 jobs in 2023 to 129,600 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Pennsylvania was 157,520 jobs and 182,580 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Pennsylvania (without the cross-state spillover effect) increased by 21 percent from $9.8 billion in 2023 to $11.8 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Pennsylvania was $13.4 billion and $16.1 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Pennsylvania (without the cross-state spillover effect) increased by 19 percent from $16.5 billion in 2023 to $19.6 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Pennsylvania was $22.4 billion and $26.8 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Pennsylvania (without the cross-state spillover effect) of $2.0 billion in 2024 would have been sufficient to fund all of the state's spending on fire protection and three-fourths of the state's expenditures on air transportation, based on the latest available government spending data (2023).

Table A-44: The economic contribution of the data center industry in Rhode Island, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	2,160	2,190	1%
	Indirect and induced without the spillover effect[a]	5,350	6,990	31%
	Operational	2,880	3,000	4%
	Capital spending	2,470	3,990	62%
	Total contribution without the spillover effect[a]	7,510	9,180	22%
	Cross-state spillover	3,850	4,400	14%
	Total contribution with the spillover effect[a]	11,360	13,580	20%
Labor income ($millions)	Direct contribution	$262	$277	6%
	Indirect and induced without the spillover effect[a]	$374	$508	36%
	Operational	$180	$190	6%
	Capital spending	$194	$318	64%
	Total contribution without the spillover effect[a]	$636	$785	23%
	Cross-state spillover	$254	$305	20%
	Total contribution with the spillover effect[a]	$889	$1,090	23%
GDP ($millions)	Direct contribution	$420	$442	5%
	Indirect and induced without the spillover effect[a]	$597	$794	33%
	Operational	$316	$338	7%
	Capital spending	$281	$456	63%
	Total contribution without the spillover effect[a]	$1,016	$1,235	22%
	Cross-state spillover	$442	$537	21%
	Total contribution with the spillover effect[a]	$1,458	$1,772	22%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$78	$91	17%
	Local, without cross-state spillover effect[a]	$41	$48	17%
	State and local, without cross-state spillover effect[a]	$119	$140	17%
	State, with cross-state spillover effect[a]	$100	$121	21%
	Local, with cross-state spillover effect[a]	$53	$64	21%
	State and local, with cross-state spillover effect[a]	$153	$185	21%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Rhode Island (without the cross-state spillover effect) increased by 22 percent from 7,510 jobs in 2023 to 9,180 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Rhode Island was 11,360 jobs and 13,580 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Rhode Island (without the cross-state spillover effect) increased by 23 percent from $636 million in 2023 to $785 million in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Rhode Island was $889.5 million and $1.1 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Rhode Island (without the cross-state spillover effect) increased by 22 percent from $1.0 billion in 2023 to $1.2 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Rhode Island was $1.5 billion and $1.8 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Rhode Island (without the cross-state spillover effect) of $140 million in 2024 would have been sufficient to fund over one-third of the state's fire fighting organization and other fire prevention activities, based on the latest available government spending data (2023).

Table A-45: The economic contribution of the data center industry in South Carolina, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	10,790	10,780	0%
	Indirect and induced without the spillover effect[a]	26,160	33,340	27%
	Operational	15,010	15,520	3%
	Capital spending	11,150	17,820	60%
	Total contribution without the spillover effect[a]	36,950	44,120	19%
	Cross-state spillover	17,290	19,840	15%
	Total contribution with the spillover effect[a]	54,240	63,960	18%
Labor income ($millions)	Direct contribution	$1,162	$1,257	8%
	Indirect and induced without the spillover effect[a]	$1,526	$2,043	34%
	Operational	$765	$809	6%
	Capital spending	$760	$1,234	62%
	Total contribution without the spillover effect[a]	$2,687	$3,301	23%
	Cross-state spillover	$1,059	$1,286	21%
	Total contribution with the spillover effect[a]	$3,746	$4,586	22%
GDP ($millions)	Direct contribution	$1,917	$2,047	7%
	Indirect and induced without the spillover effect[a]	$2,700	$3,556	32%
	Operational	$1,473	$1,570	7%
	Capital spending	$1,227	$1,986	62%
	Total contribution without the spillover effect[a]	$4,617	$5,603	21%
	Cross-state spillover	$1,945	$2,361	21%
	Total contribution with the spillover effect[a]	$6,562	$7,964	21%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$239	$283	19%
	Local, without cross-state spillover effect[a]	$164	$195	19%
	State and local, without cross-state spillover effect[a]	$403	$478	19%
	State, with cross-state spillover effect[a]	$339	$411	21%
	Local, with cross-state spillover effect[a]	$233	$283	21%
	State and local, with cross-state spillover effect[a]	$572	$694	21%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in South Carolina (without the cross-state spillover effect) increased by 19 percent from 36,950 jobs in 2023 to 44,120 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in South Carolina was 54,240 jobs and 63,960 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in South Carolina (without the cross-state spillover effect) increased by 23 percent from $2.7 billion in 2023 to $3.3 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in South Carolina was $3.7 billion and $4.6 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in South Carolina (without the cross-state spillover effect) increased by 21 percent from $4.6 billion in 2023 to $5.6 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in South Carolina was $6.6 billion and $8.0 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in South Carolina (without the cross-state spillover effect) of $478 million in 2024 would have been sufficient to fund nearly one-third of the state's expenditures toward health services including outpatient health services, other than hospital care, based on the latest available government spending data (2023).

Table A-46: The economic contribution of the data center industry in South Dakota, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	1,310	1,380	5%
	Indirect and induced without the spillover effect[a]	3,050	4,330	42%
	Operational	1,260	1,360	8%
	Capital spending	1,790	2,970	66%
	Total contribution without the spillover effect[a]	4,360	5,710	31%
	Cross-state spillover	3,900	4,470	15%
	Total contribution with the spillover effect[a]	8,260	10,180	23%
Labor income ($millions)	Direct contribution	$112	$124	10%
	Indirect and induced without the spillover effect[a]	$206	$308	50%
	Operational	$70	$81	15%
	Capital spending	$135	$227	68%
	Total contribution without the spillover effect[a]	$318	$432	36%
	Cross-state spillover	$205	$235	14%
	Total contribution with the spillover effect[a]	$523	$667	27%
GDP ($millions)	Direct contribution	$196	$214	9%
	Indirect and induced without the spillover effect[a]	$312	$455	46%
	Operational	$124	$137	10%
	Capital spending	$187	$318	70%
	Total contribution without the spillover effect[a]	$508	$669	32%
	Cross-state spillover	$487	$588	21%
	Total contribution with the spillover effect[a]	$994	$1,257	26%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$18	$21	17%
	Local, without cross-state spillover effect[a]	$16	$19	17%
	State and local, without cross-state spillover effect[a]	$35	$40	17%
	State, with cross-state spillover effect[a]	$37	$45	23%
	Local, with cross-state spillover effect[a]	$33	$40	23%
	State and local, with cross-state spillover effect[a]	$69	$85	23%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in South Dakota (without the cross-state spillover effect) increased by 31 percent from 4,360 jobs in 2023 to 5,710 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in South Dakota was 8,260 jobs and 10,180 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in South Dakota (without the cross-state spillover effect) increased by 36 percent from $318 million in 2023 to $432 million in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in South Dakota was $523.1 million and $667 million in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in South Dakota (without the cross-state spillover effect) increased by 32 percent from $508 million in 2023 to $669 million in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in South Dakota was $995 million and $1.3 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in South Dakota (without the cross-state spillover effect) of $40 million in 2024 would have been sufficient to fund all of the state's expenditures on the provision and support of public library facilities and services, based on the latest available government spending data (2023).

Table A-47: The economic contribution of the data center industry in Tennessee, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	15,830	15,690	-1%
	Indirect and induced without the spillover effect[a]	42,130	52,410	24%
	Operational	25,560	25,990	2%
	Capital spending	16,570	26,420	59%
	Total contribution without the spillover effect[a]	57,960	68,100	17%
	Cross-state spillover	26,090	29,970	15%
	Total contribution with the spillover effect[a]	84,050	98,070	17%
Labor income ($millions)	Direct contribution	$1,952	$2,063	6%
	Indirect and induced without the spillover effect[a]	$3,083	$4,018	30%
	Operational	$1,707	$1,784	5%
	Capital spending	$1,376	$2,234	62%
	Total contribution without the spillover effect[a]	$5,035	$6,081	21%
	Cross-state spillover	$1,588	$1,834	15%
	Total contribution with the spillover effect[a]	$6,623	$7,915	20%
GDP ($millions)	Direct contribution	$3,776	$3,920	4%
	Indirect and induced without the spillover effect[a]	$4,924	$6,249	27%
	Operational	$2,966	$3,110	5%
	Capital spending	$1,958	$3,139	60%
	Total contribution without the spillover effect[a]	$8,699	$10,168	17%
	Cross-state spillover	$3,219	$3,889	21%
	Total contribution with the spillover effect[a]	$11,918	$14,057	18%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$398	$417	5%
	Local, without cross-state spillover effect[a]	$199	$209	5%
	State and local, without cross-state spillover effect[a]	$597	$625	5%
	State, with cross-state spillover effect[a]	$565	$655	16%
	Local, with cross-state spillover effect[a]	$283	$328	16%
	State and local, with cross-state spillover effect[a]	$848	$983	16%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Tennessee (without the cross-state spillover effect) increased by 17 percent from 57,960 jobs in 2023 to 68,100 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Tennessee was 84,050 jobs and 98,070 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Tennessee (without the cross-state spillover effect) increased by 21 percent from $5.0 billion in 2023 to $6.1 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Tennessee was $6.6 billion and $7.9 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Tennessee (without the cross-state spillover effect) increased by 17 percent from $8.7 billion in 2023 to $10.2 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Tennessee was $11.9 billion and $14.1 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Tennessee (without the cross-state spillover effect) of $625 million in 2024 would have been sufficient to fund over one-fourth of the state's outpatient health services, other than hospital care, based on the latest available government spending data (2023).

Table A-48: The economic contribution of the data center industry in Texas, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	103,860	103,700	0%
	Indirect and induced without the spillover effect[a]	270,460	324,960	20%
	Operational	185,430	190,950	3%
	Capital spending	85,030	134,010	58%
	Total contribution without the spillover effect[a]	374,320	428,660	15%
	Cross-state spillover	104,560	119,450	14%
	Total contribution with the spillover effect[a]	478,880	548,110	14%
Labor income ($millions)	Direct contribution	$14,340	$15,239	6%
	Indirect and induced without the spillover effect[a]	$18,668	$23,743	27%
	Operational	$11,346	$12,029	6%
	Capital spending	$7,322	$11,714	60%
	Total contribution without the spillover effect[a]	$33,009	$38,982	18%
	Cross-state spillover	$7,730	$9,258	20%
	Total contribution with the spillover effect[a]	$40,738	$48,240	18%
GDP ($millions)	Direct contribution	$24,850	$26,124	5%
	Indirect and induced without the spillover effect[a]	$31,812	$39,716	25%
	Operational	$20,751	$22,037	6%
	Capital spending	$11,061	$17,679	60%
	Total contribution without the spillover effect[a]	$56,662	$65,840	16%
	Cross-state spillover	$14,225	$17,082	20%
	Total contribution with the spillover effect[a]	$70,887	$82,922	17%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$2,066	$2,193	6%
	Local, without cross-state spillover effect[a]	$2,180	$2,315	6%
	State and local, without cross-state spillover effect[a]	$4,246	$4,508	6%
	State, with cross-state spillover effect[a]	$2,430	$2,792	15%
	Local, with cross-state spillover effect[a]	$2,565	$2,947	15%
	State and local, with cross-state spillover effect[a]	$4,994	$5,739	15%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Texas (without the cross-state spillover effect) increased by 15 percent from 374,320 jobs in 2023 to 428,660 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Texas was 478,880 jobs and 548,110 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Texas (without the cross-state spillover effect) increased by 18 percent from $33.0 billion in 2023 to $39.0 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Texas was $40.7 billion and $48.2 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Texas (without the cross-state spillover effect) increased by 16 percent from $56.7 billion in 2023 to $65.8 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Texas was $70.9 billion and $82.9 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Texas (without the cross-state spillover effect) of $4.5 billion in 2024 would have been sufficient to fund over one-fifth of the state's expenditures on construction, maintenance, and operation of highways, streets, and related structures, based on the latest available government spending data (2023).

Table A-49: The economic contribution of the data center industry in Utah, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	12,910	13,140	2%
	Indirect and induced without the spillover effect[a]	31,220	39,480	26%
	Operational	19,590	21,030	7%
	Capital spending	11,630	18,450	59%
	Total contribution without the spillover effect[a]	44,130	52,620	19%
	Cross-state spillover	12,540	14,340	14%
	Total contribution with the spillover effect[a]	56,670	66,960	18%
Labor income ($millions)	Direct contribution	$1,410	$1,577	12%
	Indirect and induced without the spillover effect[a]	$2,105	$2,822	34%
	Operational	$1,110	$1,223	10%
	Capital spending	$995	$1,600	61%
	Total contribution without the spillover effect[a]	$3,515	$4,399	25%
	Cross-state spillover	$920	$1,142	24%
	Total contribution with the spillover effect[a]	$4,435	$5,541	25%
GDP ($millions)	Direct contribution	$2,694	$2,985	11%
	Indirect and induced without the spillover effect[a]	$3,852	$5,079	32%
	Operational	$2,217	$2,456	11%
	Capital spending	$1,635	$2,623	60%
	Total contribution without the spillover effect[a]	$6,545	$8,065	23%
	Cross-state spillover	$1,692	$2,072	22%
	Total contribution with the spillover effect[a]	$8,237	$10,137	23%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$312	$370	19%
	Local, without cross-state spillover effect[a]	$196	$233	19%
	State and local, without cross-state spillover effect[a]	$508	$604	19%
	State, with cross-state spillover effect[a]	$412	$506	23%
	Local, with cross-state spillover effect[a]	$259	$318	23%
	State and local, with cross-state spillover effect[a]	$671	$824	23%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Utah (without the cross-state spillover effect) increased by 19 percent from 44,130 jobs in 2023 to 52,620 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Utah was 56,670 jobs and 66,960 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Utah (without the cross-state spillover effect) increased by 25 percent from $3.5 billion in 2023 to $4.4 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Utah was $4.4 billion and $5.5 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Utah (without the cross-state spillover effect) increased by 23 percent from $6.5 billion in 2023 to $8.1 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Utah was $8.2 billion and $10.1 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Utah (without the cross-state spillover effect) of $604 million in 2024 would have been sufficient to fund all of the state's expenditures on education services other than elementary, secondary, and higher education, based on the latest available government spending data (2023).

Table A-50: The economic contribution of the data center industry in Vermont, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	1,520	1,520	0%
	Indirect and induced without the spillover effect[a]	3,530	4,650	32%
	Operational	1,850	1,950	5%
	Capital spending	1,680	2,700	61%
	Total contribution without the spillover effect[a]	5,050	6,170	22%
	Cross-state spillover	2,580	2,980	16%
	Total contribution with the spillover effect[a]	7,630	9,150	20%
Labor income ($millions)	Direct contribution	$152	$166	10%
	Indirect and induced without the spillover effect[a]	$237	$326	38%
	Operational	$111	$116	4%
	Capital spending	$126	$210	67%
	Total contribution without the spillover effect[a]	$389	$493	27%
	Cross-state spillover	$150	$179	19%
	Total contribution with the spillover effect[a]	$539	$672	25%
GDP ($millions)	Direct contribution	$263	$291	11%
	Indirect and induced without the spillover effect[a]	$370	$498	35%
	Operational	$196	$211	8%
	Capital spending	$174	$287	65%
	Total contribution without the spillover effect[a]	$632	$789	25%
	Cross-state spillover	$278	$338	21%
	Total contribution with the spillover effect[a]	$911	$1,127	24%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$76	$90	18%
	Local, without cross-state spillover effect[a]	$16	$19	18%
	State and local, without cross-state spillover effecta	$92	$108	18%
	State, with cross-state spillover effect[a]	$100	$122	22%
	Local, with cross-state spillover effect[a]	$21	$25	22%
	State and local, with cross-state spillover effect[a]	$121	$147	22%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Vermont (without the cross-state spillover effect) increased by 22 percent from 5,050 jobs in 2023 to 6,170 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Vermont was 7,630 jobs and 9,150 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Vermont (without the cross-state spillover effect) increased by 27 percent from $389 million in 2023 to $493 million in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Vermont was $539 million and $672 million in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Vermont (without the cross-state spillover effect) increased by 25 percent from $633 million in 2023 to $789 million in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Vermont was $910.6 million and $1.1 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Vermont (without the cross-state spillover effect) of $108 million in 2024 would have been sufficient to fund over one-fifth of the state's outpatient health services, other than hospital care, based on the latest available government spending data (2023).

Table A-51: The economic contribution of the data center industry in Virginia, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	47,870	49,000	2%
	Indirect and induced without the spillover effect[a]	98,800	120,560	22%
	Operational	72,250	78,800	9%
	Capital spending	26,550	41,760	57%
	Total contribution without the spillover effect[a]	146,670	169,560	16%
	Cross-state spillover	27,810	31,540	13%
	Total contribution with the spillover effect[a]	174,480	201,100	15%
Labor income ($millions)	Direct contribution	$7,414	$8,287	12%
	Indirect and induced without the spillover effect[a]	$6,989	$9,038	29%
	Operational	$4,446	$4,987	12%
	Capital spending	$2,543	$4,050	59%
	Total contribution without the spillover effect[a]	$14,403	$17,325	20%
	Cross-state spillover	$2,221	$2,698	21%
	Total contribution with the spillover effect[a]	$16,624	$20,023	20%
GDP ($millions)	Direct contribution	$13,170	$14,727	12%
	Indirect and induced without the spillover effect[a]	$11,959	$15,203	27%
	Operational	$8,230	$9,268	13%
	Capital spending	$3,729	$5,934	59%
	Total contribution without the spillover effecta	$25,129	$29,929	19%
	Cross-state spillover	$3,626	$4,349	20%
	Total contribution with the spillover effect[a]	$28,755	$34,278	19%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$1,426	$1,590	12%
	Local, without cross-state spillover effect[a]	$975	$1,087	12%
	State and local, without cross-state spillover effect[a]	$2,401	$2,677	12%
	State, with cross-state spillover effect[a]	$1,574	$1,858	18%
	Local, with cross-state spillover effect[a]	$1,076	$1,271	18%
	State and local, with cross-state spillover effect[a]	$2,650	$3,129	18%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Virginia (without the cross-state spillover effect) increased by 16 percent from 146,670 jobs in 2023 to 169,560 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Virginia was 174,480 jobs and 201,100 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Virginia (without the cross-state spillover effect) increased by 20 percent from $14.4 billion in 2023 to $17.3 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Virginia was $16.6 billion and $20.0 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Virginia (without the cross-state spillover effect) increased by 19 percent from $25.1 billion in 2023 to $29.9 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Virginia was $28.8 billion and $34.3 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Virginia (without the cross-state spillover effect) of $2.7 billion in 2024 would have been sufficient to fund nearly one-fourth of the state's expenditures toward higher education including degree granting institutions which provide academic training above grade 12, based on the latest available government spending data (2023).

Table A-52: The economic contribution of the data center industry in Washington, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	38,550	38,450	0%
	Indirect and induced without the spillover effect[a]	70,000	89,250	28%
	Operational	44,600	49,020	10%
	Capital spending	25,400	40,230	58%
	Total contribution without the spillover effect[a]	108,550	127,700	18%
	Cross-state spillover	25,230	28,800	14%
	Total contribution with the spillover effect[a]	133,780	156,500	17%
Labor income ($millions)	Direct contribution	$5,875	$6,820	16%
	Indirect and induced without the spillover effect[a]	$7,661	$10,544	38%
	Operational	$3,734	$4,241	14%
	Capital spending	$3,927	$6,302	60%
	Total contribution without the spillover effect[a]	$13,535	$17,363	28%
	Cross-state spillover	$3,396	$4,191	23%
	Total contribution with the spillover effect[a]	$16,932	$21,554	27%
GDP ($millions)	Direct contribution	$11,653	$13,446	15%
	Indirect and induced without the spillover effect[a]	$14,637	$20,326	39%
	Operational	$6,762	$7,704	14%
	Capital spending	$7,875	$12,621	60%
	Total contribution without the spillover effect[a]	$26,290	$33,772	28%
	Cross-state spillover	$5,924	$7,344	24%
	Total contribution with the spillover effect[a]	$32,214	$41,115	28%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$1,289	$1,529	19%
	Local, without cross-state spillover effect[a]	$744	$883	19%
	State and local, without cross-state spillover effecta	$2,033	$2,411	19%
	State, with cross-state spillover effect[a]	$1,670	$2,154	29%
	Local, with cross-state spillover effect[a]	$964	$1,244	29%
	State and local, with cross-state spillover effect[a]	$2,635	$3,397	29%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Washington (without the cross-state spillover effect) increased by 18 percent from 108,550 jobs in 2023 to 127,700 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Washington was 133,780 jobs and 156,500 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Washington (without the cross-state spillover effect) increased by 28 percent from $13.5 billion in 2023 to $17.4 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Washington was $16.9 billion and $21.6 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Washington (without the cross-state spillover effect) increased by 28 percent from $26.3 billion in 2023 to $33.8 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Washington was $32.2 billion and $41.1 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Washington (without the cross-state spillover effect) of $2.4 billion in 2024 would have been sufficient to fund nearly half of the state's expenditures on construction, maintenance, and operation of highways, streets, and related structures, based on the latest available government spending data (2023).

Table A-53: The economic contribution of the data center industry in West Virginia, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	2,710	2,820	4%
	Indirect and induced without the spillover effect[a]	5,530	7,390	34%
	Operational	2,870	3,080	7%
	Capital spending	2,660	4,310	62%
	Total contribution without the spillover effect[a]	8,240	10,210	24%
	Cross-state spillover	4,890	5,600	15%
	Total contribution with the spillover effect[a]	13,130	15,810	20%
Labor income ($millions)	Direct contribution	$246	$276	12%
	Indirect and induced without the spillover effect[a]	$320	$447	40%
	Operational	$145	$170	17%
	Capital spending	$174	$277	59%
	Total contribution without the spillover effect[a]	$566	$723	28%
	Cross-state spillover	$304	$367	21%
	Total contribution with the spillover effect[a]	$870	$1,090	25%
GDP ($millions)	Direct contribution	$416	$460	10%
	Indirect and induced without the spillover effect[a]	$555	$768	38%
	Operational	$270	$297	10%
	Capital spending	$284	$470	66%
	Total contribution without the spillover effect[a]	$971	$1,228	26%
	Cross-state spillover	$558	$673	21%
	Total contribution with the spillover effect[a]	$1,529	$1,901	24%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$73	$88	21%
	Local, without cross-state spillover effect[a]	$29	$34	21%
	State and local, without cross-state spillover effect[a]	$101	$122	21%
	State, with cross-state spillover effect[a]	$112	$139	24%
	Local, with cross-state spillover effect[a]	$44	$55	24%
	State and local, with cross-state spillover effect[a]	$157	$194	24%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in West Virginia (without the cross-state spillover effect) increased by 24 percent from 8,240 jobs in 2023 to 10,210 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in West Virginia was 13,130 jobs and 15,810 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in West Virginia (without the cross-state spillover effect) increased by 28 percent from $566 million in 2023 to $723 million in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in West Virginia was $869.8 million and $1.1 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in West Virginia (without the cross-state spillover effect) increased by 26 percent from $971 million in 2023 to $1.2 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in West Virginia was $1.5 billion and $1.9 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in West Virginia (without the cross-state spillover effect) of $122 million in 2024 would have been sufficient to fund nearly three-fourths of the state's fire fighting organization and other fire prevention activities, based on the latest available government spending data (2023).

Table A-54: The economic contribution of the data center industry in Wisconsin, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	13,340	13,720	3%
	Indirect and induced without the spillover effect[a]	36,800	46,610	27%
	Operational	22,650	23,970	6%
	Capital spending	14,150	22,640	60%
	Total contribution without the spillover effect[a]	50,140	60,330	20%
	Cross-state spillover	21,530	24,620	14%
	Total contribution with the spillover effect[a]	71,670	84,950	19%
Labor income ($millions)	Direct contribution	$1,839	$2,011	9%
	Indirect and induced without the spillover effect[a]	$2,464	$3,286	33%
	Operational	$1,315	$1,433	9%
	Capital spending	$1,149	$1,853	61%
	Total contribution without the spillover effect[a]	$4,303	$5,297	23%
	Cross-state spillover	$1,453	$1,748	20%
	Total contribution with the spillover effect[a]	$5,757	$7,044	22%
GDP ($millions)	Direct contribution	$3,872	$4,154	7%
	Indirect and induced without the spillover effect[a]	$4,283	$5,621	31%
	Operational	$2,435	$2,654	9%
	Capital spending	$1,848	$2,967	61%
	Total contribution without the spillover effect[a]	$8,155	$9,775	20%
	Cross-state spillover	$2,558	$3,090	21%
	Total contribution with the spillover effect[a]	$10,713	$12,865	20%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$501	$566	13%
	Local, without cross-state spillover effect[a]	$255	$288	13%
	State and local, without cross-state spillover effect[a]	$756	$855	13%
	State, with cross-state spillover effect[a]	$628	$751	20%
	Local, with cross-state spillover effect[a]	$320	$382	20%
	State and local, with cross-state spillover effect[a]	$947	$1,133	20%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Wisconsin (without the cross-state spillover effect) increased by 20 percent from 50,140 jobs in 2023 to 60,330 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Wisconsin was 71,670 jobs and 84,950 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Wisconsin (without the cross-state spillover effect) increased by 23 percent from $4.3 billion in 2023 to $5.3 billion in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Wisconsin was $5.8 billion and $7.0 billion in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Wisconsin (without the cross-state spillover effect) increased by 20 percent from $8.2 billion in 2023 to $9.8 billion in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Wisconsin was $10.7 billion and $12.9 billion in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Wisconsin (without the cross-state spillover effect) of $855 million in 2024 would have been sufficient to fund over one-third of the state's health services including outpatient health services, other than hospital care, based on the latest available government spending data (2023).

Table A-55: The economic contribution of the data center industry in Wyoming, 2023-2024

Metric	Type of contribution	2023	2024	Growth
Employment (jobs)	Direct contribution	950	1,000	5%
	Indirect and induced without the spillover effect[a]	2,010	2,830	41%
	Operational	800	850	6%
	Capital spending	1,210	1,980	64%
	Total contribution without the spillover effect[a]	2,960	3,830	29%
	Cross-state spillover	2,470	2,850	15%
	Total contribution with the spillover effect[a]	5,430	6,680	23%
Labor income ($millions)	Direct contribution	$75	$92	22%
	Indirect and induced without the spillover effect[a]	$104	$158	51%
	Operational	$31	$38	22%
	Capital spending	$73	$120	64%
	Total contribution without the spillover effect[a]	$180	$250	39%
	Cross-state spillover	$147	$176	20%
	Total contribution with the spillover effect[a]	$327	$426	30%
GDP ($millions)	Direct contribution	$130	$140	8%
	Indirect and induced without the spillover effect[a]	$196	$292	49%
	Operational	$66	$73	9%
	Capital spending	$130	$220	69%
	Total contribution without the spillover effect[a]	$326	$432	33%
	Cross-state spillover	$285	$344	21%
	Total contribution with the spillover effect[a]	$611	$777	27%
Tax payments[b] ($millions)	State, without cross-state spillover effect[a]	$21	$26	23%
	Local, without cross-state spillover effect[a]	$9	$11	23%
	State and local, without cross-state spillover effect[a]	$30	$37	23%
	State, with cross-state spillover effect[a]	$40	$51	26%
	Local, with cross-state spillover effect[a]	$18	$22	26%
	State and local, with cross-state spillover effect[a]	$58	$73	26%

Source: PwC calculations using the IMPLAN modeling system and public data. Details may not sum to totals due to rounding.

[a] The spillover effect refers to the indirect and induced effects in a state attributable to the industry's direct activity in all other states.
[b] Tax contribution includes all state and local taxes directly or indirectly resulting from the industry's U.S. construction and operations (including direct, indirect, and induced economic effects) benefiting the state.

1. The industry's total annual employment contribution in Wyoming (without the cross-state spillover effect) increased by 29 percent from 2,960 jobs in 2023 to 3,830 jobs in 2024. Including the cross-state spillover effect, the industry's total annual employment contribution in Wyoming was 5,430 jobs and 6,680 jobs in 2023 and 2024, respectively.
2. The industry's total annual labor income contribution in Wyoming (without the cross-state spillover effect) increased by 39 percent from $180 million in 2023 to $250 million in 2024. Including the cross-state spillover effect, the industry's total annual labor income contribution in Wyoming was $327 million and $426 million in 2023 and 2024, respectively.
3. The industry's total annual GDP contribution in Wyoming (without the cross-state spillover effect) increased by 33 percent from $326 million in 2023 to $433 million in 2024. Including the cross-state spillover effect, the industry's total annual GDP contribution in Wyoming was $611 million and $777 million in 2023 and 2024, respectively.
4. The industry's total state and local tax contribution in Wyoming (without the cross-state spillover effect) of $37 million in 2024 would have been sufficient to fund three-fourths of the state's provision and support of public library facilities and services, based on the latest available government spending data (2023).

Appendix B

Data sources and methodology for economic contribution

This appendix describes the methodology used to derive the economic contribution estimates presented in this study. It first outlines the data sources used to estimate the data center industry's direct employment, labor income, and value added under the expanded industry definition. It then describes how indirect and induced contributions are estimated using an input–output modeling framework.

Direct jobs, labor income, and value added

PwC's estimates of direct employment, labor income, and value added encompass full-time and part-time workers as well as self-employed individuals engaged in the delivery of data center services. Employment and income estimates are derived primarily from government statistical sources, supplemented by modeling techniques where recent data are not yet available.

The State Annual Personal Income and Employment dataset published by the BEA is the only government source that provides historical total employment figures (including self-employed individuals) by industry. However, this series is available only through 2022, as BEA discontinued it for subsequent years. To estimate employment and labor income for 2023 and 2024, PwC relied on a combination of more recent government datasets (including BLS and Census Bureau sources) and modeling techniques to extend the historical series.

Expanded industry definition

Rather than defining the data center industry solely by a single industry classification, this study adopts an expanded, function-based definition that captures data center services wherever they are produced. Under this approach, the data center industry is defined by the delivery of core data center infrastructure services, including compute, storage, networking, hosting, and continuous operational control.

NAICS code 518210 (Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services) remains the core anchor of the industry definition and is included in full, reflecting its close alignment with data center service delivery. However, the expanded definition recognizes that a growing share of data center services is produced outside establishments classified under NAICS code 518210, particularly within adjacent IT services and infrastructure-management industries.

Accordingly, this study supplements NAICS-based measurement with a product-based reallocation framework, consistent with BEA industry redefinition practices. Data center-related products and services are identified using NAPCS collection codes from the Economic Census. These products are then mapped to their producing NAICS industries, and the data center-attributable portion of output, employment, and labor income is reassigned into a single, functionally defined data center industry.

Key features of this approach include:

- **Full inclusion of core data center services,** wherever they are produced;
- **Partial inclusion of adjacent services** only to the extent they are economically inseparable from data center infrastructure operations; and
- **Explicit exclusion of upstream suppliers** (such as utilities, construction, and equipment manufacturing) and application-layer or end-user services.

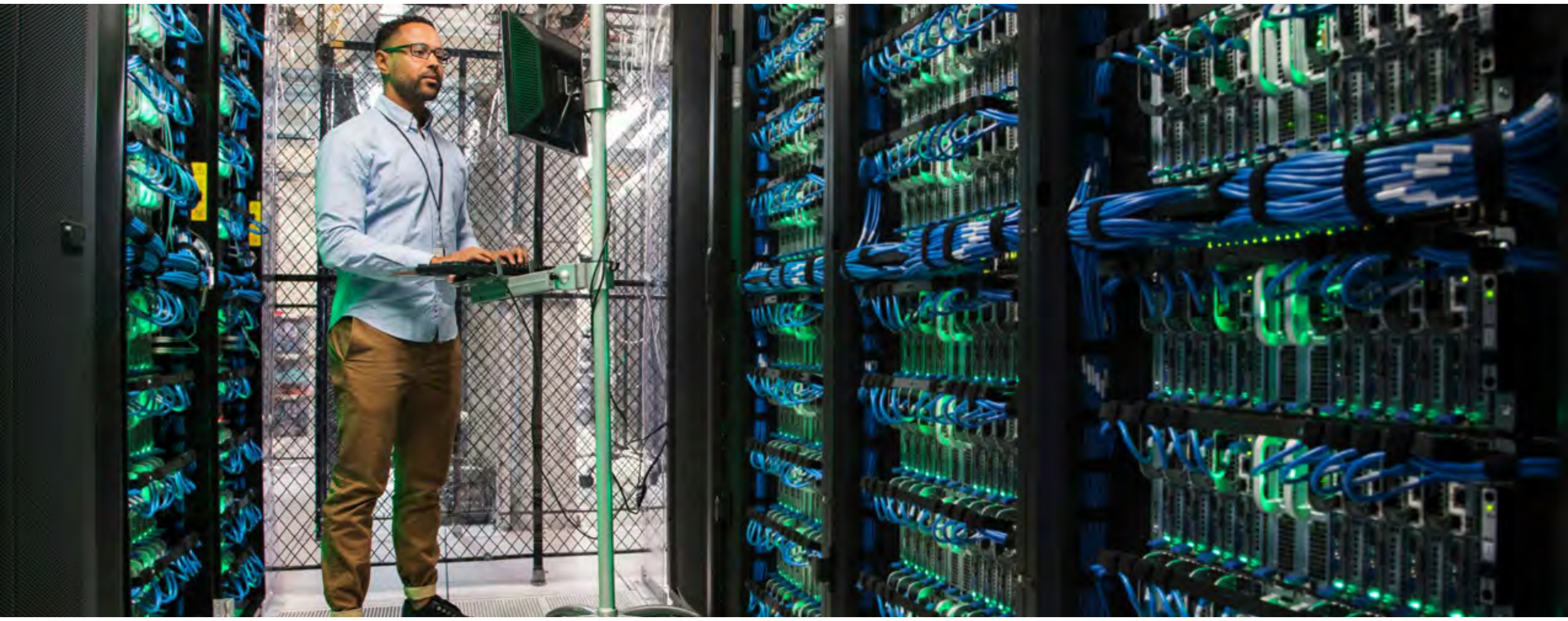
This methodology reallocates existing economic activity rather than adding new activity, ensuring that economy-wide totals are preserved.

Given the continued evolution of the data center industry and ongoing changes in government data availability and classification systems, the expanded industry definition and associated allocation parameters should be periodically reassessed. Continued monitoring of BEA, Census Bureau, and BLS data releases will support the further refinement of the estimates in future studies.

Indirect and induced economic contributions

The initial round of output, income, and employment generated by the construction and operations of the data centers leads to successive rounds of spending in the chain of production and through the personal consumption spending of industry and supplier employees. These indirect and induced economic contributions can be measured using various approaches, the most common of which is multiplier analysis. In broad terms, a multiplier is an index that indicates the overall change in the level of economic activity that results from a given initial change. It effectively captures all the successive rounds of re-spending, based on a number of assumptions embedded in the method of estimation.

There are different methods available for calculating multipliers. The method used in this report is input-output analysis. It is the most commonly used approach in regional economic contribution studies. The input-output model used in this study is built around an input-output table that relates the purchases that each industry has made from other industries to the value of the output of each industry. To meet the demand for goods and services from one industry, purchases are made in other industries



according to the patterns recorded in the input-output table. These purchases in turn generate additional purchases by the industry's suppliers, and so on. Additionally, employees and business owners make personal purchases out of the additional income that is generated by this process, sending new demands rippling through the economy.

Multipliers describe these iterations. The Type I multiplier measures the direct and indirect effects of a change in economic activity. It captures the inter-industry effects only, i.e., industries buying from local industries. The Type II (Social Accounting Matrix or SAM) multiplier not only captures the direct and indirect effects, but also reflects induced effects (i.e., changes in spending from households as income increases or decreases due to the changes in production). Using this framework, the indirect and induced effects of the data center industry on other sectors of the economy were calculated in terms of employment, labor income (including wages, salaries, benefits, and proprietors' income), value added, and tax payments.

For this study, PwC used customized input-output models for the United States as a whole and for each state to calculate the data center industry's indirect and induced economic contributions to each study area in terms of employment, labor income, value added, and tax payments.

Capital investment contribution

To date, the Census Bureau has not yet released any industry-level capital expenditure data for 2023 and 2024. For this study, estimates of data center capital expenditures are based on industry research sources. In particular, PwC relied primarily on Dell'Oro Group's data center capex estimates, which measure capital expenditures by the largest global cloud service providers to expand and upgrade data center capacity, including investments in servers, networking equipment, storage, and supporting data center infrastructure systems.[7] Dell'Oro's estimates are derived from market intelligence, vendor shipment data, and provider disclosures, and are well suited to capturing the rapid acceleration in hyperscale and AI-driven investment observed in recent years. Consistent with the functional focus of this study, capital expenditures are limited to physical structures and equipment associated with data center deployment; investment in intellectual property products, such as software and research and development, is excluded. Global data center capital expenditure estimates were allocated to the United States based on the U.S. share of global data center capacity and investment, as informed by published analyses from McKinsey & Company and Synergy Research Group.[8] This allocation reflects observed concentration of capacity and investment activity rather than assuming a one-for-one correspondence between firm headquarters location and spending geography.

To contextualize and validate the Dell'Oro estimates, PwC also reviewed other reputable industry research, including global data center infrastructure spending estimates from IoT Analytics and data center systems spending forecasts from Gartner, as well as growth and capacity indicators published by Synergy Research Group.[9] While these sources differ in scope and methodology—ranging from operator-level capex to broader infrastructure and IT systems spending—they consistently indicate elevated levels of data center investment in 2023 and 2024. Together, these sources provide corroborating evidence on the direction and order of magnitude of recent data center capital spending.

PwC translated the data center industry's capital expenditures into purchases of capital assets by type through the use of the so-called "capital flow matrix" prepared by the BEA. The input-output model was then used to quantify the full economic effect of this spending. The capital spending effect is classified as an indirect and

7. See Dell'Oro Group, "Data Center Capex" (market research overview) at https://www.delloro.com/market-research/data-center-infrastructure/data-center-capex/.

8. See McKinsey & Company, "The future of US hyperscale data centers" (data center demand and investment trends) at https://www.mckinsey.com/industries/public-sector/our-insights/the-data-center-balance-how-us-states-can-navigate-the-opportunities-and-challenges and Synergy Research Group data on hyperscale capacity (e.g., hyper-scale share of global capacity) at https://www.datacenterdynamics.com/en/news/hyperscalers-account-for-41-of-worldwide-data-center-capacity-synergy-research-group/.

9. See IoT Analytics, "Data Center Infrastructure Market" at https://iot-analytics.com/data-center-infrastructure-market/; Gartner, "Gartner Forecasts Worldwide IT Spending to Grow 7.5% in 2024," https://www.gartner.com/en/newsroom/press-releases/2024-07-16-gartner-forecasts-worldwide-it-spending-to-grow-7-point-5-percent-in-2024; and Synergy Research Group, "Hyperscale Data Center Capacity and Growth", https://www.srgresearch.com/articles.

induced economic contribution—reflecting its treatment as supply-chain and household-spending activity rather than ongoing industry operations—and is included in the overall economic contribution of the data center industry.

Benchmarking and data updates

Economic contribution estimates in this report were produced using the latest IMPLAN data set and model (released in December 2025), which incorporates the BEA's most recent comprehensive benchmarking (including updated input-output/Supply-Use tables and revisions to GDP-by-industry and related national accounts). These benchmark updates refresh industry production functions, inter-industry purchasing relationships, and value-added components, improving consistency with the current BEA economic structure. Because benchmarking can materially change estimated inter-industry linkages, each benchmark update can meaningfully shift the magnitude of multipliers, sometimes significantly for certain sectors, and thus contribution estimates may differ from results produced with earlier IMPLAN model vintages. These differences are a normal and expected outcome of each BEA benchmarking cycle.

Limitations

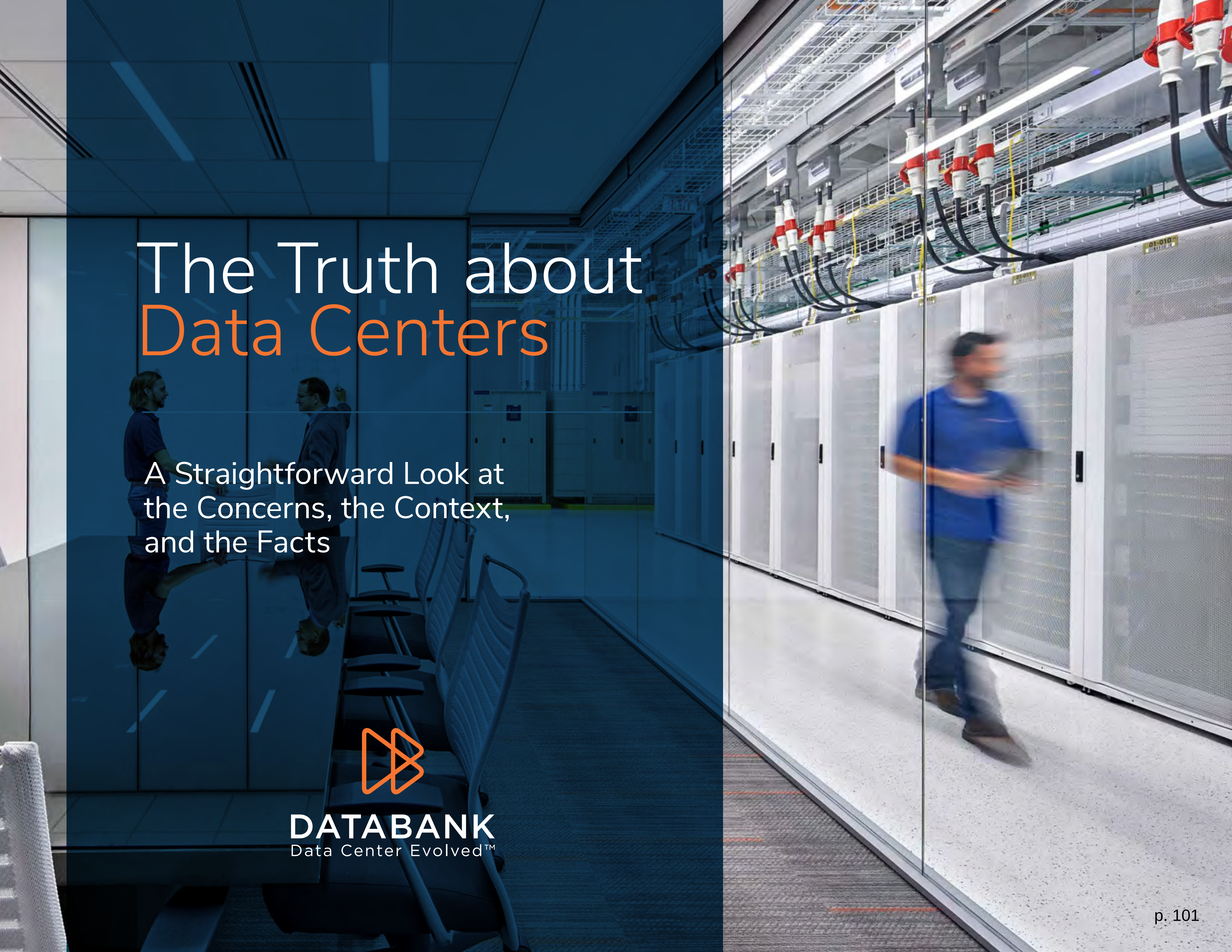
Input-output (I-O) models with fixed technical coefficients, such as the one employed in this study, have several important limitations.

First, the fixed-coefficient assumption implies that production technologies and input proportions remain constant. In practice, firms adapt to technological change, substitute among inputs, and adjust production methods over time. These dynamic behaviors are not captured in a fixed-structure I-O framework.

Second, I-O models assume linear, proportional relationships between inputs and outputs. Actual economic relationships are often nonlinear and context-dependent. As a result, the model does not account for price changes, substitution effects, supply constraints, or shifts in consumer preferences, all of which can materially affect economic outcomes.

Third, I-O models assume consistent, rational behavior by economic agents. In practice, household and firm decisions are influenced by social, psychological, cultural, and institutional factors that are not represented in the model. These factors can introduce deviations between modeled and actual economic responses.

Given these limitations, the results should be interpreted with caution. Although I-O models are widely used for illustrating economic linkages and estimating the magnitude of potential effects, real-world outcomes may differ due to the complexity and evolving nature of economic systems.

The Truth about Data Centers

A Straightforward Look at the Concerns, the Context, and the Facts

DATABANK
Data Center Evolved™

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Few industries are more essential to modern life, or more frequently misrepresented. Data centers have powered our digital world for decades — not just AI, but nearly every interaction we have online.

The questions communities are asking about energy, water use, fire safety, and neighborhood impact are legitimate. They deserve honest answers grounded in facts and context.

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DATABANK

Setting the Stage

A complex conversation deserves complete information

The debate over data centers is getting louder, but the facts aren't keeping pace.

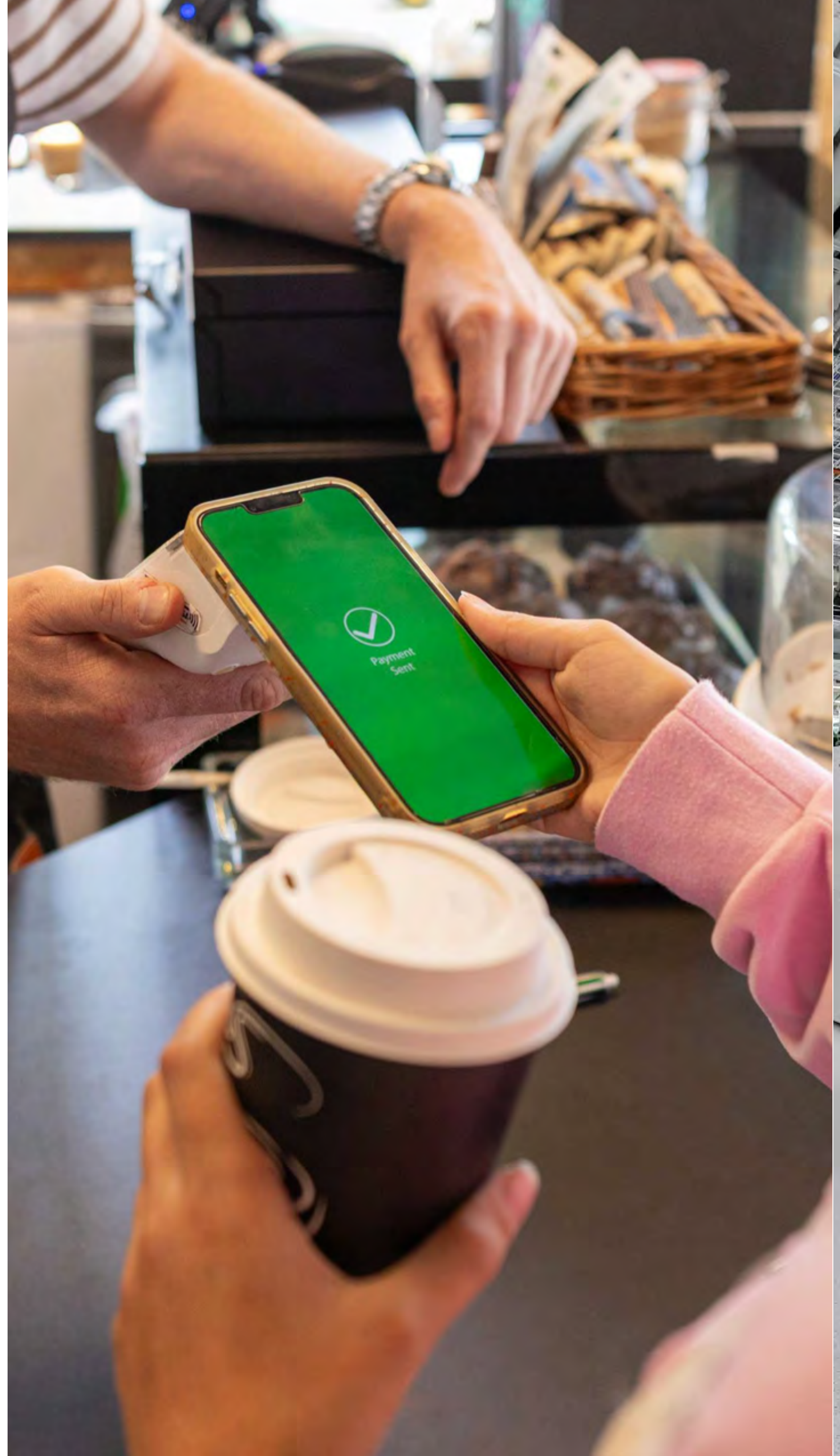
Most people have never thought about data centers. Yet, they've thought about their email, their bank accounts, their Netflix queue, the 911 call that saved a neighbor's life, and whether their paycheck clears on time. Every transaction, every text, every emergency call, even the basic infrastructure that we take for granted in our daily lives, and all of it runs through a data center.

Hardly a week passes without a new round of headlines: communities pushing back on zoning approvals, politicians making data centers a campaign issue, and local news stories warning about power grids and water supplies. In many cases, these concerns are spreading faster than the facts behind them.

Here's the reality: Yes, data centers use energy and resources. So does every hospital, office building, and shopping center. The difference is that data centers are the backbone of our modern digital lives — and all of us are demanding more every day.

The goal here isn't to score points or assign blame. The overall landscape is changing faster than anyone anticipated, and the questions communities are asking deserve more than talking points. This is a complex moment for everyone involved, including utilities, regulators, legislators, operators, and the neighborhoods where this infrastructure lives.

We want to put honest, accurate information on the table and work through it together.



Data Centers Enable Your Life. You Just Don't Think About Them.

That's kind of the point. It's also part of why the conversation gets so complicated.

It's worth taking a closer look at what's actually running in the background of your day, and how much we all depend on critical infrastructure most people never think about.

The Infrastructure Behind Everything You Do

From your morning alarm to your late-night scroll, it's all running somewhere

The digital economy isn't powered in a cloud. It runs in buildings, the physical facilities housing millions of servers, cooling systems, and power infrastructure that process and deliver data around the clock.

Those buildings have been there for decades. Long before anyone was talking about AI, data centers were already running the systems modern society depends on. That was true in 2006. It was true in 2016. It's still true today.

AI is new to the headlines, but it's not a new technology and it's not the reason data centers exist. It's simply the latest technology to enter the scene. If AI disappeared tomorrow, we would still need data centers just to keep the lights on.

What AI has done is accelerate demand at a scale the industry has never seen before and put data centers in the spotlight in the process. Even without AI, the underlying need was already growing long before ChatGPT became a household word. Every new application, every connected device, every business adding to the cloud adds to the load. AI didn't create that trajectory. It just stepped on the gas.

Data center infrastructure has gone from a behind-the-scenes framework to one of the most consequential buildout challenges in the modern economy. Government, utilities, and technology companies are all working to keep pace. The conversation worth having isn't whether to build more data centers. We don't really have that choice. It's how to build them responsibly.

Your Digital Day, Powered by Data Centers

Every tap, swipe, and transaction runs through one

The alarm on your phone goes off. Data center. You check the weather. Data center. You scroll through the news, fire off a few emails, and order coffee through an app on your way out the door. Data center. Data center. Data center.

On your commute, your navigation reroutes you to avoid an accident in real time. At the office, you jump on a video call, pull up a shared document, and process an invoice. You grab lunch and pay with your phone. Data center. Data center. Data center. Data center.

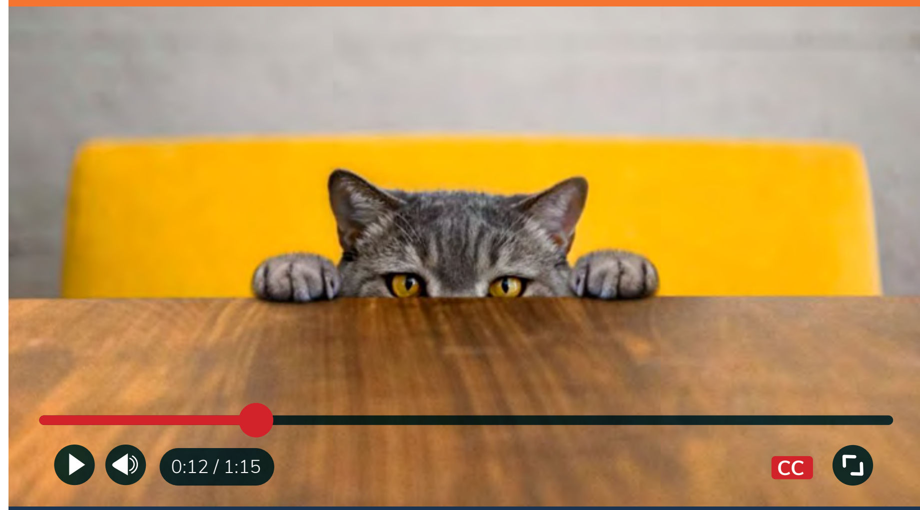
On the way home, you stream a podcast. Your kid's school sends an alert through its parent app. You check your bank balance, order dinner, and settle in for a show. Your smart thermostat adjusts the temperature before you even think about it.

Somewhere across town, a hospital is pulling up patient records. A bank is processing thousands of transactions. A 911 dispatcher is routing emergency calls. None of it works without the same infrastructure running quietly in a data center.

By the time you fall asleep scrolling through social media, you've touched data center infrastructure thousands of times without thinking about it once.

That's exactly how it's supposed to work.

1. DataReportal, Digital 2026 Global Overview Report, October 2025.
2. IoT Analytics, State of IoT 2025: Number of Connected IoT Devices Growing 14% to 21.1 Billion Globally, October 2025.
3. DataReportal, Digital Global Overview Report, October 2025. Data sourced from GWI.
4. MobiLoud, Global e-Commerce Statistics 2025, as reported in Chain Store Age, February 2026.
5. Google, internal data, 2022.
6. YouTube Press, 2025.



BY THE NUMBERS: THE DIGITAL WORLD WE'VE BUILT

- There are currently **7.4** billion smartphones in use worldwide[1]
- There are over **21** billion connected IoT devices worldwide[2]
- The average global user spends **18** hours and **36** minutes using social media each week[3]
- Global e commerce shoppers' sales totaled **$6.8** trillion in 2025[4]
- Google processes an estimated **8.5** billion searches every single day[5]
- YouTube Shorts average over **200** billion daily views — cat videos included[6]

Every single one of those figures is growing. The infrastructure supporting them has to grow with it.

A Day Without Data Centers

One day. No data centers. Here's what happens.

Imagine every data center goes quiet for 24 hours. Not a disaster. Not an attack. Just an experiment for one day.

Your alarm doesn't go off. Your commute navigation goes dark. The coffee app won't load. Traffic lights aren't working. At the office, the shared documents are inaccessible, the video call won't connect, and cash is suddenly everyone's only option at lunch.

Hospitals must work from paper. Flights are grounded. The 911 dispatch system is running on backup protocols. Your bank app is offline, and so is everyone else's.

By dinner, the streaming services are unavailable, the food delivery app is down, and your smart home has forgotten everything it knows about you.

Twenty-four hours. That's all it takes to see something clearly: Data centers don't exist to consume resources. They exist because *we* consume services. Every single day. Every one of us.

IF DATA CENTERS GO DARK (AN INCOMPLETE LIST)

- 911 dispatch and emergency routing would be compromised
- Pharmacies could not fill prescriptions
- Medical devices and monitoring systems would go offline
- Power grid monitoring and load balancing systems would be impaired
- Water treatment and distribution systems could lose automation
- Utility outage reporting systems would be unavailable
- Flights would be grounded
- GPS navigation systems would become unreliable or unusable
- Traffic management systems (smart signals) could fail
- Gas station pumps would not function
- Rideshare services (Uber, Lyft) would stop operating
- Grocery and retail supply chains would stop communicating
- Credit and debit card transactions would fail (in-store and online), and ATMs would be unavailable
- Payroll processing would stop
- Tax systems and benefit disbursements could pause
- Automatic bill payments and banking would stop
- Stock markets and trading platforms would halt
- Email systems would go offline
- Cloud-based collaboration tools (Teams, Slack, etc.) would fail
- Online education platforms would go offline
- Home security systems would go dark
- Social media platforms would be inaccessible
- Streaming services (TV, music) would not work

Who's Really Driving Energy Demand

Spoiler: It's all of us.

The surge in energy demand making headlines isn't coming from data centers. It's coming from all of us, and from the AI revolution that's accelerating everything. Here's what that actually means for your electricity bill, the power grid, and the infrastructure debate that isn't going away anytime soon.

Power Has to Come from Somewhere

Understanding how data centers consume — and pay for — the energy that keeps the digital world running

Data centers consume energy to run the applications and services that businesses and consumers depend on to operate. Hospitals managing patient records. Utility providers managing community power and water. Banks processing transactions. Schools managing parent and student communications. Retailers running e-commerce platforms. Streaming services delivering entertainment to millions. Social media platforms connecting billions of users worldwide. These aren't frivolous applications. They're how modern organizations serve their customers and communities.

Those organizations put their infrastructure in data centers because that's where the computational power, cooling, and security are built to operate at scale. Who uses those services? You do. Everyone does.

The business model varies by market. In regulated states, data centers pay standard commercial or industrial rates set by utilities. In deregulated markets, they negotiate rates competitively. Either way, they pay for what they use, and the relationship between large commercial loads and residential rates is more nuanced than most headlines suggest.

7. Xcel Energy, Xcel Energy to Power New Google Data Center in Minnesota, February 24, 2026.

THE MINNESOTA MODEL: GROWTH THAT GIVES BACK

Google's data center investment in Minnesota is directly enabling new clean energy development, supporting the state's renewable goals, and ensuring customers bear none of the costs.[7]

The Many Reasons Your Electricity Bill Has Gone Up

Rising electricity costs have many causes. Data centers are just one part of a much larger story.

Electricity rates are established by utilities based on infrastructure costs, generation expenses, and regulatory requirements, then approved by state regulators. Data centers purchase power at rates determined by the market or state regulators, just like any other large commercial customer. They don't set rates. They pay them.

What is driving electricity demand higher is the digitization and electrification of everyday life. Streaming, cloud storage, e-commerce, remote work, electric vehicles, and AI are pushing demand for digital services higher. That requires more infrastructure and more power. Data centers aren't the cause of rising energy costs. They're a reflection of how much the world depends on the services running inside them.

The drivers behind recent increases are well documented:

- Natural gas prices rose 56% in 2025. After Russia's invasion of Ukraine, Europe and Asia began competing for liquefied natural gas, driving U.S. exports up, tightening supply, and increasing prices[8]
- Utility infrastructure spending has risen sharply in recent years, driven by aging equipment replacement, wildfire and weather mitigation requirements, grid hardening, the cost of connecting new generation sources to population centers, and other factors.
- Growing overall electricity demand from consumers, EV adoption, home electrification, and industrial reshoring is straining the grid.
- Extreme weather events have added significant grid hardening costs across multiple regions.
- Local and state policy costs — including taxes, mandates, and clean energy program fees — are passed directly to ratepayers.
- Inflation across labor, materials, and construction has driven up the cost of nearly every grid investment.
- Data centers, as infrastructure for the digital economy, can be counted among these drivers

Rate increases are real, and the frustration behind them is understandable. Data centers are part of a much larger story — one that utilities, regulators, and policymakers have been navigating long before the current wave of data center development.

MORE DEMAND, LOWER RATES?

A Lawrence Berkeley National Laboratory analysis found that large-load growth from data centers likely contributed to lower electricity rates on average through 2025, though results varied significantly by region with markets like PJM seeing the opposite effect.[9] PG&E projects that data center growth could reduce average household bills by up to **2%**.[10]

8. U.S. Energy Information Administration, U.S. Wholesale Day-Ahead Electricity Prices Rose in 2025 with Higher Natural Gas Prices, February 2, 2026.
9. Lawrence Berkeley National Laboratory.
10. PG&E, Surging Data Center Growth to Help Lower Energy Costs for PG&E Customers, May 27, 2025.

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Not All Energy Markets Are Created Equal

Why your state's electricity market matters more than you might think

Texas offers an instructive example of how market structure affects the relationship between data center growth and electricity prices. The state is home to one of the largest AI data center buildouts in the country, with major facilities from OpenAI, Google, and others coming online.

Texas operates under ERCOT, an energy-only market that uses real-time pricing signals to balance supply and demand, rather than the centralized capacity auction model. In 2025, Texas electricity rates rose approximately 3.8% — close to the inflation rate of 2.9% — while some PJM (serving Pennsylvania-New Jersey-Maryland) states saw increases exceeding 15%.[11]

The comparison matters. As data center demand accelerates nationwide, market design plays a meaningful role in how those costs are distributed. Texas hasn't been immune to price increases, but its framework has produced more moderate outcomes than capacity auction markets in the northeast and mid-Atlantic.

11. Goldman Sachs, Electricity Prices Rising by Double the Rate of Inflation, as reported by CNBC, February 12, 2026.
12. Goldman Sachs, Electricity Prices Rising by Double the Rate of Inflation, as reported by CNBC, February 12, 2026.

THE CALIFORNIA EXAMPLE

While electricity prices jumped 6.9% nationally in 2025, California's rates rose just 2.1%, below the inflation rate of 2.9%, meaning residents effectively paid less in real terms. Significant data center growth and below-inflation rate increases can coexist.[12]

The Real Bottleneck Nobody Talks About

Most of the energy debate around data centers focuses on how much power they consume. Here's an angle that gets far less attention: The problem was never really about how much power we can generate. It's about how much we can move from one place to another.

The grid constraint isn't generation. It's transmission and distribution. Moving that power across the grid is the bottleneck, and building the transmission infrastructure to close that gap is one of the most pressing challenges facing the energy sector today.

Experts have noted that the country could theoretically generate enough electricity to meet virtually any demand scenario. Moving that power across the grid is the bottleneck. For example:

- Dominion Energy in Virginia has faced multiyear delays getting power to new facilities because the transmission infrastructure simply isn't ready.[13]
- PG&E in California has said new substation work for large load interconnections can take five years or more.[14]
- All six major regional grid operators outside of Texas have reported they cannot meet federal deadlines for critical transmission upgrades.

This is a systemic infrastructure problem that pre-dates the data center industry by decades. Restricting data center development wouldn't fix it. Addressing it requires investment, planning, and honest conversation about tradeoffs. Not less digital infrastructure but smarter development of the infrastructure we need.[15]

13. Energy Connects, Data Centers Face Seven-Year Wait for Dominion Power Hookups, August 30, 2024.
14. PG&E, PG&E Data Center Demand Pipeline Swells to 10 Gigawatts with Potential to Unlock Billions for California, July 31, 2025.
15. DCD Magazine, US Data Centers Face Grid Bottlenecks as Regional Operators Delay Upgrades, February 3, 2025.

THE REAL INFRASTRUCTURE CHALLENGE

The country needs more power. It also needs smarter, more modern ways to move it. That's not a data center conversation. It's a national energy conversation that is decades overdue.

An Industry That Invented Its Own Efficiency Standard

Setting the standard before the standard existed

The data center industry has been ahead of most sectors on energy efficiency for a long time, and not because anyone required it.

Decades ago, operators developed Power Usage Effectiveness (PUE) as a standard efficiency metric. PUE measures how efficiently a data center uses energy by comparing total facility power consumption to the power delivered to computing equipment. For example, a ratio of 1.0 would mean perfect efficiency, with no energy lost to cooling, lighting, or other overhead.

That's theoretically ideal but not achievable in practice. Yet, what the industry has achieved is still remarkable. Today, the industry average is 1.56, where some modern facilities routinely operate at 1.2 to 1.3.[16]

The industry created this standard voluntarily, because energy is the largest operating cost in the business, and operators recognized the responsibility that comes with that. What other major industry has voluntarily created and standardized a metric specifically to drive its own efficiency improvements?

DataBank is one example of that commitment in place. **We have reduced our own PUE from 1.81 in 2020 to 1.5 by the end of 2025.** This represents a 17% efficiency improvement over five years, driven by continuous investment in cooling technology, facility design, and operational optimization.

16. Uptime Institute, Global Data Center Survey, 2024.

DATABANK'S SUSTAINABILITY IN PRACTICE

Learn more about DataBank's sustainability commitments on our Corporate Responsibility page

The Water Conversation

The facts are more assuring than the headlines suggest

Water consumption is one of the most emotionally charged concerns about data centers. It's also one of the most frequently misunderstood.

The Distinction That Changes the Whole Conversation

Not all cooling systems use water the same way

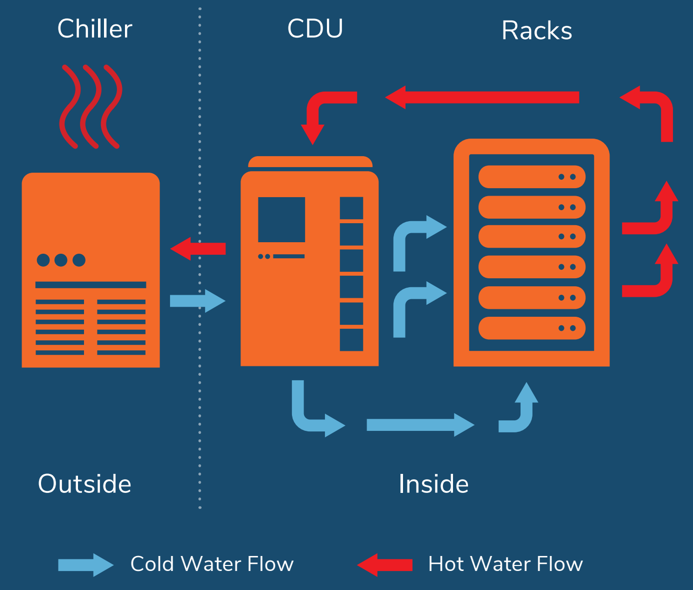
Water consumption is one of the most contentious concerns about data centers. It's also one where a single technical distinction tends to get lost in the coverage.

There are three fundamentally different approaches to cooling a data center:

1. Air-based cooling uses no water at all, relying entirely on traditional air conditioning to manage heat. It's a common approach in older and smaller facilities, although it is less practical as computing density increases.
2. Evaporative cooling systems dissipate heat by evaporating water. It's a continuous process; water goes in and doesn't come back. Many older, large-scale facilities use this approach and achieve impressive energy efficiency ratings as a result. The tradeoff is water consumption, a consideration critics and communities are right to raise.
3. Modern facilities increasingly use closed-loop cooling systems, which work on an entirely different principle. Water circulates continuously within a contained system. It isn't released or consumed. It just moves. Some systems use glycol-based fluids instead of water. However, closed-loop systems can require more power than evaporative cooling, which is why the choice involves real engineering considerations.

The industry measures water efficiency through Water Usage Effectiveness (WUE). In a closed-loop system, once operational, the WUE approaches zero.

CLOSED-LOOP COOLING SYSTEM



CIRCULATING, NOT CONSUMING

In a closed-loop cooling system, water isn't consumed. It circulates. Once the system is charged, ongoing water use for cooling approaches zero.

Not All Water Figures Are Created Equal

The methodology behind a water figure matters as much as the figure itself

Water usage figures for data centers get cited constantly. What rarely gets mentioned is what those figures actually include, and that distinction matters more than most people realize.

When evaluating a data center's water footprint, where exactly do you draw the line? Consider what else could reasonably be included:

- Cooling system water only
- Landscaping
- Employee restroom usage
- Water used during construction
- Water used to generate the electricity powering the facility

Each of those boundaries produces a very different number. A headline citing data center water consumption without specifying the methodology isn't giving you information. It's giving you a figure that can mean almost anything.

The point isn't to dismiss water concerns. It's to make sure the numbers actually mean something before they drive the conversation.

What the Numbers Look Like Up Close

> Methodology arguments are important.
> Real numbers are better.

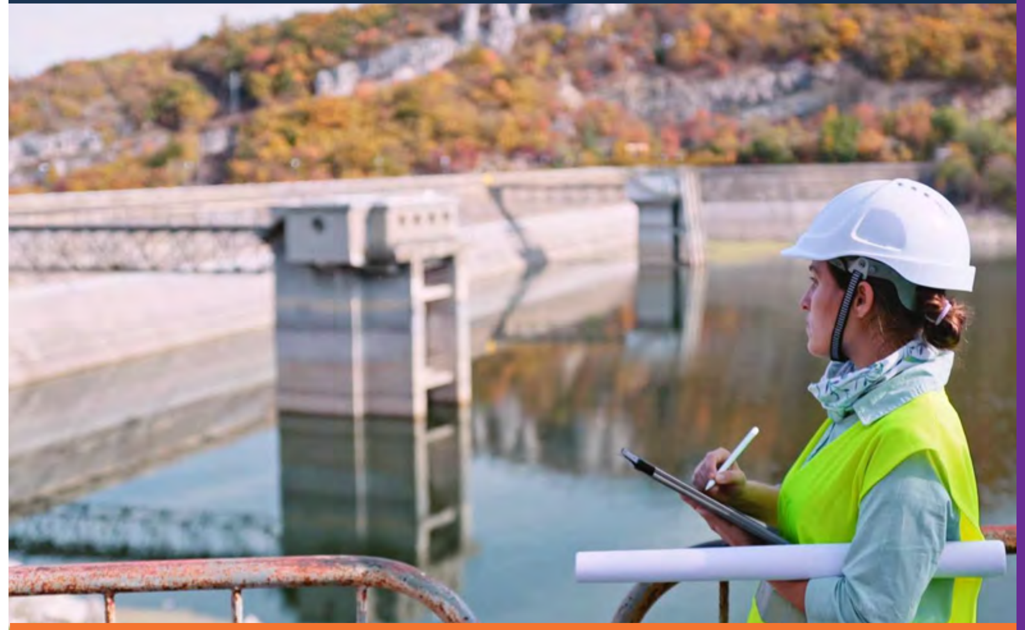
A journalism student researching a planned data center facility in New York came to DataBank with a straightforward question: How much water would the facility use? Local municipal government sources had suggested the figure could be as high as 12,000 gallons per day. The estimate came from community meetings and local zoning discussions, and it sounded alarming.

Based on actual measured usage at a comparable facility using closed-loop cooling, the real figure for restrooms, kitchen, and landscaping combined is approximately 260 gallons per day. Core cooling operations consume essentially no ongoing water.

That gap between 12,000 gallons and 260 gallons is not a rounding error. It reflects what happens when the methodology behind a number goes unexamined. A modern facility using closed-loop cooling operates more like a standard office building than the industrial water consumer most people picture.

**THE SAME DATA.
A 60% DIFFERENCE.**

A Lawrence Berkeley National Laboratory report puts daily data center water consumption at 625 million gallons. That figure includes water lost to evaporation at hydroelectric reservoirs, water that would evaporate regardless of whether a data center exists. Remove that variable and the same data produces a figure of 250 million gallons. That's not a rounding error. That's a methodology question.



A Drop in the Bucket

Water consumption figures for data centers look large in isolation. In context, they tell a different story.

<1%

Data centers consumed an estimated 625 million gallons per day in 2023 — less than 1% of total U.S. daily water use.[17]

1.3T vs. 17B

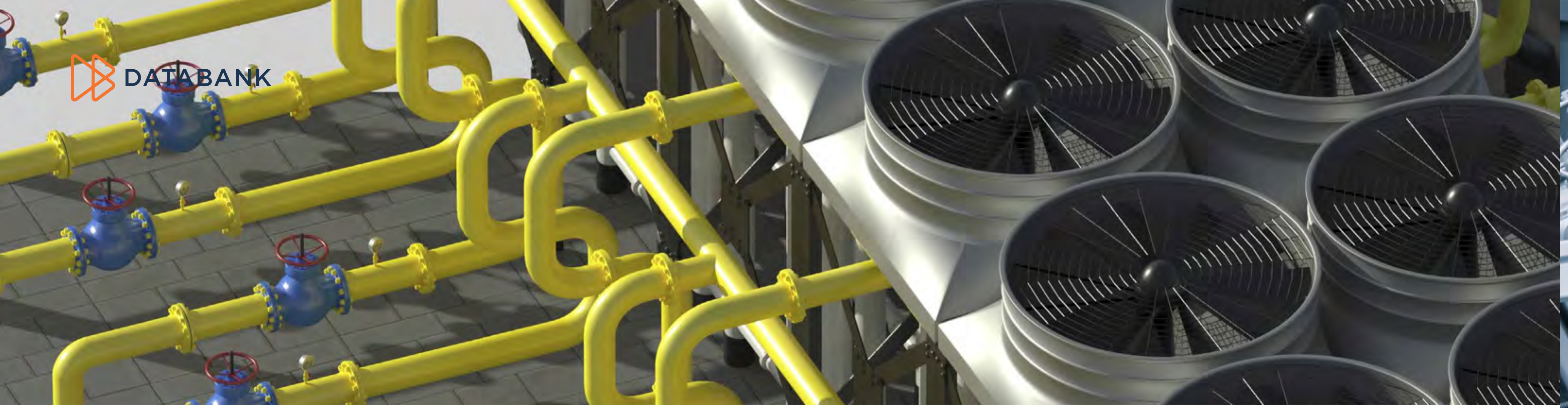
California s almond industry uses more than 1.3 trillion gallons of water annually, compared to roughly 17 billion gallons used by all U.S. data centers combined.[18]

531 BILLION

U.S. golf courses collectively used approximately 531 billion gallons of water in 2024 — more than 30 times the direct cooling water used by all U.S. data centers combined.[19]

Closed loop or air cooled facilities use no more water than a large office building, and some use less than a typical household.

17. Lawrence Berkeley National Laboratory, 2024 United States Data Center Energy Usage Report, December 2024.
18. California Water Impact Network, California Almond Water Usage: Updated, September 2024.
19. Golf Course Superintendents Association of America and United States Golf Association, Golf Courses Reduce Water Usage by 31 Percent According to National Survey, December 30, 2025.



The Industry Is Moving in the Right Direction

> Cooling technology is changing fast.
> The water story is changing with it.

The move away from evaporative cooling toward closed-loop and liquid cooling systems is underway, and it's accelerating faster than most people outside the industry realize.

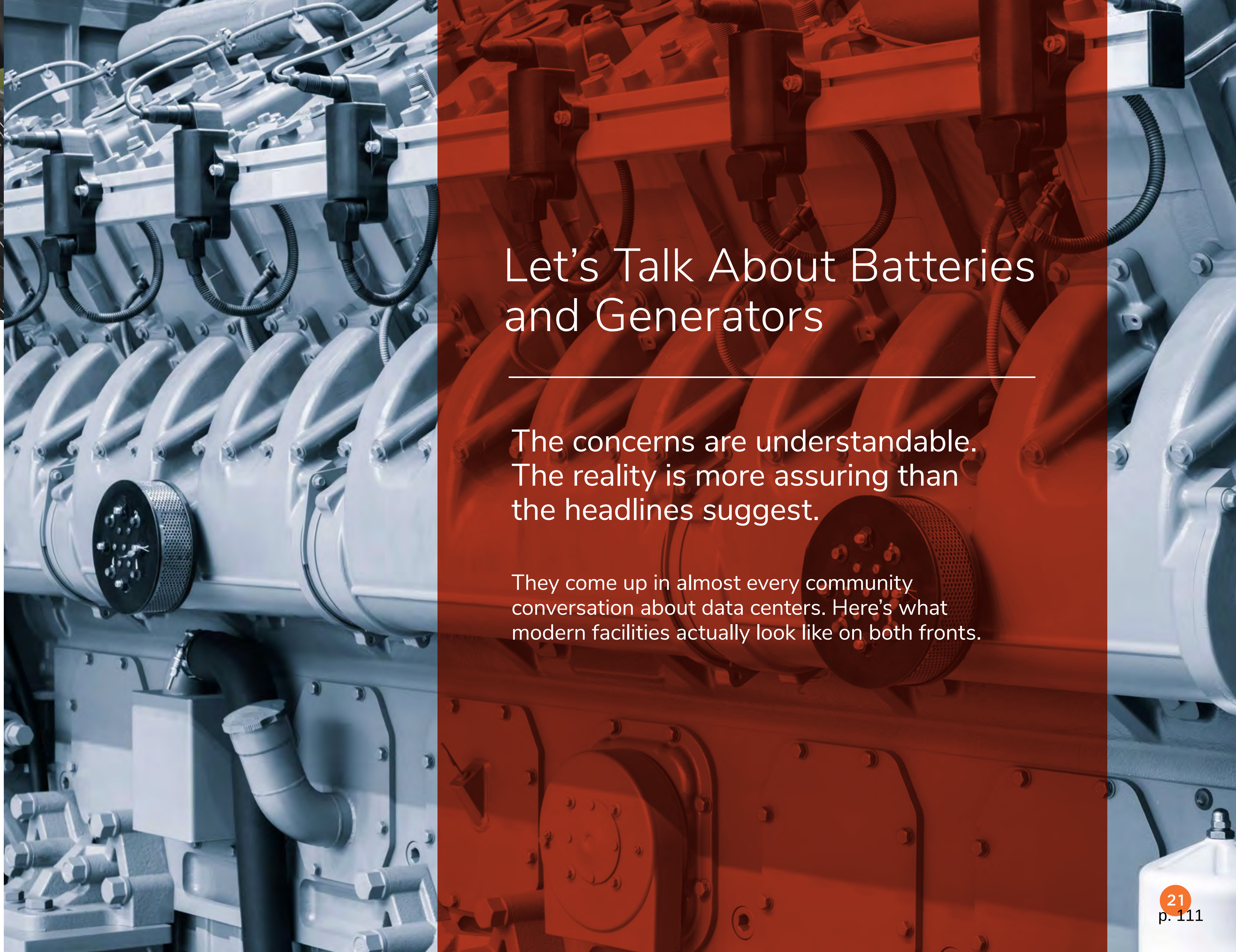
About 22% of data centers worldwide currently use liquid cooling technologies.[20] That figure is expected to approach 50% of new hyperscale builds within two to three years, driven largely by the demands of high-density AI workloads, which generate more heat and require more precise thermal management than traditional computing infrastructure.[21]

Major operators have made firm commitments in this direction. Microsoft has announced zero-water closed-loop cooling for all future builds.[22] DataBank's standard facility design uses closed-loop cooling systems, meaning new builds enter service with a near-zero ongoing water footprint for cooling from day one.

There's another dimension to the water conversation that rarely makes headlines. Fossil fuel power generation is highly water-intensive, while wind and solar consume virtually none. As data centers drive the adoption of more renewable energy sources, their indirect water footprint shrinks alongside their carbon footprint — a benefit that is real but rarely reflected in the figures critics cite.

Communities in drought-prone regions have legitimate concerns, and those concerns extend beyond cooling water to the water used in electricity generation. Not all data centers are moving at the same pace on these issues, which is exactly why DataBank's commitment to closed-loop cooling and renewable energy matters. The honest answer is that progress is real, and we want to be specific about what that looks like in our facilities.

20. IDC as cited in Data Center Cooling Solutions in 2025: Challenges, Trends, and Innovations.
21. DataCenters.com, Why Liquid Cooling Is the New Standard for Data Centers in 2025, August 2025.
22. GeekWire, Microsoft Shares New Data Center Design Featuring a Closed-Loop Water System for Cooling, December 9, 2024.



Let's Talk About Batteries and Generators

The concerns are understandable. The reality is more assuring than the headlines suggest.

They come up in almost every community conversation about data centers. Here's what modern facilities actually look like on both fronts.

Batteries: What the Headlines Leave Out

Understanding the real risk, and how modern facilities manage it

High-profile battery fires at data centers in South Korea and Europe have fueled a narrative that lithium-ion backup systems are inherently dangerous. The incidents are real. The conclusions being drawn from them are worth examining more closely.

First, some context. Traditional batteries still account for the majority of data center Uninterruptible Power Supply (UPS) installations worldwide. According to industry research, traditional batteries represent the majority of the data center battery market as of 2025, though lithium-ion adoption is accelerating rapidly.[23]

The industry is beginning to adopt lithium-ion technology for new installations because it occupies 60-70% less space, requires less maintenance, and lasts significantly longer. When properly deployed with modern monitoring and suppression systems, lithium-ion batteries have a strong safety record, and the risk factors that do exist are well understood and actively managed.

Modern data centers using lithium-ion systems employ real-time temperature and voltage monitoring that detects the early warning signs of thermal runaway before it becomes a problem. Specialized fire suppression and physical separation, whether batteries are in dedicated rooms or deployed at the rack level, provide a layered defense that contains and limits any event that does occur.

These facilities are built from the ground up to house mission-critical equipment. For example, advanced fire suppression isn't an add-on. It's a design requirement. DataBank also works closely with local fire departments, including familiarizing first responders with facility infrastructure prior to commissioning and providing code access to facility gates.

The incidents that make headlines typically share a common thread: older installations, inadequate safety systems, or failures in maintenance protocols. That's a very different story than the one most people picture.

23. Grand View Research, Data Center Battery Market Report, 2025.

BUILT FOR THE WORST CASE

Advanced fire suppression in a data center isn't an add-on. It's a design requirement, built in from day one.

Generator Emissions: A Matter of Proportion

Regulated, tested, and running far less than you might think

When Winter Storm Uri knocked out power across Texas in February 2021, the facilities that kept hospitals communicating, financial systems running, and emergency services coordinated were the ones with robust backup power in place. That capability does not happen by accident. For data centers housing critical infrastructure, reliable on-site generation is not optional. It is a requirement.

Data centers maintain backup generators — diesel or natural gas — that are tested monthly to confirm they'll work when actually needed. Critics have pointed to those tests as an ongoing environmental burden. The numbers tell a more proportionate story.

Most data center generators run approximately 20 hours per year for testing and maintenance. Six of those hours involve no-load confidence testing, meaning emissions during that time are near zero. Loaded testing accounts for up to 12 additional hours per year. Data centers are also subject to air quality regulations and permitting that limit generator runtime to approved levels.

The industry is also actively working to reduce that footprint further. Selective Catalytic Reduction (SCR) systems reduce particulate matter and nitrogen oxides from generator exhaust. Natural gas generators, renewable diesel, and battery storage systems are all being adopted to shrink the environmental impact of backup power over time.

Reliable backup power is not optional for a facility housing critical infrastructure. The question is how to provide it as cleanly as possible, and that work is already underway.

LESS DIESEL THAN A SEMI-TRUCK USES IN A FEW WEEKS

Most data center generators run fewer than 20 hours per year, six of which involve no-load testing with near-zero emissions. At that runtime, a single large backup generator consumes roughly the same amount of diesel in an entire year as one semi-truck does in a few weeks on the highway.

Based on approximately 1,000 2,000 gallons of diesel consumed at 20 hours of annual runtime, compared to an estimated 15,000+ gallons consumed annually by a long haul semi truck.

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The Sound of a Modern Data Center

What responsible noise management looks like

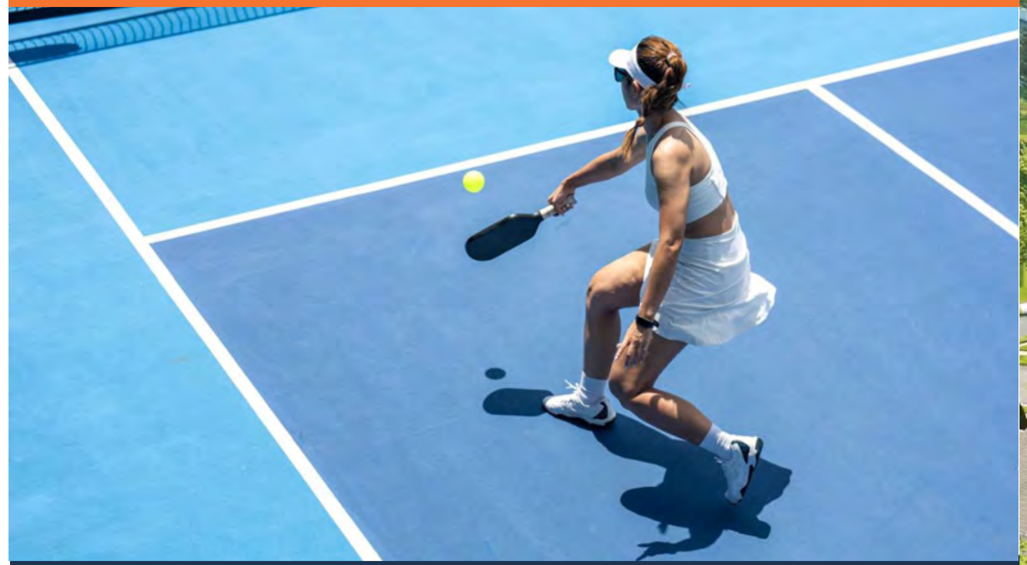
Noise is often the most personal concern for neighbors of a data center. It's immediate, it's tangible, and it's worth addressing directly.

All data centers are subject to local noise regulations, which establish a baseline that operators must meet. Where operators differ is in how seriously they take noise management beyond that minimum. Siting decisions, construction quality, and proactive community engagement can make a significant difference in what neighbors actually experience.

Responsible operators typically deploy regular decibel testing at property perimeters, acoustic barriers and baffled walls around generator enclosures, testing restricted to daytime hours, and sound-attenuating enclosures and muffler systems built in as standard equipment. Some operators go further, entering into formal noise agreements with surrounding communities as a condition of development.

A well-run facility generally targets 55 dB or less at the property line, roughly equivalent to moderate rainfall.[24] Many operational data centers measure below that threshold at the nearest residential properties.

24. Noise Monitoring Services, A Guide to Data Center Noise Control, January 2026.
25. Commonwealth of Virginia, Data Centers in Virginia, December 2024.
26. Reason, The Joys of Data Centers: Debunking the Backlash Against the $7 Trillion AI Building Boom, April 2026.



QUIETER THAN A PICKLEBALL COURT

The ambient hum of a data center's generators and cooling equipment typically falls between 40 and 59 decibels.[25] That's a little louder than a library, but quieter than a pickleball court.[26]

Community Impact

What communities actually experience when a data center moves in

It's the question at the heart of almost every zoning meeting and public hearing. The answer is more reassuring than the headlines suggest, and the economic case is stronger than most people realize.

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Data Centers Don't Appear Without Warning

Communities have more say than most people realize

The resistance many communities feel toward data center development is understandable. When a large industrial facility is proposed nearby, people worry about noise, traffic, visual impact, environmental concerns including air and water quality, and strain on local services. Those concerns deserve a straight answer.

Here's one worth starting with: Data centers don't arrive unannounced. These facilities are built only in areas already zoned for light industrial or commercial use. They go through the same approval processes required for warehouses, distribution centers, and other commercial developments. Communities have input through existing planning and zoning frameworks before a single shovel hits the ground.

Two concerns worth addressing directly:

1. **Traffic:** Once operational, a data center generates far less vehicle activity than most industrial facilities of comparable size. Shift changes, delivery trucks, and loading dock activity exist but are minimal compared to warehouses or manufacturing facilities of similar scale.
2. **Jobs:** Data centers create fewer permanent positions than a factory or distribution center, but those roles tend to be well-paying technical and operations jobs. Beyond direct employment, each facility supports a larger ecosystem of local contractors, vendors, service providers, and customers' employees who work on site, making the direct headcount an incomplete measure of total economic impact.

The fear of the unknown is real. So is the gap between what people imagine a data center will be like to live near and what the operational reality actually looks like. The next few pages are about closing that gap.

SAME RULES AS A WAREHOUSE WITH FULL COMMUNITY INPUT BEFORE CONSTRUCTION

Data centers go through the same zoning and permitting process as warehouses and distribution centers. Communities have a voice before construction ever begins.

THE NUMBERS SPEAK FOR THEMSELVES

In 2023, the data center industry contributed nearly **$163** billion in tax revenue across federal, state, and local levels.[27]

The Economic Case Is Stronger than Most People Recognize

Tax revenue, quality jobs, and economic activity that outlasts the construction phase

Data centers generate substantial economic benefits for their host communities. The numbers make the case better than any talking point could.

In 2023, the data center industry contributed nearly $163 billion in tax revenue across federal, state, and local levels. Many facilities receive time-limited tax incentives to locate in a given market, but those abatements typically expire within a few years. The long-term tax contribution generally exceeds the value of the early-stage incentive by a significant margin.

The jobs created are high-quality ones: engineering, operations, security, and technical roles with above-average wages and real career paths. Research shows that every data center job supports six additional jobs in the larger local economy through indirect and induced employment.[27]

Some point to the relatively low number of employees within a data center, but that misses the full story. During development, construction workers are employed. Once operational, each facility depends on the data center company's employees, local tradespeople who manage critical infrastructure, and the employees of the data center's customers.

The economic activity starts before a facility opens. Construction employs hundreds of local electricians, HVAC technicians, plumbers, and other skilled tradespeople. That activity doesn't stop when construction ends. Data center employees, local contractors, and the businesses they support continue generating economic activity long after the ribbon cutting.

27. Data Center Coalition, Data Center FAQs, 2023. Research conducted by PwC. Source for both the $163 billion tax revenue figure and the six-jobs-per-direct-employment multiplier.

MINIMAL BY DESIGN

No rush hour traffic. No strain on roads and infrastructure. Minimal demand on emergency services. A functioning data center is essentially invisible to its neighbors in terms of daily activity.

What It Actually Looks Like to Live Near a Data Center

The day-to-day reality is much calmer than zoning debate suggests

Once a data center is operational, its presence in the community tends to be quiet. Its contributions are anything but.

These facilities don't generate rush hour traffic or significant wear and tear on local roads. They're highly secure, access-controlled environments with perimeter lighting, surveillance, and on-site security that tends to deter criminal activity in the surrounding area. The tax revenue they generate funds local schools, roads, and public services, often at a disproportionately high level relative to the land they occupy.

Noise is often the most immediate concern for nearby residents, and it's worth being specific. Modern data centers use acoustic louvers, sound barriers, and enclosed mechanical systems to meet local noise ordinances and regulations. For most neighbors, the facility is simply not something they notice day to day.

That combination of significant economic contribution, minimal disruption, and enhanced local security is what communities that have lived alongside data centers for years tend to report.

The Culpeper Model

Economic benefit without compromise

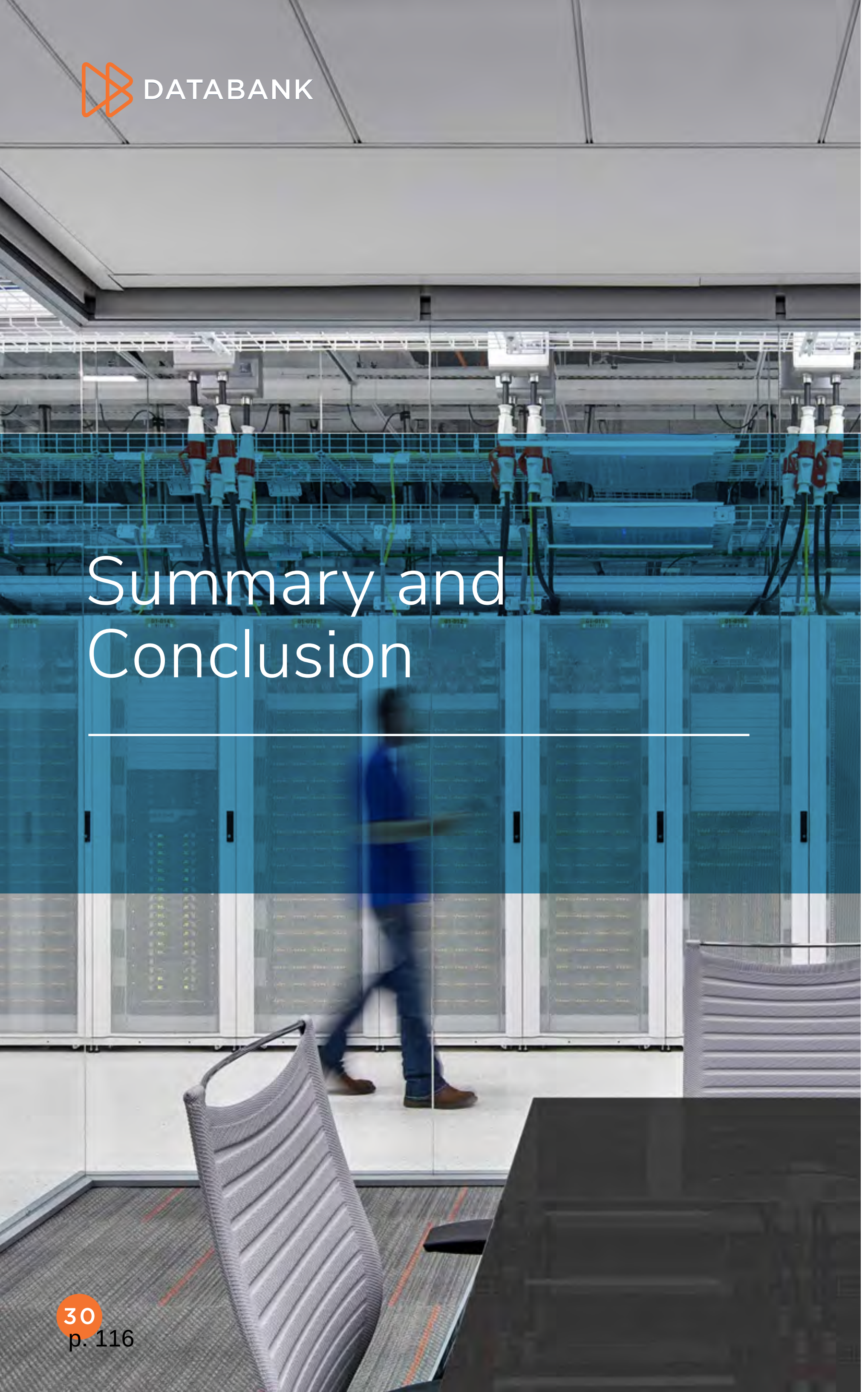
Like many communities across the country, Culpeper, Virginia found itself at a familiar crossroads: The economic benefits of data center investment were real and significant, but so were the concerns about what large-scale industrial development might do to the rural character that makes the community what it is.

The answer was the Culpeper Tech Zone (CTZ); a designated area within the county where data center development is welcome, encouraged, and concentrated. Rather than allowing facilities to scatter across the landscape, the community drew a line. Data centers belong in the zone. Everything outside it stays the way it is.

The results now speak for themselves. Tax revenue, jobs, and economic activity have followed the investment, while the open space, rural landscape, and quality of life that residents wanted to protect have remained intact.

The framework also includes requirements for local business engagement, STEM education programs, and workforce development initiatives that extend the benefit beyond the facility fence line and into the broader community.

> We started every meeting with partners saying we're looking for the best example of data center cluster development in the world. Working with DataBank, we're building that together. It's proof that rural communities can define their own terms for growth.
>
> – Bryan Rothamel,
> Economic Development Director, Culpeper County



Summary and Conclusion

The Conversation Worth Having

The concerns are real, yet so is the progress

Data centers are not perfect. They consume real resources, they require real land, and their development affects real communities. None of that is in dispute.

The headlines, however, have not told the full story. On energy, water, air emissions, noise, and community impact, the perceived fears have moved faster than the facts. The concerns driving that debate are legitimate. The conclusions drawn from them often are not.

The digital world isn't slowing down, and AI is accelerating demand faster than anyone anticipated. The infrastructure supporting it has to grow to keep pace—not just with what we need today, but with what all of us are generating and consuming every day.

The real question has never been whether to build data centers. It has always been how to build them responsibly, with honest conversations about trade-offs, realistic expectations about impact, and a genuine commitment to getting it right.

That's a conversation worth having. It goes better when everyone is working from the same facts.

Committed to Being a Good Neighbor

We don't just operate in these communities. We're part of them.

DataBank operates more than 70 data centers across the United States, and the way we think about our role in those places goes beyond the buildings themselves. We're a technology infrastructure company headquartered in Dallas, Texas, with approximately 1,000 employees who are all part-owners in the company, people who live and work in the same communities where our facilities operate.

Being part of a community means more than operating a facility there. Our employees coach youth sports, support local businesses, and send their kids to local schools. DataBank contributes to local food banks, women's shelters, veterans' organizations, schools, and environmental causes. Every employee receives paid time off each year to volunteer.

In 2025, DataBank employees contributed more than 850 hours of volunteer time — up from 615 hours the year before. We collected over 1,800 pounds of food for local food banks, removed nearly 4,800 pounds of trash from a Denver-area river, refurbished a New York Little League clubhouse, and supported women's shelters, military troops, and youth education programs across our markets. In total, DataBank donated more than $26,000 to local charities, shelters, and community events in 2025.

Looking ahead, we're expanding our community engagement through STEM education partnerships, pollinator gardens at new facilities, youth sports sponsorships, and workforce development programs — including direct collaboration with the Culpeper Technical Education Center's electrician program, where DataBank engineers provide hands-on guidance to students who may one day work in our facilities.

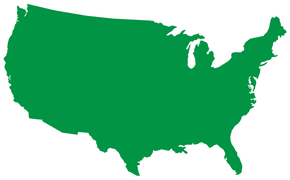
Data centers and the communities that host them are better off when the relationship is built on trust, transparency, and genuine investment. That's the kind of neighbor DataBank is committed to being.

For more on our sustainability and community commitments, visit our online Corporate Responsibility page.

DATABANK
Data Center Evolved™

DataBank Holdings, Ltd. | 400 South Akard Street, Suite 100 | Dallas, TX 75202 | www.databank.com

U.S. Data Centers
and Responsible Energy Use



Data centers power the digital services we rely on every day, from healthcare and banking to education and communications. As demand for digital services grows, so does the demand for electricity. The data center industry is working alongside utilities, regulators, and grid operators to advance an affordable, reliable grid that supports modern economic growth.

Supporting Affordable Electricity Through Long-Term Infrastructure Investment

Full Cost of Service Commitment

DCC member companies are committed to paying their full cost of service for the energy they use. Data center companies routinely pay utilities for project-specific equipment and infrastructure, like breakers, transformers, entire substations, and supporting infrastructure.

Why it matters: these practices help ensure other customers are not left paying for infrastructure tied directly to a data center project.

Independent Validation

Virginia JLARC
"Current rates appropriately allocate costs to the customers responsible for incurring them, including data center customers."

Arizona Corporation Commission:
"The data center industry is paying its fair share of expansion of power generation and infrastructure under existing utility rate structures and Commission practices."

Lawrence Berkeley National Laboratory:
"Data center growth was not a driver of electricity bill increases, and adding data centers to the grid can help lower energy costs for other customers."

Expanding Access to Clean Energy

84%
of tracked U.S. clean energy procurement

According to S&P Global Insight, technology and web services companies accounted for more than 84% of tracked U.S. clean energy procurement from February to July 2025. The data center industry has been a leader in expanding access to clean energy and remains committed to sustainability and innovation.

Utilities are Highlighting the Benefits of Large Energy Users

Data centers and other large loads offer a unique opportunity to reduce energy costs for other customers while supporting new infrastructure development. Because data centers generally use large amounts of electricity around-the-clock, these large loads can take on a higher share of fixed utility system costs that would have otherwise been borne by homes, businesses, and other existing customers. At a time when affordability is top of mind, utilities across the country are explaining and unlocking this opportunity.

California – PG&E

1-2%

Estimated long-term bill savings for customers for every 1 GW of new electric demand. PG&E said "This growth can help lower costs for all electric customers.

Arkansas, Louisiana, & Mississippi – Entergy

$7B

Projected customer savings over the next 20 years from recent agreement between Entergy and data center operators, benefitting 2.3 million customers.

Pennsylvania – PPL Electric

10%

Estimated reduction in transmission costs for customers from the first GW of new large-load growth connected to the grid.

Virginia - Dominion Energy

10%

Decline in residential customers' share of transmission costs since 2020, while data centers' allocation has increased by 10%.

Data Centers are Investing in America's Energy Future

Data center companies are helping accelerate investment in energy technologies. These technologies can support reliable, around-the-clock power and a stronger grid over the long term:

- **Advanced nuclear energy**
- **Enhanced geothermal**
- **Long-duration storage**
- **Carbon capture & grid support**

Planning for Future Energy Demand

Utilities and grid operators across the country are updating how they plan for large new energy users. These efforts help ensure that the grid is prepared, costs are fair, and reliability is protected for all customers.

The Bottom Line

Data centers are not only powering the digital economy, they are also helping drive investment in the nation's energy future. From supporting grid infrastructure and advanced energy technologies to helping utilities manage long-term system costs, the industry is working alongside regulators, utilities, and policymakers to support reliable and affordable electricity service for the long term.

About DCC

The Data Center Coalition (DCC) is the national membership association for leading data center owners and operators, as well as large end users. As the voice of the industry, DCC advocates for a strong business climate, as well as policies and investments that support the growth and success of the sector.

Understanding Data Centers

Essential Infrastructure for Modern Life

What is a Data Center?

Data centers are buildings that house the internet. They are the foundation of the digital infrastructure on which our modern society and economy are built. Anything that takes place “in the cloud” is powered by a data center. They enable our increasingly modern lives and the 21st-century economy.

What Data Centers Enable

Internet Apps	Telehealth	Online Banking	Video Calls
Streaming	[redacted]	[redacted]	[redacted]icial Intelligence

Why Data Centers Matter

Core of the Digital Economy

Power the storage and processing of data that enables e-commerce, cloud services, and essential digital services.

Public Safety & National Security

Support government operations, emergency [redacted]

Reliable & Resilient by Design

[redacted]4/7 operation, [redacted]uring utility [redacted]ure [redacted]l data [redacted]nues.

[redacted]

Hyperscale
Large-scale facilities that support cloud providers and global digital services

Mu[redacted]
Share[redacted] whe[redacted] organiz[redacted] their [redacted]

Enterprise
A privately-owned data center used by a single organization for internal data processes

[redacted]cated [redacted]d-users [redacted]eal-time [redacted]es

Data centers bring billions of dollars in investment to communities, support high-wage jobs, and contribute tax dollars that help fund local priorities, making communities stronger and everyday life more affordable.

[redacted]

Economic Growth

[redacted]

Industry Commitments

Data centers are highly efficient users of energy and water, with operators continually investing in technologies and practices that support reliability, conservation, and responsible growth.

Energy
The data center industry pays its own costs for the electricity it uses, and coordinates closely with utilities to support grid reliability.

Water
The data center industry is committed to responsible water use through ongoing investment in water-conserving practices and innovative cooling solutions.

About DCC

The Data Center [redacted]
operators, as [redacted]
climate, a [redacted]

Contact Us

www.datacentercoalition.org

Data Centers and Water Use

The data center industry is committed to responsible water use, and it prioritizes efficient water practices and responsible management across operations and development. Collectively, the data center industry used significantly less water than other essential industries in 2025, including the agriculture, power, food and beverage, and semiconductor sectors.

The data center industry continues to invest in water management and deploy water efficiency practices through air-cooled systems, closed-loop water recycling, and dry cooling technologies. DCC member companies are also piloting advanced solutions, including AI-driven cooling optimization and on-site water recycling systems, to further reduce consumption and maximize water efficiency.

The Facts on Data Center Water Use

- According to the Joint Legislative Audit and Review Commission (JLARC) in Virginia, the world's largest data center market, 83% of data centers use as much, if not less, water than a large commercial office building. The report also found data center water use in the state is sustainable.

- A Bluefield Research report found that data centers are estimated to use approximately 39 billion gallons per year (BGY) of water in 2025. That is compared to:
  - Utility water leakage: 2,500 BGY—18% of municipal treated water is lost to leakage
  - Food and beverage industry: 533 BGY
  - Semiconductor industry: 59 BGY

- A recently released report from Kyl Center for Water Policy at Arizona State University showed that data centers in Arizona are estimated to use less acre-feet of water than:
  - Power generation
  - Semiconductor manufacturing (which has a significant presence in the state)
  - Sand & gravel mining
  - Golf courses
  - Beverage facilities

- Research finds that data centers in the U.S. consumed approximately 0.2% of the nation's freshwater in 2023.

- The Houston Advanced Research Center (HARC) report estimates that between direct (on-site cooling) and indirect (electricity generation) water consumption, existing data centers in Texas consume approximately 25 billion gallons (or 77,000 acre-feet) of water—**the equivalent of 0.4% of total water use in Texas in 2025.**

Key Context for Data Center Cooling & Associated Water Use

Servers generate heat and require cooling. Many technologies, such as air cooling, water cooling, or some combination, can help keep data center server halls at the right temperature and humidity. There is no one-size-fits-all solution for cooling, and the best approach often depends on local factors, such as humidity, climate/temperature, and availability of water, including recycled, non-potable, or harvested rainwater sources.

Types of Cooling

Air cooling
- Air cooling uses air conditioning, fans, and vents to circulate ambient air, expelling the hot air produced by computing equipment. It's the most traditional cooling method.

Liquid cooling
- Liquid cooling systems use coolants, including water, that circulate through a pipe network, absorbing heat away from IT equipment.
- Many data centers who employ liquid cooling use a closed-loop system, where an initial input of water is cycled through the system repeatedly without the need for additional water to be added.

Immersion cooling
- Immersion cooling directly submerges IT infrastructure components in dielectric fluids that cool by absorbing heat. Servers, which are kept in nonconductive, absorbent fluids, provide effective heat management.

Evaporative cooling
- Evaporative cooling uses fans to draw outside air in, cooling it before deploying it to cool IT equipment. Through water evaporation, this method draws heat away from the air efficiently.

Hybrid cooling strategy
- A hybrid cooling approach integrates multiple cooling technologies to optimize thermal management based on specific IT equipment demands.

The Bottom Line

The Data Center Coalition and our members support responsible data center growth across the nation. These facilities are a small share of local and statewide water use, and with modern cooling technology and local planning, we can protect water resources while continuing to grow jobs and investment.

About DCC

The Data Center Coalition (DCC) is the membership association for leading data center owners and operators, as well as large end users. As the voice of the industry, DCC advocates for a strong business climate, as well as policies and investments that support the growth and success of the sector.

Contact Us

www.datacentercoalition.org | info@datacentercoalition.org

An Energy System in Transition

New Report Identifies the 5 Key Drivers of U.S. Electricity Prices

For the first time in decades, electricity use in the U.S. is growing, driven by a confluence of factors including broad electrification, industrial reshoring, and the expansion of the digital economy. This has placed a spotlight on our nation's energy infrastructure and the costs associated with it. While the growth of data centers is a visible part of this story, a comprehensive new independent study from consulting firm Energy + Environmental Economics (E3) finds that rising electricity rates are the result of multiple, complex factors—not load growth alone.

Key Takeaways

- **UNCLEAR RELATIONSHIP BETWEEN GROWTH & RATE HIKES:**
  State-level analysis shows no direct correlation between load growth and rising electricity rates.
- **DATA CENTERS CAN LOWER CUSTOMER RATES:**
  A study cited in the report found that the data centers evaluated paid their full infrastructure costs plus a surplus, which generated net positive revenue for those utilities.
- **INDUSTRY IS PAYING ITS OWN WAY:**
  The review found no evidence of a historic cost shift from data centers to other customers. New mechanisms are increasingly being used to ensure data centers pay for their share of grid investments.
- **PRIMARY DRIVERS OF RISING RATES:**
  Retail rate outcomes are influenced by broader supply demand dynamics, market design choices, fuel cost volatility, generation retirements, inflation, and other utility investments such as grid modernization, wildfire mitigation and policy compliance — not load growth alone.
- **PJM MARKET ANALYSIS:**
  In a new analysis of the PJM market (13 states and DC*), E3 found data center driven load growth accounted for ~50% of the capacity cost increase while five other factors drove the other 50%.

Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia.

Each data center site evaluated generated an average

$3.4M IN NET SURPLUS PER SITE REVENUE,

which could help offset costs for other customers.

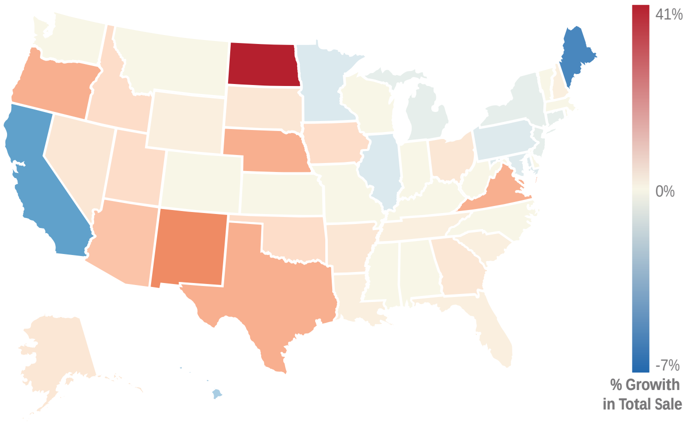
Riu, I., Patel, K., Mettetal, L., Santoni-Colvin, M., Platter, H., Greszczuk, S., Cardona, J., Bertrand, L., Spencer, S., & Ramirez, S. (2025). *Tailored for scale: Designing electric rates and tariffs for large loads: A guidebook of industry best practices and examples from real-world Amazon data center case studies* (White paper). Energy and Environmental Economics, Inc. (E3). https://www.ethree.com/wp-content/uploads/2025/12/RatepayerStudy.pdf

Five Primary Contributors to Rising Retail Electricity Rates

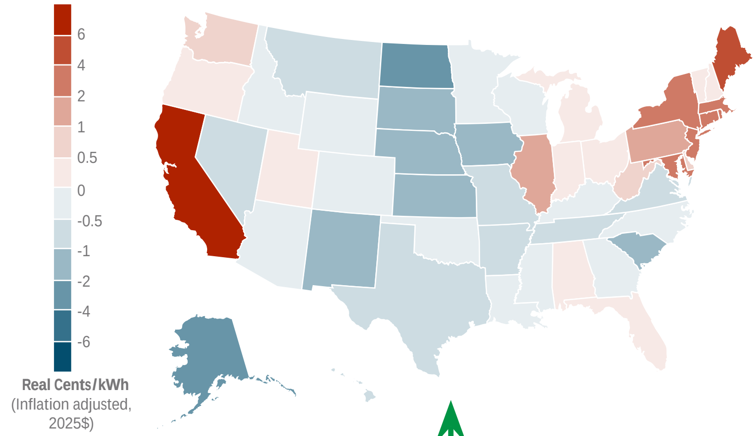
- INFLATION
- NATURAL GAS
- GRID MODERNIZATION
- EXTREME WEATHER
- MARKET DESIGN

National prices compared to sales

Growth in State Retail Electricity Sales: 2019 to 2025



Change in Average Retail Electricity Prices: 2019 to 2025



Bills are rising

29%

While data centers are visible, they aren't the primary driver.

What to Look at Next:

- Only a **few quantitative studies** have been conducted as of May 2026, examining this relationship between data center growth and retail electricity rates, with most looking at historical data. Further, **many rely on correlation rather than establishing causal relationships.**
- How well **risk mitigation tools** will perform over time.
- How processes (such as infrastructure planning, regulatory lag, cost allocation, and market design) **will change** in response to rapid and sustained load growth.
- While the quantitative studies to date **have not found evidence** of systematic cost shifting, research gaps remain and the risk is not absent.

The Path Forward

E3's analysis of more than 10 different studies shows that rising electricity bills are not solely the result of a rise in data center development. The financial pressures on our energy system are complex, rooted in broad economic trends and factors, and the transition to a more modern and resilient grid is a work in progress.

E3 recommends the **following approach to create a framework** for responsible load growth. With thoughtful, market-specific approaches, policymakers can support economic growth while protecting customers and ensuring fair cost allocation.

- **Strengthen planning and forecasting.**
- **Leverage tailored large load tariffs and align cost allocation with the pace of load growth.**
- **Enable innovative supply and load integration models.**
- **Close analytical gaps with both targeted and more quantitative analysis.**

Read E3's study, Understanding the Drivers of Rising Electricity Rates and the Role of Data Centers, here.
ethree.com/electricity-rate-drivers-data-center-role-2026

How Energy Markets Across the US Address Load Growth and the Surge in Power Demand

- **PJM Market:** Recent capacity price spikes have reflected tightening supply conditions. PJM responded by advancing proposals to reform its market and processes. The 13 PJM-state governors and federal officials issued a Statement of Principles calling for more immediate and structural reforms.*

- **Texas:** Has experienced significant load growth in recent years and lawmakers developed specific policies without disproportionate retail rate increases for households and businesses to date.

- **Georgia:** Regulators have responded to the state's rapid data center growth by strengthening long-term contract requirements and minimum billing protections to reduce stranded cost risk.

- **Arizona:** Regulators and utilities are refining rate design and contractual protections to better reflect cost causation and risks, driven by the rapid and large-scale load growth from data centers.

- **Missouri:** Due to emerging data center growth, Missouri is one of several emerging markets that has proactively established large load tariffs and long-term contractual requirements to preempt cost shifts and mitigate stranded cost risk.

**Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia.*

DATA CENTER COALITION®

Read E3's study, Understanding the Drivers of Rising Electricity Rates and the Role of Data Centers, here.
ethree.com/electricity-rate-drivers-data-center-role-2026

1000 FRIENDS *of* FLORIDA

Special Report

Potential Impacts of Data Center Development on Florida Communities:

Issues for State and Local Policymakers

By 1000 Friends of Florida

February 2026

Introduction

Data centers are facilities for the storage and processing of the vast amount of electronic data now required by American society's use of electronic media and computing capacity for a wide range of purposes by corporations, government and individual consumers. Data centers are expanding rapidly at locations across the country — driven particularly by cloud storage of data and by the rapid growth of Artificial Intelligence (AI) for multiple applications. While Florida is not seen as much of a national hot spot for data center growth like Virginia and Texas, there are already an estimated 120 data centers in Florida and substantial investment in data centers is likely with the attendant impacts described in this paper.

Physically, data centers are buildings filled with servers and computers linked to outside users operating 24 hours a day. They include systems to cool the equipment, which produces significant amounts of heat from its operation. Data centers require massive amounts of electricity and include banks of large generators as backup in case of power failures or shortages of power. Data centers are expensive to construct and equip (and represent substantial property value), but when operational, they employ relatively few people and fewer still highly paid workers.

The Impacts of Data Centers

Energy Demand

Data centers require vast amounts of electrical energy to power servers and cooling systems, according to the PEW Research Center, which has sourced data from the International Energy Agency. A typical AI-focused data center consumes as much electricity as 100,000 households. The larger data centers now under construction are expected to use 20 times as much. This translates into increasing overall energy demand, shown on the graph on the next page.

continued on next page

The Impacts of Data Centers *continued*

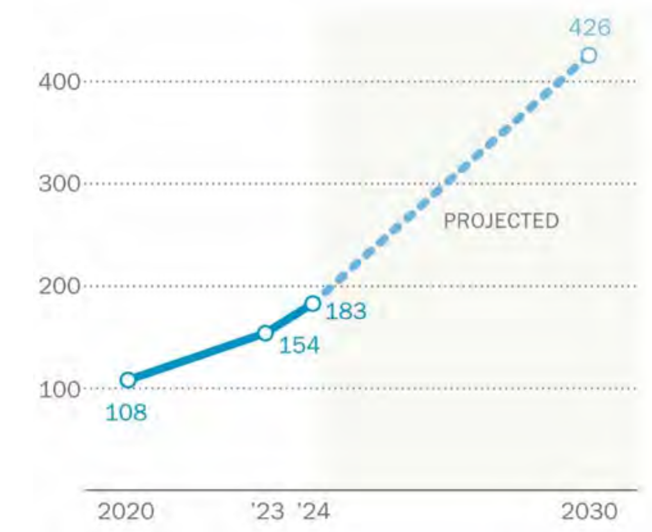
Existing electrical generating capacity is usually not sufficient to power these facilities, so new generating sources need to be constructed adjacent to sites, or at other locations requiring new transmission lines and substations. In some cases renewable energy sources, particularly solar arrays, are being constructed to supply some of the needed power, but because data centers require power 24 hours a day, very large other energy sources are generally needed.

Energy demand for data centers has raised several important issues:

- Because of the speed at which data centers are being developed, new generating facilities cannot come online fast enough to supply the needed power, so old, polluting, and inefficient fossil-fuel power plants that were scheduled to be retired are being kept in operation.
- Some companies and developers have made commitments for the use of renewable energy to power data centers and co-location of solar power generation is taking place, particularly in the West. While solar power has no emissions, it changes land use, including displacing active farm and ranch land.
- Gas-fired generating plants are the easiest to construct, but while they have lower conventional and greenhouse gas emissions than coal plants, they still represent a net increase in emissions. They also require new gas pipelines and electricity transmissions corridors.
- There is much talk of small modular nuclear generating plants and restarting closed conventional nuclear plants, but these energy

Electricity Consumption at U.S. Data Centers is Expected to More Than Double by 2030

Total electricity consumption by U.S. data centers (terawatt-hours)



Note: 2030 projection is based on IEA's "base case" scenario, which assumes current industry forecasts and regulatory conditions persist. Source: International Energy Agency, "Energy and AI," April 2025. PEW RESEARCH CENTER

sources will take time to get online and present their own land-use issues.

- A major concern is who pays for the additional electrical and generating and transmission capacity. The article, "Extracting Profits from the Public: How Utility Ratepayers Are Paying for Big Tech Power" from the Environmental Energy and Law Program at Harvard Law School (March, 2015) makes the case that in some instances power companies and data center developers have entered into agreements that allocate some of the costs of additional generating and transmission capacity to other ratepayers, thus increasing electric rates for all. States are now passing legislation to preclude this from happening. Policies and legislation addressing this issue have been proposed in Florida.

continued on next page

The Impacts of Data Centers *continued*

Water Use

The operation of the servers and other equipment within data centers produces substantial heat, requiring the buildings and the equipment to be cooled. While there is ongoing research and development to invent and perfect new, more-efficient cooling systems, most data centers now use evaporative cooling for this purpose. This means that most of the water used for cooling is lost to the air and cannot be recirculated. A study by the Houston Advanced Research Center (HARC) and the University of Houston found that data centers in Texas will use 49 billion gallons of water in 2025, and as much as 399 billion gallons in 2030. That would be equivalent to drawing down the largest reservoir in the US — 157,000-acre Lake Mead — by more than 16 feet in a year.

Given that local groundwater is the primary source of water in Florida and that some areas of Florida are already withdrawing too much water to be sustainable under drought conditions, water use is likely a major factor in data-center siting and management in this state. Yes, recycled water can be used for cooling, but it, too, will be lost in the most widely used cooling systems.

There are air-cooling systems that can be used for data systems, and, as noted above, new cooling systems are being explored. However, air cooling and some other approaches use more power. Thus, there is a tradeoff between water use and the impacts of power demands discussed above.

Direct Air Quality

The primary direct air-quality issue from data centers is when their diesel generators are in operation. This is an intermittent problem not as significant as the larger air-quality issues from base electric generation, but generator noise and emissions can be a concern for adjacent residential neighborhoods.

continued on next page

The Impacts of Data Centers *continued*

Land Use and Quality of Life

Data centers are large, windowless buildings that are strongly fenced for security purposes, are brightly illuminated, and include larger emergency power generators that are noisy and that produce air pollution when in use. These buildings employ comparatively few people. Large electric substations are likely a related land use. The overall land-use effect is one of an industrial dead zone that in scale and character may be incompatible with other land uses like housing and commercial activity. Because data centers tend to cluster in certain locations (particularly at the intersection of electric and fiber-optic transmission lines), this can produce large areas of fenced-off industrial land uses. Operation of the on-site generators can produce noise sufficient to disturb adjacent land users. In some locations, data centers displace farming on suitable soils and wildlife habitat. These land-use impacts have become controversial in rural areas and adjacent to minority communities.

Property Taxes

Because of the value of their buildings and equipment, data centers have the potential to enhance local tax bases, but the literature suggests that a number of states and municipalities have made tax-reduction agreements with developers to attract data centers that negate those potential tax benefits. A study by the Ford School of Science, Technology and Public Policy at the University of Michigan suggests that many such tax breaks are net losers for states and municipalities — that is, the overall economic benefits to the community are worth less than the benefits afforded the corporations from the tax reductions.

Traffic

Because data centers have relatively few employees for the size of the facilities, automobile traffic is not an issue with their siting and construction.

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Addressing Impacts

As data center development has accelerated, state and local governments have taken steps to address data-center impacts. Various states including Florida, as noted above, have new or pending policies pertaining to data centers and their electric-power requirements.

The highest concentration of data centers in the U.S. is in northern Virginia outside Washington, D.C. The Piedmont Environmental Council (PEC), a large non-profit conservation and regional planning organization, has been deeply involved in the data-center policy in that region.

Among PEC's suggestions is the need to integrate planning for data centers with comprehensive planning for the communities in which they are to be located. In Florida, while regulating electrical utilities is a state responsibility, planners at the local level are best positioned to address land-use issues presented by data centers, with the support of regional water management districts and relevant state agencies.

Questions for planners to consider in evaluating applications to site data centers:

Community Compatibility & Equity

- How close would the data center be to sensitive public facilities, such as schools, parks, wildlife trails, elder-care centers and hospitals?
- Would the data center be located near low-income communities?
- What noise impacts would cooling systems and generators create for any neighboring communities or future development?
- What limits on lighting for industrial-scale data centers would be needed to curtail negative impacts on the environment and on the quality of life of nearby communities?
- What buffers and design requirements would be needed to make a data center more compatible with its neighbors?
- What limits on height and intensity would be needed to make a data center more compatible with neighboring land uses?

Land-Use Compatibility & Growth Implications

- What other land uses might be incompatible with a data center — e.g., commercial, tourism?
- If located near undeveloped land, would the data center spur price increases for land that inhibit future residential or mixed-use development in the region?
- Would the data center and the electrical infrastructure supporting it consume productive agricultural land?
- What would be the impacts on neighboring land use of the electrical infrastructure needed to support a data center?
- What other kinds of development would be attracted by that electrical infrastructure?

continued on next page

Addressing Impacts *continued*

Natural Resources & Conservation

- Would the data center be located in or near the Florida Wildlife Corridor, and how could it impact efforts to conserve and protect the Corridor?
- Would the proposed data center hinder landscape connectivity due to its size, fencing or security measures?
- How would impacts to wildlife habitat and conservation lands be avoided, minimized, or mitigated?

Water Supply & Wastewater

- What would be the projected water demand for cooling, and how large a share of the local water supply would it consume?
- Would recycled water be available? (These are issues to be explored with water management districts.)
- What would be the impact on local wastewater treatment capacity?

Energy Infrastructure & Environmental Impacts

- What would be the land-use and environmental impacts of the electrical infrastructure required to support the data center?
- What would be the potential environmental impacts of backup generators?
- Would requirements for low-sulfur fuel, filters, emissions limits and air-quality monitoring be needed?

Public Safety & Emergency Services

- Would local fire departments be trained and equipped in responding to risks associated with lithium batteries, diesel generators, on-site fuel storage, facility size, and limited access?
- How would the environmental risks created by on-site fuel storage be mitigated?

Given the potentially significant impacts of data centers on electricity, water, the environment, public services, future development, agriculture, neighboring communities and their quality of life, these are issues planners need to ***consider thoroughly before any approvals are granted.***

1000 FRIENDS of FLORIDA

building better communities · saving special places

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FPL Large Load Framework

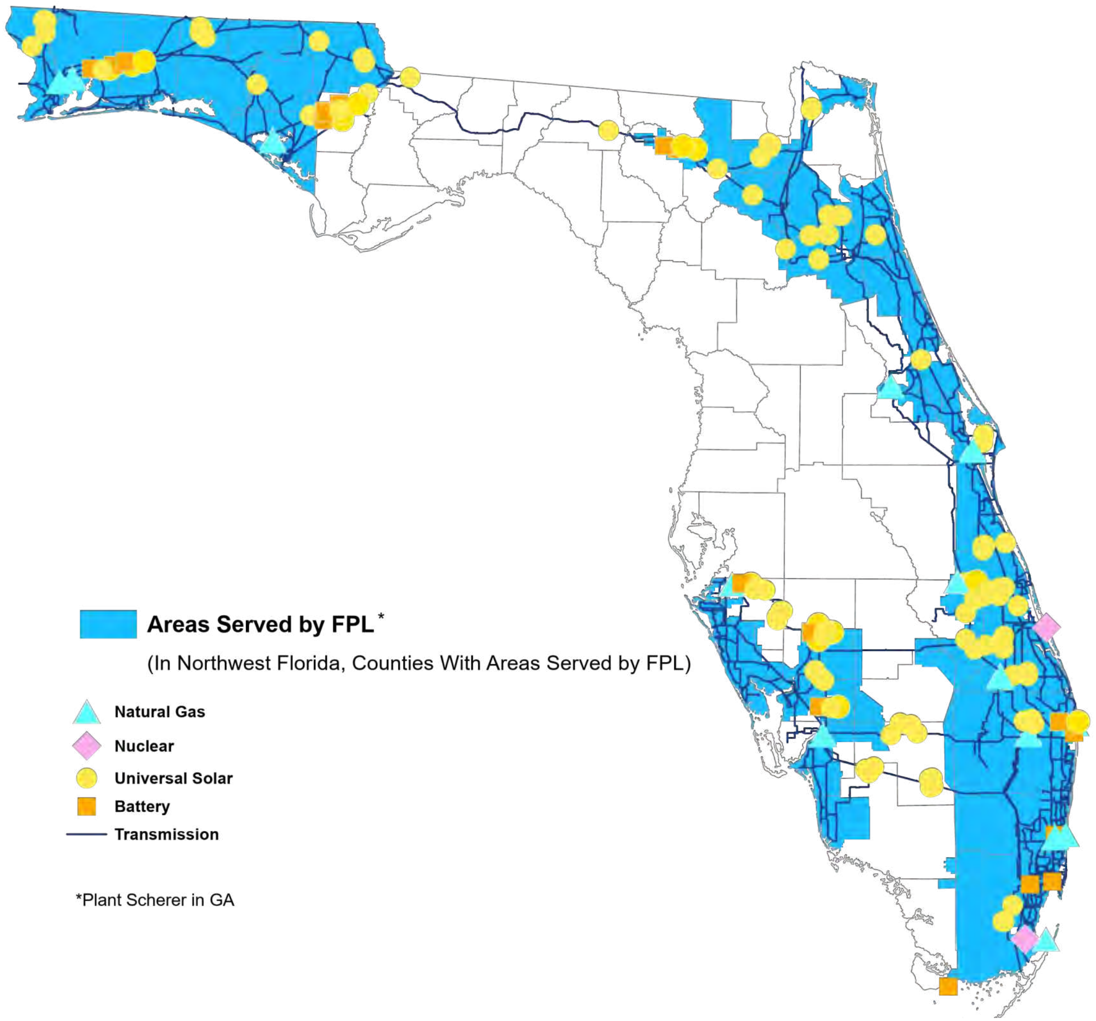
Florida Power & Light Company - Office of Economic Development

June 2026

FPL, a subsidiary of Fortune 200 NextEra Energy, has the scale and expertise to support large load customers

1. As of May 30, 2025

FPL is a fully integrated and industry leading electric utility



Largest electric utility in the U.S., with over 12 million customers

~36 GW in operation

~91,000 circuit miles of transmission and distribution lines

~$18 billion in operating revenue and ~$91 billion in total assets

Largest natural gas-fired generation fleet in the U.S.

1. As of June 30, 2025

Florida is a powerhouse for business growth and FPL offers speed to market.

State of Florida

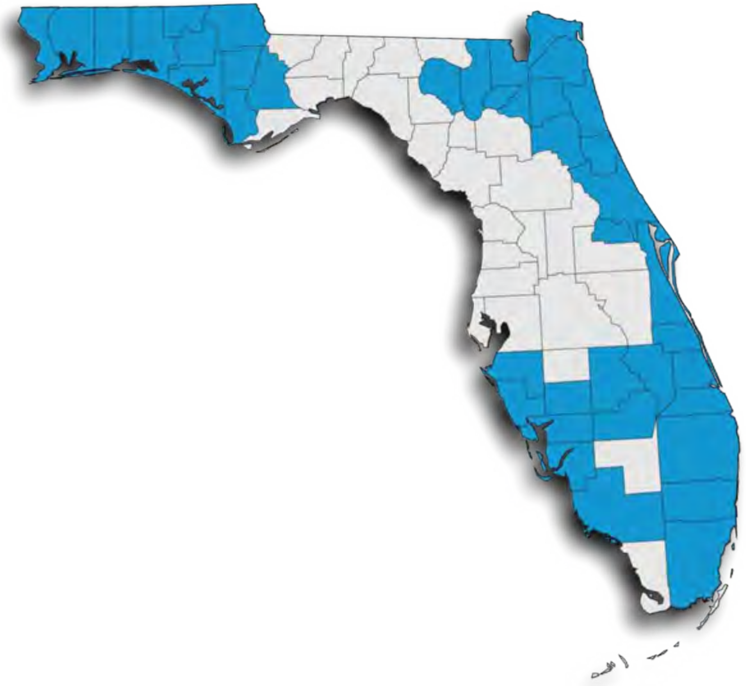
Sales tax exemption for data centers over 100 MW

Approved data center legislative/ regulatory framework

Multiple site options throughout FPL service area

Rapidly growing ecosystem with path to workforce and permitting

Competitive business climate with no state income tax



Florida Power & Light Company

Large load rates offer competitive pricing starting at $82/MWh

Large loads pay all incremental generation costs required to serve

Leader in nuclear, solar and BESS (~30% of generation by 2030)

Ability to add 3+ GW of capacity to 36 GW transmission grid by 2030

Proximity to hardened transmission lines helps mitigate storm risk

FPL's terms and conditions for large load and high load factor projects are intended to protect our general body of customers

FPL's LLCS-1 rate applies to up to 3 GW of new demand along portions of FPL's 500 kV system

LLCS-2 applies to all other qualifying loads

	LLCS-1	LLCS-2
New/Incremental Load Size	50 MW or higher	50 MW or higher
Load Factor @ single location	85% or higher	85% or higher
Base	$669.00	$669.00
Demand	$14.61/kW	$4.08/kW[1]
Non-fuel Energy	0.758 cents/kWh	0.758 cents/kWh
Incremental Generation	$11.67/kW	To be calculated[2]
Minimum Demand Charge	70% of contract demand (or demand during ramp)	
Minimum Term	No less than 20 years from in-service date (including ramp)	
Early Termination Exit Fee	Customer shall be responsible for payment of an "Exit Fee" equal to the NPV of the accelerated payment of the total Incremental Generation Charges which, absent the termination, would have been paid by the Customer over the remaining balance of the Minimum Term	
Credit	BBB or better, parent guarantee or Letter of Credit/Surety Bond for 5 years of IGC. Subject to annual liquidity checks. Less than BBB requires Letter of Credit/Surety Bond for 10 years of IGC	

1. For LLCS-2, only slice of system transmission costs are included in the listed demand charge
2. All incremental generation charges will be determined via generation charge formula

FPL's Large Load Framework leads the nation in customer protections

Load Requirement

In excess of 50 MW and 85% load factor

Incremental Generation Charge (IGC)

$11.67/kW for customers located in certain zones[1]; will be calculated for all other locations in the service area[2]

Minimum Bill

100% of the IGC plus 70% of demand charges (e.g. slice of system charge) based on customer's contracted load

Minimum Term

20-year contract with a 2-year termination notice

Exit Fees

100% accelerated payment of remaining 20-year IGC

Collateral[3]

Parent guarantee/Letter of Credit/ Surety Bond for 5 years of IGC if BBB or better. 10 years of IGC if not BBB or better.

1. LLCS-1 has stated IGC rate and is limited to certain zones - Sunbreak (St. Lucie County), Tesoro (Martin County), and Sugar (Palm Beach County). Must be near FPL's 500 kV transmission facilities
2. All incremental generation charges will be determined via formula specified in LLCS-2 tariff
3. Subject to annual liquidity checks

FPL has established a process to onboard large load customers

Customer Path to Power – Process Milestones

Initial Review

- Execute non-disclosure agreement (NDA)
- Review FPL process guide
- Select preferred site to proceed with system study

System Study

- 6-9 months to estimate time and cost to interconnect
- Must request peak contact demand and load ramp
- End-use customer must accept results within 6 months

Service Agreement

- Execute FPL Construction and Operation Agreement
- Pay Contribution in Aid of Construction (CIAC)
- Execute (LLCS) Service Agreement
- Provide Performance Security within 5 days

A NEW DAY.

City of Jacksonville, Florida

Donna Deegan, Mayor

Planning Department
Ed Ball Building
214 North Hogan Street, Suite 300
Jacksonville, FL 32202
(904) 255-7800
www.jacksonville.gov

MEMORANDUM

TO: Planning Department Staff

FROM: Helena A. Parola, Director, Planning Department

SUBJECT: **Land Use Categories and Zoning Districts Allowing Large-Scale Data Centers**

DATE: April 16, 2026

Neither the 2045 Comprehensive Plan, nor the Zoning Code define "data centers" or "large-scale data centers" or list them as a permitted use within any land use category or in any zoning district.

Legislative Context: SB 484

Per section 373.203(3), Florida Statutes, a "Data center" means a facility that primarily contains electronic equipment used to process, store, and transmit digital information, which may be:

(a) A free-standing structure; or

(b) A facility within a larger structure which uses environmental control equipment to maintain conditions necessary for operation of electronic equipment.

Per section 373.203(4), Florida Statutes a "Large-scale data center" means a single location with an anticipated monthly peak load of 50 megawatts or more, calculated as the highest average load over a 15-minute interval. The term does not include load aggregated across multiple locations, but it does include collocated tenants whose combined load meets the threshold.

Sec. 163.326, F.S., acknowledges that data centers and other large-load users may present unique planning, infrastructure, and compatibility considerations that should be addressed through comprehensive planning and land development regulations.

SB 484 (2026) establishes statewide definitions and a regulatory framework for "large load capacity" data centers (50 megawatts or more), addressing issues including noise, water conservation, and radio frequency emissions.

2045 Comprehensive Plan and Zoning Code Review
Given the potential impacts associated with large-scale data centers, industrial land use categories are the most appropriate locations. These impacts may include noise, odor, hazardous materials, energy consumption and transportation conflicts.

The Light Industrial (LI) category is the closest parallel to the impacts generated by large-scale data centers.

> LI – GENERAL INTENT
> The LI category provides locations for industrial uses that can be conducted in a manner that controls external effects such as smoke, noise, soot, vibration, and odors. With limited exceptions for outdoor storage and retail sales and service, activities must occur within enclosed buildings. These uses generally do not create noticeable impacts beyond their sites. Collector-level or higher roadway access is preferred, except within the Downtown Investment Authority boundaries.

The Heavy Industrial (HI) category incorporates all LI uses and more intense uses that may include more offensive industrial impacts and conditions.

> HI - GENERAL INTENT
> Generally, heavy industrial uses involve creating or utilizing materials or products predominantly from extracted or raw materials, or perform activities that potentially involve hazardous or commonly recognized offensive conditions. Heavy industrial uses are the most likely to produce adverse physical and environmental impacts on adjacent residential areas such as noise, land, air and water pollution and transportation conflicts. For this reason, heavy industrial land uses should be buffered by other less intense transitional land uses, such as office, light industrial or open space, etc., to protect residential and other sensitive land uses; i.e., schools, health care facilities, etc.
>
> Heavy industrial uses shall be located with convenient access to the transportation network that includes major highways, railroads, airports and port facilities. Site access to roads classified as arterial or higher on the Highway Functional Classification Map is preferred; except for sites located within the DIA's jurisdictional boundaries. Sites with railroad access and frontage on two highways are preferred locations for heavy industrial development.

PUD Considerations

• Pursuant to Sec. 656.222, Zoning Code, "the use provisions in the various zoning districts are exclusive and a use not included under permitted or permissible uses shall be prohibited in the district." Because data centers are not listed as allowable by right in any zoning district, FLUE Policy 1.1.9 supports the use of a PUD zoning to evaluate potential impacts and ensure compatibility.

• FLUE Policy 1.1.13 supports mitigating adverse impacts through:

1. Creation of complementary uses
2. Enhancing transportation connections
3. Noise, odor, vibration, and visual/aesthetic controls
4. Buffering, landscaping, and other mitigation measures

Conclusion

Consistent with the General Intent of the LI land use category, large-scale data centers are allowed in both LI and HI. Additionally, as these uses are not enumerated in any zoning district, these uses are only permitted in the PUD zoning district.

• Large-scale data centers, as defined by Sec. 373.203(4), F.S., are allowed only within the LI and HI land use categories.

• Large-scale data centers, as defined by Sec. 373.203(4), F.S., are allowed only within the PUD zoning district.

• If a PUD lists a large-scale data center as an allowed use, the approved site plan should explicitly reflect such use.

Copy to:

Mike Weinstein, Chief Administrative Officer
Kelli O'Leary, Deputy Chief Administrative Officer
Nina Sickler, Director, Department of Public Works
Ellyn Cavin, Chief, Development Services Division
Richard Reichard, Director, Office of Administrative Services Department
Sean Kelly, Zoning Administrator, Development Services Division
Brittany Norris, Director of Intergovernmental Affairs

CHAPTER 2026-65

Committee Substitute for Committee Substitute for Senate Bill No. 484

An act relating to data centers; creating s. 163.326, F.S.; providing legislative findings; specifying that local governments maintain authority to exercise power and responsibility over comprehensive planning and land development regulations relating to large load customers; prohibiting a large load customer from being considered an electric substation; amending s. 288.075, F.S.; defining the term "data center"; providing an exception to a provision allowing an extension of certain confidentiality protections; creating s. 366.043, F.S.; providing legislative findings; defining terms; requiring public utilities to provide certain minimum tariff and service requirements for large load customers; requiring that such requirements ensure that large load customers bear their costs of service and that such costs are not shifted to the general body of ratepayers; requiring certain measures to minimize the risk of nonpayment of such costs; requiring that such minimum tariff and service requirements include certain provisions designed to prevent a public utility from providing electric service to a large load customer that is a foreign entity; prohibiting a customer from separating a certain electrical load into multiple smaller connections for a specified purpose; authorizing the Florida Public Service Commission to approve public utility tariffs that include certain utility industry-accepted ratemaking and other financial tools; prohibiting any tariff, contractual provision, service requirement, or other public utility policy from preventing or hindering the curtailment or interruption of electric service to a large load customer for certain purposes; prohibiting a public utility from knowingly providing electric service to a large load customer that is a foreign entity; requiring each public utility to file a tariff in compliance with the provisions of the bill by a specified date; amending s. 373.203, F.S.; defining terms; creating s. 373.262, F.S.; providing legislative intent; prohibiting the governing board of a water management district or the Department of Environmental Protection from issuing a permit for the consumptive use of water to a large-scale data center under certain circumstances; requiring that such permit be issued to a large-scale data center applicant if the applicant establishes that the proposed use of water satisfies certain requirements; requiring the governing board or the department to require the use of reclaimed water for a large-scale data center applicant's allocation when certain requirements are met; specifying requirements for certain permit applications; prohibiting the approval of permit applications without a hearing; amending s. 373.239, F.S.; requiring that consumptive use permit modifications proposed by a large-scale data center be treated in a specified manner; requiring the Office of Program Policy Analysis and Government Accountability to contract for a study relating to the construction and operation of large-scale data centers; providing requirements for the study; requiring the study to be submitted

CODING: Words ~~stricken~~ are deletions; words underlined are additions.

to the Governor, the President of the Senate, and the Speaker of the House by a specified date; providing effective dates.

Be It Enacted by the Legislature of the State of Florida:

Section 1. Effective upon becoming a law, section 163.326, Florida Statutes, is created to read:

163.326 Large load customer considerations.—

(1) The Legislature finds that certain land uses, including facilities with substantial electric or other utility demands, such as data centers and other large load customers as defined in s. 366.043(2), may present unique planning, infrastructure, and compatibility considerations. The Legislature intends that such considerations shall be addressed through local comprehensive planning and land development regulations adopted pursuant to this chapter, including provisions related to infrastructure capacity, land use compatibility, environmental impacts, and the efficient provision of public facilities and services.

(2) Local governments shall maintain the authority to exercise the powers and responsibilities for comprehensive planning and land development regulation granted by law with respect to large load customers. A large load customer may not be considered an electric substation for the purposes of s. 163.3208.

Section 2. Paragraphs (a), (b), and (c) of subsection (1) of section 288.075, Florida Statutes, are redesignated as paragraphs (b), (c), and (d), respectively, paragraph (a) of subsection (2) is amended, and a new paragraph (a) is added to subsection (1) of that section, to read:

288.075 Confidentiality of records.—

(1) DEFINITIONS.—As used in this section, the term:

(a) “Data center” has the same meaning as in s. 373.203.

(2) PLANS, INTENTIONS, AND INTERESTS.—

(a)1. If a private corporation, partnership, or person requests in writing before an economic incentive agreement is signed that an economic development agency maintain the confidentiality of information concerning plans, intentions, or interests of such private corporation, partnership, or person to locate, relocate, or expand any of its business activities in this state, the information is confidential and exempt from s. 119.07(1) and s. 24(a), Art. I of the State Constitution for 12 months after the date an economic development agency receives a request for confidentiality or until the information is otherwise disclosed, whichever occurs first.

2. An economic development agency may extend the period of confidentiality specified in subparagraph 1. for up to an additional 12 months upon

written request from the private corporation, partnership, or person who originally requested confidentiality under this section and upon a finding by the economic development agency that such private corporation, partnership, or person is still actively considering locating, relocating, or expanding its business activities in this state. Such a request for an extension in the period of confidentiality must be received prior to the expiration of any confidentiality originally provided under subparagraph 1. This subparagraph does not apply to information described in subparagraph 1. relating to data centers.

If a final project order for a signed economic development agreement is issued, then the information will remain confidential and exempt for 180 days after the final project order is issued, until a date specified in the final project order, or until the information is otherwise disclosed, whichever occurs first. However, such period of confidentiality may not extend beyond the period of confidentiality established in subparagraph 1. or subparagraph 2.

Section 3. Section 366.043, Florida Statutes, is created to read:

366.043 Large load tariffs for public electric utilities.—

(1) The Legislature finds that the provision of safe and reliable electric services, provided at fair, just, and reasonable rates, is essential to the welfare of the ratepayers of this state. The Legislature further finds that when one class of electric service customer requires uniquely large electrical loads at a single location, it imposes a disproportionate risk on the other ratepayers of this state and makes it necessary for the commission to develop and enforce rate structures and other policies for such customers which ensure such risk is mitigated as much as possible and prevent shifting the costs of serving large load customers to the general body of ratepayers.

(2) As used in this section, the term:

(a) “Controlled by” means having the power to direct or cause the direction of the management or policies of a company, whether through ownership of securities, by contract, or otherwise. A person or an entity that directly or indirectly has the right to vote 25 percent or more of the voting interests of the company or that is entitled to 25 percent or more of its profits is presumed to control the entity.

(b) “Foreign country of concern” has the same meaning as in s. 692.201.

(c) “Foreign entity” means an entity that is:

1. Owned or controlled by the government of a foreign country of concern; or

2. A partnership, an association, a corporation, an organization, or other combination of persons organized under the laws of or having its principal

place of business in a foreign country of concern, or a subsidiary of such entity.

(d) "Large load customer" means a customer with an anticipated monthly peak load of 50 megawatts or more, calculated as the highest average load over a 15-minute interval at a single location. The term does not include a load aggregated across multiple locations owned by the same customer. However, the term includes all customers or other entities that have entered into a colocation or similar agreement at a single location that otherwise meets the anticipated monthly peak load provided in this paragraph.

(e) "Public utility" has the same meaning as in s. 366.02, except that the term does not include a gas utility.

(3) The following minimum tariff and service requirements for large load customers are required in public utility tariffs:

(a) The minimum tariff and service requirements must reasonably ensure that each large load customer bears its own full cost of service and that such cost is not shifted to the general body of ratepayers. Such cost of service includes, but is not limited to, connection, incremental transmission, incremental generation, and other infrastructure costs; operations and maintenance expenses; and any other costs required to serve a large load customer. The risk of nonpayment of such costs may not be borne by the general body of ratepayers.

(b) The minimum tariff and service requirements must include provisions reasonably designed to prevent a public utility from providing electric service to a customer that would otherwise qualify as a large load customer if that customer is a foreign entity.

(4) A customer may not separate an electrical load at a single location into multiple smaller connections to avoid being classified as a large load customer.

(5) To effectuate the requirements of subsection (3), the commission may approve public utility tariffs that include utility industry-accepted rate-making and other financial tools, including, but not limited to, the following:

(a) Contributions in aid of construction or other required customer infrastructure investments that may be returned, in whole or in part, to such customers over time.

(b) Demand charges, including minimum demand charges.

(c) Incremental generation charges.

(d) Financial guarantees.

(e) Minimum load factors.

(f) Take-or-pay provisions or similar provisions requiring payment for contracted capacity, regardless of a large load customer's actual electricity use or demand.

(g) Minimum period of service contract requirements, including early termination fees or other fees for violation of such contracts.

(6) Any tariff, contractual provision, service requirement, or other public utility policy relating to large load customers may not prevent or otherwise hinder the curtailment or interruption of electric service to a large load customer where such curtailment or interruption is intended to ensure grid stability, reduce the likelihood or breadth of wider service outages, or ensure public safety during an emergency or other exceptional circumstance.

(7) A public utility may not knowingly provide electric service to a customer that would otherwise qualify as a large load customer if that customer is a foreign entity.

(8) No later than October 1, 2026, each public utility shall file, for commission approval, a tariff that complies with this section.

Section 4. Effective upon becoming a law, subsections (3) and (4) of section 373.203, Florida Statutes, are redesignated as subsections (5) and (6), respectively, and new subsections (3) and (4) are added to that section, to read:

373.203 Definitions.—

(3) "Data center" means a facility that primarily contains electronic equipment used to process, store, and transmit digital information, which may be:

(a) A free-standing structure; or

(b) A facility within a larger structure which uses environmental control equipment to maintain the proper conditions for the operation of electronic equipment.

(4) "Large-scale data center" means a single location, with a data center on site, that has an anticipated monthly peak load of 50 megawatts or more, calculated as the highest average load over a 15-minute interval. The term does not include a load aggregated across multiple locations owned by the same customer. However, the term includes all customers or other entities that have entered into a colocation or similar agreement at a single location that otherwise meets the anticipated monthly peak load provided in this subsection.

Section 5. Section 373.262, Florida Statutes, is created to read:

373.262 Large-scale data center permitting.—

(1) It is the intent of the Legislature that the development and operation of large-scale data centers in this state be managed under a permitting framework that ensures this state's water resources are used in the public interest, in a manner that is not harmful to the water resources of this state, and consistent with local government zoning regulations and comprehensive plans.

(2) Consistent with other provisions of this part, the governing board of a water management district or the department may not issue a permit to a large-scale data center applicant for an allocation of water if the proposed use of the water is harmful to the water resources of the area or is prohibited by the applicable local government zoning regulations and comprehensive plan. A permit shall be issued to a large-scale data center applicant for an allocation of water if the applicant establishes that the proposed use of water:

(a) Is a reasonable-beneficial use as defined in s. 373.019;

(b) Will not interfere with any presently existing legal use of water; and

(c) Is consistent with the public interest.

(3) The governing board or the department shall require the use of reclaimed water in lieu of all or a portion of a proposed use of surface water or groundwater by a large-scale data center applicant when:

(a) A suitable reclaimed water supply source is available and permitted;

(b) Reclaimed water distribution or supply lines are available at the property boundary in sufficient capacity and quality to serve the applicant's needs;

(c) The applicant is capable of accessing the reclaimed water source through distribution or supply lines;

(d) Use of reclaimed water is environmentally, economically, and technically feasible; and

(e) Use of reclaimed water would not conflict with the requirements contained in the applicant's surface water discharge permit, if applicable.

(4)(a) In addition to the requirements of s. 373.229, all permit applications made under this part requesting an allocation of at least an average daily flow of 100,000 gallons of water per day by a large-scale data center must contain:

1. All sources and amounts of water and losses of water used for cooling, industrial and treatment processes, personal or sanitary needs of employees, and landscape irrigation; and

2. A water conservation plan that, at a minimum, incorporates recycling cooling water before discharge or disposal, implementation of a leak detection and repair program, use of water efficient fixtures, and implementation of an employee awareness and education program concerning water conservation.

(b) Notwithstanding s. 373.229(4), the governing board or the department may not approve a permit application made under this part by a large-scale data center without a hearing.

Section 6. Subsection (2) of section 373.239, Florida Statutes, is amended to read:

373.239 Modification and renewal of permit terms.—

(2) If the proposed modification involves water use of 100,000 gallons or more per day or is proposed by a large-scale data center as defined in s. 373.203, the application shall be treated under the provisions of s. 373.229 in the same manner as the initial permit application. Otherwise, the governing board or the department may at its discretion approve the proposed modification without a hearing, provided the permittee establishes that:

(a) A change in conditions has resulted in the water allowed under the permit becoming inadequate for the permittee's need, or

(b) The proposed modification would result in a more efficient utilization of water than is possible under the existing permit.

Section 7. The Office of Program Policy Analysis and Government Accountability (OPPAGA) shall contract for an independent, interdisciplinary study of policy considerations related to the construction and operation of large-scale data centers, including, but not limited to, state, regional, or local economic development and tax revenue impacts; use of land, water, and other natural resources; energy use and related cost and rate impacts; and public health and safety related impacts. OPPAGA may contract with one or more nonpartisan academic or nonprofit research organizations with policy and scientific expertise in relevant fields of study. The study must identify any issues unique to the construction and operation of large-scale data centers in this state. The study must also include recommendations on facility siting and mitigation measures that should be considered to reduce any potential negative impacts. OPPAGA shall submit the study to the Governor, the President of the Senate, and the Speaker of the House of Representatives by July 1, 2027.

Section 8. Except as otherwise expressly provided in this act and except for this section, which shall take effect upon becoming a law, this act shall take effect July 1, 2026.

Approved by the Governor May 7, 2026.

Filed in Office Secretary of State May 7, 2026.

Urban Land Institute

Local Guidelines for Data Center Development

By the ULI Americas Data Center Product Council

2001 L Street, NW | Suite 200 | Washington, DC 20036-4948

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About the Urban Land Institute

The Urban Land Institute is a global, member-driven organization comprising more than 48,000 real estate and urban development professionals dedicated to advancing the Institute's mission of shaping the future of the built environment for transformative impact in communities worldwide. ULI's interdisciplinary membership represents all aspects of the industry, including developers, property owners, investors, architects, urban planners, public officials, real estate brokers, appraisers, attorneys, engineers, financiers, and academics. Established in 1936, the Institute has a presence in the Americas, Europe, and Asia Pacific regions, with members in 84 countries.

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Important notice and disclaimer

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Urban Land Institute

ULI Americas Data Center Product Council

Contents

1 Introduction: data centers 101

This paper seeks to demystify data centers and their purpose while offering a balanced model zoning ordinance for data center development that authorities having jurisdiction (AHJs) can adapt straight from the page. It also aims to provide a roadmap to data center development for local officials, planners, and other municipal decision-makers.

Data centers are still a relatively new land use, and they are often misunderstood or miscategorized. To be ready when data centers are proposed in your jurisdiction or to attract them, first it is important to understand their purpose in our society and how they function, as well as to have strategies to mitigate common challenges.

Essential infrastructure

In the morning, most of us brush our teeth or take a shower. We may not know where the water comes from or where it goes. We may not know that it is treated at a plant and arrives at our homes, where wastewater departs, is received in a facility, and is released into surface water systems.

These days, we often check our email or social media first thing in the morning, even before we shower or brush our teeth. The internet—like water, sewer, and power systems—has become part of our essential everyday infrastructure.

Water and sewage systems are typically financed and delivered by local cities or counties. Power is funded and delivered by a mix of public and private entities. Data centers, however, which form the backbone of the internet, are financed, developed, and operated primarily by privately held businesses. Unlike what occurs with other critical infrastructure systems, the development of data centers requires navigating a complex landscape of private property laws, environmental impact assessments, and local zoning regulations. Local officials, in other words, play a key role in ensuring access to the internet economy.

Purpose and function

A **data center** is a building that houses the infrastructure that supports the world's computing functions. This building is filled with servers that process and store the data commonly referred to as "the cloud."

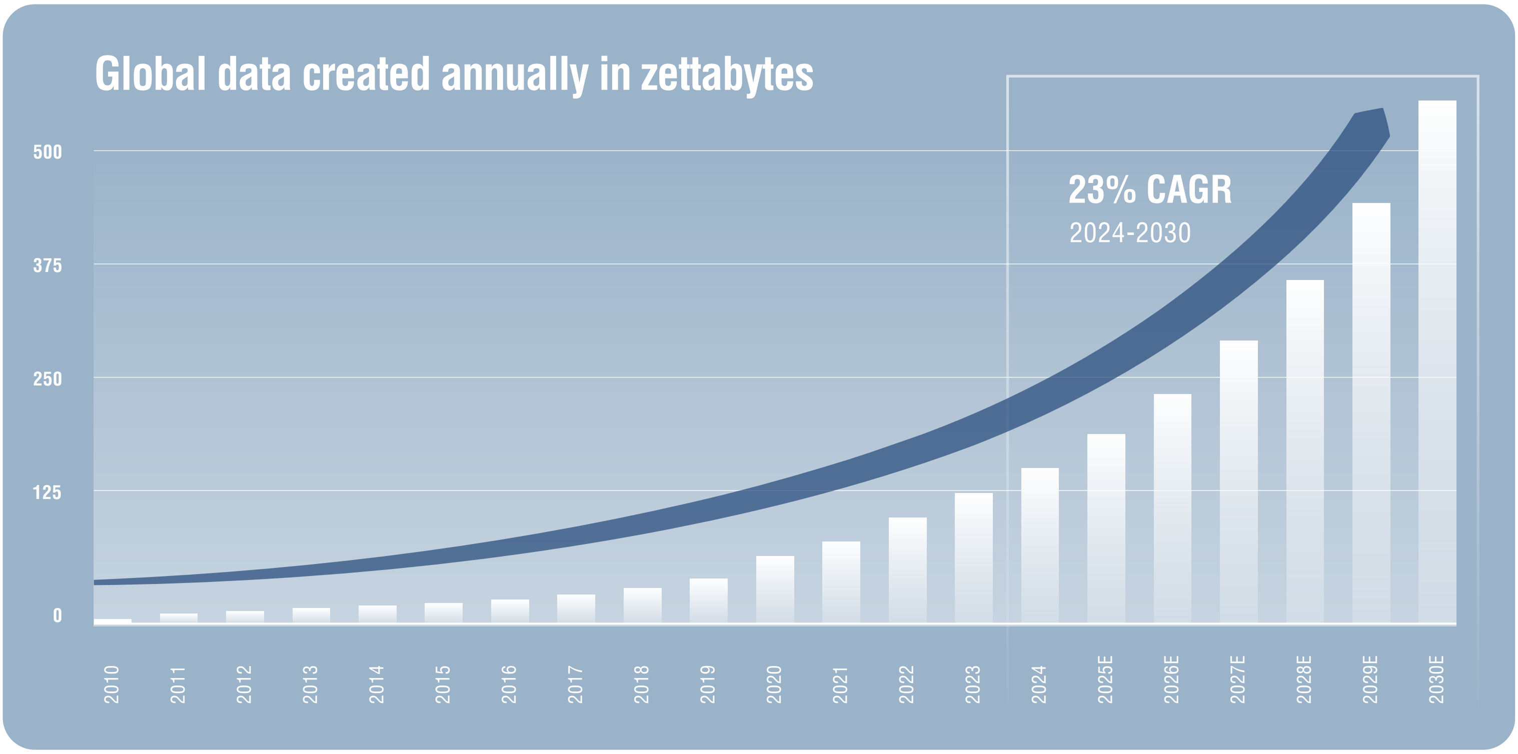
Processing and storage

Whenever you swipe your credit card, join a Zoom meeting, or send an email, your virtual activity connects to a real place in the physical world: a data center.

What gets processed in a data center? A better question: what does not? Data centers house our national security systems, including military communications. They enable online commerce, financial services, health care, and other essential services. Each app on your phone—even offline apps that sync—and every activity on the internet requires a data center.

When you use your smartphone, that tiny device does not process your requests. Instead, your phone asks questions that get answered in data centers—usually in a fraction of a second.[1]

Data centers' primary function is processing and accessing data, but they also store data, safeguarding sensitive information so it's inaccessible to hackers. When you save a file to the cloud, you are not storing it in the sky. A data center stores it, more efficiently and securely than a filing cabinet ever could.



Source: JLL Research, IDC

The demand for more data center capacity

Our economy and communities were able to continue functioning during the Covid-19 pandemic—when schools, workplaces, and social gatherings shifted to the internet—thanks in large part to the support provided by data centers. This change also moved us further into an economy that exists, largely, online.

The rise of remote work and advancements in artificial intelligence (AI) that require high-density computing increased the demand for processing and data storage, thus requiring more data center capacity. As a result, this property category has grown significantly.

If society and the economy continue the shift to the internet, we would seem to face a need for more data centers. Where these new data centers will be developed is a matter of great importance that requires several variables to come together. To discuss these variables, we first must discuss what a data center is.

Types of data centers

Corporate or **enterprise data centers**, which store and process a single organization's data, rose in prominence in the mid-1990s as the dot-com boom drove demand for fast internet connectivity and 24/7 operations. These data centers often store the data of financial institutions—think American Express or Wells Fargo—that typically own and operate such facilities themselves, rather than leasing them from a provider.

1 "One: You Use Data Centers," Where the Internet Lives, Google, podcast audio, https://podcasts.apple.com/us/podcast/one-you-use-data centers/id1541394865?i=1000501909698.

At **colocation data centers**, which include **retail data centers**, third-party operators lease data center space—a certain number of server cabinets, for example, or kilowatts (kW) to multiple companies.

Wholesale data centers are a type of colocation data center where a third-party developer rents large portions of the space and energy capacity to one company–often, all of it.

Telecom data centers, owned by telecommunications companies such as Verizon, are where traffic from cell towers "switches" to the internet. These facilities tend to be smaller than the other data center types and require less energy.

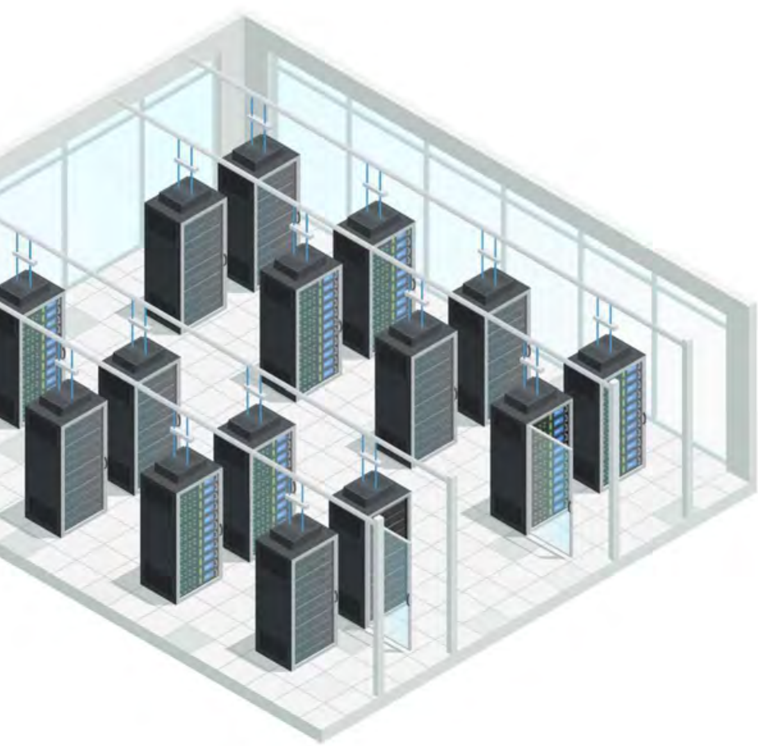
Hyperscale data centers are built for a single customer: one of the large tech companies that provide many of the services we use every day—Google (Google Cloud), Amazon (AWS), Microsoft, and Meta. These companies sometimes own their own centers, and sometimes they lease them from a third-party developer. These centers are built based on the data demands of the hyperscaler.

The name *hyperscaler* emphasizes the ability to scale resources up or down quickly and efficiently to meet demand. These companies have a massive number of users and generate vast amounts of data, which together demand substantial processing power and storage capacity, especially as user bases grow unpredictably.

Differences from industrial warehouses

Data centers differ from other forms of commercial real estate. They constitute a relatively new category and, until recently, they were concentrated in select geographic areas. As a result, the buildings housing our essential internet infrastructure are widely misunderstood.

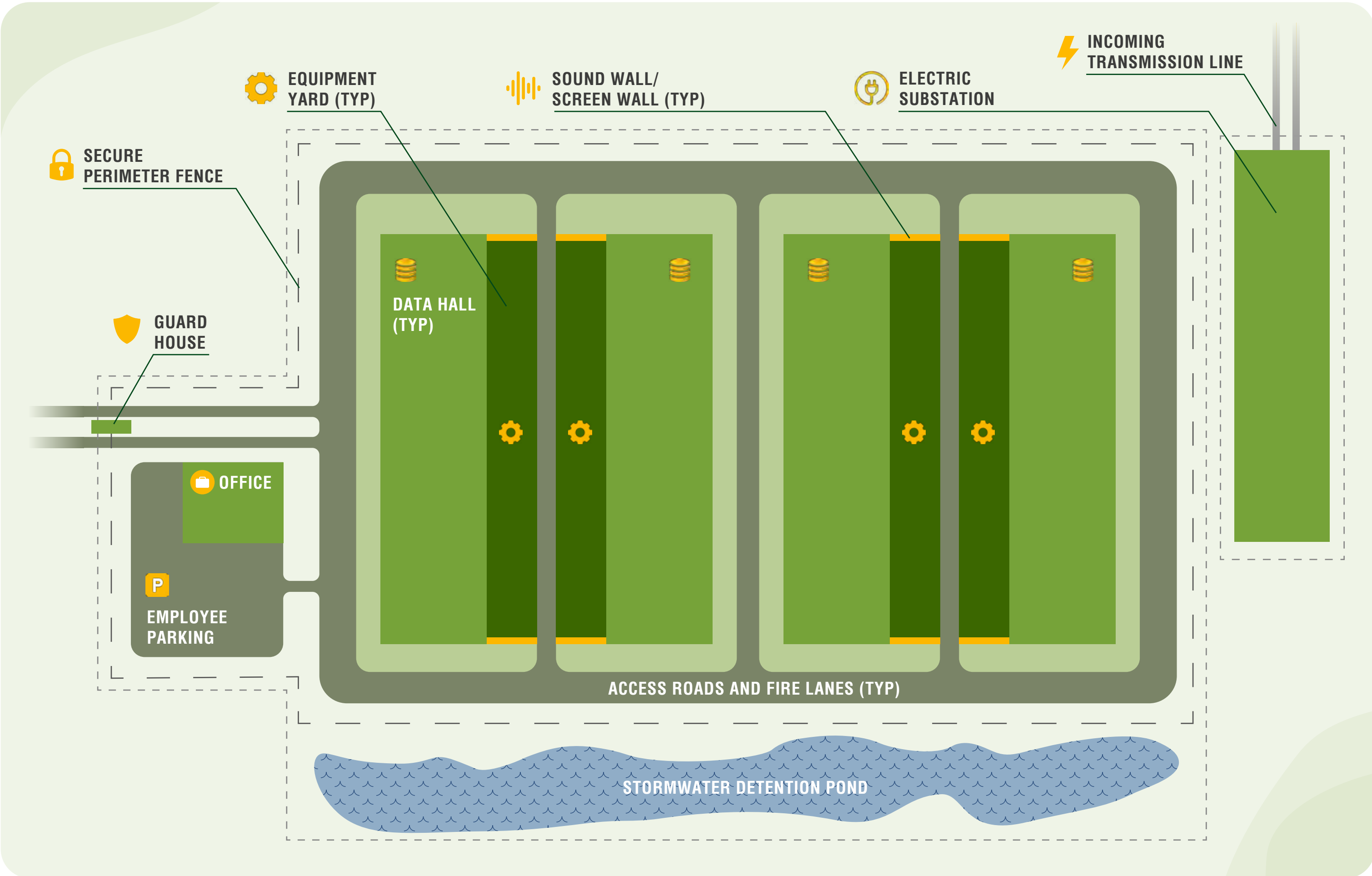
Typically, data centers are not explicitly mentioned in zoning codes. Instead, they fall under the umbrella of general industrial zoning uses. But because they store data, they are not typical warehouses. Their classification, as such, causes planning challenges, which we will detail further in a later section.



Here's how data centers differ from industrial warehouses or factories:

- Data centers are more compatible with other uses nearby because, unlike factories or warehouses, they are odorless and lack truck traffic.
- They are often taller than traditional single-story warehouses. Data centers can be single-story or multistory. Single-story data centers start at around 30 feet (9.1 meters) and multi-story data centers go up from there.
- They require fewer employees once construction is complete, so long-term impacts on traffic, schools, and public services are minimal.
- They need fewer parking spaces and plumbing fixture counts than are typically mandated by industrial codes.
- Data centers require more robust underground and above-ground infrastructure.
- Unlike warehouses and factories, data centers have external electrical and mechanical equipment.
- Some data centers need multiple layers of redundancy, which we'll discuss in a moment.
- Data centers require more security measures than industrial buildings, including 24/7/365 surveillance and controlled-access points.

Let’s tour a hyperscale data center campus



Most of the data centers developed today are hyperscale data centers—typically within campuses. We tour one below.

Approaching the campus

As you approach a hyperscale data center campus, you are likely to encounter a fence or gate—often with a gatehouse—beyond which you may be able to see equipment yards and cooling equipment in the distance.

Security

Data center campuses have extensive security measures and strict protocols for employees and visitors. Infrared surveillance cameras and tall, anti-climb security fences that detect movement surround the property. A guard at the gatehouse checks guests’ credentials outside. If you make it past this point—few people do—you will find another security checkpoint at the entrance to the data center building itself, where additional security personnel check badges.

Equipment yards

Before heading inside, let’s first follow the winding campus driveway and stop at the mechanical and electrical equipment yards.

Electrical yards

In the electrical yards, you’ll hear the low hum of static if you stand directly under the transmission lines. A nearby **utility substation transformer** receives this power and converts it down to the lower voltage needed for use inside. The medium-voltage power feeds into **switchgear** in the electrical yard—or another type of power distribution equipment that similarly dispenses electrical power throughout the data center.

Alongside the switchgear, you will see multiple generators that provide emergency power in case of an electrical utility outage. If they look like they aren’t running, it’s because they are usually turned off. Except during emergency outages, they are turned on only for monthly maintenance tests for a mere 30 minutes[2] and are quiet while running due to sound-attenuated enclosures.

2 GeneratorSource, “Data Center Generator Maintenance,” GeneratorSource, January 2024, https://www.generatorsource.com/blog/January-2024/Data-Center-Generator-Maintenance.aspx.

Redundancy

Like hospitals, data centers require a high level of redundancy to ensure they never go down, and the generators are part of this preparedness. Redundancy is often also created through multiple power feeds. The servers have backup capacity, too. For instance, your inbox is stored on several servers so that if one fails, your emails remain accessible.

Mechanical yards

The mechanical yards operate similarly but typically focus on cooling rather than on power redundancy. On the ground, you'll find chillers that cool the data center. At some data centers, they are on the roof.

Heat is a byproduct of computer processing. The servers within data centers must remain cool to function correctly. There are multiple ways of to achieve this cooling, but for the purposes of this paper, we focus on three main categories: air-cooled chillers, water-cooled chillers, and evaporative cooling.

A highly efficient **air-cooled chiller system** is sealed in a closed loop and uses little to no water—less than the amount used in three single-family homes.

Both water-cooled and evaporative systems use more water and consume less electricity than air-cooled chiller systems. In an open-loop **water-cooled chiller system**, cooling towers evaporate water for cooling purposes. **Evaporative cooling** is primarily achieved by large air-handling units that move air across a wet medium to evaporate water, which removes heat and cools the air in the data hall.

Data center structure

Let's now make our way through the security checkpoint and into the data center building itself. Inside, we find the **data hall**, where the servers sit in rows of tall racks along a series of aisles fed by **electrical distribution equipment**. Data halls are the *pièce de résistance* of any data center. Such a structure is typically designed from the data hall outward, with all supporting infrastructure responding directly to its needs.

If you examine the racks from the floor upward, you see bundles of colorful fiber optic cables (inside of which are thin strands of glass) connecting servers to switches and routers. These cables enable high-speed data transfer. Without them, we would be unable to access the web or many of the apps we use daily. The cables are organized in lanes that converge at massive **switches**.

Inside the data center building, you also find electrical rooms that house other critical power supply infrastructure. Battery-powered **uninterruptible power supply (UPS) systems** sit in large cabinets against the wall. In the event of a utility outage, these systems feed power to **power distribution units (PDUs)** inside the data hall. UPS systems are the first-used backup power source and often prevent use of the generators outside.

The importance of clustering

The internet is a network of interconnected networks, and so are data centers. **Clustering** refers to the practice of linking the servers at multiple data centers with high-speed, low-latency connections so they work together as a unified system. This interconnected group is called a cluster, and each server in the cluster is called a **node**.

Importantly, clustering requires physical proximity: locating multiple data centers close to one another geographically so that optical signals in fiber cables don't lose strength. That's why a huge portion of global internet traffic passes through major hubs such as northern Virginia's "Data Center Alley."

Clustering also requires interconnection—linking these data centers through high-speed, low-latency connections.

Reduced latency

One primary reason for data center clustering is to reduce **latency**, the time it takes for information to travel from its source to its destination. When data centers are geographically distant from each other, latency increases, which leads to slower application performance for end users, including the dreaded "spinning wheel of death." When data centers are located near each other, data can travel shorter distances, and this information exchange runs faster. Due to quicker response times, the user experience improves.

Improved reliability

Clustering enhances redundancy. If one data center server goes offline, others in the cluster can take over, ensuring continuous service availability. Without clusters, one server failure could cause an outage with international implications. In the appendix, we explore this concept further through a case study.

Load balancing

Clustered data centers allow for more efficient **load balancing**, the process of distributing network traffic across multiple servers at interconnected data centers. This practice prevents any single server or center from becoming overwhelmed.

Shared infrastructure

Data centers require conduits for power and, in some cases, water. When data centers cluster, they benefit from shared power and cooling infrastructure while also reducing the need for long-distance fiber optic connections.

2 What happens when data centers come to your region: opportunities, challenges, and mitigations

Data centers can provide significant economic benefits and other opportunities. Data center projects also introduce unique planning challenges, however. To be prepared, and to seize opportunities when appropriate, AHJs must understand these challenges and how to mitigate them.

Opportunities

Support essential national infrastructure

Data centers contribute to national infrastructure and economic growth. Also, they enable the digital economy by underpinning businesses of all sizes in virtually every industry.

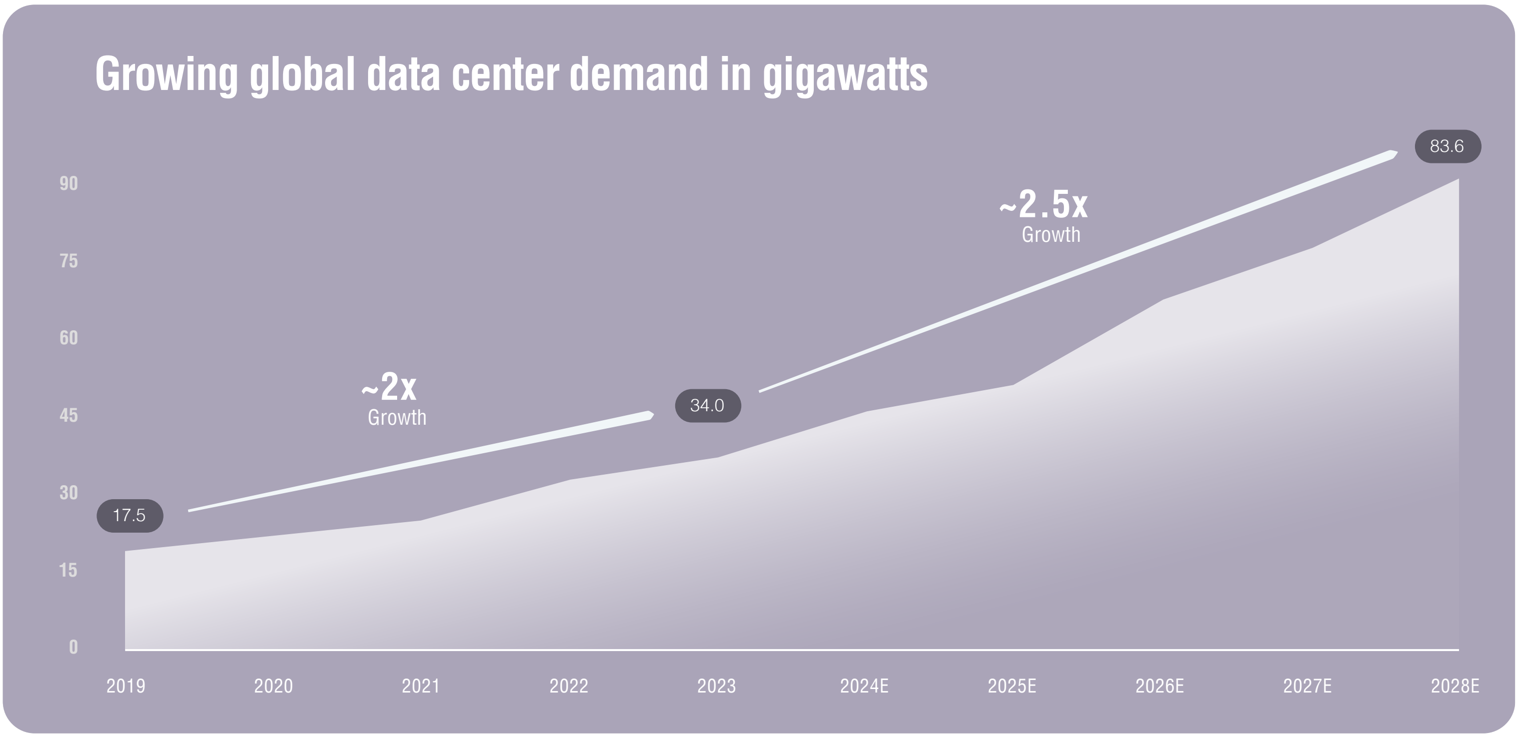
According to the United States Department of Energy[3], "At a national level, data centers are critical to supporting America's economic growth by powering businesses and enabling continued leadership in innovation, including for AI applications."

HERE'S HOW DATA CENTERS SUPPORT NATIONAL SECURITY AND ECONOMIC GROWTH:

- They protect the privacy of all of the data within U.S. borders against cyber threats by powering security measures such as encryption, firewalls, and access controls.
- They host critical infrastructure for our emergency services, providing the necessary computing power and data storage to support communication networks, emergency response coordination, and real-time data analysis during crises.
- Our health care system depends on data centers. They enable a range of services, from telehealth visits to managing digital health records, and they even assist in providing data-analysis-informed diagnoses for patients.
- Banks and the rest of our financial ecosystem rely on data centers for their daily operations.
- Data centers also support the development and deployment of emerging tech. Data centers are the backbone of AI infrastructure, which requires rapid data processing, storage, and analysis at scale.
- On a macroscale, maintaining advanced data center infrastructure allows the U.S. to compete with such countries as China in the race for AI dominance, thus fostering economic growth and strengthening national security through technological leadership.
- On a microscale, data centers also improve businesses' operational efficiency by democratizing access to supercomputer processing and secure cloud storage so that small businesses can compete more easily with larger corporations.

3 U.S. Department of Energy, "Clean Energy Resources to Meet Data Center Electricity Demand," https://www.energy.gov/policy/articles/clean-energy-resources-meet-data center-electricity-demand.

Increase much-needed processing and storage capacity



Source: CBRE, DC Bytes

Our needs for data center capacity have grown—and continue to grow at a fast clip as we create more data.

If we don't build data centers that support this increasing data density, it could hamper the economy, business operations, and our daily lives.

On a microlevel, a lack of data center capacity or redundancy makes files and apps load slowly. On a macrolevel, if we don't build enough data centers to meet our growing storage and processing needs, there will be outages with international consequences, like the October 2021 Meta outage. We include a case study on this incident and its profound impacts in the appendix.

Jobs

When data centers are in operation, they require fewer employees to operate than most other commercial properties, leaving minimal impacts on traffic in surrounding areas. A typical data center operates with fewer employees than other commercial or industrial facilities. Unlike industrial facilities, there is no fleet of trucks going in and out, which further minimizes traffic congestion.

More workers are present while the data center campus is under construction, though. Data center construction projects happen in phases, especially on larger campus developments, and these phases can extend over several years. This phased approach often leads to misunderstandings regarding the permanency of the increased traffic. Clear communication about the nature and duration of construction phases can help manage expectations and reduce misunderstandings.

This phasing approach has a plus side, however. Data centers create local construction jobs for tradespeople who otherwise travel from job to job—with less fossil fuel consumption thanks to reduced commuting. Jobs related to data center construction typically provide these workers, sometimes called journey-people, with more stability and longer timelines, offering a higher quality of life. This outcome, in turn, can prevent or alleviate labor shortages and reduce renovation and building expenses in the area, benefiting homeowners and businesses.

Although the operational workforce of data centers is relatively small, people employed in these roles are well-compensated, often earning six-figure salaries without the need for significant training or a college degree. During both the construction and operational phases, data center jobs boost to the local economy because workers spend at retail stores, nearby restaurants, hotels, and suppliers.

Data centers also indirectly create many jobs across the broader economy. According to PricewaterhouseCoopers International Limited[4] (PwC), each direct job in the U.S. data center industry

4 PwC, "Economic Impact Study of the US Data Center Industry," January 2021; "Data Centers and Ancillary Job Creation," TechIndustryReview, March 2022.

generates, on average, six ancillary jobs throughout the national economy. As a result, the total annual impact of the data center industry on national employment—combining direct, indirect, and induced effects from both construction and operations—grew from 2.9 million jobs in 2017 to 3.5 million jobs in 2021, representing a 20 percent increase.

Furthermore, the PwC study does not include jobs created by the cloud access and processing power that data centers enable. Data centers also facilitate zero-commute remote work across the country, further reducing fossil fuel consumption and contributing to a more sustainable economic model.

Tax revenue

Data centers provide municipalities with substantial economic and fiscal benefits through various forms of tax revenue (if unabated) that far exceed ones associated with other property types.

Hyperscale data centers are capital-intensive developments that can cost billions to construct—and are filled with high-value equipment and infrastructure. Taxes levied against them can be a windfall for AHJs.

A case in point: the data center tax base in Loudoun County, the central hub of North Virginia's Data Center Alley, increased from $15.996 billion in 2023 to $25.627 billion in 2024, constituting 58.5 percent of the municipality's total tax revenue.[5]

Data center owners pay two primary forms of property taxes. The first is real property tax, which applies to the land campuses are built on and the permanent structures that sit upon it, such as buildings. The second is personal property tax, which is levied on movable assets such as the servers and equipment inside data centers.

These revenues become significant boons to surrounding municipalities. In Loudoun, personal property tax revenue from computer equipment purchases for data centers surged by 170 percent in 2023, accounting for two and a half times the tax revenue.

The presence of data centers can also lower the overall tax burden for residents. In Loudoun, the general property tax rate is set at $0.87 per $100 of assessed value; it would be $1.33 (an additional 52 percent) but for the influx of data center developments, according to the county's executive director of economic development.[6] Revenue from data centers accounts for $0.47 of the tax rate, thereby alleviating the burden on other taxpayers.

Data center revenue can be channeled into net-zero programs and those related to health care, education, and other critical public services.

Data center revenue can be channeled into net zero programs and ones related to health care, education, and other critical public services. Revenue from data centers in Quincy, Washington, for example, has been used to fund local schools, public safety, and infrastructure improvements.[7]

By 2026, Loudoun County projects it will receive roughly $1.4 billion in tax revenue from the personal property tax it levies on computer equipment alone.[8] This amount constitutes nearly half of Loudoun County's entire fiscal 2021 budget of $3 billion.

Community incentive packages

Data center operators also provide significant benefits through incentive packages negotiated with municipalities that can include funding for schools or public infrastructure projects. In multiple cases, hyperscalers have funded renewable energy plants and created workforce development programs in areas where they operate.

As part of AWS' $10 billion data center campus investment in Mississippi, the company developed STEM-focused workforce training and career awareness programs for K-12 school systems and funded the state's first utility-scale wind farm.[9] You can learn more about the community benefits the hyperscaler provided in the appendix.

5 Emily Leayman, "Loudoun's Data Center Tax Base Jumps, Residential Increases Continue," Patch, February 8, 2024, https://patch.com/virginia/ashburn/loudouns-data-center-tax-base-jumps-residential-increases-continue.

6 Hanna Pampaloni, "Rizer: Land Value Increases Bring Benefits and Challenges," Loudoun Now, June 28, 2024, https://www.loudounnow.com/business/rizer-land-value-increases-bring-benefits-and-challenges/article_5b417aa8-3592-11ef-b587-f7ca7fd349c0.html.

7 Nick Parker, "Quincy Data Centers: The Data Center Conversation" (Presentation, Port of Quincy), https://wedaonline.org/wp-content/uploads/2020/10/Port-of-Quincy-Presentation.pdf.

8 "Loudoun Data Center Revenue Growth," Washington Business Journal, October 19, 2020, https://www.bizjournals.com/washington/news/2020/10/19/loudoun-data-center-revenue-growth.html.

9 Amazon Staff, "AWS plans to invest $10 billion in Mississippi, the largest capital investment in the state's history," About Amazon, January 25, 2024, https://www.aboutamazon.com/news/aws/aws-10-billion-investment-mississippi.

The region that includes Fredericksburg, Virginia—an emerging exurban hyperscale campus market located southeast of Loudoun County—is a case study in how AHJs can attract landslide economic and fiscal benefits while mitigating potential concerns well in advance.

In March 2024 Virginia's governor, Glenn Youngkin, alongside other state and local elected officials, announced that AWS was making a $35 billion dollar investment in data centers in Spotsylvania, Caroline, Stafford, and Louisa counties, creating approximately 2,000 new jobs. Also announced was AWS' contribution of $400,000 in community funds to those localities.

We explore how AHJs in the region did the work to prepare for and attract that investment in the appendix, which also covers similar measures in Elk Grove Village, Illinois, a unique suburban community northwest of downtown Chicago that modified its zoning code to attract data center development.

Challenges and mitigations

Sustainability

The sustainability of data centers is a significant concern for both AHJs, as well as for data center operators and developers, who ensure that their centers are designed and engineered to minimize emissions and other community impacts.

Grid impact

Let's address the misconception that data centers draw from the grid power that other customers, such as residential consumers and retail operators, could use. This concern is common among constituents when a data center is proposed in a municipality.

The grid is heavily regulated. Under existing federal regulations (and in Texas, the only state that regulates its own power grid), demand from a new customer cannot affect the reliability or availability of an existing customer.

Rather than taking power from the grid, new large-load customers such as data center operators face the challenge of finding readily available power that the utility can deliver—especially because many seek clean power sources.

According to the U.S. Department of Energy (DOE), as quoted in a recent article,[10] data centers can actually catalyze the grid's clean energy transition: "Near-term data center driven electricity demand growth is an opportunity to accelerate the build-out of clean energy solutions, improve demand flexibility, and modernize the grid while maintaining affordability."

Here's why: in many municipalities, energy providers are obligated to meet the power demands of various users. When a significant portion of demand comes from data center operators, many of which have strong commitments to using renewable energy, that activity accelerates the greening of the grid. These companies, driven by their climate goals, place considerable pressure on utility providers to adopt cleaner energy solutions.

"Near-term data center driven electricity demand growth is an opportunity to accelerate the build-out of clean energy solutions, improve demand flexibility, and modernize the grid while maintaining affordability."

U.S. Department of Energy

Unlike AHJs, which cannot create the demand to push forward such changes themselves, data center operators wield considerable influence by creating substantial demand for renewable energy.

This dynamic forces utilities to accelerate and help finance their transition to greener energy sources, thereby modernizing the grid to meet contemporary environmental standards. Public officials have a critical role to play in this scenario. By ensuring the existence of clear and easy-to-follow guidelines for data center development within their jurisdictions, AHJs can become integral to the solution, thus fostering a cleaner energy infrastructure.

Conversely, discouraging data center development could inadvertently push these operations into regions with less stringent grid standards and undermine broader sustainability efforts. Thus, the collaboration between data center operators and local governments is pivotal in driving the clean energy transition and ensuring grid modernization.

10 U.S. Department of Energy, "Clean Energy Resources."

Grid sustainability

Data center companies—third-party developers, operators, and hyperscalers among them—typically have far stricter carbon reduction commitments than do municipalities themselves.

- The top five hyperscalers have a combined renewable energy portfolio totaling more than 45 gigawatts (GW) worldwide, the equivalent of roughly 118,215 Tesla Model 3 motors[11] running on full power—and that figure doesn't include on-site generation.[12] Roughly 57 percent of global corporate wind and solar capacity tracked by S&P Global Commodity Insights is tied to these five companies alone.
- Amazon first committed to powering all of its operations, including AWS data centers, with 100 percent renewable energy by 2025. As of 2023, Amazon reported achieving this goal early, with 100 percent of its electricity consumption matched with renewable energy sources. The company also set a goal to reach net-zero emissions by 2040.[13]
- Microsoft committed to designing and operating data centers that are carbon negative, water positive, and zero waste before 2030, procuring 100 percent renewable energy on a global scale by 2025, and significantly expanding and decarbonizing local electricity grids.[14]
- Apple has committed to becoming carbon-neutral across its entire supply chain and product life cycle by 2030. This effort includes using nearly 10 GW of existing renewable energy and investing in new renewable generation.[15]
- Google, meanwhile, announced its goal in September 2020 to operate carbon-free, on clean local electricity, 24 hours a day, 7 days a week, 365 days a year by 2030. From 2010 to 2023, the company signed more than 115 agreements totaling in excess of 14 GW of clean energy generation capacity.[16]
- Meta committed to net zero emissions for its supply chain and to becoming water positive by 2030. The company plans to power all of its data centers with renewable energy by 2025.[17]

The methods through which hyperscalers and data center developers are working toward these goals include:

On-site generation: Some data centers have solar panels or other renewable energy sources installed directly on their premises. Wind and solar require a lot of land, however, and on-site land is usually scarce. As such, these projects typically provide only a small portion of data centers' total energy needs.

Power purchase agreements (PPAs): In a PPA, data center companies (the buyers) sign long-term contracts with renewable energy providers (the sellers) to purchase electricity from specific wind or solar farms. PPAs often support the development of new renewable energy, thus contributing to overall grid decarbonization and improving the grid mix for local residents and businesses.

Renewable energy certificates (RECs): Companies purchase RECs to offset their energy consumption, which supports the economics of clean energy development. RECs are not necessarily tied to the specific municipalities where data centers are located, though.

Investment in renewable projects: Hyperscalers often invest directly in the development of new renewable energy projects.

Diesel generators

The role of diesel generators at data centers is often misunderstood. As we discussed elsewhere, these generators are present only as a backup power source.

Also worth noting is that diesel generators are subject to a comprehensive regulatory framework. The Environmental Protection Agency (EPA) sets federal standards implemented and enforced at the state level for generators, and states may

11 U.S. Department of Energy, "How Much Power is 1 Gigawatt?" Office of Energy Efficiency & Renewable Energy, https://www.energy.gov/eere/articles/how-much-power-1-gigawatt.

12 S&P Global Market Intelligence, "Datacenter Companies Continue Renewable Buying Spree, Surpassing 40 GW in US," S&P Global, https://www.spglobal.com/market-intelligence/en/news-insights/research/datacenter-companies-continue-renewable-buying-spree-surpassing-40-gw-in-us.

13 Amazon, "Climate Solutions," Amazon Sustainability, https://sustainability.aboutamazon.com/climate-solutions.

14 Microsoft, "Microsoft's Datacenter Community Pledge: To Build and Operate Digital Infrastructure That Addresses Societal Challenges and Creates Benefits for Communities," Microsoft Blog, accessed September 15, 2024, https://blogs.microsoft.com/blog/2024/06/02/microsofts-datacenter-community-pledge-to-build-and-operate-digital-infrastructure-that-addresses-societal-challenges-and-creates-benefits-for-communities/.

15 Apple Inc., "Apple's Climate Roadmap," Apple Newsroom, https://www.apple.com/newsroom/2021/07/apples-climate-roadmap/.

16 Google, "Build a Carbon-Free Future for Everyone," Google Sustainability, accessed September 15, 2024, https://sustainability.google/projects/carbon-free-24x7/.

17 Meta, "The Next Stage of our Climate Commitment: Net-Zero Supply Chain Emissions by 2030," Facebook Newsroom, https://about.fb.com/news/2021/10/the-next-stage-of-our-climate-commitment-net-zero-supply-chain-emissions-by-2030/.

have additional requirements.[18] Once permitted, each diesel generator's operation is bound by strict regulations. Operators typically may run generators for only a limited number of hours per year for routine maintenance and inspection purposes.

Although it varies by facility, generators at data centers are typically used far less than these rules dictate. Generators' brief monthly operation to ensure proper functioning is comparable to running a pump system that's been inactive for an extended period—regular checks prevent potential issues that accompany prolonged inactivity, such as seized components or degraded lubricants.

Greener alternatives to diesel are in various stages of development, but none has been proved at scale yet.

Water sustainability

Cooling accounts for almost 40 percent of the total energy consumed by data centers, McKinsey and Company estimates.[19] Several factors determine the type of cooling that is most sustainable yet still suitable for the job.

Air cooling can be more efficient at lower load percentages and smaller equipment capacities. It can also be sustainable at any scale when the data center is located in an area with a high percentage of renewable sources in the energy grid, including ones generated on site.

When cooling processes require water, nonpotable water sources can be used so as not to reduce the local drinking water supply. Nonpotable water is treated—either at a local plant or, in some cases, on site–to remove contaminants, solids, and impurities. Then recycled water is then distributed in plum-colored pipes, which accounts for the nickname the **purple pipe system**. To pursue it, companies often consider access to recycled wastewater an important factor in the early stages of site selection.

Hyperscalers have even helped AHJs finance such projects, though that's not always viable, which makes proximity to existing treatment facilities a key consideration. In 2012, Google funded the construction of the Sweetwater Creek Sidestream Plant in Douglas County, Georgia, which we explore further in the appendix.

Electrical utility transmission and distribution

When developers vet a site for a data center, they consider whether there are adequate transmission lines. At the local level, there can be pushback against the building of new transmission lines, inside and outside a data center context. Local pushback against transmission lines increased by 57 percent from 2022 to 2023, according to Columbia Law School research.[20]

This challenge exists not just for data centers but also for the clean energy transition. One truism says that the transition can't happen without transmission. Here's why: as more sectors such as transportation go electric, overall power demand is likely to increase, requiring greater transmission capacity. Grids in the U.S. are not connected, which is a problem because such clean energy sources as solar and wind are often located far from urban centers, where electricity is most needed. Connecting grids across the country requires a plethora of new transmission lines.

"By the 2030s, we need to build so many new lines that they would reach to the moon if they were strung together," says Bill Gates, cofounder of Microsoft, in a video on his YouTube channel. "And by 2050, we'll need to more than double the size of the grid, while replacing most of the existing wires."

Most transmission lines, built between the 1950s and the 1970s, are now outdated.[21]

How did we get here? For a long time, electricity generation was centralized, and there was no need for a connected grid. Large coal-powered plants and nuclear power plants produced massive amounts of electricity in specific locations. This electricity was then distributed widely to homes, businesses, and industries throughout a large area. Power flowed primarily in one direction: from centralized plants to distributed end users.

As we transition to clean grid sources, however, we need a less centralized, more distributed system. Unlike fossil fuel plants, renewable energy sources are often geographically dispersed, variable in output, and located far from major consumption centers. They require a shift to an interconnected grid with diverse, distributed sources, one that's more resilient to outages and increasingly frequent extreme weather events caused by climate change. This shift requires more cross-regional transmission or inter-regional transmission. It requires . . . transmission lines.

18 U.S. Environmental Protection Agency, "Regulations for Emissions from Heavy Equipment with Compression-Ignition Engines," https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-heavy-equipment-compression.

19 Srini Bangalore et al., "Investing in the Rising Data Center Economy," McKinsey & Company, January 17, 2023, https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/investing-in-the-rising-data center-economy.

20 "Opposition to Renewable Energy Facilities in the United States," Sabin Center for Climate Change Law, Columbia Law School, May 2023, https://scholarship.law.columbia.edu/sabin_climate_change/200/.

21 Bill Gates, "The Surprising Key to a Clean Energy Future," Gates Notes, January 24, 2023, https://www.gatesnotes.com/Transmission.

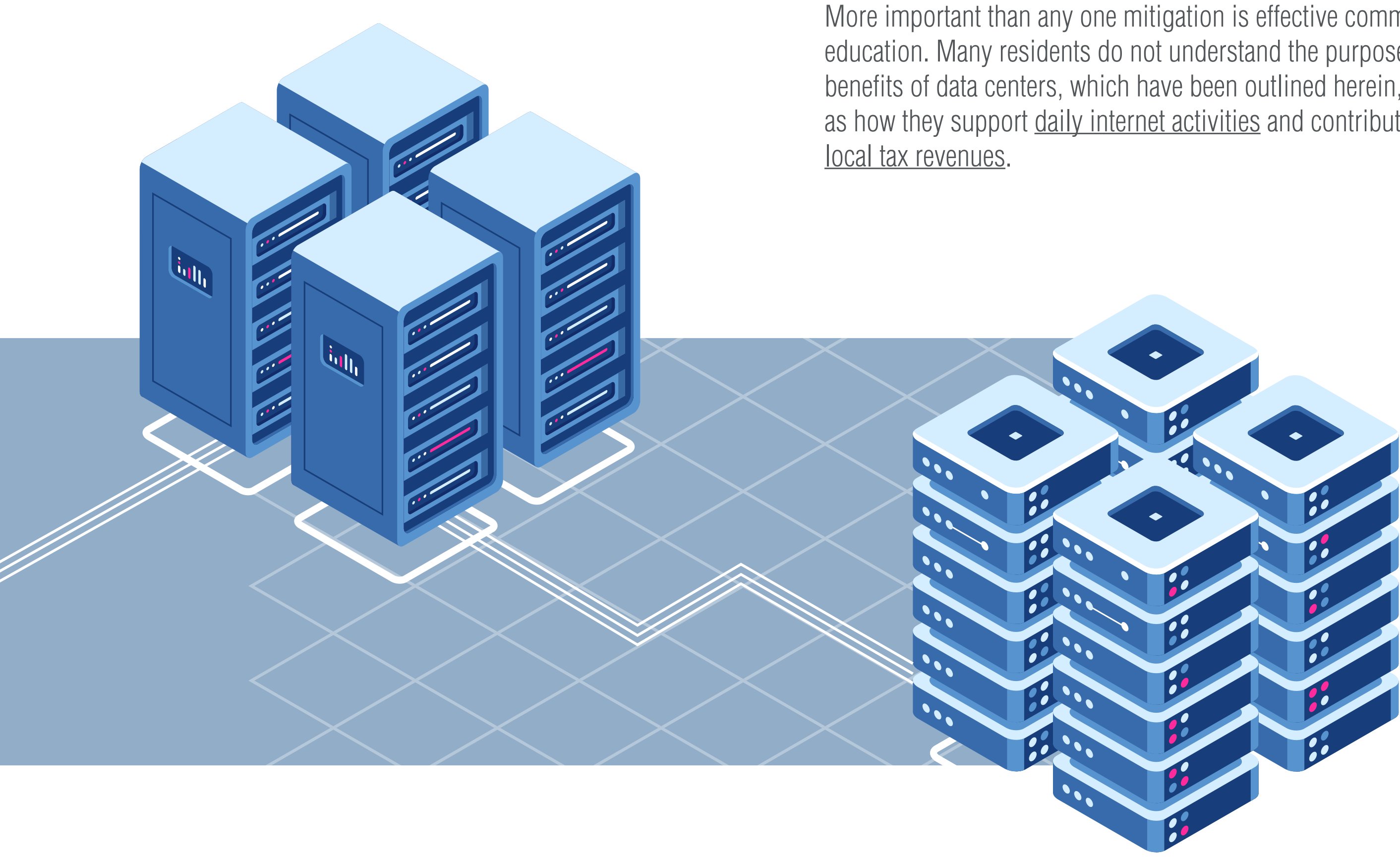
Often, constituents don't understand that transmission lines are an essential part of our sustainable future, even without data center demand. Properly communicating this message to a community isn't easy, but it's essential. Siting data centers near transmission infrastructure is most efficient, as doing so allows for use of the existing infrastructure and the associated rights of way for new infrastructure, if needed.

Sound

Another common community concern is sound. Most mitigations related to it are already baked into the development process. Data center designers, architects, and engineers tend to design data center campuses to mitigate impacts from sound upon nearby neighbors, including strategic placement of generators away from other uses. Developers typically employ on-site acoustic monitors as part of regulatory entitlements to ensure sound levels remain within acceptable limits.

Let's discuss where sounds occur at data center campuses. Remember the low hum in the equipment yards? It comes from cooling equipment. Screens and sound attenuators make it barely audible.

Generators make mechanical sounds, albeit only when they are turned on for testing or emergencies. Sound impacts can also be easily mitigated by housing generators in sound-attenuated enclosures with proper exhaust systems.



Aesthetics

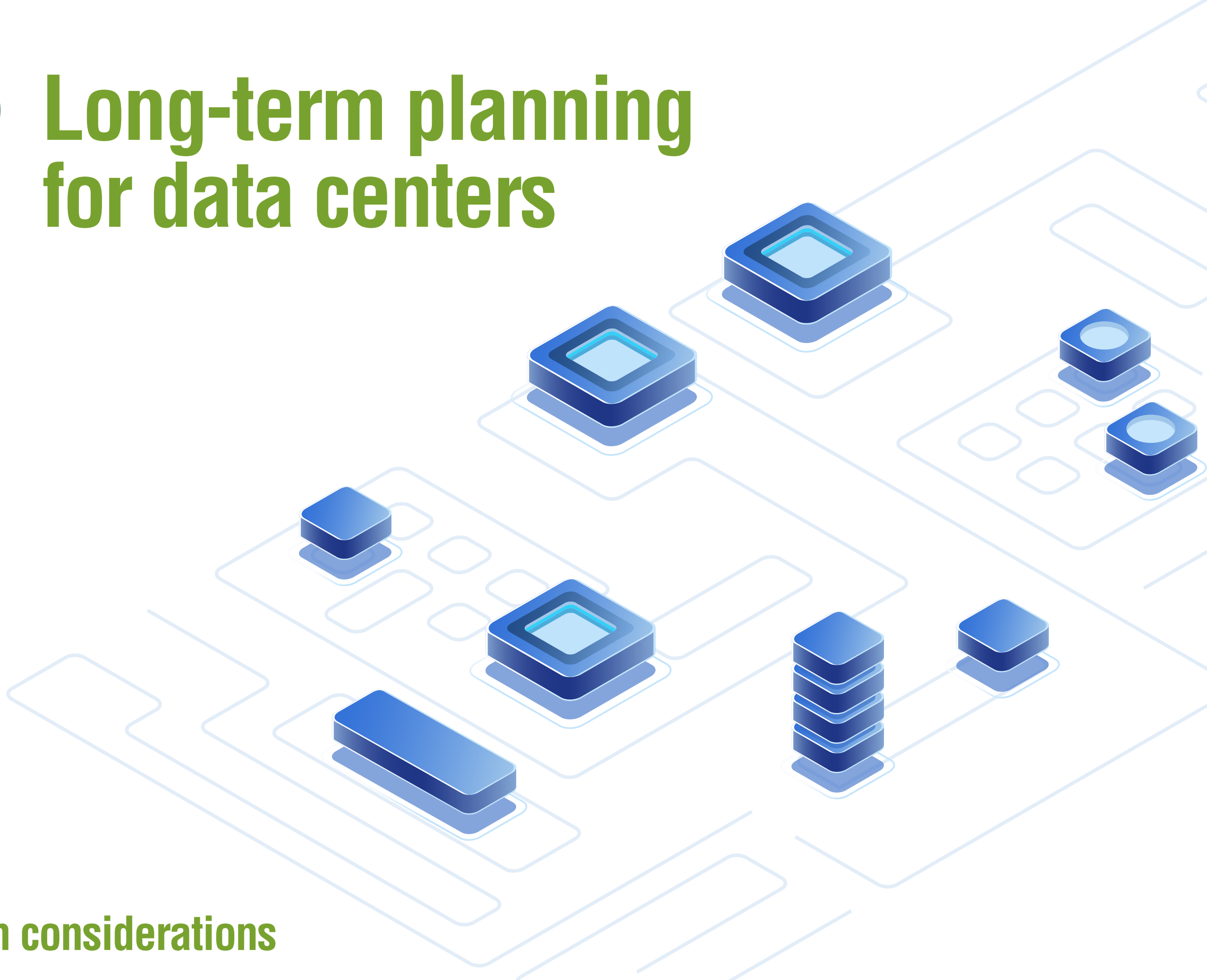
Community members often raise concerns about whether data center campuses will look as if they fit into the community. This issue can be mitigated by:

- Creating buffer zones near residential and retail areas
- Employing glass façades in key areas to make data centers more closely resemble office buildings than industrial complexes
- Applying other exterior design techniques that use materials and colors to blend buildings into their surroundings, if required and appropriate to the context

Although these mitigations are effective, it's important not to codify excessively specific or restrictive design standards into zoning codes, as doing so can discourage data center development. Exceedingly stringent height restrictions, for example, could hinder the functional design of these facilities. Balancing aesthetic considerations with operational needs of data centers is key.

More important than any one mitigation is effective community education. Many residents do not understand the purpose and benefits of data centers, which have been outlined herein, such as how they support daily internet activities and contribute to local tax revenues.

3 Long-term planning for data centers



Location considerations

Because of their unique operational and physical requirements, several crucial factors must be considered when deciding what sites suit data centers:

Power

Data centers are power-intensive. Reliable and robust access to power is non-negotiable, making proximity to high-capacity substations essential.

Roads

Whereas operational traffic is minimal, the initial construction phase generates more traffic. Thus, easy access to highways and major roads is vital for logistics and transportation.

Land

Hyperscale campuses require ample land area to accommodate both the facility and its accompanying infrastructure.

Discharge infrastructure

If there is runoff from water-based cooling, a site will need adequate infrastructure for wastewater discharge, such as a connection to a municipal sewer system, an on-site water treatment facility, or proper drainage.

Wet utilities

Some data centers require access to municipal water supply greater than what typical industrial developments need. The climate goals of most hyperscalers and developers are driving demand for recycled, rather than potable, water.

Frequent missteps

Common pitfalls in planning for data centers include:

Height restrictions:

Failing to allow sufficient building height can impede the efficient design of cooling systems, which rely heavily on vertical space for optimal airflow. The minimum height for a single-story data center could be as much as 30 feet (9.1 m). In denser jurisdictions with higher land basis, multistory data centers are common and typically require at least 66 feet (20.1 m) of height, in addition to considerations for rooftop equipment. Minimum heights are generally measured ground level to the roof line. Ancillary height structures, such as parapets, equipment platforms, screens, and stairwells can add another 15–20 feet (4.6–6.1 m) of height in some cases.

Zoning challenges:

The lack of a uniform land-use category for data centers presents challenges for localities in siting these facilities appropriately. Data centers typically fall between office and industrial/warehouse uses, which often makes the applicant request variances that appear to be special considerations rather than basic requirements. This outset can lead to high-stakes decision-making by exception that undermines the existing zoning codes.

Building code challenges:

Typical building code requirements around occupancy and plumbing fixtures may need to be modified for data center uses.

Parking and plumbing standards:

Regulations developed for office or warehouse uses often impose excessive parking and plumbing fixture counts on data centers, which necessitate variances and complicate the planning process.

Substation zoning:

Substations often fall under different categories than does the data center itself, creating further zoning inconsistencies and the need for additional, sometimes separate, approvals for one campus.

Construction confusion:

Data center campuses are often built over time, as we discussed above, which can cause planning confusion. The sightlines of a campus may change over time, so it's important to consider both the full campus and each individual building in the planning process.

Fire Department considerations:

Fire departments that are not yet experienced with data centers might not know that the on-site batteries and generators are for backup purposes only, so education is essential. Yet even though those backups aren't frequently used, data centers are built with robust fire detection and suppression systems. Modern batteries for UPS applications include multiple safety features, including battery management systems that monitor voltage, temperature, and current. Fuel tanks for backup generators are typically stored in separate, fire-rated enclosures, and secondary containment systems are used to prevent fuel spills and leaks.

Clear rules benefit all parties

Clear rules in zoning codes and land use plans, as well as in the entitlement and permitting processes, benefit all stakeholders involved in data center development, including the surrounding community.

Clarity simplifies the planning process, reduces the amount of planning that is done by exception, and lets communities gain maximum financial benefits from data center developments.

In the next few sections, we discuss planning options for AHJs seeking to be prepared to regulate thoughtful data center development, to attract it, or both. We also provide a model zoning ordinance that municipalities can adopt, designed to address common concerns while avoiding excessively restrictive measures that could hinder data center development.

4 Regulating data centers

Planning-related options

AHJs that want to bring data centers to their region can start by identifying strategic locations. Municipalities should perform comprehensive analyses to determine suitable areas, based on power availability, infrastructure, and environmental impact.

Ideally, more than one area should be designated for potential development—as with the process for industrial parks—to provide flexibility and attract varied investments.

Option 1: Create an overlay district

One option for guiding the development of data centers is to incorporate an overlay district. An overlay district is mapped to certain areas of the jurisdiction's zoning map without necessarily changing the underlying zoning district and what is allowed therein.

A historic overlay district is a common application of this tool. It typically provides for certain additional standards—an expansion of the uses that might be permitted in that district, a limitation of them, or some mix of the two.

A data center overlay district can allow for the development of data centers and prescribe that such development meet certain standards or requirements. An overlay district clearly indicates where and under what circumstances data centers are permitted and provides additional direction to any data center developer seeking to develop in that jurisdiction.

Option 2: Create a planned innovation, research, and technology (PIRT) district

PIRTs—and their regional equivalents, which include innovation zones, technology corridors, and research and technology parks—offer municipalities a flexible approach to land use that goes beyond traditional industrial or commercial zoning.

This designation allows for a mix of uses and can adapt to the specific requirements of data centers without necessitating a rezoning. Data centers in a PIRT district can integrate seamlessly with adjacent research facilities or tech hubs, fostering synergistic growth and innovation. Examples of successful PIRT districts include Palo Alto's Stanford Research Park.[22]

When data centers are sited clearly as being a by-right use, data center developers are more likely to consider the location for investment because they have the required certainty that the land they acquire won't struggle or be delayed in the approvals process. In the appendix, we explore how Elk Grove Village did so successfully.

Option 3: Note preferred data center locations in the comprehensive plan and invite owner- or hyperscaler-initiated rezoning applications

AHJs can identify preferred locations for data center development in their comprehensive plans and invite rezoning applications in those areas.

Municipalities and data center companies can agree on development conditions—sometimes called proffers, development agreements, or conditional zoning—which are voluntary commitments made by developers in return for allowed zoning. They outline specific conditions or promises agreed upon to mitigate the impact of proposed developments or to otherwise benefit the municipality's residents.

Development conditions may include infrastructure improvements, restrictions on use, environmental protections, community benefits, and other strictures. They are flexible enough to apply to various zoning categories, including PIRTs.

Option 4: Implement a specific data center zoning district defined by ordinance

Creating a data center-specific zoning district is a solution that's more detailed and restrictive than the previous three. We recommend it as a best practice in many jurisdictions because it establishes clear guidance on where data centers are permitted by right and eliminates the possibility that high-stakes decisions are made by exception. The ordinance should define data centers and outline general standards for building them, such as building size thresholds, height limits, and floor area ratio (FAR) requirements.

The zoning ordinance should include specific use standards for data centers, such as parking, setbacks, buffering, plumbing fixture counts, equipment screening requirements, and operational sound limits. The next chapter consists of a model ordinance that AHJs can adopt.

22 "About Stanford Research Park," Stanford Research Park, https://stanfordresearchpark.com/about/.

5 Model zoning ordinance guidelines

AHJs that want balanced and transparent zoning standards that mitigate unwanted impacts while encouraging the many potential benefits of data center development can take this zoning ordinance off the page and adapt it.

No two jurisdictions are the same. Each needs to layer in its own considerations.

Our intention, however, is to offer a strong foundation upon which AHJs can build zoning districts for data centers defined by ordinance. Note that the language provided below is to be included in the zoning ordinance and there may be other provisions that govern development, such as in the building code as it pertains to plumbing fixtures, that may need to be adjusted.

For example:

- Rural counties can consider additional guidelines and requirements when a data center is adjacent to certain agricultural uses or other sensitive uses.
- Urban municipalities can consider additional guidelines and requirements when a data center is adjacent to transit hubs or to prioritize pedestrian activity.

Zoning categories

Broadly, zoning districts in which data centers have specific considerations fall into four categories:

Residential: Because data centers are ultimately an industrial use, we believe that data centers are not appropriate in residential districts.

Industrial: Given the nature of data centers, they should be permitted in all industrial categories, from light industrial to heavier industrial. In such areas, data centers should be permitted as any other industrial use would be allowed, including following the same height, setback and landscaping requirements.

Rural/agricultural: In rural areas, data centers should be permitted to the extent that industrial uses would be permitted in such areas, provided that the same conditions are applied that would be applied to permissible industrial uses on such land. If another industrial use would require a certain setback, landscaping treatment or other mitigation on rural or agricultural land, our recommendation is that the same conditions be applied for a data center on such land.

Commercial: Data centers in commercial areas can be appropriate, provided they comply with certain use standards as set forth below. For the purpose of this section, commercial districts are defined as ones that permit a diversity of nonresidential uses, such as office and retail.

Use standards for commercial areas

Data centers shall be permitted by right in commercial districts if the following criteria are met:

1. To provide screening and reduce noise levels, all equipment for cooling, ventilation, or otherwise operating the facility—including generators or other power supply equipment—must be fully enclosed, except when determined by the [zoning administrator] not to be mechanically feasible. If the zoning administrator determines that full enclosure is not mechanically feasible, all equipment for cooling, ventilation, or power generation must be screened by a wall or similar barrier. In addition, any accessory electrical substation must be screened from adjacent nonindustrial properties or public streets by a wall or similar barrier. This standard does not apply to solar panels.
2. A data center building must include a main entrance feature that is differentiated from the remainder of the building façade by a change in building material, pattern, texture, color, or accent material. The entrance feature must also either project or recess from the adjoining building plane.
3. The primary façades of data centers must include either:
    a. A change in the primary facade surface for every approximately 150 horizontal feet of at least one of the following: building material, pattern, texture, color, or accent material; or

b. A minimum of thirty percent (30%) of the primary facade shall be comprised of windows, doors, or similar fenestration design features such as faux windows that are generally distributed horizontally and vertically across the façade.

c. These standards do not apply to accessory uses.

d. For the purposes of this requirement, a primary facade shall be deemed to be a facade that fronts on a public street.

4. Buildings may be constructed up to one hundred (100) feet (30.5 meters) in height or taller with special exception approval and subject to FAA limitations.

5. FAR shall not exceed [1.5 times the maximum FAR of the commercial district] without approval of a special exception. With approval of a special exception, the FAR may be increased to [2.5 times the maximum FAR of the commercial district].

Use standards for industrial areas adjacent to residential

Although data centers are appropriate in all industrial zoning categories, special attention may be afforded when industrial land is adjacent to residential. In such cases, the following language could be included in the locality's zoning ordinance:

1. Where industrial is adjacent to residential or any other sound-sensitive use, any data center building or ancillary equipment should (1) be located at least 200 feet (61 m) from the residential or noise-sensitive use or (2) meet the other standards set out for data centers in the commercial districts set out in section 1.

   a. A lesser distance that does not conform to the standards in paragraph 1, above, may be allowed with special exception approval.

Parking requirements for all data centers

As referenced elsewhere in this document, the parking requirements for data centers are far less than would be required for another industrial or commercial use of a similar size. Overbuilding parking for a given data center site or campus can be unnecessarily costly but more importantly creates excess impervious surface and avoidable environmental consequences. Accordingly, we recommend that the parking requirements for data centers be established either by:

1. Applying the parking requirements for office that exist in the ordinance, but only to the portion of the data center building that is actually utilized for office space; or

2. Requesting a staffing plan from the data center developer and allowing such data to inform the minimum number of needed parking spaces.

6 Appendix, contacts, and additional resources

Appendix: case studies

Google's Gmail and the need for redundancy

According to Google's podcast *Where the Internet Lives*,[23] Gmail launched in 2004 while offering a staggering 1 gigabyte of storage—more than 250 times the capacity of other email services at the time.

Gmail revolutionized user expectations and increased the need for data center capacity. It made every individual's account data exist on multiple interconnected servers at Google's hyperscale data centers, ensuring that users always have access to their personal information, even in the event of individual server failures, and allowing users to search and organize emails in a new way.

The Meta outage and the quest for data center capacity

The October 2021 Meta outage affected Facebook, Instagram, WhatsApp, Messenger, Oculus, and other services, making them inaccessible to billions of users for six to seven hours. This disruption, caused by an ill-timed and erroneous maintenance command, led to a cascade of failures that severed Meta's data centers from the internet. The primary cause was a lack of redundancy in the backbone network, which left no failover capacity for critical services.[24]

The economic impact was significant, with individuals and businesses that relied on these services facing major interruptions—amplified by the fact that many users sign in to other apps and services through their Facebook logins. As Mike Isaac and Sheera Frenkel wrote, in the New York Times, this mix of factors led "to unexpected domino effects such as people not being able to log into shopping websites or sign into their smart TVs, thermostats, and other Internet-connected devices."[25] Meta's stock value dropped by billions of dollars during and after the outage.[26]

Google's financing of a water treatment plant

In 2012, Google funded the Sweetwater Creek Sidestream Plant in Douglas County, Georgia. This move made its nearby data center the first in the state to use recycled water for cooling. Google partnered with the Douglasville-Douglas County Water and Sewer Authority on an initiative to conserve the Chattahoochee River's potable water supply, especially during droughts and summertime.

AWS' community incentives package in Mississippi

As part of AWS' $10 billion data center campus investment in Mississippi—the single largest capital investment in that state's history—the company funded Mississippi's first utility-scale wind farm, located in Tunica County, and developed STEM-focused workforce training and career awareness programs for K-12 school systems.

The hyperscaler committed to supporting local educational institutions—community colleges, technical schools, universities, and workforce development organizations—by developing training programs for high-demand career pathways in data center construction and operations, as well as the broadband expansion sector. AWS also provided a free cloud computing curriculum to local institutions and learners.

Fredericksburg, VA's windfall

Located southeast of Loudoun County, Fredericksburg, Virginia, is an emerging exurban hyperscale campus market. Alongside its regional partners, it represents a case study in attracting data center development—and landmark economic and fiscal benefits–while also mitigating potential concerns well in advance.

In March 2024, Virginia's governor, Glenn Youngkin, alongside other state and local elected officials, announced that AWS was making a $35 billion investment in data centers in Spotsylvania, Caroline, Stafford, and Louisa counties, thereby creating approximately 2,000 new jobs. It was also announced

23 Fischer Barry, "Two: Inside the Walls," Where the Internet Lives, December 9, 2020, podcast, 40:54, https://www.google.com/about/datacenters/podcast/.

24 Kerry Sheridan, "Facebook Outage: Social Media Giant Blames Network Problem for Global Disruption," BBC News, October 4, 2021, https://www.bbc.com/news/technology-58793174.

25 Mike Isaac and Sheera Frenkel, "Gone in Minutes, Out for Hours: Outage Shakes Facebook," New York Times, October 4, 2021, https://www.nytimes.com/2021/10/04/technology/facebook-down.html.

26 Greg Roumeliotis, "Facebook Services, Including Instagram and WhatsApp, Suffer Worldwide Outage," Reuters, October 5, 2021, https://www.reuters.com/technology/facebook-instagram-whatsapp-suffer-outage-2021-10-04/.

that AWS would be contributing $400,000 in community funds within those four localities, which, together with bordering Fredericksburg, constitute an economic region: the Fredericksburg Area Association of Realtors service area.

What Youngkin called the largest single economic development investment in the history of the state didn't happen by accident. The Fredericksburg Regional Alliance (FRA) at the University of Mary Washington and other regional groups had together been paving the way for data center development since 2016, when they also focused on ensuring the facilities would be built away from residential areas or well-buffered if close to them.

"The reality is [that] this region is one of the [fastest-growing] areas in the Commonwealth. With growth comes the need for infrastructure and services that the area can [afford only] by attracting new revenue sources or raising taxes on local businesses and residents," stated Curry Roberts, president of the FRA, in a local op-ed. "To get ahead of this [need], leaders in our region have worked for over a decade to attract data centers and the tremendous local tax revenue they bring."

According to Roberts, the regional coalition began its quest by evaluating 50 sites to determine whether—based on zoning, transmission lines, and water access—they were compatible with data center use. The coalition eventually narrowed it list down to 15 locations across five localities, with each site exceeding 100 acres. This groundwork set the stage for an ambitious economic development plan aimed at attracting major industry players such as AWS.

Roberts emphasized the importance of getting information in front of the public proactively, rather than waiting for opposition to arise. Stafford County, for example, held several community meetings to educate people about data centers before any specific projects were proposed.

Stafford and Spotsylvania counties set the stage for evaporative cooling by engineering recycled wastewater systems for that purpose in data centers. These systems are now used by data centers, which pay for the service, thus creating additional revenue for the localities.

When AWS approached regional leaders in 2018 about a data center project, the FRA was able to act quickly. It coordinated with localities to harmonize tax rates and depreciation schedules on a parcel that straddled several jurisdictions, ensuring a straightforward fiscal environment for AWS.

Although the project stalled during the pandemic, by 2023 AWS had acquired and entitled approximately 2,500 acres (1,012 ha), paving the way for the development of 18 million to 19 million square feet (1.7 million–1.8 million sq m) of data center space.

Tax benefits from the investment are immense. According to Roberts, for every dollar of service demanded by a data center, the operator is paying $13 in taxes.

Elk Grove Village's innovation district

Elk Grove Village, Illinois, a suburban community northwest of downtown Chicago, is located at a major fiber intersection. It intentionally attracted data center development through a combination of zoning code modifications, the promotion of strategic location advantages, and proactive communication with the development community.

Since its formation, the village has had unique zoning. The eastern half of the community, adjacent to O'Hare International Airport, is home to the largest contiguous industrial park in the United States and is zoned as such. The western half of the village is primarily residential and zoned to protect housing.

Matthew Roan, the village manager of Elk Grove Village, said the municipality updated its zoning code to spur redevelopment within its office park by creating a new "innovation and technology" zoning district that specifically permitted data centers as an approved use, thus inviting data center operators to fill unused space.

Additional modifications to the zoning code allow data centers to have greater building heights and front-yard fencing or screening that wouldn't normally be permitted for industrial uses. Other changes reduce parking requirements. All of these changes allow data center builders to get their projects off the ground more quickly, amid the certainty that the structures can be built and won't struggle in the approvals process—an uncertain phase that makes land acquisition too risky for some parties.

This proactive approach has attracted data center developers and hyperscalers, including Meta and Microsoft. Roan, who has served in various roles in village government since 2000, said it brought significant economic benefits to the region, including long-term development and permit fee revenues, financial assistance for local school districts and other taxing bodies, high-quality site aesthetics, and temporary construction jobs. The increased tax and fee revenue from data centers allowed the village to reinvest in infrastructure improvements and redevelopment projects, he said.

This strategic positioning of Elk Grove Village as a data center hub exemplifies how proactive municipal policies can drive growth and innovation—as well as stable economic returns. Once data centers make their large capital investments, Roan said, they tend to stay in the community long term, unlike more transient industrial users.

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7 Glossary

air-cooled chiller system: A cooling system sealed in a closed loop that typically consumes very little water—less than the amount used in three single-family homes.

clustering: The practice of data centers locating near one another, connecting their servers to work as a unified system, or both.

colocation data centers: Multi-tenant data centers where third-party operators (developers) lease data center space—a certain number of server cabinets, for example, or kilowatts (kW) to a host of other companies.

corporate data centers: Also called enterprise data centers, these facilities store and process a single organization's data. These data centers often store the data of financial institutions—think American Express or Wells Fargo—that typically own and operate such facilities themselves, rather than leasing them from a provider.

data center: A building or campus that houses the infrastructure that supports the world's computing functions.

data hall: The rooms in data centers where data is processed and stored.

evaporative cooling: A cooling system that uses large fans to move air across a wet medium to evaporate water, which removes the heat from the data center and cools the air.

hyperscale data centers: Large data center buildings or campuses that process and store the data of companies that often need to scale up or scale down their infrastructure quickly.

hyperscaler: A company that occupies and operates a large data center building or campus. These companies—which include AWS, Microsoft, Google and Meta, often need to "scale up" their infrastructure quickly.

latency: The time it takes for information to travel from its source to its destination.

load balancing: The process of distributing network traffic across multiple servers at interconnected data centers.

node: An individual server in a cluster of servers.

phasing: A process for data center campus construction that occurs in stages.

power distribution units (PDUs): Devices that distribute energy to servers, network devices, and other equipment within a rack.

power purchase agreements (PPAs): An agreement between a data center company (the buyer) and a renewable energy provider (the seller) to purchase electricity from specific wind or solar farms.

purple pipe system: A recycled water setup whereby water is treated to remove contaminants, solids, and impurities and then distributed via plum-colored pipes.

renewable energy certificate (REC): A tradable commodity wherein each REC equates to the generation of 1 MWh of power from a qualified renewable resource, usually wind or solar power generation facilities.

switch: A device used to connect network devices and route data through interconnected networks.

switchgear: Power distribution equipment that controls, protects, and distributes electrical power throughout the data center.

telecom data centers: Where traffic from cell towers "switches" to go out to the internet. Typically owned by such telecommunications companies as Verizon, these centers tend to be smaller facilities than the other data center types and require less than 10 kWs.

uninterruptible power supply (UPS) systems: Electrical equipment used in data centers to provide battery backup power in the event of a power outage.

utility substation transformer: A large electrical device in the electrical yards of a data center campus that steps down high-transmission voltages from the utility grid to lower, more manageable medium-voltage levels suitable for distribution throughout the data center.

water-cooled chiller system: An open-loop pipe system in which water removes heat from the refrigerant.

wholesale data center: A type of data center where a third-party developer rents a large portion of the space, the energy capacity, or both to one company–often, all of it.

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Understanding the Drivers of Rising Electricity Rates and the Role of Data Centers

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Prepared by:

Energy+Environmental Economics

Authors & Acknowledgments

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Energy and Environmental Economics, Inc. (E3) is a leading economic consultancy focused on the power sector in North America. For over 30 years, E3's data driven analysis and unbiased recommendations have been utilized across the power industry by the utilities, regulators, government agencies, project developers, investors, and non-profit entities. E3 has offices in San Francisco, Boston, New York, Denver, and Calgary.

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Report in Brief

As electricity use in the U.S. grows for the first time in decades, many households are seeing higher energy bills. Data centers, in part due to their size and visibility, have become an easy focal point in discussions of rising costs but the evidence suggests a more complex picture. Demand is increasing due to electrification, industrial reshoring, and data center expansion. While this growth has coincided with rising retail electricity rates in some regions, the relationship between load growth and electricity retail rates is complex and must be interpreted carefully.

What the data tell us:

- Retail rate outcomes are influenced by broader supply-demand dynamics, market design choices, fuel cost volatility, generation retirements, inflation, and other utility investments (such as grid modernization, wildfire mitigation, policy compliance) —not load growth alone.
- Of the quantitative analyses conducted to date (See Appendix A.1), there is **no evidence that data centers have been historically subsidized by other customers** under existing rate structures. Regular updates to utility cost allocation across customer classes will be critical to continuing to prevent cost shifting amid rapid load growth.
- Some analyses found that **data centers generate** *surplus* **utility revenues** from paying more than the cost to serve them, which can potentially *lower* **electric rates for other customers**.
- State-level analyses show **no clear relationship between load growth and rising rates**. States such as Texas and Virginia with the *largest* increases in load (largely driven by data centers) had the smallest rate increases, while states like California and New York saw the largest price increases but a reduction in load. In the PJM market in the Mid-Atlantic region, data center-driven load growth is one of several factors putting upward pressure on capacity market prices, alongside market design changes and power plant retirements, and resulting customer impacts will depend on how utilities allocate costs between data centers and other customers, subject to regulatory approval.
- **As the pace of data center growth has accelerated, so too has the evolution of regulatory and policy tools**, particularly rate design, to manage impacts. This trend is reflected in at least 38 new large load tariffs established between 2018 and 2026 to more clearly assign customer-specific costs and mitigate ratepayer risk. 30 were implemented in 2025-2026 alone, underscoring the accelerating pace and adaptation in response to load growth.[1]

Gaps in literature and areas for further investigation:

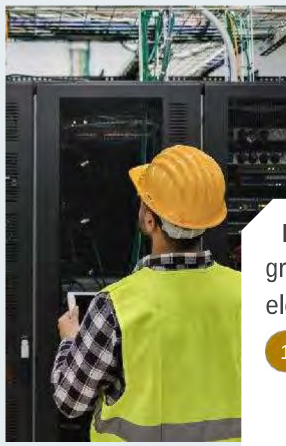
- Only a **few quantitative** studies have been conducted, examining this relationship between data center growth and retail electricity rates, with most looking at historical data. Further, many **rely on correlation** rather than establishing *causal* relationships.
- How well risk mitigation tools will perform over time.
- How processes (such as infrastructure planning, regulatory lag, cost allocation, and market design) will change in response to rapid and sustained load growth.
- While the quantitative studies to date **have not found evidence** of systematic cost shifting, research gaps remain and the risk is not absent.

In short, there is no quantitative evidence to date that data centers have historically been subsidized by other customers, and historical load growth has been found to be only one driver out of many others contributing to retail rate outcomes. As the pace of data center growth has accelerated, regulatory and/or policy tools have rapidly adapted as well to both accommodate higher levels of growth and manage that growth's potential impacts. Implementing these tools across the country will be vital to ensuring ratepayer protections amid this load growth and can even provide ratepayer benefits as well.

[1] E3 evaluation of large load tariff data from Halycon. Select measures quantified here include minimum monthly demand payments, contribution in aid of construction (CIAC), exit fees, minimum load factor >50%, and long-term contract years >10. Inclusion of other measures such as collateral requirements would increase these estimates. See Appendix A.2 for the referenced set of tariffs.

Executive Summary

The relationship between load growth and electricity retail rates is more complex than often conveyed in public discourse. Retail rates reflect a combination of generation, transmission, distribution, policy, and market dynamics – not simply changes in demand- and while load growth can influence system costs, it is only one of many factors. Understanding the role of large loads requires a more nuanced, evidence-based assessment that accounts for these multiple interacting drivers, and is especially important context when identifying ways to manage costs and maintain customer affordability.



E3's review of the few quantitative analyses on this topic did not yield evidence that other utility customers are subsidizing data centers.

- Notably, E3's study for the Joint Legislative Audit and Review Commission (JLARC) in Virginia – the world's largest data center market – found no evidence of a historical or present-day cost shift from data centers to residential or small commercial customers.
- Moreover, some studies found data centers can potentially *lower* electric rates for other customers, by paying not only the incremental cost to serve them but also paying embedded fixed costs, which can be used to create downward pressure on rates. An E3 study examining Amazon data centers across four diverse utility territories found, on average, each site generated $3.4 million in net surplus (i.e., revenues exceeding costs) that could help offset costs for other customers.
- More broadly, E3 found no clear relationship between load growth and rising electric rates. In the economic consulting firm Bates White's recent study, states such as Texas and Virginia with the *largest* increases in load (largely driven by data centers) had the smallest rate increases, while states like California and New York saw the largest rate increases but a reduction in load. Lawrence Berkeley National Lab's (LBNL) recent study found similar results, except in the PJM region.
- A recent working paper from Georgia Tech identified a small increase in electricity retail rates on average across a subset of US counties after initial data center entry, but further investigation into rate dynamics and other regional differences is required to more definitively estimate the impact of today's large load clusters.
- E3 conducted an analysis of the change in capacity prices between PJM's 2024/2025 and 2025/2026 auctions and found that load growth (primarily data centers) accounted for ~50% of the increase while other changes, such as market design updates and power plant retirements, drove the other ~50%.

In its review, E3 found a number of factors, beyond load growth alone, have been major contributors to rising electric rates:

1. **Inflation:** Recent inflation has significantly increased the cost of labor, materials, and financing, directly increasing the amount of revenue utilities need to collect to recover their investments.
2. **Natural Gas Price Volatility:** Natural gas prices have become more volatile and regions reliant on gas-fired generation are particularly exposed to this price volatility.
3. **Wildfire Mitigation and Resilience Investments:** Wildfire-related mitigation spending and grid hardening more broadly now represent a significant and growing share of utility spending to respond to and protect against extreme weather events.
4. **Grid Modernization:** Utilities have increased investment to replace aging infrastructure, comply with policies, and modernize the grid.
5. **Market Design and Supply Dynamics:** In wholesale markets such as PJM, capacity price volatility has also been driven by market design and supply-side factors, including power plant retirements, reduced accreditation of fossil resources, higher reliability targets, planning/forecasting gaps, regulatory lag, permitting barriers, and interconnection backlogs.

While there are many factors at play, the risk of increasing rates and cost shifting from load growth is real. E3 examined forward-looking studies highlighting potential cost pressures under rapid load growth, including tighter electricity supply, accelerated infrastructure needs, and stressed regulatory processes, but these challenges are neither novel nor unmanageable. There is a range of tools to address these dynamics and support equitable cost allocation, including robust tariff protections, timely cost-of-service updates, federal and state coordination, data-driven monitoring of impacts, and improved forecasting and planning processes.

Markets across the US illustrate a range of approaches to addressing load growth:

+ In **PJM**, recent capacity price increases reflected tightening supply conditions with load growth as one but not the only contributor. PJM has responded by advancing proposals to reform its market and processes, and in parallel the 13 PJM-state governors and federal officials issued a Statement of Principles calling for more immediate and structural reforms.
+ **Texas** has experienced significant load growth in recent years and developed specific policies such as Senate Bill 6, without disproportionate retail rate increases to date.
+ In **Georgia**, regulators have responded to rapid data center growth by strengthening long-term contract requirements and minimum billing protections to reduce stranded cost risk.
+ **Arizona** is experiencing rapid, large-scale data center-driven load growth, and regulators and utilities have responded by refining rate design and contractual protections to better align with cost causation and limit cross-subsidization risks.
+ **Missouri** is one of several emerging markets that has proactively established large load tariffs and long-term contractual requirements with extensive stakeholder involvement to preempt cost shifts and mitigate stranded cost risk.

These varied responses underscore that affordability outcomes can and are shaped by market conditions, adaptive planning and regulatory action, and that impacts will vary across regions rather than follow a single national pattern.

Attributing rising electricity bills to a single, visible source such as data centers oversimplifies a more nuanced reality. The financial pressures facing the electric system reflect a range of economic, policy and market factors, and the conversation should therefore shift beyond generalized claims and instead focus on creating a framework for responsible load growth.

E3 recommends the following approach, with more details included in the full report:

Strengthen planning and forecasting. Implement techniques to reduce the risk of speculative overbuild, stranded infrastructure, and unnecessary customer exposure.

Leverage tailored large load tariffs and regularly update cost allocation to appropriately reflect the scale and pace of load growth. Use risk mitigation tools and timely cost allocation updates to align cost responsibility with evolving system conditions and mitigate risk.

Enable innovative supply and load integration models. Leverage approaches such as load flexibility, "bring your own generation" models, streamlined permitting, and utility data sharing (such as on available capacity and timelines) to better integrate large loads while reducing system costs.

Close research gaps with targeted analysis. Expand data collection and targeted analyses to better understand long-term impacts and inform evidence-based decision-making.

With thoughtful, market-specific approaches, regulators can support economic growth while protecting customers and ensuring fair cost allocation.

Overview of Approach

This paper applies a structured, evidence-based approach to evaluating the relationship between data center load growth and electricity rate outcomes. It begins with a primer on how electric systems are planned, financed, and regulated, including how utilities forecast demand, make investment decisions, and recover costs through retail rates. This foundation is critical for interpreting existing studies, as retail electricity prices reflect a combination of generation, transmission, and distribution investments, market dynamics, and regulatory processes rather than changes in load alone.

Building on this foundation, the paper reviews the available quantitative research from 11 studies on recent electricity rate trends and the role of data centers, drawing from both backward-looking empirical studies and forward-looking analyses. This review is complemented by interviews with four industry experts to provide additional context on how these dynamics are evolving in practice. Taken together, these inputs are used to develop a structured lens for evaluating when and how large load growth may influence affordability outcomes, including the role of system cost impacts, cost allocation, and rate design. The paper also highlights the range of tools available to mitigate potential risks, emphasizing that outcomes depend not only on load growth itself, but on how effectively policy, planning, and regulatory processes adapt over time.

Primer: How Power Markets Work

Before delving into the quantitative studies, this paper begins with a primer on the fundamentals of power markets and utility rate design. Establishing this foundation provides the critical framework needed to assess the existing literature and more rigorously evaluate when and how large loads may influence retail prices, and under what circumstances they may produce neutral or even beneficial effects for other customers.

Electric power markets exist to solve a physical constraint: electricity must be produced when it is consumed. Because development and deployment of large-scale storage technology systems remain limited, system operators must match supply and demand continuously. The market and regulatory structure that govern this process determines who builds generation, how investment risk is allocated, how prices are determined, and ultimately how customers pay for service.

Utility Models in the US

Utility structures generally follow one of two basic models that vary by state. The choice determines whether regulation or competition drives generation investment.

Vertically Integrated States

In vertically integrated states, a single entity (utility) owns and controls generation, transmission, and distribution infrastructure within a defined service territory. A state public utility commission (PUC) regulates the utility's retail rates and reviews its investment decisions.

The utility forecasts demand, plans new resources, builds or procures those resources, and is permitted to recover prudently incurred operating costs, depreciation, taxes, and an authorized return on invested capital. Capital investments are included in the utility's rate base, whereas the approved return on equity is applied to that base. Regulators examine whether the utility acted prudently through regulatory proceedings.

An Integrated Resource Planning (IRP) process is conducted by the utility to evaluate demand forecasts, resource planning, fuel price assumptions, reliability requirements, and policy mandates to determine a least-cost portfolio over a long-term planning horizon.

This structure relies on regulatory oversight rather than competition to discipline investment. Customers bear much of the long-term investment risk because approved costs flow into rates. While vertically integrated utilities may participate in bilateral or organized markets for short-term energy balancing, they retain the primary responsibility for ensuring resource adequacy and system reliability within their service territory.

Wholesale Market States

In states with wholesale markets, utilities procure generation through competitive wholesale markets, where independent power producers build and operate plants. Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs) operate the wholesale electricity markets and manage the transmission system within defined regional footprints. They administer market rules, conduct economic dispatch, and oversee reliability planning, but they do not regulate retail rates or directly site generation facilities.[2]

Given this structure, utilities' generation costs are driven by market-clearing prices rather than traditional cost-of-service regulation. Utilities also usually retain ownership of transmission and distribution assets and continue to operate under regulated retail rate structures.

Under this structure, investment risk is more exposed to market outcomes than in vertically integrated models. Generators rely primarily on market revenues (as opposed to guaranteed rates), placing greater risk on these private investors. The overall market structure's effectiveness ultimately depends on whether its rules produce prices that both support efficient short-term dispatch and sustain adequate long-term investment. Accordingly, this next section focuses on the market mechanisms that generate these price signals, which play a central role in how revenues are earned, investment decisions are made, and overall market performance and reliability are determined.

[2] The RTOs and ISOs operate under oversight of the Federal Energy Regulatory Commission (FERC), which regulates interstate transmission and wholesale markets, approving market rules and tariffs and ensuring wholesale rates are just and reasonable.

Wholesale Market Fundamentals: Energy and Capacity Markets Overview

In energy markets, generators are compensated for producing megawatt-hours. Generators submit offers reflecting the price at which they are willing to supply energy. The system operator stacks these offers from lowest to highest cost to meet forecasted demand for each hour. The highest-cost unit needed to meet demand sets the market-clearing price, and all dispatched units receive that price, reflecting the marginal unit.

This process reflects basic supply and demand. As demand rises, the operator must dispatch higher-cost units, which increases the clearing price. As demand falls, lower-cost units set the price. Scarcity pricing, occurring as prices rise (sometimes up to an administrative cap), signals the value of additional supply and in turn encourages new build.

Some regions supplement energy markets with capacity markets. Capacity markets pay resources for committing to be available during future peak periods. The product is not energy produced, but readiness to produce. Load-serving entities (e.g., utilities) must procure sufficient capacity to meet projected peak demand plus a reserve margin (effectively a buffer to account for forecast error). The price is set through a centralized auction, and this revenue stream helps ensure that resources which run infrequently but are critical during peak periods remain available during times of grid stress.

RTOs must maintain a balance across these resources, with supply equaling demand at every moment; any imbalances affect system frequency and can damage equipment or trigger outages. RTOs use economic dispatch to help maintain this balance, selecting the least-cost combination of available resources that can meet demand while respecting transmission limits and reliability constraints.

Rapid growth in large electricity loads can place upward pressure on retail electricity prices by tightening supply-demand balances. As higher-cost generation is dispatched to meet rising demand, wholesale prices increase, and those costs can flow through to all customers, not just the new load, much like prices rising in housing markets when demand outpaces supply. These effects are often transitional rather than permanent, with the magnitude and duration depending on how quickly supply can respond (through new generation, storage, transmission upgrades, or more flexible load) and whether regulatory, permitting, or interconnection barriers delay that response. Moreover, the effects depend on how costs are allocated, both to ensure new loads pay in line with the costs they impose on the system and to potentially create incentives for large loads to minimize their grid impacts, such as through time-of-use pricing or load flexibility, to reduce costs.

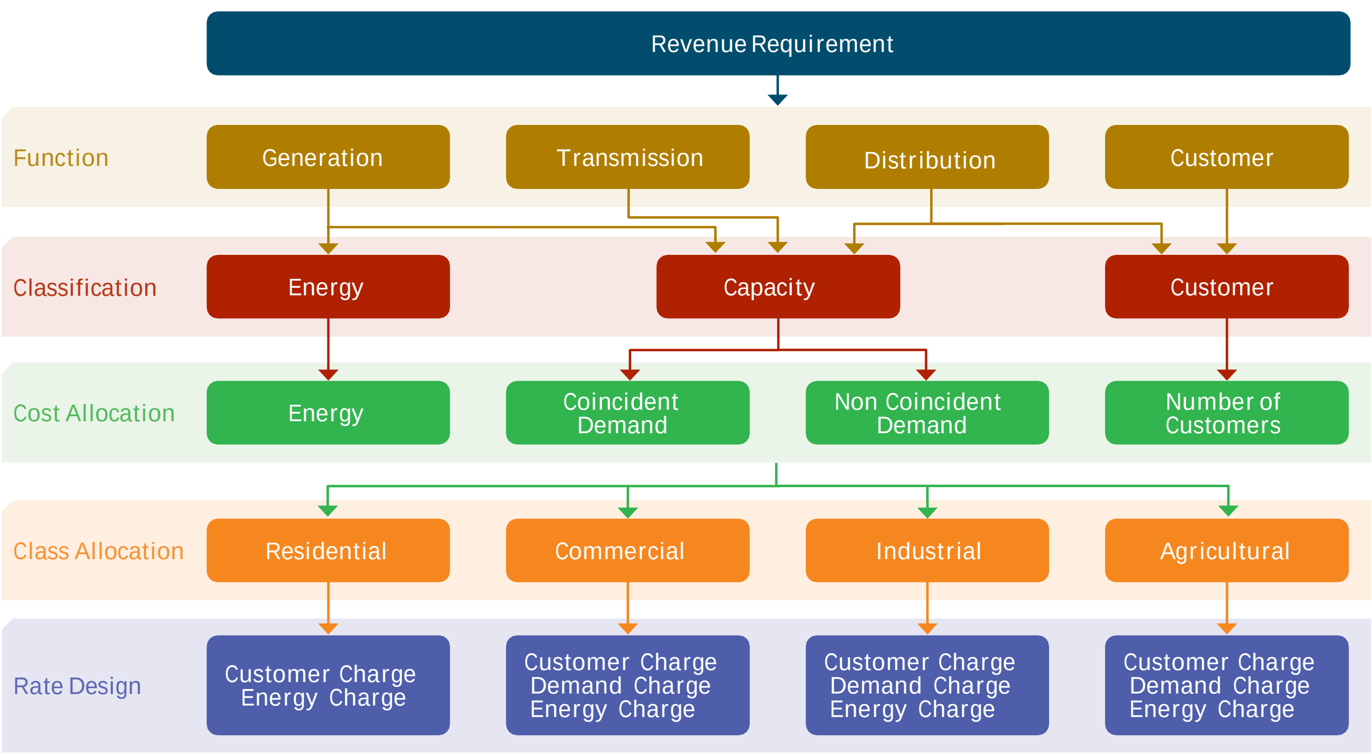
Primer: Retail Rate Design and Cost Allocation

How Are Electric Rates Developed?

Retail rate design is the process through which a utility recovers its total costs from customers. This total cost, known as the revenue requirement, represents the amount the utility must collect to provide reliable service and maintain financial stability. Utilities invest in generation (if vertically integrated), transmission, and distribution infrastructure based on forecasts of future demand and system needs. Under cost-of-service regulation, those investments along with operating expenses are incorporated into the utility's annual revenue requirement and recovered over time through depreciation and an authorized return on invested capital. Utilities also recover purchased power costs, which are typically passed through to customers without earning a return.

Cost-of-service analysis (COSA) determines how that total revenue requirement is allocated across customer classes, with the goal to ensure that costs are allocated to customer classes in a way that properly reflects underlying cost drivers. The core steps are shown in Figure 1. The process first functionalizes costs by system function (generation, transmission, distribution, and customer-related costs), then classifies them by cost driver (primarily energy-, demand-, or customer-related), and finally allocates them to customer classes based on measures such as energy consumption and contribution to peak demand. These results establish each class's revenue responsibility. Rates are then designed to recover that responsibility through a combination of fixed charges, volumetric energy charges, and demand charges. While COSAs provide a cost-based foundation, final rate structures often balance additional objectives such as affordability, simplicity, and policy goals, meaning that rates may not perfectly mirror pure cost signals.

Figure 1: Utility Rate Design Process[3]



[3] Riu, I., Patel, K., Mettetal, L., Santoni-Colvin, M., Platter, H., Greszczuk, S., Cardona, J., Bertrand, L., Spencer, S., & Ramirez, S. (2025). *Tailored for scale: Designing electric rates and tariffs for large loads: A guidebook of industry best practices and examples from real-world Amazon data center case studies* (White paper). Energy and Environmental Economics, Inc. (E3). https://www.ethree.com/wp-content/uploads/2025/12/RatepayerStudy.pdf

Retail rate changes, including the underlying assumptions used, are reviewed, challenged, and approved through robust and formal regulatory proceedings that are designed to ensure fairness, transparency, and adherence to cost-causation principles. In both vertically integrated and restructured states, regulated utilities file detailed rate cases or cost-of-service studies with their public utility commissions. In vertically integrated states, these cases cover the full cost of providing electric service, including generation, transmission, and distribution, whereas in restructured states like New York, rate cases primarily address transmission and distribution costs, with generation costs determined through wholesale markets and passed through to customers. These proceedings typically involve thousands of pages of testimony, data requests, financial schedules, engineering studies, and expert analysis. Multiple stakeholders participate, including state consumer advocates, industrial customer representatives, environmental organizations, independent experts, and in some cases large load customers themselves. This level of scrutiny reflects the importance of rate design decisions and underscores that questions of cost sharing and potential cost shifting are actively debated and carefully evaluated within an established regulatory framework.

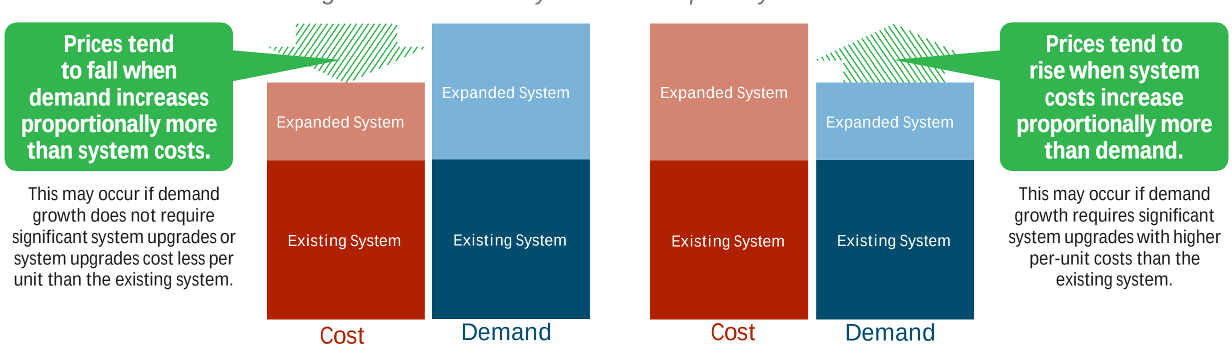
Why Rates Rise (or Fall), and What Is Cost Shifting?

Cost shifting is when one group of customers pays more than the costs they cause and are responsible for, effectively subsidizing another group. In the context of new loads, cost shifting would occur if the costs attributable to serving that load, including both direct infrastructure costs and broader system impacts, are not fully recovered from that customer and instead are allocated to other customers through higher rates for those customers.

It is important to distinguish cost shifting from overall rate impacts. New load growth can affect total system costs and therefore rates, even when costs are allocated in a manner consistent with cost causation. At a high level, the impact of new load on average rates depends on the relationship between total system costs (i.e., the revenue requirement) and total billed sales, as illustrated in Figure 2 below. If the costs required to serve the new load increase the revenue requirement faster than total sales increase, average rates may rise. Conversely, if sales increase more rapidly than total costs, fixed system costs are spread across more kilowatt-hours, creating downward pressure on average rates. This can be a major benefit of high load factor customers such as data centers: they can improve utilization of existing, underused system capacity and support fixed cost recovery, helping to reduce the cost burden on other customers. In fact, a 2026 study from the Brattle Group demonstrates how greater utilization of the existing electricity system could significantly improve affordability, saving more than $100 billion in the next decade, while enabling load growth and benefitting consumers by spreading costs over a larger sales base.[4]

Importantly, these rate impacts are not, by themselves, evidence of cost shifting. Cost shifting arises only when costs are not assigned or allocated in proportion to cost causation—for example, if costs driven by a new load are not fully reflected in that customer's cost responsibility and are instead borne by other customers. Persistent differences between revenues and cost responsibility may indicate that costs are not being allocated in proportion to cost causation, resulting in cross-subsidies between customers. However, short-term differences can also arise due to timing lags, rate design features, or market structures, and do not necessarily imply longer-term cost shifting. These outcomes emphasize the importance of updating cost allocation assessments as often as possible, particularly in the face of substantial and rapid load growth.

Figure 2: Illustrative System Rate Impact Dynamics[5]



[4] Hledik R., Lam L., Peters, K. (2026). *The Untapped Grid: How Better Utilization of the Power System Can Improve Energy Affordability*. The Brattle Group. https://www.brattle.com/wp-content/uploads/2026/03/The-Untapped-Grid-Mar-2026.pdf

[5] Wiser, R. H., Barbose, G. L., Gorman, W., O'Shaughnessy, E., Forrester, S., Donohoo-Vallett, P., Cappers, P., Deason, J., Hledik, R., & Lam, L. (2026). Retail electricity price trends and drivers: Data update—2026 edition. Lawrence Berkeley National Laboratory. https://emp.lbl.gov/sites/default/files/2026-03/Retail%20Price%20Trends_2026%20edition.pdf

How the Regulatory System Protects Customers

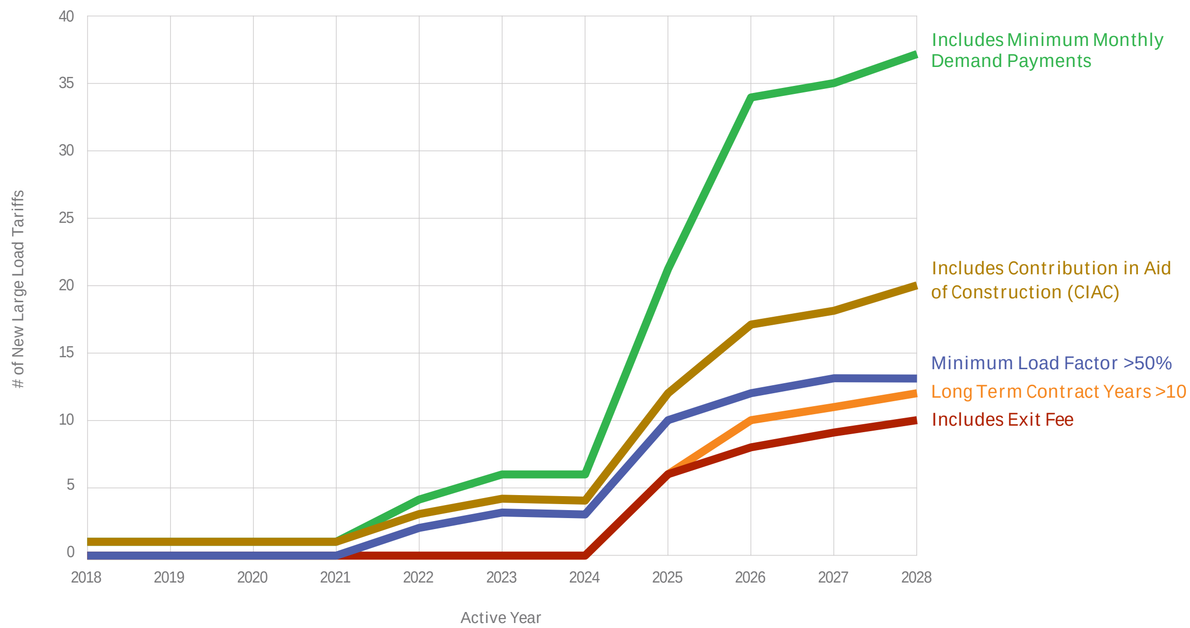
The regulatory framework includes multiple safeguards to prevent cost shifting and ensure customer protections and equitable outcomes.

First, as described in the previous section, core principles of equitable rate design aim to align customer payments with the costs they impose on the system, while also balancing other policy objectives. These costs include existing (embedded) system costs as well as incremental (marginal) system costs. Reflecting marginal costs help ensure that new load does not impose uncompensated costs on the system. Embedded cost allocation methods further distribute fixed costs based on cost-causation principles, aligning class revenue responsibility with underlying drivers such as energy consumption and peak demand. Specific measures for transmission cost allocation are discussed below.

Second, utilities and regulators have begun to employ risk mitigation tools in large load tariff design to manage longer-term uncertainties, including stranded asset risk. Large loads can carry uncertainty regarding pace, scale, or longevity. To manage this risk, utilities may implement minimum demand charges, take-or-pay provisions, long-term contract terms, credit requirements, refundable deposits, capacity reservation charges, and interconnection cost assignments. For example, contribution in aid of construction (CIAC) involves customers paying upfront for dedicated facilities (substations, lines, transformers), which acts as private grid investments that benefit the broader community, rather than just managing liability. These mechanisms ensure that if load does not materialize as forecasted or exits early, unrecovered costs are not shifted to other customers. The next section provides an overview of these tools in more detail.

Moreover, these tools are increasingly being implemented. Figure 3 shows, for select customer protection measures, the cumulative counts of new large load tariffs by active year, demonstrating the accelerating pace of adoption as utilities and regulators respond to large load growth. The full set of tariffs referenced here are provided in Appendix A.2, and may not be capturing all tariffs.

Figure 3: Cumulative Counts of New Large Load Tariffs by Customer Protection Measures, by Active Year[6]



[6] Graphic developed by E3 using Halcyon data

Third, thoughtful rate design can also unlock the potential benefits of load growth. When incremental revenues exceed incremental costs, and include a contribution to embedded system costs, these fixed system costs can be spread over a larger sales base to reduce average rates for existing customers. High-load-factor customers in particular can contribute steady revenue streams that improve cost recovery and system utilization. Properly structured tariffs and allocation methodologies ensure that these benefits are realized while maintaining cost discipline and financial stability. In contrast, upward rate pressure can occur when incremental infrastructure investments increase the utility's revenue requirement faster than sales grow, or when new load does not contribute sufficiently to marginal and allocated embedded costs. In such cases, fixed costs are spread across a broader base without corresponding revenue support, raising the average cost per unit of electricity for other customers. Updates to how costs are allocated can address these rate impacts across customer classes, although in the short-term there may be regulatory lag. These dynamics underscore the importance of aligning revenues with cost causation and implementing appropriate risk mitigation tools.

More broadly, frequent updates to cost allocation practices should be a cross-cutting priority given a fundamental pacing mismatch: technology and load growth evolve faster than regulatory institutions, outstripping traditional planning and rate case cycles.[7] Processes such as IRP proceedings are not built for speed, creating tension with the speed-to-market needs of large load customers and potentially delaying necessary adjustments, which can increase risk.[8] Identifying ways for regulatory frameworks to keep pace and adapt will be essential to addressing rate impacts.[9] For example, periodic review of allocation factors, demand determinants, and infrastructure cost recovery helps ensure that rate structures remain aligned with evolving system conditions.[10]

Regulatory flexibility is also essential. Tariffs are increasingly designed to allow for adjustments if pricing, riders, or minimum bill structures do not perform as expected, and their success will depend on how well they adapt in practice.[11] Given uncertainty around long-term impacts, embedding flexibility, protections, and opportunities for renegotiation can improve risk and cost allocation over time.[12] More broadly, the scale and pace of recent large load growth may warrant revisiting traditional cost accounting frameworks and reexamining core principles to ensure they remain fit for today's conditions and are adaptable to future changes.[13]

In short, cost shifting is not determined by the size of a load alone, but by whether revenues meet incremental costs and whether appropriate risk mitigation and allocation tools are in place. When structured properly, new large loads can be neutral or beneficial to other customers while maintaining cost discipline and financial stability.

Key Risk Mitigation Measures in Large Load Tariff Design

To manage uncertainty and protect existing ratepayers, utilities have developed a broad toolkit of risk mitigation mechanisms. These tools are not theoretical; they are widely and increasingly embedded in large load tariffs and contracts across jurisdictions to protect other customers. The appropriate combination of mechanisms depends on factors such as load size relative to the utility system, market structure, creditworthiness, and policy priorities. Importantly, stronger risk mitigation reduces the likelihood of stranded costs but may also limit the opportunity for shared benefits, such as downward rate pressure, by reducing the role of socialized approaches that enable system gains (e.g., improved asset utilization, fixed cost recovery) to translate into broader benefits. Effective rate design therefore balances risk protection with economic development and system efficiency objectives.

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[7] Interview with Lynne Kiesling, Northwestern University, April 2026
[8] Interview with Kevin Gunn, Evergy, April 2026
[9] Interview with Lynne Kiesling, Northwestern University, April 2026
[10] Interview with Kevin Gunn, Evergy, April 2026
[11] Interview with Kevin Gunn, Evergy, April 2026
[12] Interview with Kevin Gunn, Evergy, April 2026
[13] Interview with Lynne Kiesling, Northwestern University, April 2026

The following outlines a menu of options for utilities to consider:

Minimum Revenue Protections

Minimum demand charges require customers to pay for a minimum percentage (e.g., 70–90%) of contracted or installed capacity, even if actual usage falls below that level. This measure protects against underutilization of infrastructure.

Take-or-pay provisions obligate customers to pay for reserved capacity regardless of actual consumption. This measure ensures cost recovery even if load temporarily declines.

Minimum bills guarantee a floor level of annual revenue from the customer. This measure stabilizes recovery of fixed generation, transmission, and distribution costs. Minimum bill provisions ensure baseline revenue recovery even if actual demand underperforms, often requiring customers to pay for a substantial portion of their contracted load.

Capacity reservation charges require customers reserve a specified amount of system capacity and pay for it whether used or not. This measure aligns payment with infrastructure sizing decisions.

Contractual Commitment Mechanisms

+ **Long-term service agreements** require multi-year commitments (often 5–15+ years). This measure reduces risk of early exit after infrastructure is built.
+ **Exit fees and early termination charges** impose financial penalties if a customer leaves before contract expiration. This measure mitigates stranded asset risk.
+ **Load ramp schedules stage load** increases over time with defined milestones. This measure prevents premature buildout before load materializes.

Financial Security Requirements

+ **Upfront deposits** require customers to post refundable deposits tied to projected revenue or infrastructure investment. This measure protects against default risk.
+ **Credit and collateral requirements** to incorporate risk symmetry, reduce stranded asset risk and ensure long-term financial viability.

Direct Cost Assignment

+ **Contribution in aid of construction (CIAC)** involves customers paying upfront for dedicated facilities (substations, lines, transformers). This measure prevents socialization of customer-specific infrastructure. CIAC payments also act as private grid investments that benefit the broader community, rather than just managing liability.
+ **Line extension policies** assign costs beyond defined allowances directly to the customer. This measure limits cost spillover to existing customers.
+ **Refund mechanisms for shared use** allow cost sharing to be recalibrated if infrastructure later benefits other customers, preserving fairness over time.

Operational Risk Controls

+ **Interruptible or non-Firm service options** allow utilities to curtail load during system stress for customers that opt in. This measure reduces need for new peaking capacity.
+ **Demand response participation requirements** encourage or require flexibility during peak events. This measure mitigates capacity-driven infrastructure build.
+ **Behind-the-meter generation** involves the loads using on-site generation to manage peak exposure. This measure reduces stress on bulk system.

Planning and Allocation Safeguards

+ **Frequent cost-of-service updates** shorten intervals between rate cases or update allocation factors more frequently. This measure reduces regulatory lag under rapid load growth.
+ **Separate large load rate classes** isolate risk and cost responsibility within a defined class. This measure prevents cross-subsidization.

Transmission and Interconnection Protections

+ **Network upgrade cost assignments** ensure that a customer pays for transmission upgrades triggered by its load. This measure avoids socialization of load-driven upgrades.
+ **Queue reform and project readiness requirements** require financial commitments before advancing interconnection. This measure filters speculative projects and reduces stranded risk.

Moreover, this commitment to prevent cost shifting and mitigate risk is held by data center customers as well, with many public pledges to pay their fair share of costs. These commitments have ranged from individual companies announcing their own initiatives to prevent electricity price increases and deliver community benefits to working directly with utilities to fund new infrastructure and community programs to signing the Ratepayer Protection Pledge.

Addressing Common Cost-Shifting Concerns

Recent commentary has raised concerns that rapid data center growth may shift costs onto existing ratepayers, in particular a study from the Harvard Law School in March 2025.[14] These concerns generally fall into five categories: confidential contracts, transmission cost allocation, stranded asset risk, allocator mechanics under reduced load, and co-location with existing generation. Each represents a potential risk pathway but a closer review suggests that these concerns may be overstated and should be evaluated in the context of existing regulatory oversight and customer protections.

1. Confidential or "Secret" Contracts

- **Concern:** Confidential large load contracts conceal subsidies or wealth transfers.
- **Context:** While transparency is important, confidentiality does not imply lack of oversight. Large load contracts are typically filed with and reviewed by regulators, even when commercially sensitive terms are protected from public disclosure. Commissions evaluate whether revenues meet or exceed marginal cost, whether embedded cost contributions are sufficient, and whether adequate risk mitigation provisions are included. The existence of confidential terms may limit public visibility, but it does not eliminate regulatory scrutiny.

2. Federal and State Transmission Allocation Differences

Concern: Differences between federal (FERC/RTO) transmission allocation rules and state-level retail allocation methods may allow transmission costs driven by large loads to impact residential bills.

Context: Transmission cost allocation is inherently regional and often based on shared-benefit principles rather than strict one-to-one cost causation. This is not unique to data centers; it reflects long-standing market design choices in organized markets.

Concern: State allocation formulas can become outdated if not updated regularly, particularly under rapid load growth.

Context: This is a governance issue related to allocator updates and regulatory lag, not proof of systematic current or future cost shifting. Periodic updates to coincident peak allocators and cost-of-service studies are standard tools used to address this risk, and should continue to occur, especially more frequently to match the pace and scale of recent load growth.[15]

3. Stranded Transmission or Generation Investments

Concern: Utilities could build transmission or generation in anticipation of load growth that does not materialize or underperforms, leaving ratepayers exposed to stranded costs.

Context: This is a classic forecasting risk and not unique to data centers.[16] The key question is whether utilities require binding financial commitments before making major capital investments. Modern large load tariffs frequently include deposits, collateral, minimum demand obligations, long-term service agreements, and exit fees specifically designed to prevent stranded asset exposure if a project fails to materialize, exits early, or reduces load. Where such provisions are in place, stranded cost risk is significantly reduced.

4. Co-Location with Existing Power Plants

Concern: Co-locating data centers with existing nuclear plants could withdraw low-cost generation from the organized market, increasing wholesale energy and capacity prices, particularly in PJM.

Context: This is primarily a wholesale market design issue rather than a retail cost-of-service issue. If generation that previously cleared into the market is instead dedicated to a single co-located load, market supply could tighten. However, such outcomes depend on scale, participation rules, and how market operators and FERC respond. Market rule adjustments, capacity accreditation policies, and interconnection standards fall within federal jurisdiction and are subject to ongoing oversight. The existence of this theoretical pathway does not itself demonstrate retail subsidy but highlights the importance of coordinated federal and state regulation.

While these concerns reflect real structural risks, utilities and regulators have developed and are using a robust toolkit to manage them which is outlined in detail in the next section.

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[14] Martin, E., & Peskoe, A. (2025). *Extracting profits from the public: How utility ratepayers are paying for Big Tech's power* (Report). Harvard Environmental Law Program. https://eelp.law.harvard.edu/wp-content/uploads/2025/03/Harvard-ELI-Extracting-Profits-from-the-Public.pdf

[15] Joint Legislative Audit and Review Commission. (2024). *Virginia data center study: Electric infrastructure and customer rate impacts* (Final report, December 9, 2024). https://jlarc.virginia.gov/pdfs/presentations/JLARC%20Virginia%20Data%20Center%20Study_FINAL_12-09-2024.pdf

[16] NBC4i. (2025, June 5). *Intel's delay is costing AEP Ohio, but company says price hikes are unrelated*. https://www.nbc4i.com/intel-in-ohio/intels-delay-is-costing-aep-ohio-but-company-says-price-hikes-are-unrelated/

Transmission Cost Allocation

Transmission adds a layer of complexity in large load rate design, given the challenges of allocating costs of shared infrastructure. Most existing transmission cost allocation formulas were not designed to directly attribute the connection costs of large loads to the specific customers that triggered them. One concern is that this causes transmission connection costs to be paid by all ratepayers instead of a clear attribution to new large loads. In practice, it is crucial to determine the two types of transmission interconnection that need to be treated separately:

- Attributing cost shares to **dedicated facilities** can be relatively straightforward: large customers such as data centers can fund their dedicated interconnection facilities and any distribution upgrades needed to serve their load. Importantly, ratemaking processes need to be designed to ensure such direct attribution, which may require updated regulation.[17]
- In contrast, **shared transmission** assets serve broader regional reliability and economic needs, making it inherently difficult to isolate the costs attributable to specific users and beneficiaries. This challenge is not new or unique to large loads; transmission cost allocation has long been one of the most contentious issues in rate design and a persistent barrier to grid expansion and modernization.

Transmission costs are typically allocated across users based on capacity and/or energy use consistent with cost-causation principles, and potential benefits. But determining who benefits and to what extent can be challenging and further complicating the long-term nature of these assets and the uncertainty inherent in long-term forecasting. Benefits of new transmission investments can be meaningful, such as avoiding or deferring other infrastructure, reducing operational costs, and improving system reliability and resiliency. The "right" cost allocation depends on several factors and will vary by jurisdiction. Some key principles and considerations to help promote fair allocation include:

- **Build in flexibility:** Recognize that infrastructure initially driven by one or a few large loads may later provide broader system benefits. Consider crediting or refunding costs once wider benefits are demonstrated and quantified.
- **Ensure transparency and predictability:** Base allocation frameworks on clear, objective metrics to reduce regulatory uncertainty and investment risk.
- **Balance precision with practicality:** Overly granular methods can become administratively complex and delay needed infrastructure.
- **Update allocation factors regularly:** Revisit cost allocators as system conditions and load growth evolve to prevent unintended ratepayer impacts.
- **Plan proactively:** Use long-term integrated system planning to anticipate growth, reliability needs, and clean energy goals, enabling more forward-looking and equitable cost distribution. More transparent planning tools, such as publicly available hosting capacity maps for load,[18] may help guide siting decisions by identifying available infrastructure and directing new load to areas with existing capacity to reduce system costs.[19]

With large load growth increasing both the scale and pace of transmission investment, transmission cost allocation is becoming even more consequential. Thoughtful application of established principles that are grounded in cost causation, transparency, flexibility, and forward-looking planning can help minimize cost shifting while ensuring that needed transmission investments move forward in a timely and responsible manner.

These tools can be effective in managing potential impacts and mitigating risk but many have not yet been fully tested at scale, such as through rate case proceedings, and their effectiveness will ultimately depend on how projected load materializes and system conditions evolve, underscoring the importance of ongoing monitoring over time.

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[17] Union of Concerned Scientists. (2025, September). Connection costs loophole costs customers over $4 billion to connect data centers to power grid (Policy brief). https://www.ucs.org/sites/default/files/2025-09/PJM%20Data%20Center%20Issue%20Brief%20-%20Sep%202025.pdf

[18] See Xcel Energy example: https://mn.my.xcelenergy.com/s/renewable/developers/interconnection/hosting-capacity-map

[19] Interview with Natalie Mims Frick, Lawrence Berkeley National Laboratory, April 2026

What the Data Shows: Data Center Rate Impacts to Date

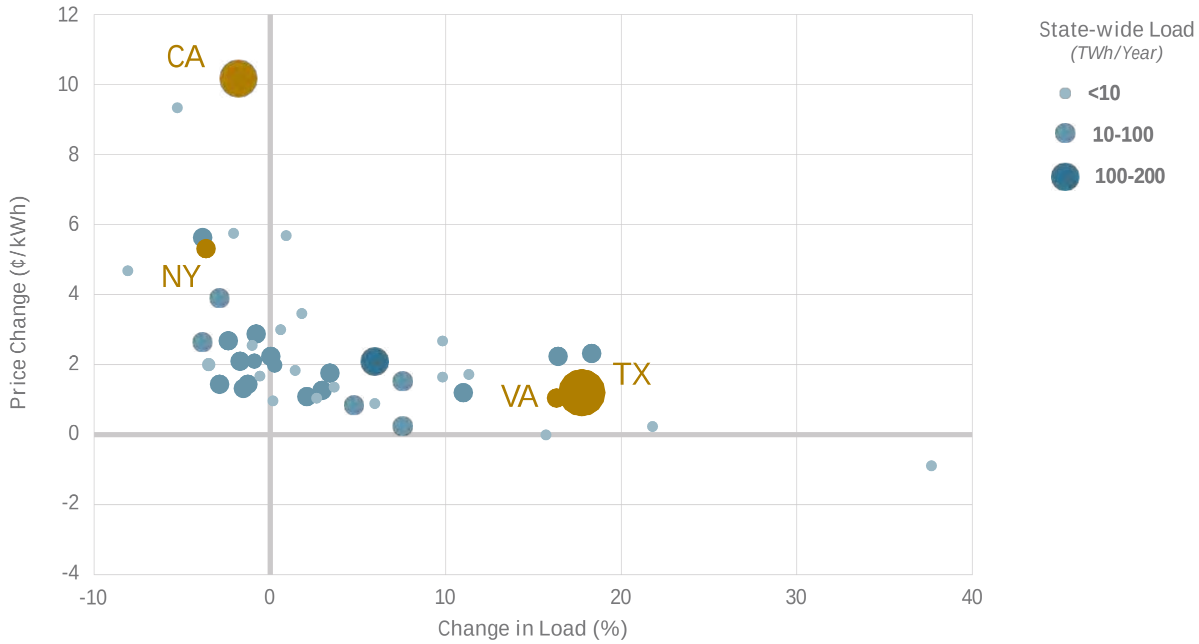
The quantitative literature examining data centers' impact on retail electricity rates is limited, in part due to the recency of the buildout and accordingly limited data.[20] Stakeholder interviews underscored this gap is widely recognized, and that most existing analyses focus on adjacent topics rather than examining direct rate impacts.[21] Several forthcoming analyses commissioned by state entities may expand this evidence base, but the scope, depth, and timing of those assessments remain uncertain.[22] More rigorous and targeted analysis, such as state-by-state event studies that compare outcomes before and after data center growth, is needed, but there are significant analytical challenges given differences in development timing (e.g., in more developed markets such as Northern Virginia vs. more emerging markets), market structures, and regulatory frameworks.[23]

Of the quantitative studies evaluating the impact of data centers on rising electric rates, none have found evidence of historical cost shift to date. Forward-looking analyses highlight potential cost pressures that include valid concerns but are sensitive to assumptions and can be mitigated through effective policy, planning, and rate design.

Review of Historical Studies

The economic consulting firm Bates White recently conducted a study, plotting the change of nominal retail rates against the change in electric load on a state level and found the relationship was not clear.[24] Figure 4 shows states such as California and New York saw the largest price changes (due to wildfire-related costs, grid infrastructure investments, natural gas volatility) but a reduction in load. States such as Texas and Virginia saw the largest increases in load and most data center growth but had some of the smallest price increases.[25] This comparison, however, only assesses correlation between the two outcomes without accounting for any other confounding factors that also affect rates.

Figure 4: Change in Load vs. Nominal Retail Price Change by State (2019-2024)



[20] Interview with Lynne Kiesling, Northwestern University, April 2026

[21] Interview with Natalie Mims Frick, Lawrence Berkeley National Laboratory, April 2026

[22] Interview with Natalie Mims Frick, Lawrence Berkeley National Laboratory, April 2026

[23] Interview with Lynne Kiesling, Northwestern University, April 2026

[24] Berry, C. A., Chadha, A., Erickson, G., Malech, S., & Sokol, B. (2026). *Leveraging large loads to improve the U.S. electricity system* (Technical report). Bates White Economic Consulting. https://www.bateswhite.com/media/publication/15039_Leveraging%20Large%20Loads%20to%20Improve%20the%20US%20Electricity%20System%20-%202026.pdf

[25] Lawrence Berkeley National Lab's "Retail electricity price trends and drivers: Data update—2026 edition" found similar results in its analysis examining 2019-2026, which is examined later in this paper.

A recent study by the Lawrence Berkeley National Laboratory (LBNL) analyzed state-level trends across retail electricity prices from 2019-2025 (inclusive of the residential, commercial and industrial sectors).[26,27] Generally, the study also found that states with the highest load growth saw declining average retail prices between 2019-2025, with prices increasing in states experiencing load declines. Specifically, North Dakota, New Mexico, and Nebraska saw substantial commercial and industrial (C&I) load growth but saw lowered residential and C&I prices. However, PJM was the exception to this trend, with data centers found to be one of multiple factors contributing to increasing capacity prices between the 2024/2025 and 2025/2026 auctions (which is further discussed in this paper's PJM Market Overview); the study also notes capacity prices are one but not the only contributor to retail rate price increases.

An E3 study funded by Amazon analyzed data from Amazon data centers across four utility territories (Pacific Gas & Electric in California, Umatilla Electric Cooperative in Oregon, Dominion Energy in Virginia, and Entergy in Mississippi), selected to reflect a diverse range of geographies and market structures.[28] To assess the data centers' impact, the analysis compared each facility's electricity payments (i.e., utility revenue) to the utility's marginal cost to serve the facility.

Across all case studies, Amazon utility payments met or exceeded the incremental cost to serve, producing neutral to positive outcomes for other utility customers, such as downward rate pressure. On average, each facility generated $3.4 million in net surplus (i.e., revenues exceeding costs) that utilities could use to reduce rates for other customers, but implementation may vary by jurisdiction. Results were similar when projecting to 2030 as well, with surplus value of up to $6.1 million per 100 MW data center.[29] This surplus arises because much of a utility's network and public policy costs are fixed; adding large, high-load factor loads like data centers spreads those costs over more usage (i.e., kilowatt-hours), the amount of revenue the utility must collect from other customers and thus reducing their cost burden. Accordingly, the analysis found no evidence of cross-subsidization on an individual data center basis and that the evaluated facilities can actually produce benefits for other customers.

The study does caution that due to pace and scale of this load growth (both on an individual facility basis and in the aggregate) and tightening supply, utilities must keep pace and leverage the full range of risk mitigation tools available to them to continue to prevent cross-subsidization. The paper outlines key tools to consider and provides guidance on selecting among them based on factors such as utility size, market structure, scale of load growth, risk approach, etc.

These factors are critical because how large loads are integrated into the grid determine their impact on retail prices. For example, rates could rise if utilities invest in costly infrastructure to integrate new loads that later fail to materialize or underperform; as discussed in the next section, such risks can be simply and effectively mitigated through rate design and other risk mitigation tools. Conversely, large loads can help reduce rates by spreading fixed costs over their high usage, as illustrated above, and/or by minimizing their impact on the grid, such as by curtailing their demand during periods of grid stress.[30]

Utilities have seen data center growth create downward pressure on electricity rates by improving system utilization and spreading fixed costs across a broader demand base. Xcel Energy CEO Bob Frenzel explains the underlying mechanism: "if you put more units of production through a fixed asset, the rate for everybody comes down. A large data center load on your system should, all things being equal, drive prices down for electricity, not up."[31] In Georgia growth is expected to place downward pressure on residential bills of $8.50/month from 2029-2031, and in Michigan residential costs are expected to lower by 8% due to recently approved data center contracts.[32] In more illustrative terms, the South Carolina Power Team shared that "in 2024, Google paid the equivalent of 136,000 residential homes to our fixed costs. That's 136,000 homes that we'd have to bring into our system to offset what they're bringing to us. If they're not here, those costs are spread amongst all of our members. The economic impact and benefit for our system is just huge."[33] Pacific Gas

[26] Wiser, R., O'Shaughnessy, E., Barbose, G., Cappers, P., & Gorman, W. (2025). *Factors influencing recent trends in retail electricity prices in the United States. The Electricity Journal, 38(4)*, Article 107516. https://doi.org/10.1016/j.tej.2025.107516

[27] Wiser, R. H., Barbose, G. L., Gorman, W., O'Shaughnessy, E., Forrester, S., Donohoo-Vallett, P., Cappers, P., Deason, J., Hledik, R., & Lam, L. (2026). *Retail electricity price trends and drivers: Data update—2026 edition*. Lawrence Berkeley National Laboratory. https://eta-publications.lbl.gov/sites/default/files/2026-03/retail_price_trends_2026_edition.pdf

[28] Riu, I., Patel, K., Mettetal, L., Santoni-Colvin, M., Greszczuk, S., Cardona, J., Bertrand, L., Spencer, S., & Ramirez, S. (2025). *Tailored for scale: Designing electric rates and tariffs for large loads*. Energy and Environmental Economics, Inc. https://www.ethree.com/wp-content/uploads/2025/12/RatepayerStudy.pdf

[29] The projections evaluated Amazon data centers in isolation, without modeling underlying system changes to supply and demand. For the 2030 projects, current rate constructs were extended to develop bookend scenarios to illustrate the range of impacts under various resource assumptions.

[30] Borenstein, S. (2025, September 29). *What will data centers do to your electric bill?* Energy Institute Blog. https://energyathaas.wordpress.com/2025/09/29/what-will-data-centers-do-to-your-electric-bill/

[31] Bob Frenzel, Chairman & CEO, Xcel Energy, remarks on data center load and electricity pricing, *Finance & Commerce*, 2026. https://finance-commerce.com/2026/01/xcel-energy-ceo-data-centers-lower-electricity-costs/

[32] Wiser, R. H., Barbose, G. L., Gorman, W., O'Shaughnessy, E., Forrester, S., Donohoo-Vallett, P., Cappers, P., Deason, J., Hledik, R., & Lam, L. (2026). *Retail electricity price trends and drivers: Data update—2026 edition*. Lawrence Berkeley National Laboratory. https://emp.lbl.gov/sites/default/files/2026-03/Retail%20Price%20Trends_2026%20edition.pdf

[33] James Chavez, President & CEO, South Carolina Power Team, remarks on Google load contributions and fixed cost recovery, 2025.

& Electric (PG&E) has also found this to be true and measured the benefit, reporting large load growth has enabled electric rate reductions four times over the past two years; it estimates that each gigawatt of new load can lower customer bills by 1%, but wildfire-related costs continue to put pressure on overall affordability.[34]

In examining data centers in the aggregate, E3's study for the Virginia Joint Legislative Audit and Review Commission (JLARC) also found no evidence of a significant historical and present-day cost shift in the state which includes the world's largest data center market. The analysis concluded that Virginia's current retail rate structures appropriately allocate costs to the customer classes responsible for incurring them, with data center customers paying their proportional share of generation, transmission, and distribution costs.[35]

The study emphasizes, however, that maintaining rate equity becomes more complex as load growth accelerates. Because cost allocation factors and revenue requirements are updated periodically through regulatory proceedings, rapid increases in large load demand can create temporary imbalances between cost incurrence and cost recovery. In such cases, regulatory lag may result in short-term under-collection from fast-growing customer classes and over-collection from others until rates are reset. The study further notes that large-scale demand growth is unlikely to place downward pressure on retail rates in the near term without substantial generation and transmission investments made in advance of, or concurrent with, load expansion.

Finally, the analysis identifies additional structural considerations that could influence retail prices even when cost allocation methodologies are conceptually sound. These include the magnitude of required capital investment and its implications for utilities' cost of capital, the potential for stranded costs if large load customers depart under competitive supply arrangements without appropriate indifference mechanisms, and localized wholesale price effects where concentrated load growth increases congestion and locational marginal prices. The overarching conclusion is that current regulatory frameworks are functioning as intended, but sustaining that outcome amid continued rapid data center expansion will require vigilant oversight, timely rate adjustments, and rate design mechanisms that appropriately align cost responsibility with cost causation.

A 2026 Georgia Institute of Technology working paper, *The Local Economic Effects of Data Center Entry*,[36] provides one of the most systematic retrospective analyses of local impacts following data center entry. Using a difference-in-differences approach, the paper estimates that data center entry can raise local electricity rates, although impacts are difficult to isolate because utility service territories often span multiple counties. In counties with lower "spillover exposure"—that is, counties sharing a utility with fewer neighboring counties—the paper finds statistically significant price increases of about 5.0% for total electricity prices; these are driven by larger estimated increases in industrial rates (6.6%) and smaller increases in residential and commercial rates (3.6% each). These results measure near to medium-term effects, comparing prices three years before and after data center activation between 2010-2024. In higher-spillover areas, the estimates are weaker or not statistically significant, which the authors interpret as a measurement problem rather than evidence of no effect. Because prices are measured at the county level while costs are recovered across wider utility territories, the paper may understate the full geographic reach of rate impacts even in cases where it detects statistically significant effects for individual counties, and the authors are careful in stating that the results should be interpreted with caution.

While informative, the study has limitations that are important to note. Its causal design compares counties with and without data center entry, but the authors acknowledge they cannot fully rule out selection bias if data centers are more likely to locate in areas already on stronger growth trajectories. Further, the finding in only low spillover counties points towards relatively small utility territories and the median data center entry is 10 MW, so it is not fully representative of general trends. More broadly, the study focuses on initial data center entry and cannot fully disentangle the effects of later clustering, local selection factors, or other unobserved differences in data center siting and economic outcomes. In addition, the study does not differentiate the effect of recently published utility rates designed to protect ratepayers from rising cost, nor does it evaluate how fairly costs are distributed across customer classes. As such, the findings may best be viewed as an early indication of possible price effects, rather than a definitive estimate, highlighting the need for further research, particularly in understanding the effects of today's rapidly expanding large load clusters.

[34] Penrod, E. (2026, February 17). *Data center growth has helped PG&E cut rates 11% since 2024, CEO says.* Utility Dive. https://www.utilitydive.com/news/data-center-growth-has-helped-pge-cut-rates-11-since-2024-ceo-says/812230/

[35] Patel, K., Steinberger, K., DeBenedictis, A., Wu, M., Blair, J., Picciano, P., Oporto, P., Li, R., Mahoney, B., Solfest, A., Bhandarkar, R., & Shah, A. (2024). *Virginia data center study: Electric infrastructure and customer rate impacts* (Presentation/technical report). Joint Legislative Audit and Review Commission. https://jlarc.virginia.gov/pdfs/presentations/JLARC%20Virginia%20Data%20Center%20Study_FINAL_12-09-2024.pdf

[36] Yue, Daniel and Zeng, Yiyang, *The Local Economic Effects of Data Center Entry* (March 30, 2026). Available at SSRN: https://ssrn.com/abstract=6497238 or http://dx.doi.org/10.2139/ssrn.6497238

Finally, a related March 2026 white paper, *The Terms of Power: Inside the New Utility Rates for Data Centers*,[37] finds that emerging data center-specific utility tariffs are increasingly focused on protecting non-data-center customers through mechanisms such as long contract terms, minimum demand and collateral requirements, and explicit cost ring-fencing. At the same time, the paper notes that many tariffs still do little to capture two potentially important sources of value: load flexibility, which could reduce system costs by shifting or curtailing demand during a relatively small number of peak grid-stress hours, and clean energy procurement, which remains absent from many tariffs and therefore leaves natural gas as the default supply option in many jurisdictions.

The paper suggests that while recent tariff design shows meaningful progress on ratepayer protection, there appears to be less consistent integration of features that could further align data center growth with grid flexibility and a cleaner resource buildout.

Taken together, the backward-looking studies provide a nuanced historical record. The current quantitative evidence suggests no indication that ratepayers have subsidized data centers, and more broadly, the relationship between load growth and rising electricity rates is unclear. This underscores both the inherent geographic variation, driven by differences in market dynamics and cost allocation frameworks, as well as the need for further research.

Review of Forward-Looking Studies

Recent forward-looking studies have examined how rapid data center growth could affect future electricity costs, when rising demand might increase costs for other customers, and how regulators and utilities could reduce those risks.

One study from the Federal Reserve Bank of Dallas looks at how the data center boom could affect wholesale electricity prices and, in turn, inflation.[38] The study finds that rapid demand growth, absent stronger customer protections or load flexibility, could increase reliance on more expensive gas- and oil-fired plants during peak periods, raising wholesale power costs until new generation comes online.[39] The study estimates that annual inflation could increase by about 0.04 to 0.13 percentage points by 2030.[40]

These results rely on several simplifying assumptions including that wholesale electricity costs make up about half of customer bills, which can vary widely in practice, and that higher costs are passed through immediately – rather than with typical regulatory lag. It also assumes that there is no new regulatory action to assign these costs to large loads and to shield other customers from rapid load growth, which appears unlikely. The study also does not examine transmission, distribution, or interconnection costs, nor did it consider how these costs are passed through and allocated to different customer groups. Overall, the Dallas Fed study helps illustrate conditions that could increase wholesale electricity prices and highlights the importance of the regulatory framework to effectively allocate costs and protect customers.

The Electric Power Research Institute's recent Powering Intelligence report highlights a broader set of ways data center growth could reshape the U.S. electricity system.[41] The report emphasizes that future load growth is highly uncertain: much depends on how many announced projects are actually built, how quickly new facilities ramp up, and how energy-intensive future AI applications prove to be. EPRI estimates that data centers could account for 9% to 17% of total U.S. electricity demand by 2030, up from about 4% to 5% today. This growth is and will likely continue to be geographically uneven; while today, 20% of Virginia's electricity is consumed by data centers, this share could rise to 39-57% by 2030, and seven additional states could exceed a 20% share by that time in a medium scenario.[42]

Unlike the Dallas Fed study, the EPRI report does not estimate direct effects on retail rates or customer bills. Instead, it focuses on what kinds of generation may be added to serve various levels of growth under different policy and procurement choices to identify least-cost pathways. Under current federal and state policies, EPRI finds that the least-cost pathway is likely to rely heavily on new natural gas generation.[43] In contrast, if

[37] Latitude Intelligence. (2026, March). *The terms of power: Inside the new utility rates for data centers* (White paper). Latitude Intelligence. The Terms of Power: Inside the New Utility Rates For Data Centers | Latitude Media

[38] The Dallas Fed focuses specifically on changes in Personal Consumption Expenditures (PCE) Inflation, which is the US Federal Reserve's preferred inflation metric used to assess consumer price inflation.

[39] Kay, O., Kilian, L., & Taylor, R. (2026, March 5). *Data center boom expected to raise electricity component of PCE inflation.* Federal Reserve Bank of Dallas. https://www.dallasfed.org/research/economics/2026/0305-kay-datacenters

[40] Assumes continued renewable energy development and delayed retirement of some existing power plants as suggested by recent project data from the US Energy Information Administration (EIA). If renewable build-out slows sharply—for example, with little or no additional onshore wind and only 25% of expected solar additions—the inflation effect could be roughly twice as large, reaching 0.13 to 0.23 percentage points by 2030.

[41] Blanford, G., Wilson, T., Bistline, J., & Johnson, N. (2026). *Powering Intelligence 2026: Updated scenarios of U.S. data center electricity use and power strategies* (White paper). Electric Power Research Institute. https://www.epri.com/research/products/000000003002034696

[42] EPRI's Medium Scenario assumes 100% of Data Centers under construction are completed by 2030, as well as 75% of announced projects in advanced stages, and 10% of projects announced that are in early stages.

[43] Build-rates rise from 3.3 GW annually in scenarios without DC demand to 6.6-13.7 GW, a 2x to 4x increase in 2025-2030 depending on the scenario. Natural gas build exceeds past five-year average of 5.7 GW in all least-cost scenarios.

data center demand is paired with 24/7 carbon-free energy goals, the mix shifts toward renewables, batteries, and, where feasible, nuclear power. The study effectively suggests that while data center build-out does not automatically advance the energy transition, it could still help to finance cleaner resource buildout in states that choose that path. In the paper's conclusion, EPRI highlights that supporting projected load growth will require accelerated collaboration across industry, policy makers and local communities, with the potential for data center deployment to align with consumer and policy maker goals.

The Union of Concerned Scientists' (UCS) "Connection Costs" policy brief focuses on another specific but important problem: how grid connection costs are allocated when very large data centers connect directly to the high-voltage transmission system rather than the lower-voltage distribution system.[44] In simple terms, the regulatory framework was built around a world in which most new customers were much smaller and connected through the distribution grid. But when 100–1,000 MW data centers connect at the transmission level, those costs can flow into a part of the rate system overseen by FERC and then be passed through retail rates approved by state commissions, making it much harder to trace and assign them to the customer that caused them. UCS argues that this split oversight between utilities, state PUCs, and FERC creates a regulatory gap and weakens cost-causation principles.

Using PJM planning filings, the brief identifies 130 local transmission projects in seven PJM states tied to data center connections in 2024 and estimates $4.356 billion in related costs. It further finds that 6 of the 130 projects were described as having no cost to other customers, meaning the remaining 124 projects in those seven states possibly fed into the broader transmission cost pool paid by consumers.

The brief carefully notes one limitation: if some of those projects were partly covered through special contracts, line-extension policies, or other customer contributions, those offsets were not transparently credited in the transmission cost development it reviewed. That does not invalidate the concern, but it does mean the brief is best read as evidence of a serious transparency and incentive problem rather than as a final audited measure of net consumer harm. Despite the limited focus of this study on interconnections in PJM, its broader point is valid: where utilities earn returns on transmission investment as they increase their rate base, and where costs can be shared across all ratepayers instead of being assigned to large new loads, the incentives are not naturally aligned with ratepayer protection. This merits a careful review both at the state and federal level to ensure higher levels of transparency and appropriate assignment of cost causation to new large loads.

UCS therefore recommends a more transparent and targeted cost-allocation framework. In particular, it argues that FERC and state PUCs should require utilities to track transmission-level connection costs caused by specific customers, create a separate rate category for customers with direct transmission connections, and ensure that transmission built for a single large load is paid for by that customer or customer class rather than being rolled into costs for all ratepayers. Simply creating a new large load tariff, the brief argues, is not enough unless those connection costs are first clearly separated from broader transmission charges.

UCS' "Data Center Power Play" report takes a wider national view.[45] Rather than focusing on a single cost-allocation loophole, it uses NREL's ReEDS least-cost power-sector model to test how different data center growth assumptions and policy environments affect generation mix, system costs, emissions, and health damages. The study illustrates a range of data center outcomes, ranging from heavier reliance on gas to an expanded buildout of low-carbon resources. While the framing adds useful perspective on different policy trajectories, the results should be interpreted as scenario analysis rather than exact prediction.[46] UCS itself highlights important assumptions and limitations: it assumes only half of announced projects are built, allows projects to take up to five years to reach full load, does not model potentially critical demand flexibility, and relies on a national least-cost model that cannot capture the local reliability, interconnection, and procurement realities that often determine what actually gets built. Despite those limitations, the study broadens the discussion beyond wholesale prices alone and offers complementary policy recommendations: ensure data centers pay their full incremental costs, improve long-term utility planning and transparency, and reform interconnection and transmission rules to reduce barriers for clean resources while avoiding rising emissions and cost shifts to other customers.

[44] Jacobs, M. (2025). *Connection Costs: Loophole costs customers over $4 billion to connect data centers to power grid* (Policy brief). Union of Concerned Scientists. https://www.ucs.org/sites/default/files/2025-09/PJM%20Data%20Center%20Issue%20Brief%20-%20Sep%202025.pdf

[45] Clemmer, S., Chavez, M., Dotson, S., Gignac, J., Sattler, S., & Shaver, L. (2026). *Data Center Power Play: How clean energy can meet rising electricity demand while delivering climate and health benefits* (Report). Union of Concerned Scientists. https://www.ucsusa.org/resources/data-center-power-play

[46] Under its Current Policies case, the model relies more heavily on gas, while under Restored Tax Credits and a stronger Low-Carbon Policy case, more of the incremental demand is met with wind, solar, storage, and other low-carbon resources.

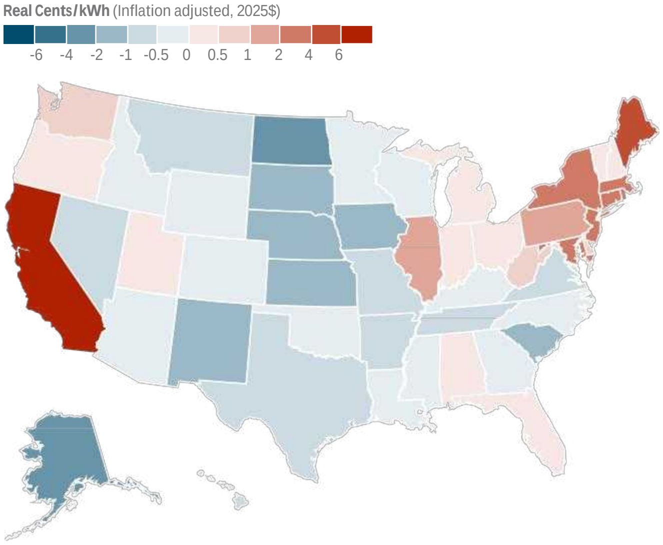
Drivers of Rising Electricity Rates

In reviewing literature on factors that have contributed to rising electricity prices, data centers have been found to have an unclear relationship with electricity rates. In the 2026 LBNL study discussed above, analyzing state-level trends across retail electricity prices from 2019-2025 (inclusive of the residential, commercial and industrial sectors),[47,48] LBNL found that over the last 6 years, nominal electricity prices have risen 29% from 2019 to 2025.

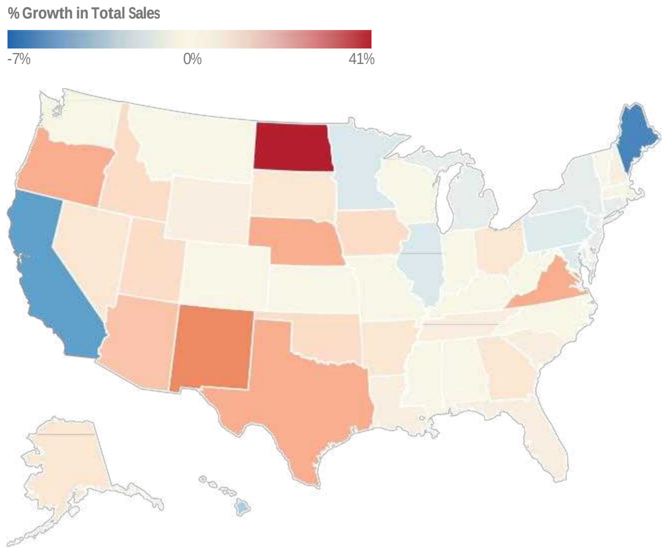
These pricing trends vary between states and for different customer classes, with states on the West Coast and in the Northeast (Maine, New York, Massachusetts, Rhode Island, Pennsylvania, New Jersey, Connecticut, and Maryland) driving US-wide electricity price increases. After adjusting for inflation, 29 states saw price declines from 2019-2024, while 22 states experienced increases.

Figure 5: LBNL Analysis of State Electricity Prices (Inflation Adjusted) and Electricity Sales[49]

Change in Average Retail Electricity Prices: 2019 to 2025



Growth in State Retail Electricity Sales: 2019 to 2025



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[47] Wiser, R., O'Shaughnessy, E., Barbose, G., Cappers, P., & Gorman, W. (2025). *Factors influencing recent trends in retail electricity prices in the United States.* The Electricity Journal, 38(4), Article 107516. https://doi.org/10.1016/j.tej.2025.107516

[48] Wiser, R. H., Barbose, G. L., Gorman, W., O'Shaughnessy, E., Forrester, S., Donohoo-Vallett, P., Cappers, P., Deason, J., Hledik, R., & Lam, L. (2026). *Retail electricity price trends and drivers: Data update—2026 edition.* Lawrence Berkeley National Laboratory. https://eta-publications.lbl.gov/sites/default/files/2026-03/retail_price_trends_2026_edition.pdf

[49] Wiser, R. H., Barbose, G. L., Gorman, W., O'Shaughnessy, E., Forrester, S., Donohoo-Vallett, P., Cappers, P., Deason, J., Hledik, R., & Lam, L. (2026). *Retail electricity price trends and drivers: Data update—2026 edition.* Lawrence Berkeley National Laboratory. https://eta-publications.lbl.gov/sites/default/files/2026-03/retail_price_trends_2026_edition.pdf

LBNL concluded that substantial variables correlated with electricity prices included:

- **Transmission, Distribution, and Business Operation Costs:** Increased spending in transmission and distribution infrastructure has contributed to retail price increases, with significantly higher impacts in CAISO, ISO-NE, and NYISO. For California, wildfire costs are included in the distribution category; storms and wildfires have significantly increased retail electricity prices in some states. Drivers of distribution and transmission investment include expansion; adaptation, hardening, and resilience; and replacement initiatives. Growth in costs has partially been driven by elevated equipment prices above the pace of inflation, due to supply chain constraints.
- **Wind and solar growth under state Renewable Portfolio Standard programs:** State policies requiring renewable energy deployment were correlated with higher prices. Wind and solar growth that were not subject to the same policies did not have a measurable impact on prices. In particular, net metering (NEM) solar penetration was correlated with increased prices, with an impact as high >2 cents/kWh in California. This is consistent with E3's assessment of cost shift associated with NEM solar, as many utility rate structures do not charge NEM customers the fair share of the fixed infrastructure costs required to serve them.
- **Natural Gas Dependency:** Electricity prices are sensitive to natural gas prices, depending on the amount of gas-dependent generation within each state. Particularly between 2019-2025, natural gas prices fluctuated substantially with the Ukraine-Russia war, causing similar fluctuations in retail electricity prices.
- **Load Growth:** In most states, load growth was associated with declining average retail prices between 2019-2025, with prices increasing in states with load decline. In general, load growth can spread fixed costs over large, high utilization customers as discussed in Rate Design Primer. However, PJM was the exception to this trend, with load growth being attributed as a factor in PJM's recent capacity price increases. The impact of load growth on PJM capacity prices is further discussed in the PJM 2025/2026 Case Study section.

LBNL's study offers a valuable overview of macro-trends in electricity prices and highlights correlations between prices and specific variables. Focusing on retail electricity prices is important because they reflect the combined effect of multiple cost factors as discussed above. By contrast, isolating a single component, such as locational marginal prices, offers a much narrower and limited perspective and can be highly sensitive to localized factors, such as fuel price volatility, congestion and weather.[50]

The Charles River Associates report found a similar trend. In analyzing recent average US electricity price trends, prices have increased by 30% over the last five years (inclusive of inflation), but these price increases have primarily been observed in states in the Northeast and California.[51] To determine the cause of price increases in the Northeast and California, CRA compiled data from utility annual financial reports. In California, CRA found that price increases have primarily been driven by increases in wildfire spending and their Net Energy Metering rooftop solar program. In the Northeast, price increases have primarily been driven by purchased power and operations and maintenance (O&M) costs, specifically for utilities that do not own generation. As noted in the primer, customers in wholesale markets are subject to higher volatility than customers of vertically integrated utilities. For example, in the Northeast, retail customers in Pennsylvania and Maryland faced the highest rate increases, in part due to PJM capacity price increases, whereas customers of Dominion Energy (a utility that owns generation) only experienced a minor rate impact.

[50] Saul, J., Nicoletti, L., Pogkas, D., Bass, D., & Malik, N. (2025, September 29). AI data centers are sending power bills soaring [Interactive graphic]. Bloomberg. https://www.bloomberg.com/graphics/2025-ai-data-centers-electricity-prices/

[51] DeCourcey, M., & Saraswat, M. (2026, February 2). Retail rate trends in the US (Report prepared for the Edison Electric Institute). Charles River Associates. https://media.crai.com/wp-content/uploads/2026/02/02092628/Retail-rate-trends-in-the-US.pdf

Select Market Overviews

Data center development has historically been geographically concentrated in a handful of regions.[52] Each operates under distinct regulatory and market frameworks with structural differences that meaningfully shape how large load growth affects wholesale markets, retail rate design, and cost allocation. The following overviews compare and contrast these impacts in more depth for PJM, ERCOT, Georgia, Arizona and Missouri.

PJM Overview

Market Structure and Risk Allocation

PJM operates a centralized wholesale electricity market across 13 Mid-Atlantic and Northeastern states and the District of Columbia. Generation is competitive, with revenues derived from both the energy market and capacity market payments. Transmission infrastructure is planned regionally by PJM but owned and operated by regulated transmission utilities, with costs generally recovered through rates approved by state and federal regulators. Load-serving entities (LSEs), including utilities and competitive retail suppliers, are responsible for procuring capacity and energy to meet customer demand.

PJM's market structure distributes risk across multiple market participants. Generation investment risk is borne largely by private developers, who rely on capacity and energy market revenues to recover costs. However, unlike energy-only markets, PJM's capacity construct shifts some long-term resource adequacy risk to LSEs and, ultimately, retail customers, as capacity procurement costs are typically passed through to end users depending on retail rate design and regulatory frameworks.

For network and generation capacity needed to serve large loads, risk is shared between developers, LSEs, and customers. Transmission upgrades required for interconnection are identified through PJM's interconnection process, with a significant portion of costs directly assigned to the interconnecting generator or load. However, broader regional transmission upgrades and capacity procurement costs are often socialized across all customers.

The primary risks posed by large loads such as data centers in PJM relate to (1) upward pressure on capacity prices in a tightening supply-demand environment, and (2) potential cost socialization through capacity and transmission charges. These risks are partially mitigated through interconnection cost assignments, evolving large load integration reforms, and procurement and hedging strategies employed by LSEs.

Scale of Growth and Market Trends

PJM has experienced increasing projected load growth driven by data centers, industrial expansion, and electrification. The region includes several of the largest data center markets in the world, most notably Northern Virginia, which has seen sustained and concentrated data center development. Recent PJM forecasts indicate a notable increase in peak demand, reflecting the growing influence of large load customers.

[52] CBRE. (2026, February 25). North America data center trends H2 2025. CBRE. https://www.cbre.com/insights/books/north-america-data-center-trends-h2-2025

CASE STUDY

PJM 2025/2026 Capacity Auction

PJM, the ISO/RTO for 13 Mid-Atlantic and Northeastern states and DC, saw a significant price spike in its 2025/2026 capacity auction. Given the substantial load growth in this region, this has prompted questions about the extent that large loads such as data centers have driven this increase.

Why Did It Happen?

Fundamentally, capacity prices are a function of supply and demand, but also several recent changes in the PJM capacity market impacted capacity auction clearing prices:

- **Power Plant Retirements:** There have been a growing number of power plant retirements, with over 9 GW retiring in PJM from 2023-2025,[56] and over 15 GW of announced retirements through 2030.[57] Most of these retirements stem from coal- and gas-fired resources, which have higher capacity accreditation than wind, solar, and battery storage.
- **Less Reliable Fossil Fuel Resources:** There was a substantial change to the methodology impacting the reliability contribution of fossil fuel resources, thereby lowering the amount of available supply. Following extreme weather events, such as Winter Storm Elliott, during which several gas plants failed to perform, fossil fuel resources were deemed less reliable and assigned lower capacity values for planning purposes.
- **Change in Reliability Target:** Given past extreme weather events, PJM increased the Installed Reserve Margin (IRM), as well as changed the methodology in which reliability is calculated.
- **Limitations in New Capacity Additions:** Adding new capacity has also been challenging. Due to lack of sufficient transmission, the cost of interconnection and timeline for interconnection studies have steeply increased, as well as an increase to the cost of new turbines, discouraging developers from building new generation. Historically, it has taken PJM eight years to bring new generation online,[58] prompting reforms aimed at streamlining the interconnection process. Progress continues to lag as from 2023 to 2025, PJM only added 4.7 GW of gas. While it added many other resources, most of those resources have much lower share of accredited capacity. In terms of nameplate capacity, PJM added 1.2 GW of onshore wind, 10.2 GW of solar, and 320 MW of battery storage capacity.[59]
- **Increase in Forecast Load:** The forecast load in the 2025/2026 delivery year was 153 GW, which was an increase of 3.2 GW compared to the previous year.[60] PJM attributes this load growth to data centers, industrial growth, and electrification, with ~93% of the forecast being driven by forecast data center additions,[61,62,63] as the PJM territory includes several major data center markets, most notably Northern Virginia – the largest in the world.

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[53] Note that these are prices awarded per effective capacity and after reliability accreditation and are not nameplate capacity.

[54] Shapiro, J. (2025, January 28). *Governor Josh Shapiro reaches agreement with PJM to prevent unnecessary price hikes and save consumers over $21 billion on utility bills* (Press release). Commonwealth of Pennsylvania Governor's Office. https://www.pa.gov/governor/newsroom/2025-press-releases/gov-shapiro-agreement-pjm-prevent-price-hikes-save-consumers-ove

[55] DeCourcey, M., & Saraswat, M. (2026, February 2). *Retail rate trends in the US* (Report prepared for the Edison Electric Institute). Charles River Associates. https://media.crai.com/wp-content/uploads/2026/02/02092628/Retail-rate-trends-in-the-US.pdf

[56] PJM Interconnection. (n.d.). *Generation deactivations.* PJM. https://www.pjm.com/planning/service-requests/gen-deactivations

[57] PJM Interconnection. (2023, February 24). *Energy transition in PJM: Resource retirements, replacements, and risks* (Special report). PJM. https://www.pjm.com/-/media/DotCom/library/reports-notices/special-reports/2023/energy-transition-in-pjm-resource-retirements-replacements-and-risks.ashx

[58] Weeks, A., Toth Kotwis, S., Siegner, K., & Teplin, C. (2025, November 4). *PJM's speed to power problem and how to fix it.* Rocky Mountain Institute. https://rmi.org/pjms-speed-to-power-problem-and-how-to-fix-it/

[59] Hitachi Energy Velocity Suite

[60] PJM Interconnection, L.L.C. (2024). *2025/2026 RPM Base Residual Auction planning period parameters.* https://www.pjm.com/-/media/DotCom/markets-ops/rpm/rpm-auction-info/2025-2026/2025-2026-planning-period-parameters-for-base-residual-auction-pdf.pdf

[61] Horger, T., & Keech, A. (2024, August 21). *2025/2026 Base Residual Auction results* (Presentation). PJM Markets & Reliability Committee. https://www.pjm.com/-/media/DotCom/committees-groups/committees/mrc/2024/20240821/20240821-item-08---2025-2026-base-residual-auction---presentation.pdf

[62] Mooney, M. (2024, December 9). *2025 preliminary PJM load forecast* (Presentation). PJM Load Analysis Subcommittee. https://www.pjm.com/-/media/DotCom/committees-groups/subcommittees/las/2024/20241209/20241209-item-03----2025-preliminary-pjm-load-forecast.pdf

[63] Monitoring Analytics, LLC. (2025, June 3). *IMM analysis of the 2025/2026 RPM base residual auction: Part G* (Revised). https://www.monitoringanalytics.com/reports/reports/2025/IMM_Analysis_of_the_20252026_RPM_Base_Residual_Auction_Part_G_20250603_Revised.pdf

In PJM's Independent Market Monitor's Report,[64] Monitoring Analytics estimated the price impact of reducing data center load growth on prices. In tight supply conditions, reduced data center load growth would have a significant impact on prices. However, tight supply conditions were also caused by a number of factors illustrated above that were unrelated to load growth. Prior to market and programmatic developments observed in the 2025/26 capacity auction and complemented by relatively flat load growth due to energy efficiency investments, capacity prices were too low to effectively signal the need for new reliability-driven resource builds. However, PJM is now experiencing load growth driven by electrification and large loads, such as manufacturing reshoring and data centers, while new supply, constrained by long development and interconnection timelines, has struggled to keep pace. Given these market and programmatic factors, market tightening and higher prices were already forecast, with recent load growth accelerating this dynamic. E3's proprietary analysis in Figure 6 shows that ~50% of the price increases in the 25/26 auction can be attributed to the load growth in PJM, whereas the remaining ~50% can be attributed to changes in programmatic parameters (IRM, FPR, ELCC, VRR curve), supply constraints, and the assumed net cost of new entry (Net CONE) of the assumed marginal capacity resource.[65]

Although data center load growth has contributed to higher capacity prices, the impact on other customers depends on how those increased costs are allocated, which is determined by utilities and regulators through rate design and cost recovery frameworks. Key risk mitigation measures therefore include ensuring increased costs are allocated appropriately across customer classes, helping to limit potential cost shifting.

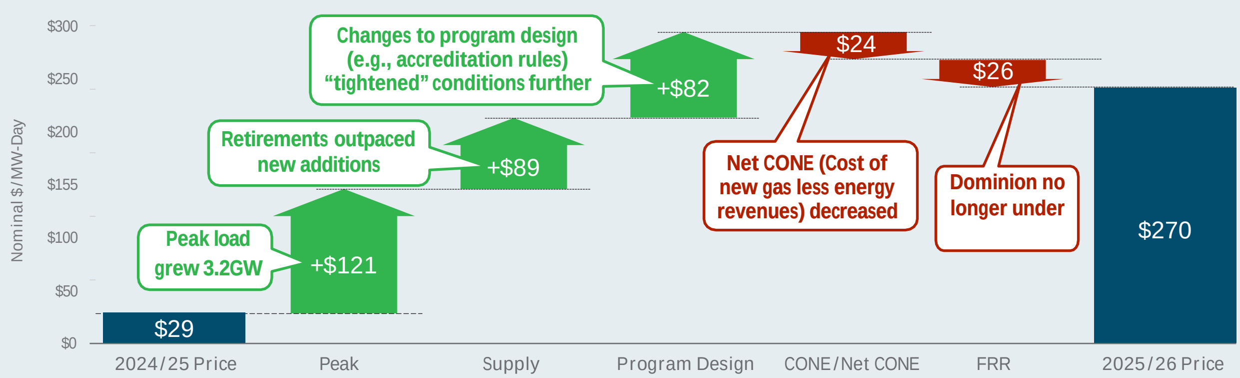
Policy Responses and Customer Risk Protection

While data centers were only one factor amongst many influencing the major capacity price increase from the 2024/2025 to the 2025/2026 auction year, going forward, future forecast data center load growth could drive further capacity price increases in PJM.[67]

To mitigate further price spikes, PJM has implemented short-term emergency measures, such as:

- **Price Cap and Floor:** Following an agreement in January of 2025 with the governor of Pennsylvania, a temporary price cap and floor was approved for the next two PJM capacity auctions (2026/2027 and 2027/2028 delivery years). This was meant to ensure that customers aren't paying for elevated capacity prices while more long-term reforms are implemented.
- **Inclusion of Retiring Power Plants in Supply Calculations:** Previously, power plants that are slated for retirement but are kept operational ("reliability must run" units) were excluded from supply calculations in capacity price auctions. New PJM market reforms, which have been approved by FERC, will allow those power plants to be included in capacity price auctions.

Figure 6: E3 Analysis of the Capacity Price Auction Changes between 2024/2025 and 2025/2026[66]



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64 Monitoring Analytics, LLC. (2025, October 1). Analysis of the 2026/2027 RPM base residual auction: Part A.

65 Fixed Resource Requirement (FRR), Effective Load Carrying Capability (ELCC), Variable Resource Requirement Curve (VRR) Curve. While the case study above is focused on the 25/26 auction, E3 also conducted an analysis of the drivers contributing to the incremental capacity price increases in the 26/27 and 27/28 auction, looking at the price levels that PJM itself calculated that the auction would have cleared absent the lower negotiated price cap. Peak load increases drove much of the incremental price increase in the 26/27 auction (which was somewhat mitigated by additional offered resources); 27/28 price increase is more difficult to determine, as it is difficult to isolate whether it was limited supply growth or peak load growth that contributed to failure of meeting the reliability requirement.

66 Graphic derived from a reconstruction of PJM capacity auctions using a simplified supply–demand framework in which ELCC-adjusted capacity supply intersects an administratively defined VRR curve to determine clearing prices. The model decomposes price changes across five primary drivers (peak load, supply CONE/Net CONE, program design, and FRR) by running counterfactual scenarios and averaging impacts across all permutations of factor ordering (i.e., a Shapley-style attribution approach). Net CONE (cost of new gas less energy revenues), in addition to Gross CONE, informs the demand curve, which impacts where capacity prices clear in the auction. Implied ICAP values and category-level adjustments are estimated from publicly reported PJM data and supplemented with structured assumptions where disclosures are incomplete, including calibration to align ICAP, UCAP, and observed auction outcomes. FRR capacity is adjusted to reflect its effective participation in auction supply. Results represent an internally consistent decomposition of observed outcomes and are intended to illustrate relative driver contributions under a controlled framework; they do not reflect unit-level bidding behavior or fully dynamic market responses to price.

67 Mooney, M. (2024, December 9). *2025 preliminary PJM load forecast* (Presentation). PJM Load Analysis Subcommittee. https://www.pjm.com/-/media/DotCom/committees-groups/subcommittees/las/2024/20241209/20241209-item-03----2025-preliminary-pjm-load-forecast.pdf

On the demand side, PJM has also created "Critical Issue Fast Path" (CIFP) which is an accelerated stakeholder process to reform the large load integration process, and has proposed three potential market design frameworks. Other measures for consideration include curtailment obligations, contractual commitments to reduce speculative load in capacity planning, and expedited interconnection for loads paired with generation (i.e., "bring your own generation") to further help alleviate supply constraints. Moreover, PJM has noted that current load forecast is likely elevated and it expects to see a reduction in forecasted demand as it reforms its forecasting approach to further align its future load forecasts with expected realities.

Risk mitigation can also be embedded into rate design as previously discussed to reduce the potential of stranded assets if projected load doesn't materialize or underperforms. In addition, utilities can manage exposure through hedging and other procurement strategies to limit price volatility and risk.

State Governors and the White House are closely scrutinizing this issue and in January 2026, released a "Statement of Principles Regarding PJM" to PJM and FERC, outlining a set of suggested emergency reforms to address capacity shortages and mitigate future price increases. These included providing 15-year revenue certainty to new generation (such as via a Reliability Backstop Auction, or "RBA"), allocating costs to data centers that have not self-procured or agreed to be curtailable, extending the price collar to the next two auctions, improve load forecasting to avoid building for speculative loads, and accelerate generator interconnection studies especially for resources in the backstop auction.[68]

In April 2026, PJM responded to the Statement of Principles Regarding PJM with its own proposal that provides more details about the proposed Reliability Backstop Auction.[69] Specifically, PJM proposes a one-time additional capacity procurement measure to address the rising gap between forecasted load and delivered capacity.

- **Bilateral Contracting Stage:** A first step establishes a bilateral contracting phase (planned for September 2026 through March 2027), where PJM acts as confidential matchmaker between interested parties and aims to keep as much additional capacity and newly procured power outside of the auction framework.[70]
- **Central Procurement Structure:** Any parties unable to contract their capacity through bilateral contracting are allowed to bid into a second, centralized, pay-as-bid auction in 2027 to procure the remaining resources. PJM will act as counterparty on behalf of Electric Distribution Companies estimating around ~15 GW of new capacity procured in this auction.[71]

The proposed backstop auction is attractive for generators due to the long-term capacity revenue security, and it would support the procurement of additional capacity that cannot be procured under the normal, price-capped regular capacity auction. This would help ease some of the supply constraints in PJM. However, this new measure would not solve other key bottlenecks such as equipment and interconnection queue backlogs. The tight June 2031 interconnection deadline also means that many of the current parties interested in developing new capacity are unable to participate, which would limit the amount of new capacity procured in the backstop auction. Relating to auction design, the 2-15-year capacity contracting schedule would lead EDC's to adjust their large load rates and implement requirements to post larger securities and enter long-term offtake agreements. This would allow EDCs to reduce the risk of sudden exits of large loads, which would negatively impact ratepayers. When it comes to capacity price impacts, the longer term contracting option and revenue security of the RBA will likely mean that average bid prices are lower than they would be if the current regular annual auctions were uncapped. Whether average prices fall below the price cap or the individual pay-as-bid price range remains uncertain and requires further quantitative analysis. The impact of this backstop auction on regular capacity auction prices also remains unclear and will depend on the remaining gap between load forecast and procured capacity.

Independent of the uncertain outcomes of the Reliability Backstop Auction and potential PJM market reforms, capacity prices will continue to be driven by multiple factors in addition to load growth such as the pace of new generation interconnection, retirement schedules and market design choices. It's important to note that capacity prices are only one category of costs that impacts retail rates, and utilities ultimately allocate costs across different rate classes to determine the final impact on rates and requires careful considerations.

[68] U.S. Department of Energy. (2026, January 15). *Statement of principles regarding PJM* (PDF). U.S. Department of Energy. https://www.energy.gov/documents/statement-principles-regarding-pjm

[69] PJM Interconnection. (2026, April 16). *Critical Issue Fast Path – Reliability Backstop Procurement PJM Proposal* (PDF). https://www.pjm.com/-/media/DotCom/committees-groups/cifp-rbp/2026/20260416/20260416-item-05---pjm-reliability-backstop-procurement-proposal---paper.pdf

[70] By allowing resources and loads to contract outside the regular market, this eases the pressure on Electric Distribution Companies (EDCs) to deal with long-term off-take and procurement risk as well as ratepayer impacts for a potentially important percentage of new load and capacity.

[71] The auction is scheduled as pay-as-bid for contract terms ranging from 2 to 15 years. Bidders must have a commercial operation date no later than June 1st, 2031. Any entity contracted through this mechanism will automatically be added to the regular capacity auctions for the duration of its contracting period and paid at their initial clearing price. This is akin to a Contract for Difference (CfD) structure, where the entity is paid more than the regular auction price, if its contract value sits above and less in case that it sits below the annual clearing price.

ERCOT Overview

Market Structure and Risk Allocation

ERCOT operates under an energy-only wholesale market with retail competition and unbundled utilities in Texas. Generation is competitive and generators earn revenue through energy market prices. Transmission and distribution infrastructure is owned by regulated Transmission and Distribution Utilities (TDUs), such as Oncor and CenterPoint, whose rates are overseen by the Public Utility Commission of Texas (PUCT). Retail Electric Providers procure power in wholesale markets and sell it to end-use customers.

This structure distributes risk differently than in vertically integrated states. Generation investment risk is borne primarily by private developers and market participants rather than embedded in regulated retail rates. Retail rate exposure depends on procurement arrangements and hedging practices.

For networked infrastructure required to serve large loads, the key risk bearer is the regulated TDU. Transmission and distribution upgrades required to interconnect large customers are identified through formal interconnection studies. Dedicated facilities and many load-triggered upgrades are directly assigned to the connecting customer, reducing the likelihood that customer-specific infrastructure costs are broadly socialized. Financial security requirements and milestone-based construction processes further mitigate stranded asset risk at the infrastructure level.

As a result, the primary risk that data centers pose is to TDUs, within their management of network costs and stranded asset mitigations, and on the ability of retail electric providers to hedge against high prices.

Scale of Growth and Market Trends

Texas has experienced significant projected load growth driven by data centers, electrification, hydrogen fuel production, increased heating and cooling needs due to extreme weather, crypotocurrency mining, and population growth. The Dallas–Fort Worth area in particular has become a major hub for data center development. In 2024, there was 6.5 GW of large load approved to operate in ERCOT.[72]

Despite this growth, recent state-level analyses do not show a clear correlation between load growth and retail rate increases. For example, the LBNL study examining retail electricity price trends found that Texas experienced substantial load growth while maintaining comparatively modest retail price increases relative to regions such as California and the Northeast. This suggests that historical rapid load growth in Texas has not translated into disproportionate retail rate escalation.

In an interview with Dr. Ning Lin of The University of Texas at Austin, she noted that evidence across markets is mixed, and that electricity rate trends are shaped by multiple overlapping factors, making them difficult to attribute to any single driver. She suggested that some observed rate increases may reflect underlying system needs, such as ongoing investments to maintain and upgrade infrastructure, which could put upward pressure on rates even in the absence of new large loads. In Texas, she noted that recent residential rate increases reflect a combination of drivers- transmission and distribution capital investment, post-Winter Storm Uri reliability spending, storm cost recovery, and natural gas fuel-cost volatility - much of which would have been required to maintain reliability and serve population growth independent of incremental data center load. This underscores the importance of defining the appropriate base case and counterfactual for comparison – distinguishing between investments that would have occurred anyway from those driven by incremental demand. She also emphasized that as new large-load demand materializes, the binding policy question shifts from backward attribution toward forward design, specifically, how to allocate the costs of incremental system investments equitably across customer classes, a question regulators in Texas are now actively addressing.[73]

[72] Hodge, T. (2024, October 3). *Data centers and cryptocurrency mining in Texas drive strong power demand growth.* U.S. Energy Information Administration. https://www.eia.gov/todayinenergy/detail.php?id=63344
[73] Interview with Dr. Ning Lin, University of Texas at Austin, April 2026

Policy Responses and Customer Risk Protection

In response to broader reliability concerns and future forecasts of substantial load growth,[74] the state has undertaken a series of market reforms and reliability initiatives. Most notably, Senate Bill 6 mandates the PUCT to ensure that large load customers contribute to network upgrades and establishes interconnection standards for large load customers which will minimize stranded costs and maintain system reliability. Notable features of Senate Bill 6 include:[75]

- Require disclosure of duplicative interconnection requests within Texas
- Require demonstration of site control and financial commitment
- Disclose on-site back-up generation
- Require that large load customers connecting after December 31, 2025 allow load curtailment during emergency conditions

Going forward, these reforms will help mitigate the risks of cost shifting and electricity impacts from data center growth.

Alongside these policy efforts, more coordinated, data-driven and stakeholder-focused planning approaches are also emerging, such as COMPASS initiative – a multi-disciplinary research consortium based at the Bureau of Economic Geology at The University of Texas at Austin.[76] In an interview, Dr. Ning Lin, principal investigator of COMPASS, described how the effort integrates localized analysis of site suitability, water and cooling, grid and on-site power, permitting, and community engagement with active cross-stakeholder coordination. This framework brings together communities, developers, and public agencies to build a shared understanding of project feasibility and impacts. Approaches like this can help inform planning and improve transparency, while recognizing that their applicability can vary by context.[77]

[74] Electric Reliability Council of Texas. (n.d.). *Load forecast.* ERCOT. https://www.ercot.com/gridinfo/load/forecast

[75] Texas Legislature. (2025). *Senate Bill 6: Relating to the planning for, interconnection and operation of, and costs related to providing service for certain electrical loads and to the generation of electric power by a water supply or sewer service corporation* (Enrolled bill). LegiScan. https://legiscan.com/TX/text/SB6/id/3248460

[76] Collaborative Optimization & Management of Power Allocation – Surface & Subsurface Strategies https://compass.beg.utexas.edu/

[77] Interview with Dr. Ning Lin, University of Texas at Austin, April 2026

Georgia Overview

Market Structure and Risk Allocation

Georgia's electricity sector operates under a vertically integrated regulatory model. The largest utility, Georgia Power, owns generation, transmission, and distribution and recovers the cost through retail rates approved by the Georgia Public Service Commission (PSC). Georgia Power's scale makes it the primary focus for statewide planning and cost allocation decisions, despite other service providers. In a vertically integrated utility, the primary policy question is not competition or price discovery but regulatory cost recovery and fair risk allocation.

The Territorial Electric Service Act in Georgia defines service territories, including limited retail choice for certain large manufacturing or commercial customers, which shapes how large customers like data centers are assigned to utilities and prevents duplication of infrastructure – an important constraint on where risk is assigned. In a vertically integrated utility model, utilities can petition regulators to include cost in rates base, and the PSC scrutinizes long-term forecasts and investment plans to assess prudence.

Scale of Growth and Market Trends

Atlanta is quickly emerging as one of the fastest-growing data center markets in North America. As per CBRE's 2025 data, Atlanta concluded 2025 with approximately 1,459 MW of total data center inventory, reflecting an annual increase of nearly 459 MW and solidifying its position as the second-largest U.S. market behind Northern Virginia. Atlanta's under-construction data center pipeline totaled approximately 2,076 MW, as of year-end 2025.[78] Continued hyperscale, cloud, and AI-driven demand has sustained strong colocation leasing activity and contributed to tightening market capacity. This rise is mainly driven by both traditional colocation customers and tenants seeking GPU-as-a-service (GPUaaS) deployments.[79] A 2025 PSC-approved IRP outlines nearly 9,885 MW of new generation capacity largely to meet projected demand increases, driven mainly by data centers.[80]

Policy Responses and Customer Risk Protection

The Georgia PSC approved new rules in January 2025 that modify how large load customers (larger than 100 MW) are billed and contracted by Georgia Power.[81] This requires large loads like data centers to pay certain site-specific and upstream costs for generation, transmission, and distribution during construction, enforce minimum billing periods, extend contract lengths (from 5-year typical terms to 15-years), and subject each new large load contract to PSC review. The intention of this rule is to help ensure that incumbent customers are not left paying for infrastructure built for high-usage customers that might fail to materialize or that might depart early.

These protections address the risk pathways to retail customers by shifting part of the incremental and stranded cost risk to the data center customers themselves. Staging cost responsibility and enforcing minimum billing reduces the likelihood that investments are stranded mid-deployment. Longer contract terms mitigate the 'walk-away' risk if data center operations are disrupted. Regulatory review of new contracts allows transparency and oversight into long-term cost commitments.

Moreover, the PSC's ruling to keep base retail rates frozen through at least 2028 provides near-term pricing stability for ratepayers, even as the underlying cost pressures from growth continue.[82] While this freeze does not directly protect retail consumers from all cost pathways, it demonstrates an intentional approach to manage timing and exposure of retail impacts.

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[78] CBRE. (2026, March 4). *Atlanta emerges as one of North America's fastest-growing data center hubs.* CBRE. https://www.cbre.com/press-releases/atlanta-emerges-as-one-of-north-americas-fastest-growing-data-center-hubs

[79] GPUaaS is a cloud-based service that provides users with on-demand access to high-performance graphics processing units (GPUs).

[80] Herrera, M. C., Morton, L. S., & Rueger, J. (2026, January 7). *Georgia Public Service Commission approves Georgia Power's major generation expansion to support data center load.* Mondaq (Oil, Gas & Electricity). https://www.mondaq.com/unitedstates/oil-gas-electricity/1727972/georgia-public-service-commission-approves-georgia-powers-major-generation-expansion-to-support-data-center-load

[81] Georgia Public Service Commission. (2025, January 23). *Media advisory: Data centers rule* (PDF). https://psc.ga.gov/site/assets/files/8617/media_advisory_data_centers_rule_1-23-2025.pdf

[82] Georgia Power. (2025, January 9). *Georgia PSC approves plan to freeze base rates through 2028* (Press release). https://www.georgiapower.com/news-hub/press-releases/georgia-psc-approves-plan-to-freeze-base-rates-through-2028.html

Arizona Overview

Arizona's electric sector is experiencing a period of accelerated load growth driven mostly by data centers concentrated in the Phoenix metropolitan area. As a vertically integrated, regulated market, Arizona differs fundamentally from competitive wholesale markets: utilities are responsible for long-term capacity planning and infrastructure investment, with costs recovered through regulated rates. This structure enables coordinated planning but places increased importance on how incremental costs associated with new large loads are allocated between new and existing customers.

Market Structure and Risk Allocation

Arizona's electricity system is served primarily by vertically integrated utilities, including Arizona Public Service (APS), Tucson Electric Power (TEP), and Salt River Project (SRP). The Arizona Corporation Commission (ACC) regulates the investor-owned utilities, APS and TEP, including oversight of integrated resource plans (IRPs), rate design, and cost recovery.[83]

Under this model, utilities plan and procure resources to meet forecasted demand growth, including generation, storage, and network infrastructure. Investment risk, particularly the risk of overbuilding or underutilizing infrastructure is largely socialized through rates and can be mitigated through specific rate design or contractual mechanisms. As a result, periods of rapid and uncertain load growth increase regulatory focus on cost causation, risk mitigation and the potential for cross-subsidization.

Scale of Growth and Market Trends

Public utility disclosures indicate a material shift in load forecasts: APS has projected sustained retail sales growth of approximately 4-6% annually in the near term.[84] While data centers currently represent a modest share of total system peak, utilities have identified a substantial pipeline of prospective large load interconnections.[85]

The Phoenix region has emerged as a leading North American data center market. Industry reporting indicates very low vacancy rates (approximately 2-3%) and a significant development pipeline, suggesting continued buildout and demand for electricity infrastructure.[86] Unlike more diffuse forms of load growth, data center development tends to require substantial, location-specific investments in transmission and distribution infrastructure, as well as firm capacity to meet high load factors.

Utilities have responded by accelerating procurement and infrastructure development. APS has indicated plans for significant near-term additions of generation and storage resources, including a large share of carbon-free capacity additions.[87] This reflects a broader trend in which load growth is advancing the timing of resource needs relative to historical expectations.

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[83] Arizona Corporation Commission (ACC), *Integrated Resource Planning Workshop Highlights: How Arizona Regulated Utilities Plan to Power Arizona's Future, 2024.* https://azcc.gov/news/home/2024/08/01/integrated-resource-planning-workshop-highlights---how-arizona-regulated-utilities-plan-to-power-arizona-s-future

[84] Pinnacle West Capital Corporation, *2024 Full Year and Q4 Earnings Release, February 2025; APS, statements on projected retail sales growth and capacity expansion plans.* https://www.pinnaclewest.com/newsroom/company-news/news-release-details/2025/Pinnacle-West-Reports-2024-Full-Year-and-Fourth-Quarter-Results/default.aspx

[85] Arizona Public Service (APS), *Data Centers: How We're Protecting Customers While Planning for Big Energy Needs, 2025.* https://www.aps.com/en/About/Our-Company/Newsroom/Articles/Data_Centers_How_Were_Protecting_Customers_While_Planning-for_Big_Energy_Needs

[86] JLL, *North America Data Center Report, 2025* (noting ~2.3% vacancy and strong Phoenix market growth). https://www.jll.com/en-us/insights/market-dynamics/north-america-data-centers

[87] APS 7,*300 MW procurement* (2024). https://www.tdworld.com/renewables/news/55245162/aps-signs-agreements-to-add-about-7300-mw-of-renewable-power-battery-energy-storage-and-natural-gas-to-energy-mix

Policy Responses and Customer Risk Protection

Regulatory attention in Arizona has increasingly focused on ensuring that the costs associated with large load growth are allocated in a manner consistent with cost causation principles. In 2025, the ACC initiated a proceeding to examine data center rate classifications and related policy questions, including protections for existing customers from cost shifts.[88]

Utility rate design and interconnection policies are evolving in parallel. APS has proposed new rate structures for high-load-factor customers, including data centers, intended to better align revenues with cost of service and mitigate cross-subsidization. The company has also proposed significantly higher revenue requirements for its extra-high-load-factor class relative to residential customers and emphasized the use of long-term service agreements and minimum demand commitments.[89]

SRP has implemented similar mechanisms through its own board-approved pricing process, including a Large Customer Integration Process as well as an updated E-67 commercial and industrial price plan, requiring upfront payment for infrastructure and minimum billing provisions tied to forecast demand (e.g., 80% minimum demand thresholds for ≥20 MW customers).[90] These approaches aim to reduce the risk that speculative or delayed projects result in stranded investments borne by existing customers.

Market Summary

Arizona's experience highlights a broader dynamic facing regulated utilities: large load growth can improve system utilization and support economic development, but also introduces planning uncertainty and the potential for cost misallocation. In contrast to competitive markets, where generators bear a greater share of market risk, Arizona's framework necessitates explicit regulatory and contractual mechanisms to assign risk appropriately.

The current policy trajectory suggests a shift toward more granular cost allocation for large load customers, particularly data centers, alongside increased use of contractual safeguards. The effectiveness of these measures will depend on the ACC's ability to balance economic development objectives with rate stability and equitable treatment of existing customers as the scale and pace of data center development continue to evolve.

[88] Arizona Corporation Commission, *ACC Opens Docket to Examine Data Center Development and Customer Protections* (Docket No. E-00000A-25-0069), April 2025. https://edocket.azcc.gov/search/docket-search/item-detail/29509

[89] Arizona Public Service (APS), *2025 General Rate Case Public Notice and Filing Materials, 2025.* https://www.aps.com/en/Utility/Regulatory-and-Legal/Rate-case

[90] Salt River Project (SRP), *Data Center Facts and Large Customer Integration Process Overview, 2025.* https://www.srpnet.com/about/data-center-facts

Missouri Overview

Missouri's power sector is beginning to experience data center-driven load growth as a distinct planning issue, and is more of an emerging market compared to other regions such as Arizona. Missouri operates under a regulated, vertically integrated framework, with investor-owned utilities including Ameren Missouri and Evergy serving retail customers under Missouri Public Service Commission (PSC) oversight. At the same time, utilities participate in regional wholesale markets—Ameren in MISO and Evergy in SPP—introducing additional planning and reliability considerations.[91,92]

Market Structure and Risk Allocation

In Missouri's structure, utilities remain responsible for load forecasting, resource procurement, and infrastructure investment, with costs generally recovered through regulated rates. As a result, the primary issue raised by large data center development is cost allocation: how to ensure that investments made to serve new, high-load customers do not shift risk onto existing ratepayers. This has elevated cost causation and stranded-cost risk as central regulatory concerns.

Scale of Growth and Market Trends

Recent filings indicate a material shift in expected large load growth. Ameren Missouri reported that its 2023 IRP assumed incremental economic development load rising from 40 MW in 2025 to 220 MW by 2031, but by 2025 had observed "significant growth" in data center interest, prompting updates to its preferred resource plan.[93] The company has since indicated planning for up to 2 GW of additional demand by 2032.[94] Evergy has similarly cited record economic development and growing load as drivers of additional resource needs.[95]

This trend is increasingly supported by identifiable projects. Google announced a $1 billion data center in the Kansas City area, paired with approximately 400 MW of new carbon-free energy.[96] In addition, large-scale proposals such as a $100 billion multi-phase data center campus in the Kansas City Northland highlight the scale of potential future demand.[97] State-level materials likewise identify data centers as an emerging driver of electricity consumption and infrastructure expansion.[98]

This growth has coincided with rising electric rates in Evergy MO, including a requested rate increase of 14.9% driven by a broader utility investment cycle in new generation, as the utility is already in a build cycle, and compounded by supply chain and labor cost pressures.[99] Data center load has already contributed $20 million in incremental revenue, which has been used to reduce the overall revenue requirement.[100]

91 Midcontinent Independent System Operator (MISO), "Members," https://www.misoenergy.org/about/who-we-are/members/

92 SPP Planning, https://www.spp.org/engineering/transmission-planning/

93 Ameren Missouri, *2025 Preferred Resource Plan.* https://s21.q4cdn.com/448935352/files/doc_downloads/2025/03/25-02-28-2025-Change-in-Preferred-Plan-Report-Public.pdf

94 Ameren Corporation, "State regulators approve Ameren Missouri's plan...," Nov. 24, 2025. https://ameren.mediaroom.com/2025-11-24-State-regulators-approve-Ameren-Missouris-plan-to-reliably-serve-new-large-businesses,-boosting-states-economy-while-safeguarding-consumers

95 Evergy, "Evergy plan maintains lowest-cost approach...," Apr. 1, 2024. https://investors.evergy.com/news-releases/news-release-details/evergy-plan-maintains-lowest-cost-approach-meeting-growing

96 Missouri Partnership, "Google Announces $1 Billion Data Center in Kansas City, Missouri," Mar. 20, 2024. https://missouripartnership.com/google-announces-1-billion-data-center-in-kansas-city-missouri/

97 Port KC, "$100 Billion Data Center Development...," Aug. 26, 2025. https://portkc.com/100-billion-data-center-development-to-bring-infrastructure-investment-and-jobs-to-the-northland/

98 Missouri Department of Natural Resources, "Trends in Energy Demand: Data Centers," May 2025. https://dnr.mo.gov/document/trends-energy-demand-data-centers-presentation-modnr-may-14-2025

99 Interview with Kevin Gunn, Evergy, April 2026

100 Interview with Kevin Gunn, Evergy, April 2026

Policy Responses and Customer Risk Protection

Missouri has moved relatively quickly to establish large load-specific tariffs and contractual protections. In November 2025, the Missouri PSC approved Evergy's large load service plan for customers with at least 75 MW of peak demand, including minimum 12-year contract terms and other provisions aimed at limiting cost shifts.[101] In an interview with Kevin Gunn, Evergy's Vice President of Regulatory and Government Affairs and former Missouri PSC Chairman, the development of this tariff was highlighted as a useful case study in aligning diverse stakeholder interest; the process included robust stakeholder engagement throughout, with regulators ultimately finding it provides strong protections and large load customers viewing the framework as workable.[102] In his view, the four critical elements of large load rate design, as reflected in Evergy's tariff, are a premium pricing structure, financial requirements, minimum contract lengths, and minimum bill provisions, all intended to ensure cost recovery and reduce risk to other ratepayers. Moreover, rate design can be a tool not only to protect ratepayers but also to capture the potential system benefits of large loads, including putting downward pressure on residential rates when paired with appropriate generation development.

Looking ahead, Mr. Gunn acknowledged that the tariff may not be perfect, noting uncertainty about how future conditions will evolve. However, he emphasized that embedding these provisions in a tariff framework allows for flexibility to adapt to changing market conditions, with ongoing monitoring of pricing and riders and making adjustments as needed.[103]

The PSC subsequently approved a large load rate structure for Ameren Missouri, also emphasizing customer protections alongside economic development.[104] These frameworks require long-term commitments and greater cost responsibility from large load customers, reflecting a proactive approach to mitigating stranded-cost risk before large-scale buildout fully materializes.

Market Summary

Missouri appears earlier in the data center growth cycle than leading markets but is comparatively advanced in formalizing risk-allocation mechanisms. The state's approach places emphasis on contractual safeguards and cost-causation-based rate design. The key challenge going forward will be accommodating large load growth while maintaining rate stability and avoiding cross-subsidization of infrastructure investments.

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[101] Missouri Public Service Commission, "PSC Approves Evergy Large Load Power Service Plan...," Nov. 2025 (Case No. EO-2025-0154). https://psc.mo.gov/Electric/PSC_Approves_Evergy_Large_Load_Power_Service_Plan_with_Customer_Protections--pr-26-38

[102] Interview with Kevin Gunn, Evergy, April 2026

[103] Interview with Kevin Gunn, Evergy, April 2026

[104] Missouri Public Service Commission, "PSC Approves Ameren Missouri Large Load Power Rate Plan...," Nov. 24, 2025. https://psc.mo.gov/Electric/PSC_Approves_Ameren_Missouri_Large_Load_Power_Rate_Plan_with_Customer_Protections--pr-26-40

Conclusion

The quantitative analyses conducted to date show no historical evidence of cost shifting from data centers to other utility customers. In some cases, data centers may provide benefits for other customers by creating downward pressure on rates. While load growth has coincided with rising electricity rates in some regions, the relationship between the two is unclear. More broadly, the quantitative literature indicates that there are multiple factors that have driven recent rate increases such as inflation, fuel volatility, grid investments, and wholesale market dynamics – rather than load growth. And even where costs have increased, the ultimate impact on customers depends on how those costs are allocated.

Forward-looking studies highlight risks that warrant a proactive approach to mitigate short-term wholesale price pressures, better align with state policy goals, and address regulatory gaps in cost allocation. The conversation should therefore shift beyond generalized claims and instead focus on a more precise and actionable question to ensure this outcome moving forward: what tariff structures, planning paradigms, and cost-allocation practices ensure that data centers bear their full costs as the system evolves and are aligned with state policy objectives?

A framework for responsible growth should include the following actions:

+ **Leverage Tailored Large Load Tariffs.** Modern large load tariffs demonstrate that risk is not only identifiable but also manageable. When properly designed, these tariffs can align cost causation and mitigate risk, protecting other customers without constraining economic growth. Utilities and regulators therefore do not face a binary choice between attracting investment and safeguarding ratepayers; disciplined planning and tailored tariff design can achieve both. Critically, however, a one-size-fits-all approach will not work. Effective tariff design should reflect market-specific conditions and be grounded in transparent, evidence-driven analysis, not arbitrary thresholds.
+ **Improve Transmission and Interconnection Cost Assignment.** Dedicated facilities and directly attributable upgrades should be assigned as transparently as possible to the customers that cause them. For shared network upgrades, regulators should apply cost-allocation principles that balance fairness, practicality, and evolving system benefits, while updating frameworks as load patterns and infrastructure use change.
+ **Align Cost Allocation with the Pace of Load Growth.** Regulatory lag is a key source of potential misalignment, and more frequent cost-of-service updates can ensure that cost responsibility evolves alongside system dynamics. The recent expansion of large load tariffs shows that regulatory frameworks are already adapting and they should continue to do so.
+ **Strengthen Planning and Forecasting Processes.** Given the inherent uncertainty in forecast plus trends in speculative load, utilities and regulators should rely on scenario-based planning, stronger customer financial commitments, and clearer project-readiness standards. This reduces the risk of overbuild, stranded infrastructure, and unnecessary customer exposure.
+ **Use Innovative Policies to Integrate Load More Cost-Effectively.** Integrating large loads cost-effectively requires aligning them with system capabilities, planning, and policy goals. This includes leveraging load flexibility and "bring your own generation" models, while ensuring tariffs and programs reward large customers for reducing system costs. Moreover, utilities can support by providing more transparency on available capacity and upgrade timelines to improve siting efficiency and avoid unnecessary costs. On the supply side, structural policy changes are needed to support timely expansion, particularly by addressing permitting delays and supply chain constraints, including shortages of critical equipment like transformers. Taken together, these approaches can reduce system costs while supporting affordability, reliability, and decarbonization objectives.
+ **Expand Monitoring and Targeted Analysis.** The evidence base remains limited, especially on long-term retail rate impacts and the real-world performance of new tariff protections. Regulators, utilities, researchers, and policymakers should continue to evaluate outcomes over time so that future decisions are informed by measured experience rather than assumptions or generalized claims.

Taken together, these actions point to a clear path forward as electricity systems enter a new phase of sustained load growth. With thoughtful market-specific and evidence-based approaches, policymakers can support continued growth while ensuring costs are borne by those who drive them while protecting other customers.

Appendix

A.1. Overview of Quantitative Studies Reviewed

Study Authors and Name	Year	Forward or Backward Looking	Study Type	Geographic Scope	Relevance to Whitepaper	Limitations
Bates White, "Leveraging large loads to improve the U.S. electricity system," February 2026	2026	Backward-looking	Quantitative	United States	Relevant for assessing the relationship between load growth and retail electricity prices across states, showing no clear relationship between data centers and rate increases.	Relies on high-level state comparisons and correlation analysis; does not establish causality or isolate data center-specific impacts.
EPRI, "Powering Intelligence 2026: Updated Scenarios of U.S. Data Center Electricity Use and Power Strategies," February 2026.	2026	Forward-looking	Quantitative	United States (mainland state-level analysis)	Highly relevant for whitepaper discussion of load growth, peak demand, state concentration, and supply strategies.	Relies heavily on project pipeline and public announcement data, which the report itself notes may overstate or misstate realizable development. Findings depend on assumptions about PUE, utilization, ramp-up, and completion rates, and some projected sites may not be built as announced.
Federal Reserve Bank of Dallas, "Data center boom expected to raise electricity component of PCE inflation," March 2026.	2026	Forward-looking	Quantitative, comprehensive wholesale electricity price model (using hourly unit commitment) and scenario analysis	United States	Relevant for discussing downstream electricity price and inflation impacts of data center load growth.	Focuses on inflation and retail electricity prices rather than broader system planning or siting issues affected by transmission connection cost. Results are scenario-based and sensitive to assumptions about data center build-out, utilization, renewables growth, specific customer allocation of added cost and pass-through from wholesale to retail prices. An implicit keeping the status quo regulations assumption might overstate actual wholesale price and inflationary effect of DCs as these costs could be fully allocated to new large loads, while an absence of accounting for grid connection and upgrade costs may understate their impact on consumer retail prices and inflation.
Georgia Institute of Technology, "The Local Economic Effects of Data Center Entry," March 2026.	2026	Backward-looking	Quantitative econometric study using a staggered difference-in-differences framework	United States, county-level analysis	Relevant as one of the few recent econometric studies that tests whether data center entry is associated with changes in local electricity prices. The paper finds early evidence that data center entry may place upward pressure on electricity prices in some lower-spillover county settings, while also emphasizing the difficulty of identifying broader long-term rate impacts.	The paper's main contribution is broader local economic effects, not electricity prices specifically. Its electricity-price analysis is constrained by utility service territories spanning multiple counties, which makes clean causal identification difficult and can weaken the measured effect. The authors only detect positive price effects in lower-spillover settings pointing to smaller utility territories, while the full-sample result is noisy. In addition, the median first-entry facility in the sample is relatively small—10 MW nameplate, or roughly 1.2% of the median serving utility's annual load—so the study is better viewed as early indicative evidence than as a definitive estimate of the rate effects of today's large load clusters.

Study Authors and Name	Year	Forward or Backward Looking	Study Type	Geographic Scope	Relevance to Whitepaper	Limitations
Union of Concerned Scientists, "Data Center Power Play: How Clean Energy Can Meet Rising Electricity Demand While Delivering Climate and Health Benefits," January 2026.	2026	Forward-looking	Quantitative	United States	Relevant for policy, clean energy, emissions, health, and ratepayer implications of data center demand growth.	More policy-advocacy oriented than a neutral technical forecasting study. Conclusions depend on modeled policy scenarios and assumptions about future tax credits, carbon standards, and data center demand growth. Less focused on facility-level operational realities than on system-wide policy outcomes.
Analysis of the 2026/2027 RPM Base Residual Auction Part A, Independent Market Monitor for PJM	2025	Backward-looking	Quantitative	PJM	Relevant for discussing the impact of data center load on PJM capacity prices, in the context of tight supply conditions.	The report focusses on the impacts of data center load in the context of tight supply but doesn't discuss the factors that to led to tight supply conditions, such as changes to the accreditation of fossil fuels.
Charles River Associates, "Retail rate trends in the US," September 2025	2025	Backward-looking	Quantitative	United States	Relevant for examining historical electricity price increases and case studies for regions that have experienced price increases	While the study identified specific variables that may have caused higher electricity prices, they do not quantitatively examine the causal relationship between these variables and electricity prices.
Energy and Environmental Economics, Inc., "Tailored for scale: Designing electric rates and tariffs for large loads," December 2025	2025	Both	Quantitative	4 utilities in CA, OR, VA, MS	Examines whether data centers pay their incremental cost to serve across multiple utilities, finding neutral to positive impacts and potential rate benefits for other customers.	Based on a limited set of case studies and assumptions about marginal cost; results may not fully capture system-wide or long-term impacts under different growth scenarios.
Lawrence Berkeley National Laboratory, "Factors influencing recent trends in retail electricity prices in the United States," October 2025	2025	Backward-looking	Quantitative	United States	Relevant for examining historical electricity price increases and variables that have a statistical correlation with electricity price increases	The study only looked at a certain number of variables and did not quantitatively examine the causal relationship between statistically significant variables and electricity prices.
Union of Concerned Scientists, "Connection Costs: Loophole Costs Customers Over $4 Billion to Connect Data Centers to Power Grid," September 2025.	2025	Backward-looking / current-state	Policy brief / qualitative with quantitative evidence	PJM states (Illinois, Maryland, New Jersey, Ohio, Pennsylvania, Virginia, West Virginia)	Relevant to the white paper's discussion of transmission-level interconnection, cost allocation, and potential ratepayer exposure when very large data centers connect directly to the high-voltage grid. It is particularly useful for explaining how split oversight between utilities, state PUCs, and FERC can create transparency gaps and weaken cost-causation principles.	The study is narrower than national forecasting or system-planning analyses. It focuses on PJM planning filings and a specific transmission cost-allocation issue in seven PJM states, so it should not be read as a national estimate of consumer impacts, but as a blueprint for a regulatory gap that may apply across many US states. Its findings are best understood as evidence of a potential transparency and incentive problem in how connection costs are tracked and assigned, rather than as a final audited measure of net ratepayer harm.
Joint Legislative Audit and Review Commission, "Virginia data center study: Electric infrastructure and customer rate impacts," December 2024	2024	Backward-looking	Quantitative	Virginia	Evaluates data center impacts in Virginia and finds no evidence of historical or current cost shifting under existing regulatory frameworks.	Focused on a single state and current regulatory structures.

A.2. Select Large Load Tariffs (2018-2026)

Year	Utility	Name	State	Minimum Load Factor	Long Term Con tract Years	Includes Minimum Monthly Demand Payments	Includes Contribution in Aid of Construction (CIAC)	Exit Fee Time Period (Months)
2026	Black Hills Power	Economic Flexible Load Service (EFLS)	SD	-	2	Yes	Yes	-
2026	Commonwealth Edison	TSA with Aligned	IL	-	-	Yes	No	-
2026	Commonwealth Edison	TSA with Equinix	IL	-	-	Yes	No	-
2026	Commonwealth Edison	TSA with Grundy County Power	IL	-	-	Yes	No	-
2026	Commonwealth Edison	TSA with Karis Critical, LLC	IL	-	-	Yes	No	-
2026	Commonwealth Edison	TSA with Monarch	IL	-	-	Yes	No	-
2026	Commonwealth Edison	TSA with PowerHouse	IL	-	-	Yes	No	-
2026	Commonwealth Edison	TSA with QTS Investment	IL	-	-	Yes	No	-
2026	Entergy Louisiana	ESA with Meta	LA	-	15	Yes	Yes	Remaining months
2026	Evergy Missouri West, Evergy Metro	Large Load Power Service	MO	-	12	Yes	Yes	Greater of 12 months or remaining months
2026	Florida Power and Light	Large Load Contract Service-1 (LLCS-1)	FL	85%	20	Yes	Yes	-
2026	Florida Power and Light	Large Load Contract Service-2 (LLCS-2)	FL	85%	20	Yes	Yes	-
2026	PacifiCorp	Schedule 401	OR	-	10	Yes	No	-
2025	AEP Ohio	Schedule DCT (Data Center Tariff)	OH	85%	8	Yes	Yes	36
2025	Arkansas Electric Cooperative Corporation	Transmission Extension of Facilities Tariff (TEOF)	AR	-	5	Yes	Yes	-
2025	DTE Energy	Special Contract with Green Chile Ventures LLC	MI	80%	19	Yes	No	-
2025	Duke Energy Carolinas	Schedule HLF: High Load Factor	NC	-	1	Yes	No	-
2025	East Kentucky Power Cooperative	Data Center Power (DCP) Tariff	KY	60%	Custom	Yes	No	-
2025	El Paso Electric	Economic Development Rate Riders for a New Data Center-- Rate Schedule No. 33A: Large Economic Development Rate	TX	-	5	Yes	No	-
2025	El Paso Electric	Economic Development Rate Riders for a New Data Center-- Rate Schedule No. 33B: Medium Economic Development Rate	TX	-	5	Yes	No	-

Year	Utility	Name	State	Minimum Load Factor	Long Term Contract Years	Includes Minimum Monthly Demand Payments	Includes Contribution in Aid of Construction (CIAC)	Exit Fee Time Period (Months)
2025	Entergy Arkansas	Special Rate Customer Contract	AR	-	-	Yes	No	-
2025	Evergy Kansas Metro, Evergy Kansas South, Evergy Kansas Central	Large Load Power Service	KS	-	15	Yes	Yes	Greater of 12 months or remaining months
2025	Georgia Power	Large Load Contracting Framework	GA	-	-	Yes	-	Remaining months
2025	Kentucky Utilities Company	Extremely High Load Factor (EHLF) Service	KY	85%	15	Yes	-	-
2025	Louisville Gas & Electric	Extremely High Load Factor (EHLF) Service	KY	85%	15	Yes	-	-
2025	Mecklenburg Electric Cooperative	Schedule LPS-U (Large Power Service)	VA	-	-	Yes	Yes	-
2025	NV Energy	Clean Transition Tariff	NV	-	15	No	No	-
2025	Pacific Gas and Electric	Electric Transmission Service Facilities for STACK Infrastructure	CA	85%	-	No	No	-
2025	Tucson Electric Power	Electric Service Agreement with Humphrey's Peak Power, LLC	AZ	-	10	Yes	No	36
2025	Union Electric Company	Large Load Customer Service (LLCS)	MO	75%	15	Yes	Yes	Lesser of five years or remaining months
2023	Idaho Power	Schedule 33	ID	-	-	Yes	No	-
2023	Montana-Dakota Utilities	High Density Contracted Demand Response Rate 45	SD	85%	3	No	Yes	-
2023	Northern States Power Company – Minnesota	Competitive Rate Rider Tariff	MN	-	10	Yes	No	-
2022	Entergy Arkansas	Large Power High Load Density Service (LPHLDS)	AR	10%	1	Yes	Yes	-
2022	Evergy Missouri West, Evergy Metro	Special High-Load Factor Market Rate Schedule (MKT)	MO	85%	-	Yes	No	-
2022	Idaho Power	Schedule 20	ID	-	-	Yes	Yes	-
2022	Otter Tail Power Company	Super Large General Service	MN	80%	5	No	No	-
2018	New York Municipal Power Agency	Rider A - Rates and Charges for High Density Load ("HDL") Service	NY	-	-	Yes	Yes	-

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
AGENDA ITEM REQUEST FORM

Department:	BCC Administration	**Meeting Date:**	7/23/2026

1. Nature and purpose of agenda item:

The Board of County Commissioners sets the millage rate for the upcoming fiscal year budget. The proposed millage rate for FY 2026-2027 is 7.8150. This is the same as the current fiscal year.

2. Recommended Motion/Action:

Approve adopting the FY 2026-2027 Millage Rate at 7.8150

3. Fiscal impact on current budget:

This item has no effect on the current budget.

MEMORANDUM

TO: Columbia County Board of County Commissioners

FROM: David Kraus, County Manager

DATE: July 23, 2026

RE: Millage Rate

In accordance with TRIM requirements, the county has 45 days from the Property Appraiser's certification of the tax roll to complete the DR-420 form which includes the proposed millage rate and set the public hearings. The board has previously set the dates for the public hearings and staff have prepared the DR-420 forms.

The Board's current millage rate is 7.8150 per $1000. Using the Property Appraiser’s estimated taxable value of $4,999,741,403, the current millage rate would generate $39,072,979, an increase of $2,557,117.

FLORIDA DEPARTMENT OF REVENUE

CERTIFICATION OF TAXABLE VALUE

DR-420
R. 5/12
Rule 12D-16.002
Florida Administrative Code
Effective 11/12

Year : 2026	County : Columbia
Principal Authority : Columbia County Board of County Commissioners	Taxing Authority : Columbia County BCC - Operating

SECTION I : COMPLETED BY PROPERTY APPRAISER

1.	Current year taxable value of real property for operating purposes	$ 4,126,193,239			(1)
2.	Current year taxable value of personal property for operating purposes	$ 860,736,555			(2)
3.	Current year taxable value of centrally assessed property for operating purposes	$ 12,811,609			(3)
4.	Current year gross taxable value for operating purposes *(Line 1 plus Line 2 plus Line 3)*	$ 4,999,741,403			(4)
5.	Current year net new taxable value (Add new construction, additions, rehabilitative improvements increasing assessed value by at least 100%, annexations, and tangible personal property value over 115% of the previous year's value. Subtract deletions.)	$ 102,370,801			(5)
6.	Current year adjusted taxable value *(Line 4 minus Line 5)*	$ 4,897,370,602			(6)
7.	Prior year FINAL gross taxable value from prior year applicable Form DR-403 series	$ 4,715,155,990			(7)
8.	Does the taxing authority include tax increment financing areas? If yes, enter number of worksheets (DR-420TIF) attached. If none, enter 0	☑ YES	☐ NO	Number 3	(8)
9.	Does the taxing authority levy a voted debt service millage or a millage voted for 2 years or less under s. 9(b), Article VII, State Constitution? If yes, enter the number of DR-420DEBT, *Certification of Voted Debt Millage* forms attached. If none, enter 0	☐ YES	☑ NO	Number 0	(9)

SIGN HERE	**Property Appraiser Certification**	I certify the taxable values above are correct to the best of my knowledge.
	Signature of Property Appraiser: Electronically Certified by Property Appraiser	Date : 6/25/2026 9:43:48 AM

SECTION II : COMPLETED BY TAXING AUTHORITY

If this portion of the form is not completed in FULL your taxing authority will be denied TRIM certification and possibly lose its millage levy privilege for the tax year. If any line is not applicable, enter -0-.

10.	Prior year operating millage levy *(If prior year millage was adjusted then use adjusted millage from Form DR-422)*	7.8150 per $1,000	(10)
11.	Prior year ad valorem proceeds *(Line 7 multiplied by Line 10, divided by 1,000)*	$ 36,848,944	(11)
12.	Amount, if any, paid or applied in prior year as a consequence of an obligation measured by a dedicated increment value *(Sum of either Lines 6c or Line 7a for all DR-420TIF forms)*	$ 333,082	(12)
13.	Adjusted prior year ad valorem proceeds *(Line 11 minus Line 12)*	$ 36,515,862	(13)
14.	Dedicated increment value, if any *(Sum of either Line 6b or Line 7e for all DR-420TIF forms)*	$ 41,069,517	(14)
15.	Adjusted current year taxable value *(Line 6 minus Line 14)*	$ 4,856,301,085	(15)
16.	Current year rolled-back rate *(Line 13 divided by Line 15, multiplied by 1,000)*	7.5193 per $1000	(16)
17.	Current year proposed operating millage rate	7.8150 per $1000	(17)
18.	Total taxes to be levied at proposed millage rate *(Line 17 multiplied by Line 4, divided by 1,000)*	$ 39,072,979	(18)

Continued on page 2

COLUMBIA COUNTY BOARD OF COUNTY COMMISSIONERS
AGENDA ITEM REQUEST FORM

Department:	BCC Administration	**Meeting Date:**	7/23/2026

1. Nature and purpose of agenda item:

The Board of County Commissioners sets the millage rate for the Columbia County Industrial Park for the upcoming fiscal year budget. The proposed millage rate for FY 2026-2027 is 7.8150.

2. Recommended Motion/Action:

Approve adopting the Columbia County Industrial Park FY 2026-2027 Millage Rate at 7.8150

3. Fiscal impact on current budget:

This item has no effect on the current budget.

MEMORANDUM

TO: Columbia County Board of County Commissioners

FR: David Kraus, County Manager

DATE: July 23, 2026

RE: Millage Rate- Industrial Part MSTU

In accordance with TRIM requirements, the county has 45 days from the Property Appraiser's certification of the tax roll to complete the DR-420 form which includes the proposed millage rate and set the public hearings. The board has previously set the dates for the public hearings and staff have prepared the DR-420 forms.

The Board's current mileage rate is 7.8150 per $1000. Using the Property Appraiser's estimated taxable value of $2,814,112, the current mileage rate would generate $21,992 an increase of $769.

David Kraus
Columbia County Manager

P.O. BOX 1529 LAKE CITY, FLORIDA 32056-1529 PHONE (386) 755-4100

CERTIFICATION OF TAXABLE VALUE

DR-420
R. 5/12
Rule 12D-16.002
Florida Administrative Code
Effective 11/12

Year : 2026	County : Columbia
Principal Authority : Columbia County Board of County Commissioners	Taxing Authority : Columbia County Industrial Park

SECTION I : COMPLETED BY PROPERTY APPRAISER

1.	Current year taxable value of real property for operating purposes	$		2,814,112	(1)
2.	Current year taxable value of personal property for operating purposes	$		0	(2)
3.	Current year taxable value of centrally assessed property for operating purposes	$		0	(3)
4.	Current year gross taxable value for operating purposes *(Line 1 plus Line 2 plus Line 3)*	$		2,814,112	(4)
5.	Current year net new taxable value (Add new construction, additions, rehabilitative improvements increasing assessed value by at least 100%, annexations, and tangible personal property value over 115% of the previous year's value. Subtract deletions.)	$		0	(5)
6.	Current year adjusted taxable value *(Line 4 minus Line 5)*	$		2,814,112	(6)
7.	Prior year FINAL gross taxable value from prior year applicable Form DR-403 series	$		2,715,675	(7)
8.	Does the taxing authority include tax increment financing areas? If yes, enter number of worksheets (DR-420TIF) attached. If none, enter 0	☐ YES	☑ NO	Number 0	(8)
9.	Does the taxing authority levy a voted debt service millage or a millage voted for 2 years or less under s. 9(b), Article VII, State Constitution? If yes, enter the number of DR-420DEBT, *Certification of Voted Debt Millage* forms attached. If none, enter 0	☐ YES	☑ NO	Number	(9)

SIGN HERE	**Property Appraiser Certification**	I certify the taxable values above are correct to the best of my knowledge.
	Signature of Property Appraiser: Electronically Certified by Property Appraiser	Date : 6/25/2026 9:43:48 AM

SECTION II : COMPLETED BY TAXING AUTHORITY

If this portion of the form is not completed in FULL your taxing authority will be denied TRIM certification and possibly lose its millage levy privilege for the tax year. If any line is not applicable, enter -0-.

10.	Prior year operating millage levy *(If prior year millage was adjusted then use adjusted millage from Form DR-422)*		7.8150 per $1,000	(10)
11.	Prior year ad valorem proceeds *(Line 7 multiplied by Line 10, divided by 1,000)*	$	21,223	(11)
12.	Amount, if any, paid or applied in prior year as a consequence of an obligation measured by a dedicated increment value *(Sum of either Lines 6c or Line 7a for all DR-420TIF forms)*	$	-0-	(12)
13.	Adjusted prior year ad valorem proceeds *(Line 11 minus Line 12)*	$	21,223	(13)
14.	Dedicated increment value, if any *(Sum of either Line 6b or Line 7e for all DR-420TIF forms)*	$	-0-	(14)
15.	Adjusted current year taxable value *(Line 6 minus Line 14)*	$	2,814,112	(15)
16.	Current year rolled-back rate *(Line 13 divided by Line 15, multiplied by 1,000)*		7.5416 per $1000	(16)
17.	Current year proposed operating millage rate		7.8150 per $1000	(17)
18.	Total taxes to be levied at proposed millage rate *(Line 17 multiplied by Line 4, divided by 1,000)*	$	21,992	(18)

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