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Energy Tax Benefits for Data Centers: In Brief

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SUMMARY

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Nicholas E. Buffie
Analyst in Public Finance

Energy Tax Benefits for Data Centers: In Brief

The growth of data centers is projected to substantially increase electricity demand in the coming decades. This In Brief describes how data center owners may benefit from current federal tax credits and deductions aimed at increasing the supply of "clean" electricity (electricity with zero or low greenhouse gas emissions) or using electricity more efficiently.

Data centers are industrial facilities with computer servers that process large amounts of data. Due to their significant computational work, these centers continuously use large amounts of energy. The largest data center currently under construction is projected to use as much energy as 3 million households, and the largest announced data center is projected to use as much energy as 5 million households.

Data centers use more electricity in the United States than in any other country, with U.S. data centers accounting for over 45% of the world's data center electricity usage. Estimated annual data center electricity usage in the United States is 540 kilowatt-hours per capita, and such usage is projected to grow to 1,200 kilowatt-hours by 2030, equivalent to roughly 10% of a typical U.S. household's electricity consumption.

If the projected growth comes to fruition, it could significantly change domestic electricity markets. The increased demand from data centers could lead to higher prices for electricity and/or greater overall electricity usage, while also potentially displacing other uses of electricity. These shifts in electricity usage could affect household utility prices, grid reliability (e.g., prevalence of blackouts), and greenhouse gas emissions from the electricity sector.

At present, the federal tax code does not provide unique benefits for data centers. However, data center owners may claim tax breaks for investing in energy storage equipment or improving their centers' energy efficiency. They may also benefit indirectly from various tax provisions meant to reduce the costs of electricity generated with low GHG emissions. Tax provisions potentially benefiting data centers include the production tax credit in Internal Revenue Code (IRC) Section 45, the credit for production of electricity from qualifying advanced nuclear power facilities in IRC Section 45J, the credit for carbon oxide sequestration in IRC Section 45Q, the zero-emission nuclear power production credit in IRC Section 45U, the clean electricity production tax credit in IRC Section 45Y, the energy investment tax credit in IRC Section 48, the clean electricity investment tax credit in IRC Section 48E, and the energy-efficient commercial buildings deduction in IRC Section 179D.

Because data centers have fairly constant demand across the day and night, they are more likely to contract with natural gas facilities (benefiting from the Section 45Q credit) and nuclear facilities (benefiting from a variety of tax credits) than renewable energy facilities, though solar-and-storage systems (likely to benefit from the Section 48 and 48E credits) are an exception to this general rule. If data center growth increases the domestic electricity sector's greenhouse gas emissions, the Section 45Y and 48E tax credits may stay in place for additional years, as those two credits will remain in place until the sector decreases its emissions below certain levels. H.R. 1, as passed by the House, would change this timeline, with facilities being eligible for the credits if they begin construction within 60 days of enactment and are placed in service before the end of 2028.

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Introduction: Data Centers and Electricity Usage

The growth of data centers is projected to substantially increase electricity demand in the coming decades. This In Brief describes how data center owners may benefit from current federal tax credits and deductions aimed at increasing the supply of "clean" electricity (electricity with zero or low greenhouse gas emissions) or using electricity in a more efficient manner.[1]

Data centers are industrial facilities with computer servers that process large amounts of data. Data centers are used to run artificial intelligence applications such as ChatGPT, Bitcoin mining, the streaming of YouTube videos and Netflix shows, and other digital services.[2] Data centers are typically clustered around large urban areas, with the United States having notable clusters in the areas of Northern Virginia, Atlanta, Chicago, Dallas, Des Moines, Omaha, Phoenix, San Jose, Salt Lake City, and Columbus, OH.[3]

Due to their significant computational work, data centers continuously use large amounts of energy. Large data centers typically have the same energy usage as roughly 100,000 households.[4] The largest data center (by energy use) currently under construction is projected to use as much energy as 3 million households, and the largest announced data center is projected to use as much energy as 5 million households.[5] In contrast to energy demand for residential uses, demand from data centers tends to be relatively flat throughout the 24-hour cycle, leading to a general reliance on energy sources that can provide stable electrical output (e.g., fossil fuels, nuclear) rather than those with fluctuating output (e.g., solar, wind).[6]

Data centers currently consume 1.5% of the world's electricity—roughly the same amount as France.[7] However, data centers play an outsized role in the United States, which accounts for over 45% of the world's data center electricity usage.[8] In 2024, data centers consumed 139 terawatt-hours of electricity in the United States, which is almost 3 times the data center electricity usage from Europe and roughly 53 times the usage from Central America, South America, Africa, and the Middle East combined.[9] The International Energy Agency (IEA) has estimated that annual data center electricity usage in the United States is 540 kilowatt-hours per capita, the highest in the world; the IEA projects that such usage will grow to 1,200 kilowatt-hours by 2030, equivalent to about 10% of a typical household's electricity consumption.[10]

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[1] Data center owners may also receive state and local tax benefits, but such benefits are outside the scope of this report.

[2] David Berreby, "As Use of A.I. Soars, So Does the Energy and Water It Requires," *Yale Environment 360*, February 6, 2024, https://e360.yale.edu/features/artificial-intelligence-climate-energy-emissions.

[3] Siddharth Singh and Thomas Spencer, *Energy and AI*, International Energy Agency (IEA), April 2025, p. 98, https://www.iea.org/reports/energy-and-ai. Amazon recently purchased approximately 1,200 acres of farmland outside of New Carlisle, IN. While this area is more rural than other areas where data centers are located, it is less than half an hour (driving time) from South Bend, Indiana's fifth-largest city by population. See Karen Weise and Cade Metz, "At Amazon's Biggest Data Center, Everything Is Supersized for A.I.," *New York Times*, June 24, 2025.

[4] Dan Hewitt, host, *Everything Energy*, podcast, season 2, episode 4, "How Energy Will Shape the Future of AI (and Vice Versa)," IEA, May 15, 2025, https://podcasts.apple.com/us/podcast/how-energy-will-shape-the-future-of-ai-and-vice-versa/id1512991587?i=1000708571936.

[5] Hewitt, "How Energy Will Shape the Future of AI."

[6] Hewitt, "How Energy Will Shape the Future of AI."

[7] Hewitt, "How Energy Will Shape the Future of AI," and Singh and Spencer, *Energy and AI*, p. 14.

[8] Singh and Spencer, *Energy and AI*, pp. 14, 260.

[9] Singh and Spencer, *Energy and AI*, p. 260.

[10] Singh and Spencer, *Energy and AI*, p. 65.

If the projected growth comes to fruition, it could significantly change electricity markets in the United States. The increased demand from data centers could lead to higher prices for electricity and/or greater overall electricity usage, while also potentially displacing other uses of electricity. These shifts in electricity usage could affect household utility prices, grid reliability (e.g., prevalence of blackouts), and greenhouse gas (GHG) emissions from the electricity sector.

At present, the federal tax code does not provide unique benefits for data centers. However, data center owners may claim tax breaks for investing in energy storage equipment or improving their centers' energy efficiency. They may also benefit indirectly from various tax provisions meant to reduce the costs of electricity generated with low GHG emissions. The fact that benefits flow indirectly to data centers (in the form of cheaper electricity) as opposed to directly (by claiming a tax credit or deduction on a federal tax return) does not necessarily make them less significant. The availability of these tax credits may partially ameliorate the effects of growing electricity demand from data centers on the broader electricity market and on overall GHG emissions. The remainder of this report describes how existing federal tax credits and deductions may affect electricity usage by data centers and how data centers in turn may affect the years when certain tax credits expire.

Direct Energy Tax Benefits Available to Data Centers

Section 48 Energy Investment Tax Credit and Section 48E Clean Electricity Investment Tax Credit

The Internal Revenue Code (IRC) allows businesses to claim a 30% energy investment tax credit (ITC, Section 48) or clean electricity investment tax credit (CEITC, Section 48E) for capital investments in energy storage equipment or "clean" electricity facilities.[11] For example, if an electricity provider builds a solar farm for $100 million, the provider will be able to claim a $30 million ITC or CEITC once it begins supplying electricity to customers.[12] Although the ITC and the CEITC primarily benefit electricity providers, data center owners may benefit from the credits' incentives for energy storage. The ITC and the CEITC may be claimed for the types of large batteries which serve as backup power sources for data centers.[13] The ITC and CEITC may also potentially be claimed for combined solar-and-storage systems, which could provide part of the electricity used to power data centers in sunny regions.[14]

The ITC applies to facilities and storage systems beginning construction through the end of 2024; the CEITC applies to facilities placed in service in 2025 or later.[15] Both provide a similarly

[11] 26 U.S.C. §48. The credit rate is reduced to 6% for firms not meeting prevailing wage and apprenticeship requirements. The credits may also be claimed by nonbusiness entities such as rural electricity cooperatives or nonprofits under certain circumstances. For more information, see CRS In Focus IF12596, *Tax Credit Transfers and Direct Payments in the Inflation Reduction Act of 2022*, by Nicholas E. Buffie.

[12] 26 U.S.C. §48. The credit rate is reduced to 6% for entities not meeting prevailing wage and registered apprenticeship requirements.

[13] 26 U.S.C. §48(a)(2)(A)(i)(VI) and 26 U.S.C. §48E(a)(2)(B).

[14] 26 U.S.C. §48 and 26 U.S.C. §48E.

[15] 26 U.S.C. §48 and 26 U.S.C. §48E. The term "placed in service" means that the facility begins providing electricity or otherwise engaging in commercial activity. A facility beginning construction before 2025 that is placed in service in 2025 or later years is eligible for either the ITC or the CEITC. However, rules set forth in 26 U.S.C. §48E(b)(3)(C)(vi) prevent businesses and other entities from claiming both credits.

structured 30% credit. The primary difference between the ITC and the CEITC is that the ITC provides credits for specifically enumerated energy technologies (solar, geothermal, wind, etc.), whereas the CEITC subsidizes all energy sources that can produce electricity with zero greenhouse gas emissions.[16]

Bonus credits may "top up" both the ITC and the CEITC. Qualifying investments are eligible for a 10 percentage-point bonus credit (e.g., pushing the total credit rate from 30% to 40%) under the ITC or CEITC if the facilities or storage systems are located in *energy communities*, defined as brownfield sites, areas where coal plants closed in recent decades, or areas with above-average unemployment and a previously or currently large fossil fuel sector.[17] Qualifying investments are also eligible for domestic content bonus credits of 10 percentage points if the steel, iron, and certain shares of the manufactured products used to build the facility or storage system are produced in the United States.[18] Finally, certain wind and solar projects, including combined solar-and-storage systems, may apply for the low-income communities bonus credit if they are in a designated low-income community.[19] Such projects may receive a bonus credit of 10 or 20 percentage points.[20]

Investments in microgrid controllers are also eligible for the ITC (but not the CEITC).[21] Data centers using microgrid controllers may qualify for an ITC if their controllers match certain federal legal requirements. According to the statutory language implementing the ITC, qualifying microgrid controllers must be "designed and used to monitor and control the energy resources and loads" as part of a "qualified microgrid."[22] A "qualified microgrid," in turn, must be capable of operating both independently and in connection to the larger power grid, must not be part of a bulk-power system, and must include equipment "which is capable of generating not less than 4 kilowatts and not greater than 20 megawatts of electricity."[23]

Thus, as long as they are in effect, the ITC and the CEITC provide benefits from 30% of qualifying capital investment costs, up to 70% with bonus credits, for data centers utilizing battery storage systems, combined solar-and-storage systems, and/or microgrid controllers.[24]

[16] 26 U.S.C. §48 and 26 U.S.C. §48E.

[17] 26 U.S.C. §48(a)(14) and 26 U.S.C. §48E(a)(3)(A). The bonus credit rate is reduced to 2 percentage points for firms not meeting prevailing wage and apprenticeship (PWA) requirements.

[18] CRS Report R48358, *Domestic Content Requirements for Electricity Tax Credits in the Inflation Reduction Act (IRA)*, by Nicholas E. Buffie; 26 U.S.C. §48(a)(12); 26 U.S.C. §48E(a)(3)(B). The bonus credit rate is reduced to 2 percentage points for firms not meeting PWA requirements.

[19] Internal Revenue Service (IRS), "Additional Guidance on Low-Income Communities Bonus Credit Program," 88 *Federal Register* 55506-55548, August 15, 2023, at https://www.federalregister.gov/documents/2023/08/15/2023-17078/additional-guidance-on-low-income-communities-bonus-credit-program#h-11.

[20] IRS, *Clean Electricity Low-Income Communities Bonus Credit Amount Program*, February 11, 2025, https://www.irs.gov/credits-deductions/clean-electricity-low-income-communities-bonus-credit-amount-program. The bonus credit rate is not dependent on compliance with PWA requirements.

[21] 26 U.S.C. §48(a)(2)(A)(i)(VIII) and 26 U.S.C. §48(c)(8). Michael P. Bresson et al., "Inflation Reduction Act Guidance: IRS and Treasury Release Proposed Regulations on the New Tech-Neutral Clean Energy Tax Credits," Baker Botts, June 6, 2024, https://www.bakerbotts.com/thought-leadership/publications/2024/june/inflation-reduction-act-guidance-irs-and-treasury-release-proposed-regulations.

[22] 26 U.S.C. §48(c)(8)(A).

[23] 26 U.S.C. §48(c)(8)(B).

[24] The 30%-70% range is for taxpayers meeting PWA requirements. For taxpayers not meeting PWA requirements, the ITC and the CEITC range from 6% to 30% of qualifying capital investment costs.

Section 179D Energy-Efficient Commercial Buildings Deduction

Section 179D of the IRC authorizes a unique tax deduction for commercial building owners installing energy-efficient equipment in their buildings (either newly constructed buildings or renovated buildings). The deduction, known as the energy efficient commercial buildings deduction (EECBD), is based on a complex formula.[25] In essence, the EECBD allows business owners to deduct a portion of the costs of their energy-efficiency investments during the year when such investments are made; based on tax rules regarding investments in commercial buildings, such investments would ordinarily be deducted gradually over the course of 39 years. Such front-loading of tax deductions is generally viewed as a benefit to businesses, as it gives them cash now rather than in the future. Because data centers consume large amounts of energy, data center owners may wish to invest in energy-efficient equipment to reduce their long-term, pretax costs, and such investments could potentially qualify for the EECBD.

Data center owners installing energy-efficient building equipment may qualify for the EECBD. Qualifying equipment must be installed as part of (1) the interior lighting systems, (2) the heating, cooling, ventilation, and hot water systems, or (3) the envelope of new or existing buildings, and must be "part of a plan designed to reduce the total annual energy and power costs with respect to the interior lighting systems, heating, cooling, ventilation, and hot water systems of the building by 25 percent or more in comparison to a reference building."[26] The term *reference building* describes buildings meeting only the minimum requirements of ASHRAE Standard 90.1.[27]

Indirect Energy Tax Benefits for Data Centers

Various tax credits subsidize the cost of electricity generated by renewable or other zero-emissions energy sources. Although data center owners may not claim such credits directly (unless they own the given electricity facilities), they may benefit indirectly by receiving cheaper electricity. P.L. 117-169, commonly referred to as the Inflation Reduction Act of 2022 (IRA), enacted or modified six tax credits for "clean" electricity generation that may benefit data center owners in this way. In addition, data centers owners may benefit from electricity supplied by recipients of the Section 45J tax credit. The tax credits that may be claimed by companies supplying electricity to data centers include the following:

- *The IRC Section 45 production tax credit (PTC)*—The Section 45 PTC provides credits of varying amounts per kilowatt-hour of electricity produced using qualifying renewable energy sources.[28] Firms are allowed to claim the PTC for 10 years starting the year a facility is placed in service (i.e., the year the facility begins supplying electricity).[29] For calendar year 2024, PTC values ranged from 0.3 cents to 3.0 cents per kilowatt-hour of electricity, depending on the underlying energy source, when the facility was placed in service, and whether prevailing wage and registered apprenticeship (W&A) requirements were met

[25] Details on this formula may be found in CRS In Focus IF12862, *The Section 179D Energy Efficient Commercial Buildings Deduction*, by Nicholas E. Buffie.

[26] 26 U.S.C. §179D(c)(1)(D). Although 179D(c)(1)(D) does not reference the building envelope, equipment installed as part of the envelope qualifies for the deduction insofar as it affects the energy used by systems (1) and (2) above.

[27] CRS In Focus IF12862, *The Section 179D Energy Efficient Commercial Buildings Deduction*, by Nicholas E. Buffie. The acronym ASHRAE stands for the "American Society of Heating, Refrigerating and Air-Conditioning Engineers."

[28] CRS Report R47202, *Tax Provisions in the Inflation Reduction Act of 2022 (H.R. 5376)*, coordinated by Molly F. Sherlock.

[29] 26 U.S.C. §45(a)(2)(A)(ii).

during the facility's construction phase.[30] Facilities qualifying for the PTC must have begun construction in 2024 or earlier years.[31]

- *The IRC Section 45J credit for production of electricity from qualifying advanced nuclear power facilities*—The Section 45J credit may be claimed by owners of advanced nuclear power facilities that were placed in service on or after August 9, 2005. The credit is equal to 1.8 cents per kilowatt-hour of electricity produced and sold by an advanced nuclear power facility during its first eight years of operation.[32] The credit is capped at 6,000 megawatts (MW) of total allocated electrical capacity, and taxpayers can claim no more than $125 million in credits per 1,000 MW of a single year's allocated capacity. The Section 45J tax credit has historically had low take-up (with CRS identifying one taxpayer that has claimed the credit), and it is the only credit on this list that was not enacted or modified by the IRA.
- *The IRC Section 45Q credit for carbon oxide sequestration*—The Section 45Q credit subsidizes the capture and sequestration of carbon monoxide and carbon dioxide.[33] For carbon capture equipment placed in service in 2023 or later, the value of the credit may vary from $12 to $85 per metric ton of carbon oxide, depending on a variety of factors.[34] Credits may be received for 12 years and will be adjusted for inflation starting in 2027.[35]
- *The IRC Section 45U zero-emission nuclear power production credit*—The Section 45U credit provides up to 1.5 cents in 2024 dollars (updated annually for inflation) per kilowatt-hour of electricity produced by qualifying nuclear power facilities.[36] Qualifying facilities must have been placed in service before August 16, 2022, and cannot have previously received an advanced nuclear production tax credit under IRC Section 45J. Credit amounts may be reduced if the price of electricity (net of state or local subsidies) exceeds 2.5 cents per kilowatt-hour. The credit may be claimed for electricity produced and sold between 2024 and 2032.
- *The IRC Section 45Y clean electricity production tax credit (CEPTC)*—The CEPTC effectively supplants the PTC starting in 2025.[37] The CEPTC provides a

[30] Department of the Treasury and Internal Revenue Service, "Credit for Renewable Electricity Production and Publication of Inflation Adjustment Factor and Reference Price for Calendar Year 2024," 89 *Federal Register* 56,924-56,926, July 11, 2024. Amish Shah et al., "IRS Releases 2024 Section 45 Production Tax Credit Amounts," Holland & Knight, July 15, 2024, https://www.hklaw.com/en/insights/publications/2024/07/irs-releases-2024-section-45-production-tax-credit-amounts.

[31] 26 U.S.C. §45.

[32] CRS Insight IN12557, *Nuclear Power Tax Credits*, by Nicholas E. Buffie.

[33] CRS In Focus IF11455, *The Section 45Q Tax Credit for Carbon Sequestration*, by Angela C. Jones and Donald J. Marples.

[34] CRS In Focus IF11455, *The Section 45Q Tax Credit for Carbon Sequestration*, by Angela C. Jones and Donald J. Marples. Higher tax credit amounts (of up to $180 per metric ton of carbon dioxide) are available for direct air capture, which is not relevant to electricity generation.

[35] CRS Report R46865, *Energy Tax Provisions: Overview and Budgetary Cost*, by Nicholas E. Buffie and Donald J. Marples.

[36] CRS Insight IN12557, *Nuclear Power Tax Credits*, by Nicholas E. Buffie. Facilities not meeting prevailing wage requirements are eligible for a 45U tax credit of up to 0.3 cents per kilowatt-hour.

[37] The CEPTC applies to facilities placed in service in 2025 or later years, whereas the PTC applies to facilities beginning in 2024 or earlier years. A facility that begins construction before 2025 but is placed in service in 2025 or later may qualify for either the PTC or the CEPTC but not for both credits.

tax credit of up to 2.5 cents in 2021 dollars (updated annually for inflation) per kilowatt-hour of electricity production.[38] Taxpayers may receive credits for 10 years, starting with the year a facility begins producing electricity.[39] However, whereas the PTC subsidizes electricity from specific energy sources such as wind and solar, the CEPTC subsidizes all electricity facilities that operate with zero greenhouse gas emissions.[40]

- *The IRC Section 48 energy investment tax credit (ITC)*—See the section "Section 48 Energy Investment Tax Credit and Section 48E Clean Electricity Investment Tax Credit" for a description of the ITC. Electricity providers using renewable sources may claim the ITC while contracting with and providing electricity to a data center.
- *The IRC Section 48E clean electricity investment tax credit (CEITC)*—See the section "Section 48 Energy Investment Tax Credit and Section 48E Clean Electricity Investment Tax Credit" for a description of the CEITC. Electricity providers using zero-emissions sources may claim the CEITC while contracting with and providing electricity to a data center.

Could Data Centers Benefit from Nuclear Energy Tax Credits?

Nuclear facilities can provide a stable supply of electricity that is unaffected by fluctuations in the weather. However, nuclear facilities often take years to build, and federal regulators have blocked the construction of one nuclear facility that would have supplied electricity to a data center run by Amazon.[41] Until recently, Meta did not appear to power any of its data centers with nuclear power, but in December 2024, it put forth a public request for proposals to "identify nuclear energy developers to help ... meet [Meta's] AI innovation and sustainability objectives."[42] As discussed below, Meta subsequently contracted with an existing nuclear facility in Illinois to power a Meta data center.

Companies have announced a number of agreements that have yet to be finalized in binding contracts, such as the Oklo-Switch agreement.[43] Amazon Web Services' announcement of its $500 million of investments included noncommittal language for one of its agreements, noting that the company intended to "explore the development of [a small modular reactor] project" in Virginia.[44] In addition, existing nuclear power agreements often include long timelines, with the energy facilities being built over the course of years or even decades.[45]

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[38] 26 U.S.C. §48E(a)(2), 26 U.S.C. §45Y(a)(2), and 26 U.S.C. §45Y(c). The credit amount is 0.5 cents for taxpayers not complying with PWA requirements.

[39] 26 U.S.C. §45Y(b)(1)(B) and 26 U.S.C. §45(a)(2)(A)(ii).

[40] 26 U.S.C. §45Y(b)(1)(A) and 26 U.S.C. §48E(b)(3).

[41] Jennifer Hiller, "The Amazon-Talen Deal: Why It Was Stopped," *The Wall Street Journal*, November 2024.

[42] Meta, "Accelerating the Next Wave of Nuclear to Power AI Innovation," press release, December 3, 2024, https://sustainability.atmeta.com/blog/2024/12/03/accelerating-the-next-wave-of-nuclear-to-power-ai-innovation/.

[43] Oklo and Switch reached a nonbinding agreement. See Jamie Smyth, "Sam Altman-led Nuclear Start-up Signs Major AI Power Supply Deal," *The Financial Times*, December 18, 2024; and Spencer Kimball, "Oklo Targets 12 Gigawatts of New Nuclear Power through Agreement with Data Center Operator," *CNBC*, December 18, 2024.

[44] Amazon, "Amazon Signs Agreements for Innovative Nuclear Energy Projects to Address Growing Energy Demands," press release, October 16, 2024, https://www.aboutamazon.com/news/sustainability/amazon-nuclear-small-modular-reactor-net-carbon-zero.

[45] The nonbinding Oklo-Switch agreement includes a targeted full deployment date of 2044, and AWS plans on (continued...)

Announced agreements between data centers and nuclear power providers have predominantly identified small modular reactors (SMRs) as their intended power sources, though no SMRs have been built in the United States to date.[46] The U.S. Nuclear Regulatory Commission has approved two SMR designs, though SMRs may become more common going forward.[47] The second design approval was issued in May 2025, and around the same time, the Tennessee Valley Authority (the country's largest public power provider) requested a permit to build its own SMR.[48] In the future, SMRs and other nuclear facilities receiving the CEITC or CEPTC may pass along lower electricity bills to data centers, though that practice is unlikely to significantly affect electricity bills in the short term. Facilities that are placed in service after the expiration of the clean electricity tax credits may potentially forego any federal tax support, depending on future legislation.

Previously constructed nuclear facilities supplying electricity to data centers may also qualify for federal tax credits. On June 3, 2025, Meta announced a 20-year agreement to purchase electricity from the Clinton Clean Energy Center, a large nuclear power plant in Illinois.[49] Previously, in September 2024, Microsoft announced an agreement to reopen a previously shuttered nuclear facility at Three Mile Island in Pennsylvania.[50] Three Mile Island has two nuclear reactors: one that melted down in 1979 and a second that was shut down in 2019. Microsoft's agreement would reopen the second facility in 2028. The *Washington Post* reported that the restart is "dependent on federal subsidies in the form of tax breaks earmarked for nuclear power in the 2022 Inflation Reduction Act," though it did not indicate which tax credit the electricity provider will receive or the value of those credits. An article in the *MIT Technology Review* indicated that the deal may depend on the Section 45U credit, which applies to facilities placed in service before August 16, 2022.[51]

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investing $35 billion in nuclear power reactors in Virginia through 2040. An agreement between Google and Kairos Power includes projected deployment dates of 2030-2035. See Spencer Kimball, "Oklo Targets 12 Gigawatts of New Nuclear Power through Agreement with Data Center Operator," *CNBC*, December 18, 2024; Diana Olick, "Amazon Goes Nuclear, to Invest More than $500 Million to Develop Small Modular Reactors," *CNBC*, October 16, 2024; and Pippa Stevens, "Google Signs Deal with Nuclear Company as Data Center Power Demand Surges," *CNBC*, October 14, 2024.

[46] Pippa Stevens, "Google Signs Deal with Nuclear Company as Data Center Power Demand Surges," *CNBC*, October 14, 2024. The International Atomic Energy Agency noted in September 2023 that "SMRs are under construction or in the licensing stage" in the United States. See Joanne Liou, "What are Small Modular Reactors (SMRs)?," International Atomic Energy Agency, updated September 13, 2023, https://www.iaea.org/newscenter/news/what-are-small-modular-reactors-smrs.

[47] U.S. Nuclear Regulatory Commission, "NRC Approves Standard Design for NuScale US460 Small Modular Reactor," press release, May 29, 2025, https://www.nrc.gov/cdn/doc-collection-news/2025/25-033.pdf. NuScale Power, "NuScale Power Makes History as the First Ever Small Modular Reactor to Receive U.S. Nuclear Regulatory Commission Design Approval," press release, August 28, 2020, https://www.nuscalepower.com/press-releases/2020/nuscale-power-makes-history-as-the-first-ever-smr-to-receive-us-nrc-design-approval.

[48] Jennifer McDermott, "First US Utility Seeks Permit for a Small Nuclear Reactor," *The Journal-News* (Southwest Ohio), May 20, 2025, https://www.journal-news.com/nation-world/first-us-utility-seeks-permit-for-a-small-nuclear-reactor/3QYZS3XDJZAB7KD7ZV7UKKSTNA/; and U.S. Nuclear Regulatory Commission, "NRC Approves Standard Design for NuScale US460 Small Modular Reactor," press release, May 29, 2025, https://www.nrc.gov/cdn/doc-collection-news/2025/25-033.pdf.

[49] Meta, "Meta and Constellation Partner on Clean Energy Project," press release, June 3, 2025, https://about.fb.com/news/2025/06/meta-constellation-partner-clean-energy-project/; Jennifer Hiller, "Meta Signs Nuclear Power Deal to Fuel Its AI Ambitions," *Wall Street Journal*, June 3, 2025; and Matthew Zeitlin, "It Took a Decade, But Big Tech Finally Loves Nuclear," *Heatmap News*, June 4, 2025.

[50] Casey Crownhart, "Why Microsoft Made a Deal to Help Restart Three Mile Island," *MIT Technology Review*, September 26, 2024.

[51] Casey Crownhart, "Why Microsoft Made a Deal to Help Restart Three Mile Island," *MIT Technology Review*, (continued...)

In some cases, a power agreement may involve both existing nuclear facilities and potential future facilities. In June 2025, Talen Energy announced that it had contracted with Amazon to "provide ... 1,920 megawatts of carbon-free nuclear power through 2042."[52] Talen Energy currently operates nuclear facilities with 2.2 gigawatts (2,200 megawatts) of nuclear energy, and in the agreement with Amazon, the two companies stated they would "also explore building new Small Modular Reactors ... with the intent to add net-new energy."[53] Talen Energy's existing facilities already benefit from the Section 45U tax credit.[54] Depending on whether and how any future SMRs are designed, those may qualify for the CEITC or the CEPTC, insofar as those credits continue to benefit nuclear power providers.[55]

Could Data Centers Benefit from the Tax Credit for Carbon Oxide Sequestration?

Data centers may reap indirect benefits (via cheaper electricity) from the Section 45Q credit. Natural gas facilities—which are eligible for the Section 45Q credit if they capture and sequester their carbon emissions—can generate electricity regardless of the weather, and they can quickly ramp up supply in the face of surging demand from electricity-intensive buildings such as data centers.[56]

Presently, natural gas appears to be the most popular electricity supplier for data centers (though nuclear may supplant it, depending on how many preliminary agreements end up being finalized).[57] The IEA estimates that in 2024, 40% of all data center electricity was supplied by natural gas facilities, making it the most common energy source for data centers.[58] Currently, most natural gas facilities do not capture their emissions—meaning they cannot receive the 45Q credit—but the IEA projects that the share of natural gas facilities capturing and sequestering their emissions will grow over time.[59]

In December 2024, energy equipment manufacturer GE Vernova announced that it had secured contracts to build 9 gigawatts of electricity supply for gas facilities "serving the hyperscaler demand associated with AI"; the announcement did not clarify whether the facilities would

September 26, 2024. The *MIT Technology Review* references a "$15-per-megawatt-hour tax credit," which is consistent with the tax credit values of the Section 45U credit, not the Section 45J credit.

[52] Talen Energy, "Talen Energy Expands Nuclear Energy Relationship with Amazon," press release, June 11, 2025, https://ir.talenenergy.com/news-releases/news-release-details/talen-energy-expands-nuclear-energy-relationship-amazon.

[53] Talen Energy, "Talen Energy Expands Nuclear Energy Relationship with Amazon.".

[54] Talen Energy, "Powering Data," https://www.talenenergy.com/powering-data/.

[55] For information on how the proposed changes to the CEITC and the CEPTC in H.R. 1 differ for nuclear power versus other forms of power, see CRS Insight IN12557, *Nuclear Power Tax Credits*, by Nicholas E. Buffie.

[56] CRS Report R48127, *Natural Gas Reliability: Issues for Congress*, by Paul W. Parfomak, Ashley J. Lawson, and Michael Ratner. Jamie Brick et al., *The Role of Natural Gas in the Move to Cleaner, More Reliable Power*, McKinsey & Company, September 1, 2023, https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/the-role-of-natural-gas-in-the-move-to-cleaner-more-reliable-power#/; and Inspire Clean Energy, "Reliable Energy Sources," https://www.inspirecleanenergy.com/blog/clean-energy-101/reliable-energy-sources.

[57] Matthew Zeitlin, "Investors Are Expecting a Natural Gas Boom. Will They Get It?," *Heatmap News*, December 10, 2024; and Matthew Zeitlin, "It's Been a Big 24 Hours for AI Energy Announcements," *Heatmap News*, December 11, 2024.

[58] Singh and Spencer, *Energy and AI*, p. 87.

[59] IEA, *The Role of CCUS in Low-Carbon Power Systems*, July 2020, https://www.iea.org/reports/the-role-of-ccus-in-low-carbon-power-systems.

capture their emissions.[60] Following GE Vernova's annoucement, ExxonMobil announced that it would begin constructing new natural gas plants to serve the burgeoning energy demand from data centers.[61] The company stated that the new plants will "use carbon capture to remove more than 90 percent of the associated CO_2 emissions, then transport the captured CO_2 to safe, permanent storage deep underground."[62]

Natural gas plants may also be used alongside renewable energy facilities to provide electricity when the sun does not shine or the wind does not blow, serving as a complement to zero-emissions energy sources. For example, shortly before its 1.5-gigawatt deal with Meta was announced, Entergy Louisiana LLC filed an application to build two natural gas plants close to where Meta's data center will be erected.[63] *S&P Global* reported that the facilities "will be hydrogen-ready and enabled for future carbon capture and storage" and "are expected to come online between 2028 and 2029."[64] If natural gas plants can successfully capture and store their carbon emissions, they may qualify for the Section 45Q credit, which in turn could lead to cheaper electricity supply for data centers.

Could Data Centers Benefit from Renewable Energy Tax Credits?

Renewable energy tax credits will indirectly benefit data centers to varying degrees. Data centers often require a large, constant supply of electricity, making them unlikely to contract exclusively with renewable energy providers such as solar farms and wind farms. Renewable energy suppliers claiming the ITC, PTC, CEITC, or CEPTC are unlikely to lower electricity bills for many data centers, though there are some exceptions to this general rule.[65]

Renewable energy may also prove to be one part of broader electricity supply agreements, especially when combined with battery storage or backup gas facilities in an established microgrid.[66] Such combined packages could potentially qualify for renewable energy tax benefits. New solar farms are more likely than other types of renewable energy facilities to include a battery storage component, making solar-and-storage facilities—which could receive the ITC or CEITC for both their solar systems and their storage systems—a potential future supplier of data centers' electricity needs.[67]

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[60] GE Vernova, *2024 Investor Update*, December 10, 2024, p. 4, https://www.gevernova.com/sites/default/files/gev_investor_update_transcript_12102024.pdf.

[61] ExxonMobil, "Steel, Ammonia and AI? Oh My! What Can't Our CCS Help Decarbonize?," press release, December 11, 2024, https://corporate.exxonmobil.com/what-we-do/delivering-industrial-solutions/carbon-capture-and-storage/steel-ammonia-ai-what-cant-ccs-help-decarbonize.

[62] ExxonMobil, "Steel, Ammonia and AI? Oh My! What Can't Our CCS Help Decarbonize?"

[63] Darren Sweeney, "Entergy's Status as 'One-Stop Shop' Helped Lure Massive Meta Deal – CEO," *S&P Global*, December 6, 2024.

[64] Darren Sweeney, "Entergy's Status as 'One-Stop Shop' Helped Lure Massive Meta Deal – CEO.".

[65] Adam Wilson, "Datacenter Companies Continue Renewable Buying Spree, Surpassing 40 GW in US," *S&P Global*, March 28, 2023, https://www.spglobal.com/market-intelligence/en/news-insights/research/datacenter-companies-continue-renewable-buying-spree-surpassing-40-gw-in-us.

[66] Matthew Zeitlin, "Big Tech Will Rule the Grid in 2025," *Heatmap News*, December 27, 2024.

[67] For information on the intersection of supply capacity and new renewable energy facilities, see Energy Information Administration (EIA), "Solar, Battery Storage to Lead New U.S. Generating Capacity Additions in 2025," February 24, 2025, https://www.eia.gov/todayinenergy/detail.php?id=64586; EIA, "Solar and Battery Storage to Make Up 81% of New U.S. Electric-Generating Capacity in 2024," December 26, 2024, https://www.eia.gov/todayinenergy/detail.php?id=64126; and EIA, "Large Battery Systems Are Often Paired with Renewable Energy Power Plants," May 18, 2020, https://www.eia.gov/todayinenergy/detail.php?id=43775.

Two renewable sources with high *reliability*—that is, the capacity to supply a relatively constant level of electricity, regardless of fluctuations in the weather—are geothermal energy and biomass.[68] In theory, these energy sources could provide the type of reliable electricity supply required by data centers. However, geothermal and biomass facilities currently supply 0.4% and 1.1% of all U.S. electricity, respectively, making them unlikely to provide electricity to many new data centers over the short term.[69]

Over the longer term, technological improvements could increase the usage of geothermal energy by data centers, though biomass does not appear to be making similar technological advancements.[70] In August 2024, Meta announced a partnership with the geothermal energy supplier Sage, stating the following in its press release: "The first phase of this project will aim to be online and operating in 2027. As part of this partnership ... we'll plan to deliver up to 150 MW of new geothermal baseload power to support our data center growth."[71] Similarly, Google has reportedly entered a power supply agreement with NV Energy, which would supply Google with 115 megawatts of electricity from the Corsac Station Enhanced Geothermal Project (CSEGP).[72] As of November 2024, CSEGP was undergoing permitting approval.[73] According to Power Technology, construction on the project is expected to begin in 2026, with CSEGP beginning to produce electricity in 2027.[74]

Will Data Centers Extend the Lifetime of the Clean Electricity Tax Credits?

The ITC and the PTC may only be claimed for facilities beginning construction before the end of 2024.[75] The CEITC and CEPTC are, in effect, successors to the ITC and PTC. To qualify for the CEITC or the CEPTC, a zero-emissions electricity facility must be placed in service after December 31, 2024.[76] A facility may only be used to claim one of the four credits. For example, a facility that begins construction in 2023 and is placed in service in 2026 could qualify for any of

[68] EIA, "Table 6.07.B. Capacity Factors for Utility Scale Generators Primarily Using Non-Fossil Fuels," Electric Power Monthly, accessed June 5, 2025, https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=table_6_07_b.

[69] EIA, "What Is U.S. Electricity Generation by Energy Source?," updated February 29, 2024, https://www.eia.gov/tools/faqs/faq.php?id=427&t=21.

[70] Yiyi Zhou, "Next-Generation Geothermal Technologies Are Heating Up," *BloombergNEF*, May 10, 2023, https://about.bnef.com/insights/clean-energy/next-generation-geothermal-technologies-are-heating-up/; Jan Mares and Alan Krupnick, "Do the Advantages of Geothermal Energy Justify Greater Federal Support?," Resources for the Future, May 8, 2025, https://www.resources.org/common-resources/do-the-advantages-of-geothermal-energy-justify-greater-federal-support/; and Michael Yancey, *The Conservative Case for Next Generation Geothermal Energy*, Citizens for Responsible Energy Solutions Forum, March 4, 2025, https://cresforum.org/publications/the-conservative-case-for-next-generation-geothermal-energy/.

[71] Meta, "New Geothermal Energy Project to Support Our Data Centers," press release, August 26, 2024, https://about.fb.com/news/2024/08/new-geothermal-energy-project-to-support-our-data-centers/.

[72] Emma Penrod, "NV Energy Seeks New Tariff to Supply Google with 24/7 Power from Fervo Geothermal Plant," *Utility Dive*, June 21, 2024, https://www.utilitydive.com/news/google-fervo-nv-energy-nevada-puc-clean-energy-tariff/719472/.

[73] Power Technology, "Power Plant Profile: Corsac Station Enhanced Geothermal Project, US," November 11, 2024, https://www.power-technology.com/marketdata/power-plant-profile-corsac-station-enhanced-geothermal-project-us/?cf-view.

[74] Power Technology, "Power Plant Profile: Corsac Station Enhanced Geothermal Project, US."

[75] CRS Report R46865, *Energy Tax Provisions: Overview and Budgetary Cost*, by Nicholas E. Buffie and Donald J. Marples.

[76] CRS Report R48358, *Domestic Content Requirements for Electricity Tax Credits in the Inflation Reduction Act (IRA)*, by Nicholas E. Buffie.

the four credits, but when claiming one credit, the facility owner would have to forego the other three credits as a result.[77]

As discussed below, the CEITC and the CEPTC have an expiration date based on future GHG emissions levels. As a result, electricity demand from data centers could extend the lifetimes of the CEITC and the CEPTC. However, Congress may sunset the credits earlier than under current law. H.R. 1, which passed the House of Representatives in May 2025, would make facilities eligible for the credits only if they begin construction within 60 days of enactment and are placed in service before the end of 2028.[78] If this reform or others are enacted, data centers' electricity usage would not extend the lifetimes of the CEITC or the CEPTC.

Under current law, new facilities are eligible for full CEITC and CEPTC amounts through an *applicable year*, which is the later of either 2032 or the year in which GHG emissions from the domestic electricity sector are less than or equal to 25% of the sector's emissions from 2022.[79] Credit eligibility is then subject to a phaseout. As part of the phaseout, facilities that begin construction during the calendar year after the applicable year may receive 100% of the full credit amount; facilities that begin construction two calendar years later may receive 75% of the full amount; and facilities that begin construction three calendar years later may receive 50% of the full amount.[80] No taxpayers may become newly eligible for the credits thereafter. However, because credit eligibility is based on the year a facility begins construction, whereas receipt of the credits is based on when a facility is placed in service, taxpayers may *receive* the credit after the final year of eligibility. For example, if the *applicable year* is 2040, a taxpayer that begins construction on a new facility in 2043 could receive a CEPTC equal to 50% of the normal credit amount. If the facility completes construction and begins providing electricity to consumers in 2046, the taxpayer could receive the credit for 10 years from 2046 to 2055. If the taxpayer in this example instead opts for the CEITC, the taxpayer would receive a one-time credit equal to 50% of the normal credit amount in 2046.

According to an analysis from the U.S. Energy Information Administration (EIA), the electricity sector is unlikely to hit the 25% emissions target by 2050.[81] If the projections in the EIA analysis prove accurate, then under current law, the CEITC and CEPTC will be in effect for multiple decades.

The determination of the applicable year depends on *overall* GHG emissions from the domestic electricity sector; it does not depend on GHG emissions *per unit of electricity*. Even if the mix of energy sources becomes "cleaner" on average, the electricity sector's GHG emissions could nonetheless increase if total electricity consumption goes up. Data centers are expected to increase electricity demand, thereby pushing up total electricity consumption. This could result in higher overall GHG emissions from the domestic electricity sector, pushing back the applicable year for the CEITC and CEPTC and thereby keeping the credits in place longer.

[77] CRS Report R48358, *Domestic Content Requirements for Electricity Tax Credits in the Inflation Reduction Act (IRA)*, by Nicholas E. Buffie.

[78] CRS Report R48550, *Tax Provisions in H.R. 1, the One Big Beautiful Bill Act: House-Passed Version*, coordinated by Anthony A. Cilluffo.

[79] 26 U.S.C. §45Y(d)(3) and 26 U.S.C. §48E(e)(3).

[80] 26 U.S.C. §45Y(d)(2) and 26 U.S.C. §48E(e)(2).

[81] EIA, *Issues in Focus: Inflation Reduction Act Cases in the AEO2023*, March 16, 2023, https://www.eia.gov/outlooks/aeo/IIF_IRA/.

Author Information

Nicholas E. Buffie
Analyst in Public Finance

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