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BETTER DATA CENTER PROJECT

The AI Gas Rush:

Risks and Implications of "Bring Your Own Power"

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This report lives at www.earthjustice.org/byop

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Introduction

The race to scale artificial intelligence (AI) has triggered an unprecedented increase in electricity demand. As of mid-2026, the U.S. has over 300 gigawatts (GW) of data center capacity planned or under construction, with 25–57 GW operational.[1] To put this in context, peak electricity demand on the hottest day in 2025 was 760 GW—if all 300 GW of new data centers were built and operated at 50% power, it could increase peak demand by 20%.[2] Data centers are expected to account for 9–15% of all U.S. electricity use by 2030 and up to 75% of U.S. power demand growth in the next decade.[3] Much of this proposed build-out, in the near term, is concentrated in "mega" campuses with loads over 1 GW, with more than 100 planned and several already running.[4]

For AI data center developers, the ability to secure large amounts of electricity on aggressive development timelines ("speed to power") has become a defining commercial priority. But utilities are unable to connect AI data centers to the grid quickly—large load interconnection averages over four years nationally and up to seven years in Northern Virginia due to a variety of factors, including generation shortages and transmission constraints.[5] In response, developers are increasingly pursuing **"Bring Your Own Power" (BYOP) strategies, where they build or contract their own dedicated generation resources rather than relying solely on grid power.**

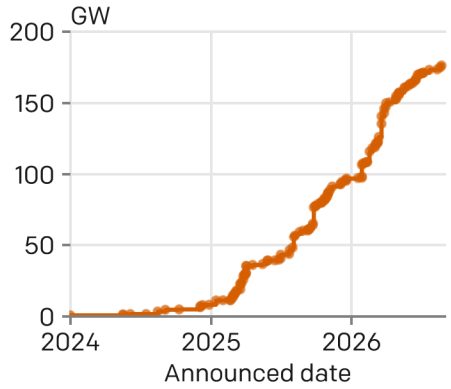


Figure 1. Announced BYOP gas capacity

SpaceXAI's Colossus 1 and 2 data centers near Memphis, Tennessee, where the company deployed dozens of gas turbines and operated many without permits, were the first highly-publicized examples of BYOP. Over the last two years, the number and magnitude of proposed BYOP projects for hyperscale data centers has skyrocketed, with nearly all proposals announced since the beginning of 2025 and **gas BYOP proposals doubling in the first half of 2026 alone**. This trend is expected to continue: A recent McKinsey survey of data center players found that "nearly 60 percent of respondents expect to have permanent on-site generation by 2030, even after the grid becomes available."

Recent reports have uncovered a surge in U.S. *gas* BYOP proposals in particular: Cleanview reported ~90 GW of "behind-the-meter" gas power across 59 projects, the Environmental Integrity Project (EIP) found 74 BYOP gas plants totaling 143 GW, and Global Energy Monitor (GEM) counts 189 GW of gas capacity "tied to data centers" (which includes some on the grid). The scale of individual projects can also be immense. As of August 2026, nine proposed AI data center power plants are 4.5 GW or larger—if all are built, nine of the top 10 largest power plants in the U.S. would be dedicated to powering

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[1] Capacity estimates compiled from FracTracker, Cleanview, and Aterio data center trackers.

[2] U.S. Energy Information Administration (EIA). (August 2025). U.S. electricity peak demand set new records twice in July. We note that much of the 300 GW likely won't be built by 2030; LBNL only projects 150 GW by 2030.

[3] S. Smith, et al. (June 2026). United States Data Center Energy Usage Report: 2025 Update. Lawrence Berkeley National Laboratory (LBNL). LBNL estimates data centers will account for 33% of U.S. load growth from 2024–2030, Grid Strategies estimates 55% from 2025–2030 (National Load Growth Report 2025), and McKinsey estimates 75% through 2035 (Powering AI: How real is the risk of overbuilding?).

[4] Powered By Who (July 2026). The 25 Largest Operational Data Centers in the U.S.. Epoch AI lists SpaceXAI's Colossus 2 at 942 MW of IT power and Amazon's New Carlisle at 910 MW as of Q3 2026, but total load (with cooling) likely exceeds 1 GW for both campuses.

[5] JLL Research (2026). 2026 Global Data Center Outlook; ATC (Aug. 2025). Load Interconnection Guide.

AI data centers. The largest proposed project is currently 17 GW, enough to power eight million average U.S. homes.[6]

If built, these massive gas projects will have substantial impacts on people and the planet—not only worsening climate change, but harming the health of nearby communities, including those already burdened by historical and ongoing disinvestment, environmental injustice, and extractive industry. Despite these risks, policymakers across the nation are incentivizing or requiring BYOP in an attempt to address energy bill impacts from new AI data centers. But developers are turning to BYOP to meet their "speed to power" goals—not to solve the energy bill impacts of AI. This report finds potential ratepayer benefits are not guaranteed, while harms of the massive gas BYOP buildout have been inadequately analyzed and addressed. Even policies requiring AI data centers to bring their own *clean* energy must be carefully designed to ensure that they do not result in greenwashing or the diversion of resources away from broader decarbonization efforts.

Author's note

This report was prepared in response to questions received from communities, Tribal, state, and local governments, and others navigating BYOP proposals and policies, and builds on the growing body of work raising serious concerns about gas BYOP.[7] We recognize that BYOP is only one aspect of the broader challenges associated with the rapid expansion of AI data centers. This report is not intended to de-emphasize other critical (and related) issues, including water impacts, toxic pollution including PFAS, land use, economic impacts, privacy, civil rights, and environmental justice. We believe that communities have a right to meaningful participation in decisions about whether and how large energy infrastructure is developed and who it benefits, and that everyone deserves clean air and water, healthy and comfortable surroundings, a sustainable local economy, and a stable climate.

Data and methods

The data and research in this report include developments through the end of August 2026 unless otherwise noted. We vetted and supplemented existing datasets with publicly available information. Our emissions and health cost estimates are based not on maximum potential emissions, but rather on how current AI data center gas plants are operating (i.e., using a capacity factor of 60% for gas combustion technologies). Our sources, methodology, and assumptions are fully described in the Appendices, with the full dataset available at www.earthjustice.org/byop-dataset. Data center proposals, issues, and policy are rapidly evolving, but even as details of specific projects or policies shift, our analysis highlights concerning patterns in BYOP development for AI data centers.

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[6] Assumes 60% capacity factor and average U.S. home energy use of 10,791 kWh/yr (EIA).

[7] See recent reports from Cleanview, the Environmental Integrity Project, PennFuture, the Regulatory Assistance Project, and Global Energy Monitor.

Key findings

Climate & Public Health

- **Massive scale and impact:** The scale of both total and individual BYOP proposals is massive. As of August 2026, there are nine proposed gas BYOP projects that are 4.5 GW or larger. If all are built, nine of the top 10 largest power plants in the U.S. would be data center gas BYOP.

  Altogether, the current 177 GW of gas proposals would emit over 400 million metric tons of carbon dioxide equivalent ($MTCO_2e$) annually, increasing the U.S. power sector's total emissions by 23%. Ozone and particulate matter pollution from these projects could cause an estimated $5–10B in monetized health damages each year.

- **Majority gas:** Building on prior reports, we estimate that for current BYOP proposals, approximately 80% of energy generation will come from gas.

- **Inefficient gas technologies with more air pollution:** More than half of disclosed gas BYOP capacity uses technologies that are less efficient and more polluting than typical gas power plants.

Regulatory Oversight, Environmental Review & Public Participation

- **Inadequate regulatory oversight and laws to protect the environment, climate, and consumers:** BYOP projects are moving forward without sufficient oversight by entities charged with protecting people and the planet. Behind-the-meter BYOP projects can bypass important planning or regulatory processes that generally apply to large new power plants, and most gas BYOP projects are proposed in states with weak environmental laws and protections. Widespread efforts to dismantle federal environmental laws erode federal backstops, which are particularly important in states with the largest gas BYOP buildouts.

  Additionally, developers are attempting to bypass remaining legal safeguards through project segmentation to avoid more stringent permitting requirements. They may also site projects in unincorporated or industrial areas with limited local zoning or land use approvals. These factors can create significant gaps in oversight and further limit opportunities for public participation.

- **Most will seek grid connection:** Most BYOP projects are expected to seek grid connection eventually, raising important questions about the long-term economic, technical, and societal consequences of allowing future grid-connected gas projects to circumvent regulatory decision-making and protections today.

- **Secrecy and lack of public participation:** A pervasive lack of transparency, non-disclosure agreements, and project segmentation mean the relationship between AI data centers and their BYOP projects is often obscured. This further erodes opportunities for public participation and excludes communities—particularly members of overburdened communities—from meaningfully participating in the decisions that affect them.

Economic & Policy Landscape

- **Economic risks to ratepayers and communities remain:** BYOP is not a simple solution to affordability concerns: There are many pathways through which BYOP projects can drive up energy bills including increased demand for gas and energy infrastructure, and if grid-connected, upward pressure on capacity and electricity prices. Tax exemptions and other public subsidies often further undermine claimed economic benefits.

- **BYOP policies lack sufficient safeguards:** The majority of enacted BYOP state laws focus on ratepayer impacts while facilitating BYOP via incentives like expedited permitting or exemptions from public utility commission (PUC) oversight. While more protective policies are starting to emerge, they're often not in states where the majority of gas BYOP is planned and do not address the full range of impacts.

- **Rapidly evolving landscape:** The policy and industry landscape for BYOP is changing rapidly, and decisions made over the next few years will have an outsized impact on communities and the planet.

Summary: Risks and policy elements

Existing BYOP proposals will have wide-ranging impacts on public health, the climate, energy bills, natural and cultural resources, and more. Strong and comprehensive action is needed to address these risks. See **Part 2: Risks and policy elements** for details.

Climate, health, and environment

Risks

- Increased criteria air pollution and public health costs
- Increased greenhouse gas (GHG) emissions and climate change impacts
- Water impacts
- Data centers could divert clean energy needed to decarbonize other sectors

Policy Elements

- Clean energy that benefits all
- Good siting practices

Regulatory Oversight and environment, climate, and consumer protections

Risks

- Inadequate energy regulatory oversight
- Inadequate environmental review

Policy Elements

- Strong regulation and oversight
- Meaningful environmental review
- Community self-determination
- Governance and enforcement

Economic Impacts

Risks

- Higher energy bills
- Lost revenue from incentives

Policy Elements

- Cost responsibility and economic protections

Summary: Potential community intervention points

Potential points of engagement specific to BYOP will vary significantly by location and project but may include the following. See **Part 5: Intervention Points** for details.

Technology or configuration dependent

- Air permits
- Climate or clean energy requirements
- Gas pipeline approvals
- Water permits or approvals
- Environmental statutes or cumulative impact laws
- Disclosure or reporting requirements

Grid and utility commissions

- Large load tariff
- Special contract or power purchase agreement review and approval
- Rate cases
- Energy siting

Local approvals

- Zoning and land use
- Other local approvals and regulations, e.g., noise, roads, stormwater, construction, etc.
- Incentives and subsidies
- Decommissioning

Part 1: The status of U.S. BYOP proposals

What does "Bring Your Own Power" mean?

"BYOP" describes an **arrangement in which AI data center developers secure and fund their own dedicated primary power generation rather than relying solely on utilities to procure power**. BYOP has no uniform legal or regulatory definition and is used to describe a wide range of projects—including those using fossil fuels and renewables, at varying scales and with different relationships to the grid. This often obscures important differences in their implications for climate, public health, regulatory oversight, opportunities for public participation, electricity system planning, and energy costs.

Why BYOP?

AI data center developers are using BYOP as a strategy to secure large amounts of power in a very short timeframe ("speed to power"). It has emerged from the growing mismatch between the pace of AI data center development and the ability of the grid to provide large quantities of power on the timelines sought by AI data center developers.

More recently, BYOP has been put forth as a purported "fix" for rising energy bills due to skyrocketing AI loads, but this narrative is oversimplified at best.

BYOP archetypes

In addition to being used inconsistently to describe different concepts, BYOP is often used interchangeably with related but distinct terms such as behind the meter (BTM), co-location, off-grid, microgrid, self-supply, and islanded. Examples of BYOP terminology usage (Appendix 1) showcase how muddled these terms have become across various state and federal definitions—making developing a precise definition for BYOP challenging.

To clearly delineate different types of BYOP proposals and their differing implications and impacts, we outline **several common archetypes or "configurations"** below and use them throughout the report. This list is non-exhaustive and the most common archetypes may shift as this field evolves.

BTM + grid

We expect **most BYOP projects to be configured as BTM + grid** long-term. Many proposals plan to start fully islanded but intend to connect to the grid eventually due to the lower cost, services, and reliability the grid provides. But even after grid connection, we expect many data centers to retain some BTM capacity, and policies are increasingly incentivizing this approach (see **Part 3**: The rapidly evolving policy landscape for details). BTM refers to energy resources that are electrically interconnected on the customer side of the utility's "meter" and therefore serve the customer's load without first passing through the meter as grid-delivered electricity. BTM resources are typically on-site, co-located, or otherwise nearby.

Fully islanded

Some BYOP projects are completely physically and electrically disconnected from the grid, where the data center obtains all its primary power from a dedicated power plant or other onsite power generation. We call this "fully islanded," but "off grid" or "fully BTM" are also commonly used. Because there is no grid interconnection, no grid services can be used or provided. We expect many projects to start fully islanded while awaiting interconnection. Examples of this type include Pacifico Energy's GW Ranch (7.65 GW in Pecos County, TX) and SpaceXAI's Colossus 2 (1.5 GW in Southaven, MS).

Physical PPAs

In some cases, data centers may get all of their primary power from the grid, but still be responsible for procuring and paying for that power through a physical power purchase agreement (PPA) or similar mechanism. A physical PPA is a mechanism that provides a buyer access to power from an energy provider, with contracts usually ranging from 10 to 20 years. The energy provided from the physical PPA can come from on-site or co-located projects or be delivered through the grid.

Currently, most renewable energy projects associated with data centers is contracted through PPAs from off-site projects with power delivered through the grid, due to the challenge of siting large BTM renewable projects. We expect most of these are likely to be virtual PPAs (VPPAs), though this is challenging to verify.[8] As noted below, the use of PPAs poses significant challenges with ensuring data centers are bringing new capacity to the grid that would not have been developed otherwise. **We do not consider resources that are not near or deliverable (e.g., renewable energy credits or VPPAs) as BYOP** because they do not actually address the local impacts of the new large load, whereas physical PPAs with new clean resources could address these impacts and avoid the use of fossil fuels.

How might grid connection change over time?

As noted above, AI data centers may change the amount of grid power and services they use over time. For example, some BYOP projects plan to start fully islanded but interconnect later, and either sell power to the grid or transition to primarily grid power after interconnection. The Vantage VA2 data center in Loudoun County, Virginia, for example, plans to use their gas turbines as bridge power, and remove them once they receive grid interconnection. Colossus 1 was originally powered by on-site mobile turbines, but has since received grid interconnection, and its remaining turbines are now used to supplement grid power and for demand response.[9] In some cases, BYOP power plants may actually be a net exporter of power to the grid (i.e., the power plant produces more power than the data center consumes),[10] as is the plan for Homer City.

Plans may change before the data center is built, or after a project has been operating, making it **hard to predict how impacts to the grid and ratepayers will evolve over time**. Greenidge Generating station, a 106 MW gas plant located in Torrey NY, currently powers a co-located bitcoin-mining operation while

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[8] According to the National Laboratory of the Rockies (formerly the National Renewable Energy Lab), the majority of "Off-Site Corporate Solar PPAs" were virtual PPAs in all years reported since 2019.

[9] GEM. Colossus 1 power station.; Earthjustice. (Apr. 2026). Illegal Pollution from Data Center Power Plants Shouldn't Harm Our Communities. We're Suing xAI.

[10] E.g. see Appendix 1: NYISO Behind the Meter Net Generation Resource Definition

selling some of its power to the grid, but is pursuing an additional 60 MW of grid power to transition the site to AI data centers.[11]

Regardless of initial configuration, we expect **the majority of AI data centers to seek grid connection at some point** for a variety of factors outlined below. This raises important questions about the long-term economic, technical, and societal consequences of allowing future grid-connected gas projects to **circumvent regulatory** decision-making and **protections** today.

- **Energy costs**. In many cases, the long-term costs of islanded or BTM generation will be significantly higher than grid power, with one analysis finding that the levelized cost of islanded energy can be four to six times higher than grid power in many states.[12]
- **Grid services.** Data centers depend on the grid not only for electricity, but for "ancillary grid services" including frequency regulation to balance small real-time fluctuations in supply and demand, voltage control to protect equipment, and operating reserves which can come online quickly in the event a generator or load suddenly drops from the grid. Fully islanded systems have to provide these services for themselves, which can be a significant challenge and obstacle in building fully off-grid facilities.[13]
- **Stringent "uptime" requirements**. Large-scale data centers are designed to run continuously with minimal downtime, with the most reliable ones built to be down for only about 26 minutes a year. While exact uptime requirements depend on the type of data center and its potential for spatial and temporal load shifting,[14] many data centers seek very predictable and reliable power sources. In the U.S., the transmission grid (where large-scale data centers would connect) fulfills this need with only about 15 minutes of outages per year on average. In Virginia, most operators reported zero to two outages over two years, typically lasting between one and five hours.

Complexities of identifying BYOP projects

Because data centers may rely on varying amounts of grid power over time, it can be difficult to determine whether, and to what extent, a proposal actually qualifies as "BYOP." Additional factors that can make identifying "BYOP projects" challenging include:

- **Lack of transparency**: Widespread use of nondisclosure agreements (NDAs) in the AI data center industry means that information including power source, cost, procurement arrangements, capital stack, and more are shielded from the public. Power purchase agreements (PPAs) and other

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[11] Greenidge Generation Holdings Inc. (2026). Form 10-Q, Q1 2026 and Greenidge Generation Reports First Quarter 2026 Results and Advances AI/HPC Infrastructure Expansion.

[12] S. Ghosh, et al. (2026). Scalable data centers – Power generation and delivery challenges and solutions. Energy Reports. See also: According to Ascend Analytics, their "levelized cost of energy (LCOE) analysis strongly favors front-of-the-meter grid connection over the long run," showing that BTM natural gas costs more than expected ERCOT electricity prices through 2035, even for the most efficient combined cycle gas turbine technology.

[13] Tim Hade, co-founder of Brightfield AI and a former microgrid developer, "with the exception of some really talented firms that are working on these off-grid solutions, it's not going to be a huge part of the market." See also: C. Boudreau. (April 2026). Developers say off-grid data centers won't be 'a huge part of the market'. Latitude Media; and S. Lacey (July 2026). The off-grid data center fantasy. Latitude Media.

[14] Stringent uptime requirements could in principle be lower for some AI data centers because of the higher flexibility of AI model training, which can be scheduled during off-peak hours, delayed during peak power demand, and relocated to areas with less grid stress.

dedicated power contracts can make it particularly difficult to determine whether a project is truly bringing new capacity online.

- **Lack of reporting and verification requirements**: While some states (see Table 4) are beginning to develop policies to track BYOP projects, currently there is a widespread lack of reporting or verification requirements.
- **Misleading BYOP claims and greenwashing**: Companies may overinflate their claims of clean BYOP to align with their corporate climate commitments or BYOP broadly to generate support.
- **Financial segmentation**: As is common in large-scale energy development projects in many sectors, data center developers often financially segment projects using separate holding companies, partners, and investors. The use of shell companies can cause confusion, limit liability, and shield from long-term agreements and contracts. Developers also commonly use temporal and physical segmentation strategies to speed up permit processes and avoid oversight. (See Segmentation for details).
- **Lack of standard definition**: Because there is no standard definition for BYOP, some strategies are described as BYOP even though they don't actually involve securing dedicated primary generation, including "pay your way" (i.e., data centers promising to pay full costs of grid connection), demand response, and advanced transmission technologies or grid enhancing technologies (GETs).

What kinds of energy technologies are being proposed for BYOP?

BYOP is overwhelmingly gas

Building on work from Global Energy Monitor, Environmental Integrity Project and Cleanview, we find that the power projects proposed by data center developers are overwhelmingly gas. In total, we identify **177 GW of BYOP gas capacity, equivalent to 23% of the entire U.S.'s peak demand in 2025 and enough to power 65% of all U.S. homes.**

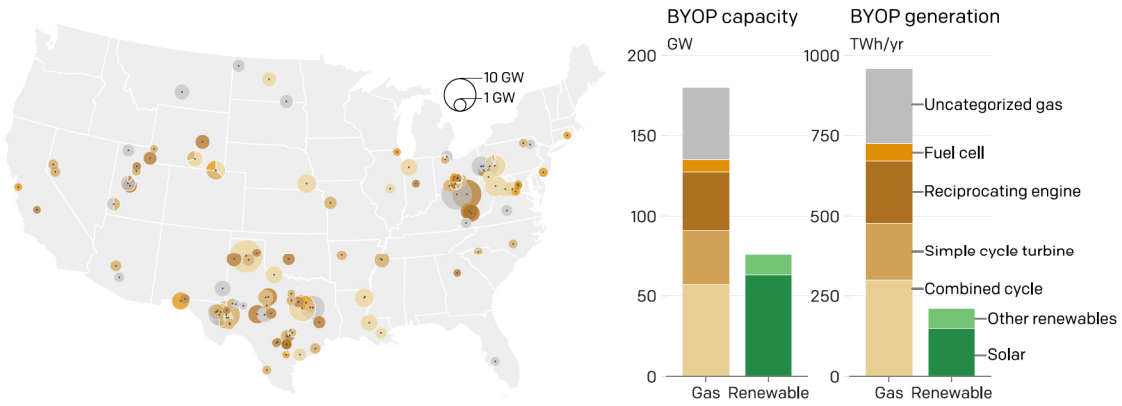


Figure 2. Map of BYOP gas projects, total announced BYOP capacity (middle), and estimated total energy generation (right) from BYOP gas compared to renewable PPAs. Energy generation accounts for the average capacity factor of each technology.

Comparing this total to renewable projects and PPAs disclosed by data center developers, we estimate that **gas will power about 80% of the energy generated by BYOP projects** planned to be online by 2032. See Appendix 2 for details of our analysis and links to our complete dataset.

Fossil fuel technologies

There are four main types of gas-powered generation being deployed for BYOP: reciprocating internal combustion engines (RICE), simple cycle gas turbines (SCGT), combined cycle gas turbines (CCGT), and fuel cells. Consistent with prior reports,[15] we find that more than half of disclosed gas BYOP capacity uses RICE and SCGTs, **which are less efficient and more polluting technologies than typical for large gas power plants**. These inefficient technologies emit more air pollution and GHGs per unit of electricity generated, increasing health and climate costs.

Speed to power is a key factor driving these technology choices. Shortages and multi-year lead times for more efficient combined cycle turbines have pushed developers to alternatives that can be deployed quickly, including trailer-mounted engines and refurbished and modified aviation turbines. However, even these quick-to-deploy options are facing supply constraints, creating uncertainty about whether all proposed gas BYOP projects can be built on announced timelines.

Below, we compare the typical efficiencies and sizes of these technologies (**Table 1**), as well as their CO_2 and nitrogen oxide (NO_x) emissions (**Figure 3**). We then summarize how these technologies operate typically on the grid and for AI data centers.

Table 1. Efficiency, typical unit size, and share of proposed BYOP capacity by gas-fired technology.[16] For detailed emissions data see **Appendix 2**: Methodology and analysis.

Type	Efficiency (%)	Capacity Per Unit (MW)	Planned BYOP capacity (GW)	(%)
RICE (reciprocating engines)	42–50%	2–20	36.5	27%
SCGT (simple cycle gas turbines)	35–43%	15–220	34.2	25%
CCGT (combined cycle gas turbines)	58–64%	80–664	56.7	42%
Fuel cells	53–65%	0.325	7.4	6%

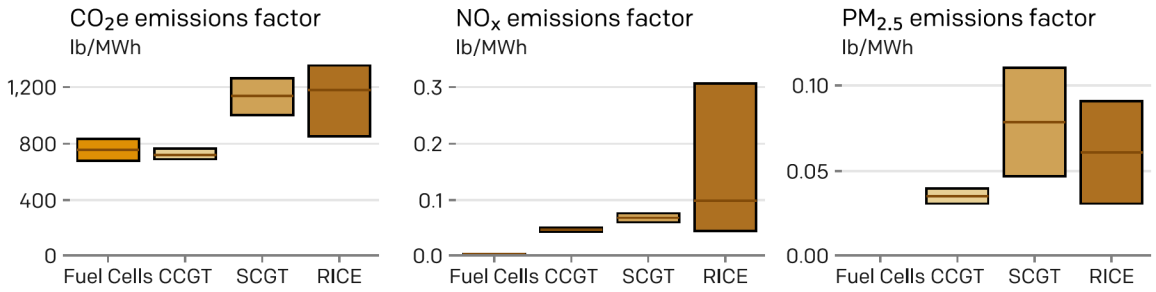


Figure 3. CO_2e, NO_x, and $PM_{2.5}$ emissions factors by technology, for units with selective catalytic reduction (SCR) NO_x controls.

[15] See: Cleanview, EIP, and GEM

[16] Totals do not sum to 177 GW because planned generation technologies have been disclosed for ~75% of projects.

FAQ: What is a "capacity factor"?

For a power plant, generation "capacity" is the maximum power output. Capacity factor is a measure of how much energy a power plant actually produces compared to how much it would generate if it operated at full capacity. 100% "capacity factor" would mean the power plant was running at full capacity all the time.

On the U.S. power grid, power plants have a wide range of capacity factors: "Baseload" units run most of the time with capacity factors usually over 70%. "Peaking" units typically only run when demand is very high, such as during the hottest hours of the day, and have capacity factors usually below 15%. "Intermediate" units ramp up or down in response to demand on the grid, running less than baseload but more than peaking units. Solar and wind power are "intermittent" resources, with capacity factors typically in the 20s and 30s respectively, because they only produce power when the sun is shining or the wind is blowing.

Because of the high power utilization of AI data centers, islanded BYOP gas plants are likely to run at high capacity factors. As a result, many of the low efficiency RICE and SCGTs units that are normally used as peaking plants on the grid will operate at much higher levels than is typical. We expect islanded BYOP gas combustion plants will operate at a capacity factor of 60% on average, though operations may be reduced once the associated data center connects to the grid. See Appendix 2: Methodology for more discussion.

Gas Engines (RICE)

Most gas engines proposed for BYOP are 4-stroke, lean-burn RICE.[17] These are sometimes colloquially called gas generators, but we refer to them as "engines" or "RICE" in this report. **RICE use spark-ignition and work similarly to a car engine**: they have pistons which move back and forth, propelled by the combustion of fuel, to turn a crankshaft and generate power.

The engines used for BYOP typically have capacities of 2–20 MW per unit (e.g. Caterpillar G3520H and Wärtsilä 18V50SG), and electrical efficiencies of 42–50%— higher than most SCGT, but lower than CCGT and fuel cells. However, engines have much higher methane "slip"—fuel that escapes to the exhaust without being combusted—than turbines or fuel cells; typically 1–3% of the input fuel escapes.[18] Around **25–40% of a typical RICE unit's carbon footprint (CO_2e) is due to uncombusted methane emissions**.

[17] Lean-burn means the fuel-air mixture in the engine's intake is "lean" in fuel (i.e. a stoichiometric excess of air, >20:1 air:fuel ratio). The excess air reduces the combustion temperature and thus lowers NO_x emissions. See: U.S. EPA "3.2 Natural Gas-fired Reciprocating Engines," in AP-42, vol. 1, rev. Oct. 2024.

[18] For an explanation of why methane slip occurs in engines, see: D. Stenersen, et al. (2017). GHG and NOx emissions from gas fuelled engines. SINTEF Ocean AS.

Gas engines are generally air-cooled and use very little water.[19] They can start and ramp loads in **<1 min** (compared to 5–10 min for turbines), while also maintaining more efficiency at partial loads,[20] which allows them to quickly adjust to variable data center load. Grid-connected RICE are typically used as peaking units with capacity factors below 20% (see **Figure A2**), but we expect capacity factors of ~60% for islanded BYOP.

Simple Cycle Gas Turbines (SCGT)



Simple cycle gas turbines at OpenAI's campus in Abilene, TX (Evan Simon, Floodlight)

Gas turbines generate power when expanding gas produced by combustion turns turbine blades.[21] Simple cycle turbines (SCGTs) have **low electrical efficiencies** of 35–43%, with unit capacities of about 15–60 MW (e.g. GE LM6000 at 58 MW), though units as large as 220 MW have been deployed. Grid-connected SCGTs are typically run solely as peaking power plants with very low capacity factors (<15%), operating just a few hours per day on average (see **Figure A2**). Islanded BYOP projects run their SCGTs at much higher capacity factors >60%.

Like RICE units, many of the SCGTs deployed for BYOP are configured with air cooling and use almost no water, but some configurations require small-to-moderate amounts of water. The **Fairfield Energy Center** in Ohio, for example, plans to use evaporative inlet cooling with water consumption of approximately 8 gal/MWh to boost power output during hot weather.[22]

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[19] Some engines require ~0.1 gal/MWh of make-up water for closed-loop liquid cooling. SCR also only requires ~0.1 gal/MWh. Engines could be configured with evaporative inlet or radiator cooling, which would use substantially more water, but these add-ons are rare among BTM plants proposed so far.

[20] U.S. EPA (2017). **Catalog of CHP Technologies, Section 2: Technology Characterization — RICE**.

[21] See: U.S. DOE NETL (2006). **The Gas Turbine Handbook**; AP-42, Vol. I, **3.1: Stationary Gas Turbines**.

[22] Power output from turbines can decline by **~15% when inlet temperatures rise from 60 °F to 100 °F**, mainly due to reduced air density (turbine power is proportional to mass flow). Evaporative inlet cooling counteracts this to limit these capacity reductions at high temperatures.

FAQ: What are aeroderivative turbines?

Many BYOP projects are using "aeroderivative" gas turbines. **Aeroderivative turbines are a type of SCGT**, built for stationary power generation but whose designs are inspired by and modified from jet engine designs.[23]

Their application in electric power generation is not new: they were first deployed on the U.S. grid in 1962, and the model "GE LM6000"—common in BYOP projects—was introduced in 1992. Aeroderivatives are much lighter than typical industrial ("frame" or "heavy-duty") turbines, enabling their fast start capabilities (5–10 min) and wide deployment in peaking power plants.[24]

What is new is that aviation companies with no previous power generation experience, including FTAI Aviation and Boom Supersonic, are retrofitting their jet turbines for power generation to meet surging data center demand amidst the turbine shortage. ProEnergy is refurbishing jet turbines to deliver units faster than more established companies.

How do their emissions and water use compare to other SCGTs? When equipped with the best available add-on controls—selective catalytic reduction (SCR) and oxidation catalysts—they have similar emissions intensities as any other SCGTs. Based on our analysis of permit applications, most BYOP proposals use SCR, but some projects notably have not: xAI's Colossus I facility originally used mobile aeroderivative SCGTs without SCR, resulting in a 5–15x higher rate of NO_x emissions.[25] The Southern Environmental Law Center (SELC) confirmed xAI was not using SCR with aerial imagery and an admission from a consultant that the turbines would later be retrofitted with SCR.[26]

Most aeroderivatives deployed in BYOP projects use air cooling and little to no water. Some sources claim aeroderivatives have much higher water usage, because historically many aeroderivatives used steam- or water-injection to control NO_x emissions (see Table A7). However, most BYOP projects are using SCR and not water-injection.

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[23] D. Robb (Dec. 2017). Aeroderivative Gas Turbines. Turbomachinery International.

[24] C. Brooker (July 2017). Frame versus Aero: Who Wins in Simple Cycle? Mid to Large-size Combustion Turbines. Power Engineering.

[25] Solar SMT-130 without SCR can be configured for 9 ppm or 25 ppm NO_x, with emissions factors of 0.16 or 0.5 g/kWh (0.35 or 1.1 lb/MWh). SCR-equipped SCGTs can achieve ~0.03 g/kWh (0.07 lb/MWh) (Table A3).

[26] SELC (June 2025). Letter from SELC to xAI, et al. RE: Notice of Intent to Sue for Violations of the Clean Air Act. See also: Greater Memphis Chamber (Apr. 2025), "Asked & Answered: A Webinar About Turbines, the Aquifer, and Economic Development Moderated by Kontji Anthony," at 13:15.

Combined Cycle Gas Turbines (CCGT)

Combined cycle turbines (CCGT) add a steam turbine to a simple cycle gas turbine, where waste heat is recovered from the SCGT to generate steam and turn it into electricity. As a result, CCGTs typically have efficiencies of 58–64% (about 50% higher than SCGTs) which translate to lower emissions and operating costs compared to SCGTs. CCGTs typically run at capacity factors over 60% (**Figure A2**) and are by far the most common type of gas generation on the U.S. grid, providing "**85% of total natural gas-fired electricity**". However, the added parts and complexity of CCGTs typically result in longer lead times and construction timelines, which is part of why they have been less represented among gas BYOP projects.



CCGT with evaporative cooling towers. Source: **Wikimedia Commons**

Generally, **CCGTs have the highest water consumption of technologies being used for BYOP**. Many modern CCGTs use recirculating evaporative cooling for part of the steam cycle,[27] with a median water consumption of 205 gal/MWh. Recirculating cooling has higher water consumption (water lost to evaporation, 205 vs. 100 gal/MWh) than once-through cooling, but much lower water withdrawal (water removed from surface or groundwater, 250 vs. 11,380 gal/MWh).[28] Air-cooled CCGTs have lower consumption, comparable to RICE and SCGTs, reaching as low as 2 gal/MWh (without inlet cooling).

Fuel Cells

Fuel cells use electrochemical conversion, rather than combustion, to generate electricity from fossil fuels, biogas, or hydrogen. Fuel cells have **significantly lower air and noise pollution compared to traditional combustion power sources,[29] but still result in significant CO_2 emissions when using gas.**

The majority of fuel cells deployed or planned for data centers are solid oxide fuel cells (SOFCs) produced by Bloom Energy.[30] As of mid-2026, the U.S. has ~150 MW of fuel cells powering data centers and 7.4 GW proposed or under development (see **Table A9** in Appendix 2 for list of projects).

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[27] Recirculating evaporative coolers reuse the same cooling water over 4–6 cycles. With each cycle, some water is lost to evaporation and the concentration of minerals and dissolved solids increases, so eventually the cooling water is discharged as "blowdown" and refreshed with new cooling water. This differs from once-through cooling, where water that does not evaporate is discharged on the first pass.

[28] See Table 3 from J. Macknick, et al. (2012). **Operational water consumption and withdrawal factors for electricity generating technologies: a review of existing literature**, Env. Res. Lett. Note: the nationwide average water withdrawal for CCGTs is ~2,800 gal/MWh according to the **EIA**, but this is skewed high by once-through cooling. This factor should not be used for water usage estimates of individual gas plants.

[29] U.S. EPA (2015). Catalog of CHP Technologies, **Section 6: Technology Characterization – Fuel Cells**.

[30] Bloom's fuel cells work by "reforming" methane (CH_4) into a mixture of steam, H_2, and CO, then passing this reformed fuel and air across opposite sides of a ceramic ("solid oxide") structure. Oxygen ions from the air diffuse through the

Fuel cell fact check

Claim: Fuel cells use little water
Our rating: True for most systems

Most fuel cells consume little to no water directly.[31] For example, Bloom's fuel cells recycle water produced from breaking down methane ($CH_4+2O_2 \rightarrow CO_2+2H_2O$) and thus require no water during steady-state operations. Bloom's SOFCs do require 1.2 gallons per kW at start-up to condition the fuel, which translates to about 1.2 million gallons of water per year for a 1 GW plant. However, this does not account for upstream water use for gas production, which can be substantial.[32]

Claim: Fuel cells emit near-zero criteria air pollution
Our rating: Partially true

Fuel cells emit little to no NO_x because they operate at much lower temperatures than gas turbines and engines (<1560 °F vs. >2800 °F), and NO_x is mainly formed at temperatures above 2800 °F.[33] Fuel cells also do not produce detectable amounts of primary fine particulate matter ($PM_{2.5}$), but those running on natural gas can still emit modest amounts of carbon monoxide (CO) and volatile organic compounds (VOC) due to incomplete conversion of the fuel. These VOC emissions could contribute to ground level ozone. Estimates from EPA's CO-Benefits Risk Assessment (COBRA) tool suggest that the local air quality effects from fuel cells are small, with health costs from fuel cells generally 1% or less than those from inefficient gas turbines (see Appendix 2 for more discussion).

However, one potential source of emissions is "black start" requirements: Fuel cells need to be warmed up before they start outputting electricity. For off-grid facilities, this is likely initiated using portable Tier 2 diesel generators.[34] Because these generators are mobile and considered temporary, they often are not included in facility air permits.

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ceramic layer and then react with hydrogen and CO in the fuel to release CO_2, H_2O, and electrons. The electrons are collected by the conductive cathode to produce a usable electrical current.

[31] An exception to this are FuelCellEnergy's molten carbonate cells, which consume ~94 gal/MWh, about half that of recirculating evaporatively-cooled CCGTs (see Water consumption).

[32] A. Kondash, et al. (2018). The Intensification of the Water Footprint of Hydraulic Fracturing. Science Advances.

[33] The threshold for thermal NO_x formation is ~1526 °C (2780 °F). The combustion temperature in lean pre-mix turbines runs above this at ~1500–1950 °C, while fuel cells usually run <850 °C (1560 °F) with exhaust at ~315 °C (600 °F). See: U.S. DOE NETL, The Gas Turbine Handbook, Section 3.2.1.2, "Lean Pre-Mixed Combustion".

[34] Bloom Energy (August 2025). Letter to Bryce C. Bird, Re: Permit Exemption for Proposed Nonroad Engines Bloom Energy – Novva Data Center, West Jordan, Utah. DAQ-2025-004320.

Claim: Fuel cells significantly reduce CO_2 emissions
Our rating: Misleading

SOFCs using gas do have 20–40% lower CO_2e emissions than the RICE and SCGT units being used for many BYOP projects. But **on average, they emit about the same or more CO_2 than CCGTs when using gas,**[35] **and in much of the country, the** grid average CO_2 intensity is lower.

Fuel cell companies frequently market themselves as reducing or eliminating CO_2 emissions,[36] with the suggestion that operators could later switch to carbon capture, biogas, or hydrogen to meet sustainability goals. However, these options for decarbonization are either uneconomical, not scalable, or not actually zero-carbon. For example, EdgeCloudLink is planning a 1 GW hydrogen fuel cell project in Texas (using PowerCell fuel cells) but plans to use a mixture of "grey" and "blue" hydrogen. Grey hydrogen is produced from natural gas and its production releases significant CO_2, while blue hydrogen captures some of this CO_2, but neither is fossil-free nor carbon neutral. Green hydrogen, produced with renewable energy by electrolysis, is carbon neutral but also inefficient and less cost effective than batteries. The U.S. only has 116 MW of green hydrogen production capacity as of 2024, and in 2025, the EIA wrote: "In most cases, we project less than 1% of hydrogen will be produced via electrolyzers, which use electricity to produce hydrogen from water, regardless of supportive policies."

Fuel cell projects can also further **entrench our fossil fuel infrastructure, likely leading to new gas wells and pipelines** that could continue to be used even if a project were converted to cleaner fuels.

Fuel cells face several challenges. First, their efficiency and power output degrades over time, increasing their CO_2 emissions intensity and limiting their useful life. Research from Hindenburg and Hunterbrook found that Bloom's claimed lifespan of over five years was overstated, with many units falling below performance guarantees in under three years.[37] They also operate best as constant baseload power, but AI data center workloads can fluctuate substantially.[38] It's unclear how developers plan to manage this in fuel cell deployments, but it seems likely they will need to supplement their fuel cells with either batteries or fast-ramping gas engines to ensure reliability.[39] **These reliability and lifespan issues create risk that projects could later be converted to more polluting gas combustion when fuel cells reach their end-of-life.**

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[35] SOFCs can be highly efficient—new modules can reach 65% efficiency, rivaling CCGTs —but their efficiency falls by 2–3 percentage points each year as the catalyst degrades. For example, Bloom's SOFCs emit >740 lb CO_2/MWh on average if they perform as specified (the median CCGT emits ~720 lb CO_2e/MWh).

[36] FuelCellEnergy says their technology provides **"low-carbon power" and "avoids CO_2 emissions"**, yet they emit 886 lb CO_2/MWh, higher than CCGTs and similar to efficient RICE; Bloom Energy says their fuel cells "**significantly reduce greenhouse emissions today, while providing a pathway to operate with cleaner fuels in the future**" and "**accelerate your path to a zero-carbon future**;" PowerCell markets their hydrogen fuel cells as "**true zero emission**".

[37] D. Patel (July 2026). Do Bloom's Fuel Cells Work as Claimed? Data Says No. Hunterbrook Media.

[38] N. Malik (Aug. 2026). AI's Volatile Power Demand Is Damaging Its Own Data Centers. Bloomberg.

[39] See e.g. Atticus Power Opco 1 in Pawnee, Texas, which pairs 250 MW of SOFCs with 33 MW of RICE.

FAQ: What are Microgrids and how are they being used for data centers?

A Microgrid is a **group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that functions as a single controllable system**.[40] Microgrids can be completely isolated from or operate in conjunction with the electric grid.

Though their name implies these are very small, there is no definitional size limit to microgrids, with large proposed systems reaching several gigawatts. And though the term "microgrid" for many is associated with renewables and battery technologies, it can include any technology.

In the context of large AI data centers, for example, a so-called "microgrid" may consist primarily of large gas generators or fuel cells located behind the meter and dedicated to the data center. In practice, a multi-gigawatt data center "microgrid" can therefore resemble a single dedicated power plant serving the data center. Oracle's Project Jupiter is a highly publicized example of one such microgrid BYOP proposal, currently planning to use 2.45 GW of Bloom's fuel cells powered with gas.

Renewable and zero-carbon power and storage technologies

In the near term, most of the proposed clean energy associated with data centers is solar (63 GWac) and wind (8 GW), with 164 GWh of battery storage. Further out, 4 GW of geothermal power contracted to data centers is expected to come online by 2033. Other proposed zero-carbon resources include nuclear power (about 6 GW planned by 2032, 22 GW by 2040).

While most gas BYOP is planned to be on-site and delivered BTM, most clean energy proposed for data centers is grid-connected and procured through PPAs. This is partly due to land and siting constraints: solar and wind would require thousands of acres to meet the power demands of AI data centers.[41] Another factor is intermittency: an islanded renewable project would need to be significantly oversized and paired with large amounts of storage to compensate for the fluctuations of solar and wind. The grid's scale and redundancy make it better able to manage this variability.

Recently, more plans have been announced for co-located renewables, though they are often paired with "firming" gas generation. We tracked 16 such projects totaling 17 GW of solar and 3 GW of wind (see **Table A10**) alongside 34 GW gas. Most co-located renewable capacity is still early-stage, with only 3.5 GW contracted, under construction, or operating as of August 2026. Google has at least five such projects planned—e.g. the "Quantum" 640 MW solar project in Haskell, TX—totaling 3.7 GW of solar and wind. Cleanview reported Google was developing these as a strategy to skip the large load queue by piggybacking off the co-located renewable project's grid tie.

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[40] D. Ton, et al. (Oct. 2012). The U.S. Department of Energy's Microgrid Initiative; House Bill 3546, 83rd Oregon Legislative Assembly—2025 Regular Session.

[41] A typical 1 GW data center would require 2–4 GW of solar nameplate capacity (plus storage) and over 10,000 acres to fully cover its energy needs, depending on power utilization and location. Solar uses ~5 acres/MW, while wind's direct footprint is ~2.3 acres/MW, but requires 18–60 acres/MW total. See Table 5 of T. Mai, et al. (Jan. 2025). Land of opportunity: Potential for renewable energy on federal lands. NREL.

Still, we estimate at least 70% of proposed clean capacity is contracted through off-site PPAs. Because it is often challenging to assess whether specific PPAs truly provide new and deliverable power that qualifies them as "BYOP" (see discussion in Policy Element: Clean energy that benefits all), we use the most generous assessment and include all PPAs and announced clean energy proposals. **This means that our reported capacities likely overstate what would actually qualify as "clean BYOP."** See Appendix 2 for more discussion of how we identified and selected projects.

Can geothermal power meet data center demand?

Geothermal will cover only ~1% of data center demand by 2030 but could potentially cover over a third by 2035.

Geothermal power is renewable, firm (available on demand), and dispatchable (output can be ramped up and down to meet demand), all while using very little land or water. These attributes would make it ideal for meeting data center power needs and growing U.S. electricity demand in general. However, in the near term, geothermal capacity cannot be expanded quickly enough to meet projected data center demand. Conventional geothermal power grew by ~10% in 2025 to 4 GW in the U.S., but is geographically constrained to western states with shallow hydrothermal resources.[42] Next-generation geothermal systems can open up new sites by drilling deeper into hotter rock, but these technologies have currently only been demonstrated at the pilot scale.[43]

Overall, geothermal in the U.S. is expected to grow by only 2–3 GW between now and 2030.[44] Compared to the 150 GW of estimated data center capacity in 2030, **we expect geothermal to cover about 1% of data center power demand through 2030.** However, as next-gen technologies mature and reach scale, geothermal capacity could grow by 4 GW/yr or more through the 2030s, reaching 38 GW in 2035.[45] If all this new capacity were contracted by data centers, geothermal could cover roughly a third of projected data center demand.[46] Notably, Google has recently signed a 3 GW PPA with Fervo Energy (projected to come online by 2033), and Meta has inked 150 MW PPAs with Sage Geosystems and XGS Energy.

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[42] The USGS projects 9 GW of conventional geothermal could be produced with known resources, with an additional 30 GW possible from undiscovered resources. See: U.S. DOE (May 2019). "GeoVision: Harnessing the Heat Beneath Our Feet."

[43] Fervo Energy and Sage Geosystems have both piloted 3 MW systems.

[44] Assuming conventional geothermal continues to grow at ~300 MW/yr and next-generation geothermal developers (Fervo, Sage Geosystems, and XGS) hit their stated capacity goals.

[45] C. Augustine, et al. (2023). Enhanced Geothermal Shot Analysis for the Geothermal Technologies Office. NREL.

[46] BloombergNEF projects 194 GW of data center demand in 2035. Assuming data centers have an average power utilization of 50–80%, 38 GW of geothermal at 90% capacity factor could cover 22–35% of this demand. See also: B. King, et al. (March 2025). The Potential for Geothermal Energy to Meet Growing Data Center Electricity Demand. Rhodium Group. This analysis found that geothermal could cover 64% of data center demand growth in the 2030s.

Where is this happening?

75% of gas BYOP capacity is concentrated in just five states: Texas has 41% (74 GW) of the total proposed BYOP capacity; the next four top states are West Virginia, Ohio, Pennsylvania, and Wyoming (Figure 4). As Cleanview noted, these states feature "**proximity to major natural gas production regions** and **regulatory frameworks that favor rapid development**." The following sections emphasize that this development is also concentrating in places with weaker regulatory oversight and environmental laws and protections.

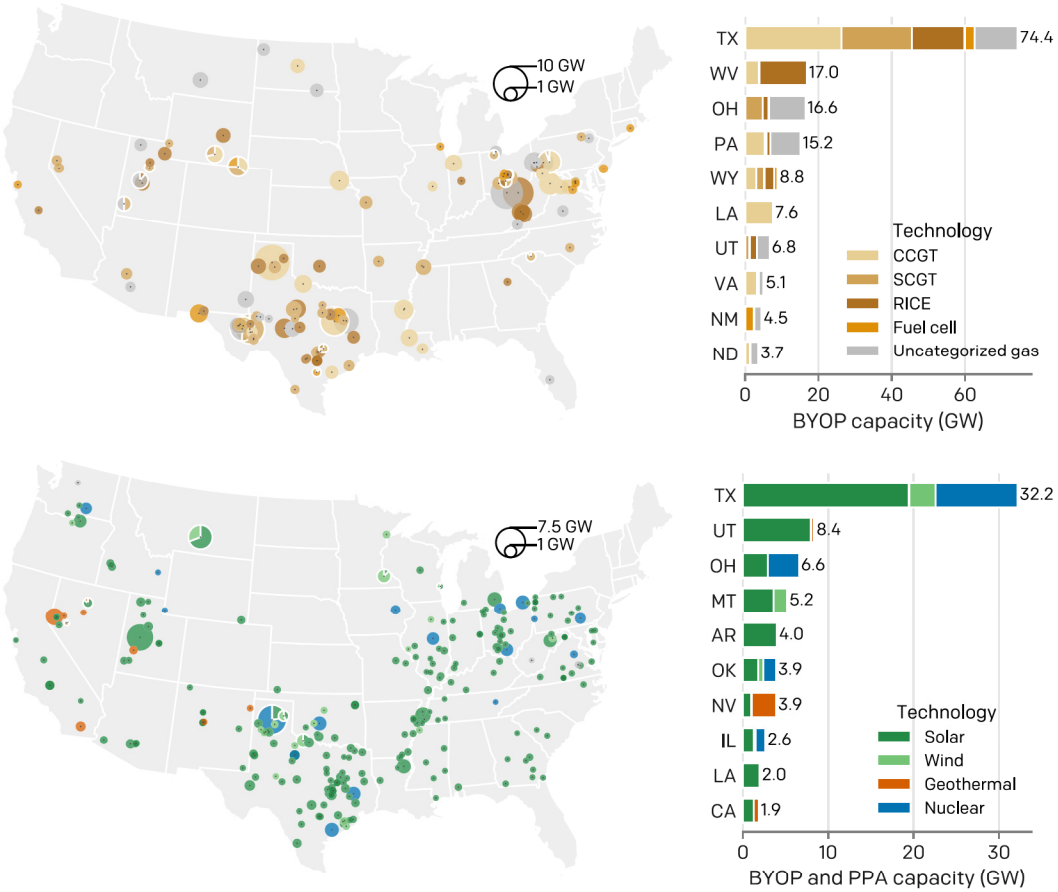


Figure 4. (top) Map of BYOP gas projects, with breakdowns by technology for the 10 states with the most proposed buildout. (bottom) Map and capacity breakdown by state of zero carbon BYOP projects and PPAs. Locations for some sites are approximate or based on the location of the associated data center.

Analysis from the Environmental Integrity Project also assessed in more granularity where gas BYOP projects are being sited, and found that about 89% are in counties where life expectancy is already below the U.S. average, and that 40% of the population living within three miles of one of 67 proposed gas plants are in low-income households.

Renewable proposals are also highest in Texas (33.4 GW), followed by Utah, Ohio, and Montana. The totals in many states are driven by a single massive project. Quantica plans to build 3.6 GW of solar, 1.6 GW of wind, with 1.7 GW of firming gas for its "Big Sky" project in Yellowstone County, Montana. In Utah, Creekstone's Delta Gigasite plans for 6 GW solar accounts for 70% of the state's planned clean BYOP.

Part 2: Risks and policy elements

BYOP projects will have wide-ranging impacts on public health, the climate, energy bills, natural and cultural resources, and more—on top of the many other significant and documented societal, economic, and environmental harms associated with AI data centers outside of the scope of this particular report. In this section, we build on the work of the Regulatory Assistance Project, the Environmental Integrity Project, and others to outline key risks associated with the current landscape of BYOP proposals. While which risks apply to a particular project will depend on its size, location, generation technology(ies), grid connection, and other aspects, the following risks are frequent across many BYOP projects.

We also highlight key policy elements to address these BYOP-specific risks—as a starting point—recognizing that this field is evolving rapidly and the breadth of issues these proposals raise is large and complex. The following policy elements must not be viewed as alternatives or a menu from which to select. Rather, BYOP policies must comprehensively address the full range of interconnected risks holistically. As discussed further in Part 3, many current policies address only a subset of BYOP impacts, leaving significant gaps in oversight, environmental protections, community self-determination, and accountability.

First, prior to the development of BYOP policies, two foundational questions must be addressed:

What problems does BYOP solve, what problems does it create, and for whom?

Developers are proposing BYOP projects to achieve their "speed-to-power" objectives, not to solve the energy bill impacts of AI data centers. Constructing BYOP policies in such a way that they avoid harms and provide real benefits to people and the planet, rather than serving corporate interests, is no easy feat. **Given the enormous implications of building hundreds of gigawatts of new power generation—most of which is gas—with limited regulatory oversight and environmental protections, decisions about whether to allow and how to regulate BYOP for data centers should not be rushed or treated as the only path forward.**

How are those who will be most impacted by BYOP be engaged in shaping policies and how will they have a continuing voice?

BYOP policies must be developed in collaboration with frontline groups—particularly environmental justice communities and those who have been systematically excluded from decision-making processes—and foreground their concerns, participation, and priorities. It is not enough for frontline communities to be consulted on individual project proposals; they must also be engaged directly in co-creation of the policies themselves. Additionally, because the breadth and scale of impacts from AI data center BYOP projects is so vast—affecting public health, climate, energy systems, the economy, jobs, land, water, and more—policies should be developed in collaboration with the range of constituents representing all of those interests. Considerations should be made for how these communities participate, such as language accessibility, personal security, financial capacity, and technical support.

Climate, health, and environmental impacts

Since the majority of proposed BYOP is gas generation, there are resulting significant climate, public health, and environmental risks.

⚠ RISK: Increased air pollution and public health costs

Gas power plants emit air pollutants including NO_X, CO, VOCs, $PM_{2.5}$, sulfur dioxide (SO_2), and ammonia (NH_3), which have harmful health impacts (see more discussion in Appendix 2: Health damages estimates). BYOP gas power plants are already having substantial impacts on communities, such as those associated with SpaceXAI's Colossus 1 and 2 near Memphis, Tennessee.[47] We estimate that $PM_{2.5}$ and ozone pollution from current gas BYOP proposals alone could result in **330–580 premature deaths per year and $5–10 billion in annual monetized health damages**, numbers which could continue to grow as new facilities are proposed. These health costs are distributed across the entire U.S., but West Virginia, Ohio, Pennsylvania, and Texas will bear the highest per capita costs. In the most affected counties, health costs per person can reach $200–500 per year.

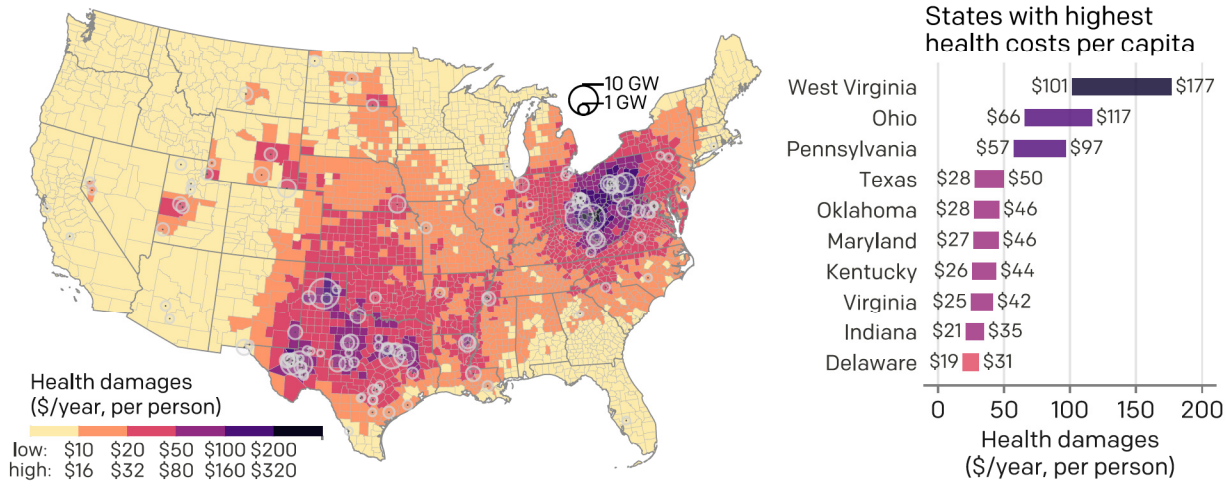


Figure 5. (left) Map of county-level, per capita health damages from all 177 GW of gas BYOP (plotted in circles corresponding to capacity). (right) Top 10 states for per capita health costs. Health costs consider ozone and $PM_{2.5}$, and low and high estimates reflect two peer-reviewed $PM_{2.5}$–mortality response functions. See Appendix 2: Methodology for details.

Table 2 shows representative annual emissions of pollutants and health costs for a 1 GW plant, and how they vary by technology. This risk is particularly acute amid efforts to weaken environmental protections combined with the widespread deployment of less-efficient gas technologies.

In Figure 6, we illustrate the range of health costs that the air pollution from a single 1 GW gas plant can cause. Depending on where a project is sited, costs can reach $300 million per year. On a nationally averaged level, gas plants typically cause $25–75 million in annual damages, depending on the technology. See Appendix 2, Table A6.

[47] Projected $PM_{2.5}$ and ozone pollution from the proposed power plant for Colossus 2 could cause $30–44 million in annual damages if operated at permitted levels. Current health impacts, with operations of the unpermitted temporary turbines, could be higher. See: M. Cork and F. Dominici (2026). Air Quality, Health, and Economic Impacts of the Proposed MZX Tech Facility. EmPower Analytics Group.

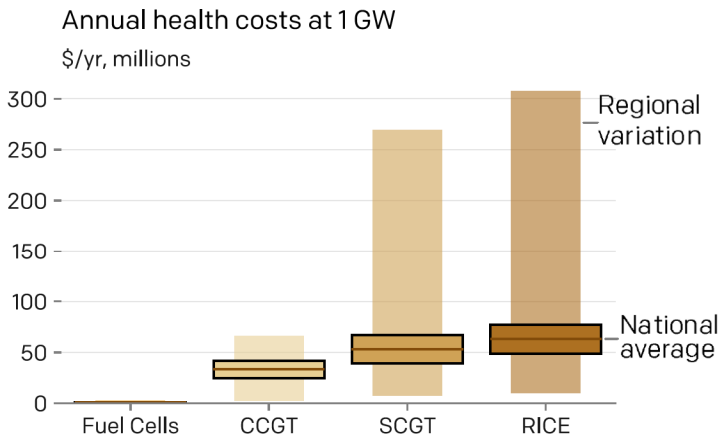


Figure 6. Annual health damages due to air pollution from a 1 GW gas plant operating at 60% capacity factor. Narrow boxes show the range of potential costs depending where projects are sited. Wider boxes show nationally-averaged estimates. See **Health damages estimates** for more details.

⚠ RISK: Increased greenhouse gas emissions and climate change impacts

If the 129 BYOP gas plants we identified operated at 60% capacity factor, they would emit **400 million $MTCO_2e$** per year, representing a **23% increase over U.S. power sector emissions in 2025.**[48] This analysis does not account for methane leaks or other impacts from additional fossil fuel extraction, processing, or transportation infrastructure, which could further increase projected GHG emissions by over 25%.[49] These emissions could result in economic damages of $100 billion per year in 2030 (see Appendix 2, Social cost of carbon). All gas technologies emit GHGs, but the amount varies significantly by technology as shown in Table 2.

Table 2. Representative annual emissions for a 1 GW plant operated at 60% capacity factor for various gas-fired technologies, with associated annual social cost of carbon and nationally-averaged estimated health costs from EPA's benefits per ton.[50]

	Annual emissions (tpy)						Annual costs (2023$)	
Type	**NO_x**	**VOC**	**$PM_{2.5}$**	**SO_2**	**NH_3**	**CO_2e**	**Carbon cost**	**Health costs**
RICE	260	255	185	13	160	2.99M	$735M	$59–91M
SCGT	180	140	170	15	185	3.04M	$748M	$47–80M
CCGT	125	45	95	9	130	1.91M	$471M	$29–50M
Fuel cells	10	25	—	—	—	1.99M	$489M	$1M

[48] See discussion of Capacity factor assumptions and Emissions calculations in Appendix 2. The entire U.S. electric power sector's emissions were 1,485M metric tons CO_2 in 2025 (EIA). Our estimate is on-par with recent analysis from Bloomberg, which found that 126 GW of proposed on-site gas could increase U.S. power sector emissions by 20%.

[49] Recent measurements found 0.7–9.8% of methane production is lost to leaks, with a weighted average of 2.4%. This corresponds to a 8–100% increase (25% weighted average) in total CO_2e emissions. Notably, the Permian basin in Texas—where many of these gas plants are being built—has the highest methane loss. See: E. Sherwin, et al. (2024). U.S. Oil and Gas System Emissions from Nearly One Million Aerial Site Measurements. Nature.

[50] Actual emissions and health costs will vary by project, actual operations, and region. Health costs from EPA's benefits per ton are nationally averaged. See Appendix 2 for more details.

⚠ RISK: Water impacts

Separate from the cooling water use of the AI data centers, gas power plants can use vastly different amounts of water depending on their design, with some using very little and some using billions of gallons per year. We estimate current BYOP proposals could consume 20–90 billion gallons per year, which would increase total U.S. power sector water consumption by 2–9%.[51] Figure 7 shows approximate annual water consumption for a representative 1 GW gas plant of various configurations.

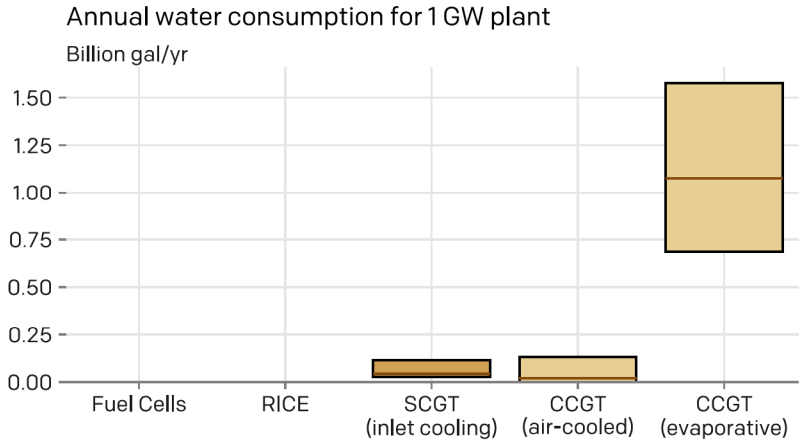


Figure 7. Approximate annual water consumption for 1 GW gas plant.

The impacts of this water demand will vary by project and regionally, but there is a risk for increased water stress given that many projects are located in areas already facing water scarcity.[52] While current BYOP gas proposals use less water on average than grid-connected gas, they will consume significantly more water than if renewables were used instead.[53] Gas power plant water use can also affect water quality through heated discharge and blowdown, which can increase thermal and pollutant loads in receiving waters.[54]

⚠ RISK: Diversion of clean energy needed to decarbonize other sectors

Even if policies are put in place to ensure AI data centers bring their own new *clean* energy, discussed further below, their **skyrocketing energy demand could have significant consequences on our climate and decarbonization goals due to competition for clean energy resources**. According to S&P Global, in 2025 large technology companies accounted for 44% of corporate clean energy procurement, increasing 7% from 2024. As one example in the energy sector, in January 2026, Amazon outbid a utility **for a shovel-ready 1.2 GW solar and 1.2 GW battery storage project**. The Sunstone project was far along in the regulatory and permitting process, as well as grid connection queue, making the loss to the utility (and ratepayers) more significant. As one of the largest solar projects in the country, it would have helped the utility meet Oregon's clean energy requirements and kept electricity costs low for customers. Higher energy prices and competition for clean energy resources could also be a barrier for industrial decarbonization: according to S&P Global, the manufacturing sector experienced a 36% year-over-year decrease in clean energy procurement in 2025.

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[51] Based on 56 GW of proposed CCGT and typical water consumption. See Appendix 2 for details.

[52] M. Siddik, et al. (2021). The Environmental Footprint of Data Centers in the United States. Env. Res. Lett.

[53] M. Cook (2026). Thirsty Data and the Lone Star State: The Impact of Data Center Growth on Texas' Water Supply. Houston Advanced Research Center.

[54] M. Cook, et al. (Nov. 2015) Assessing the Impacts of Droughts and Heat Waves at Thermoelectric Power Plants in the United States Using Integrated Regression, Thermodynamic, and Climate Models. Energy Reports.

Policy Element: Clean energy that benefits all

- To address these risks, BYOP policies must require clean energy, and do so in a way that is transparent, verifiable, and creates sufficient new and near capacity. New clean energy should ideally match the data center's 24/7 energy demand. Policies should require full mitigation of grid impacts from the data center's load and deliver broad benefits to the grid and communities, without negatively impacting ratepayers, landowners, or other decarbonization efforts. Particular attention should be given to compounding impacts in adjacent, historically marginalized communities.

- **Clean BYOP**[55] should only include renewable and energy storage resources that do not create onsite air pollution or greenhouse gas emissions. Wind and solar coupled with battery storage can be deployed to serve data center loads, often more quickly and at lower cost than fossil fuels.[56] Other resources, including geothermal, may have potential in specific locations especially as the technology increasingly becomes scalable and available.[57] Despite being designated as clean energy in Texas and Michigan,[58] fossil fuels with carbon capture and utilization or storage (CCS/CCUS) should never be treated as such. Ohio and other states also define fuel cells as "clean" or "renewable energy" but don't restrict fuel type, meaning they can run on fossil fuels.[59]

- **New.** Without safeguards to ensure BYOP creates new, additional clean energy capacity,[60] projects could simply divert clean energy resources that would have been built anyway, undermining rather than advancing clean energy and energy affordability goals.

- **Near.** For clean BYOP resources to meaningfully address the impacts created by the data center's new load, they must be deliverable and located in the same region as the project.[61]

- **Now.** Clean BYOP resources must come online on a timeline that aligns with data center demand and be able to provide 24/7 hourly matching[62] to prevent a data center from contributing to peak price increases.

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[55] Clean BYOP is sometimes referred to as "BYONCE" ("Bring Your Own New Clean Energy"), see: PennFuture (July 2026). Bring Your Own Generation Isn't the Solution: The Homer City Case Study; Evergreen Action (Feb. 2026). How States Can Address High Costs From Data Centers With BYO Clean Energy Requirements; and Climate XChange (2026). State Policy Toolkits for Data Center Regulation: Greenhouse Gas Emissions.

[56] Energy Innovation modeled two pathways to meeting electricity demand growth by 2030: the pathway using clean energy "can reliably meet load growth and save $5 billion per year" as compared to the high fossil fuel scenario, with clean energy saving 17% compared to the more expensive fossil pathway. See also: U.S. DOE (2026) Clean Energy Resources to Meet Data Center Electricity Demand.

[57] For example, Google contracted 150 MW of geothermal in Nevada to support data center operations.

[58] In Texas, fossil fuel plants capturing >70% of carbon are classified as clean energy (Tex. Nat. Res. Code § 120.001(2)). Michigan classifies >90% carbon capture with permanent storage as clean (MCL 460.1003(i)).

[59] Ohio R.C. § 4928.01 designates fuel cells as "renewable energy resources" without restricting fuel type. Similar provisions exist in Connecticut (CT Gen Stat § 16-1(a)(20). (2025)) and Indiana (IN Code § 8-1-37-4 (2025)).

[60] Climate XChange (2026). State Policy Toolkits for Data Center Regulation: Greenhouse Gas Emissions; NRDC (Sept. 2025). At the Crossroads: A Better Path to Managing Data Center Load Growth.

[61] For additional discussion on deliverability, see: Climate XChange (2026). State Policy Toolkits for Data Center Regulation: Greenhouse Gas Emissions; NRDC (Sept. 2025). At the Crossroads: A Better Path to Managing Data Center Load Growth.

[62] For additional discussion on time matching, see ibid. and: World Resources Institute (2023). The State of 24/7 Carbon Free Energy: Recent Progress and What to Watch; Q. Xu, et al. (2021). System Level Impacts of 24/7 Carbon-Free Electricity Procurement.

Renewable energy credits (RECs) or VPPAs are not new, near, or now and thus do not actually address the impacts of new large loads.

- **Mitigating grid impacts.** Because most BYOP data centers are or will be partially grid connected, additional steps are often needed to mitigate grid impacts. While not a focus of this report, potential approaches include grid upgrades and improvements like advanced transmission technologies (ATTs) and grid enhancing technologies (GETs), which can enhance the capacity of the existing electrical transmission system quickly and inexpensively.[63] Additionally, interruptibility or demand response requirements, such as on-site battery storage, or temporal or spatial load shifting, can be used to reduce data center grid power draw during times of grid stress. Importantly, demand response should *never* cause a shift to fossil power generation like diesel generators.[64]

- **Delivering meaningful grid, community, and energy-related benefits.** AI data center companies are among the wealthiest in the world, and they should use their resources to ensure that BYOP projects provide grid, community, and energy-related benefits *beyond* simply meeting their own needs. Many approaches used to mitigate grid impacts can also be used to provide grid benefits if investments create net improvements, such as GETs, ATTs, and other grid upgrades. Data centers could also be required to pay for distributed energy resources ("DERs"), which include small-scale energy resources such as household solar systems and battery storage systems, energy efficiency technologies (e.g., heat pumps), and demand response. When DERs are aggregated, they are often referred to as "virtual power plants" or VPPs. DERs could potentially help address a portion of the incremental energy and capacity needs associated with AI data centers while also providing broader benefits, per Rewiring America's Homegrown Energy report. In 2020, the Federal Energy Regulatory Commission (FERC) issued order 2222, which directed Regional Transmission Organizations (RTOs) to remove barriers preventing DERs from participating in energy markets, which has been slow to be realized. As new DER programs and policies continue to be developed to encourage DER aggregation, it is important that policies counteract existing disparate patterns of DER adoption that have disproportionately benefited wealthier and whiter customers.[65,66] Additionally, verification measures should be in place to determine the extent to which DERs address AI data center demand in addition to providing additive local benefits. Grid, community, and energy-related benefits can also be captured through other mechanisms less directly associated with the infrastructure serving the data center,[67] such as fees, funds, or other contributions tied to the project size (MW). Examples include fees which fund energy assistance and efficiency programs, and newly proposed large load grid surcharges which fund grid modernization.[68] It is important that these fees directly benefit the host community and local grid.

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[63] For more on ATTs and GETs, see RMIs reports: GETting Interconnected in PJM, Clean Energy 101: How Rising Demand Is Driving a Grid Tech Revolution, and Fast, Efficient Solutions to Meet Electricity Demand Growth.

[64] There are increasing concerns that demand response programs will result in more frequent use of on-site "backup" diesel generators, as discussed in Diesel Generators at Data Centers: Status, Impacts, and Protective Practices (Better Data Center Project, March 2026).

[65] D. Sunter, et al. (Jan. 2019). Disparities in rooftop photovoltaics deployment in the United States by race and ethnicity. Nature Sustainability.

[66] E. O'Shaughnessy, et al. (Nov. 2020). The impact of policies and business models on income equity in rooftop solar adoption. Nature Energy.

[67] See, for example, grants to Community-Led Organizations Advancing Local Climate Resilience and Sustainable Infrastructure, including to renewable energy developers in support of community owned/driven models.

[68] For examples see: Climate XChange (2026). State Policy Toolkits for Data Center Regulation: Greenhouse Gas Emissions. Pg. 22.

Policy Element: Good siting practices

Safeguards should be in place to restrict siting of gas BYOP projects, particularly where they exacerbate public health, environmental justice, and other harms.

- **Protecting fenceline communities.** Those who are closest to power infrastructure are the most likely to experience compounded, localized, and long-term impacts. With a preponderance of sites concentrated in economically and/or environmentally distressed communities, impacted areas must have locally appropriate safeguards, regardless of technology. Policies should explicitly consider impacts to fenceline environmental justice communities, and fossil BYOP should not be located in communities with historical or current poor air quality or high public health burdens. BYOP projects should also not exacerbate economic burdens to these communities. Frontline communities should be centered in decision-making, and BYOP projects should only move forward with their consent.

- **Free, Prior, and Informed Consent and avoiding impacts specific to Tribal Nations and communities.** Activities planned in areas where Tribal Nations have current, ancestral, cultural, or other legally protected interests must begin by meeting the principles of Free, Prior, and Informed Consent (FPIC): consent sought voluntarily and without coercion, sufficiently in advance of any authorization or activity, informed by information shared both before and throughout the process, and reached through each Tribal Nation's own customary decision-making processes.[69] Developers must recognize each Tribal Nation as sovereign and distinct, respect formal Tribal Council decisions and timeframes, avoid unjust and imbalanced negotiating tactics, and anticipate co-governance requirements. Early, ongoing engagement from the BYOP developer, paired with formal (and legally required) government-to-government consultation between a lead permitting agency and Tribal Nations with current or ancestral connection to the region, is a baseline requirement. Should adjacent Tribal Nations seek it, a formal and mutual Tribal engagement protocol can be established.

  Additionally, developers seeking to operate in areas significant to Tribal Nations must consider avoiding harms particular to Tribal communities. This includes impacts to cultural resources such as (but not exclusive to) ceremonial, archeological, and ancestral sites, culturally vital wildlife species, waterways, vistas, landscapes, structures, geological formations, and any other cultural resource. A determination by each Tribal Cultural Resource Department or Council may not be superseded by any other government. As Tribal communities have been and continue to be disproportionately harmed by industrial and energy development and the resulting influx of temporary workers, robust community safety measures should be developed in consultation with the affected Tribal Nations to avoid circumstances such as human trafficking and Missing and Murdered Indigenous People (MMIP).[70]

- **Addressing brownfields.** Careful thought should be given to policies which incentivize infrastructure in former industrial areas, on brownfields, or on Superfund sites. While this could potentially be beneficial from a natural resources standpoint, these areas are often located in or

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[69] Indigenous Environmental Network. Free, Prior and Informed Consent; Food and Agriculture Organization of the United Nations. Free Prior and Informed Consent: An indigenous peoples' right and a good practice for local communities.

[70] See: Yurok Tribal Court (2023). How to Protect Native Women, Girls, and People in Humboldt & Del Norte County as Offshore Wind Enters the Region: MMIP Prevention Planning and Recommendations, a part of the 'Kee Skuy 'Soo-Ney-Wo-Chek' (I will see you again in a good way) Project.

adjacent to environmental justice communities with existing high air pollution, toxics, noise, and public health burdens from both legacy facilities and other current and proposed industrial uses.[71] If development on brownfields occurs, robust remediation and future mitigation investments should be required.

- **Avoiding areas of high natural resource value or with water availability concerns.** BYOP projects should not be located in areas with a protective designation indicating high natural resource value. Policies should consider protecting areas with threatened, Tribally-protected, or endangered species populations, rare plant communities, wetlands and riparian habitats, and other lands with high ecological or cultural value where development could undermine species recovery, conservation objectives, or Tribal values.

Inadequate regulatory oversight and laws to protect the environment, climate and people

Inadequate regulatory oversight, environmental review, and public participation can exacerbate the other risks associated with BYOP by allowing projects to operate outside laws and regulatory frameworks designed to protect people, the environment, consumers, and the energy system. Gaps in regulatory authority and enforcement can leave no entity with responsibility for considering and addressing a project's full range of impacts. Efforts to streamline or eliminate environmental review and limit public participation further erode opportunities for communities and the public to influence decisions about these projects.

⚠ RISK: Inadequate energy regulatory oversight

Currently, many BYOP projects are moving forward without sufficient oversight by entities charged with protecting the public. Many factors are contributing to this:

First, our existing energy regulatory structures were not designed for—and are insufficient to safeguard against—the rapid development of hundreds of gigawatts of new BTM generation built specifically to serve AI data centers. As one example, initially-islanded BYOP projects can bypass important planning or regulatory processes that generally apply to large new power plants. In regulated states, traditional utility planning processes are designed to determine how to meet electricity needs cost-effectively while considering state energy, climate, and clean energy requirements. Rather than a utility commission evaluating and optimizing the resource mix to meet system needs and ensuring alignment with state policy, climate goals, and safety, the developer of a fully islanded project will often choose a resource solely to meet speed to power objectives. In restructured or deregulated states where generation investment is already largely a private market decision, there is often little energy regulatory oversight authority possible under existing laws.

[71] RiSE4EJ, SciCAN, and Better Data Center Project. (Apr. 2026). Community Guide to Data Center Development.

Potential evasion of renewable portfolio standard and clean energy standard (RPS/CES) requirements

One consequence of operating outside of existing energy regulatory structures is that BTM/islanded projects may fall outside of RPS and CES requirements, which apply to retail electricity sales and/or utilities.[72] Some recent policies appear to explicitly exempt islanded power from RPS/CES requirements either via exemption from all public utility regulations (e.g., New Hampshire), or via classifying them as non-retail sales (e.g., New Mexico).

Some states that have recently taken action to include BYOP in their RPS/CES, including Washington, Delaware, and Massachusetts. However, the penalty for noncompliance in these cases is a fee, and it remains to be seen if that is sufficient to avoid noncompliance.

Projects that eventually interconnect with the grid will become subject to additional regulatory requirements and oversight in some areas like rates, but may avoid others (e.g., related to siting) that would normally apply. Regardless, relying on future interconnection or grid regulation to address current gaps in oversight presents its own risk: Once these power plants are built and operating, key decisions about generation type, siting, and associated impacts will already have been made, while the need to maintain grid reliability and respond to growing system stress may push decision-makers to loosen existing requirements.

Lacking an energy regulator with a mandate to protect consumers and the public interest, BYOP proposals may move forward with a patchwork of environmental permits that only address a subset of impacts. As the University of Houston Law Center puts it:

> *"The agency that Texas empowered to permit refineries and petrochemical complexes [the Texas Commission on Environmental Quality] has found itself, without ever asking for the job, serving as a principal state regulator of AI infrastructure siting. With no state siting statute, no state environmental policy act, and no TCEQ jurisdiction over noise or, in most respects, groundwater pumping,* ***TCEQ's preconstruction air permit process as a practical matter offers the primary state approval that can affect these multi-gigawatt private power campuses.*** *Most of the siting conflicts that other states distribute across several proceedings therefore, in Texas, funnel into an air permitting process that the state never designed to carry such weight."*[73]

Second, exacerbating this issue are efforts by the federal government and some states to enact policies seeking to further reduce oversight and regulation for BYOP specifically. Efforts to streamline

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[72] See data from the Clean Air Task Force. The National Conference of State Legislatures states that "RPS requirements can apply only to investor-owned utilities (IOUs), although many states also include municipalities and electric cooperatives (Munis and Co-ops), sometimes with a lower target."

[73] T. Hester (July 2026). The Great Power Secession: Texas Air Permitting and the Data Center Boom. Environment, Energy & Natural Resources Center, University of Houston Law Center.

or preempt state and local permitting can further limit public oversight and participation in decisions about projects with highly localized impacts. West Virginia's "Microgrid Law," for example, exempts fully islanded power plants from public utility regulation including obtaining a certificate of convenience and necessity, siting requirements, and more, while severely limiting local control. See Part 3 for more details and examples of state and federal attempts to further erode energy regulation and oversight.

Finally, the rapidly shifting federal and state policy landscape and the regulatory "grey area" in which many BYOP projects already sit create an environment primed for AI data center developers to tilt the landscape even further in their favor. It is likely that the abundance of negative consequences will compound in local, economically distressed, ecologically exploited communities, particularly in states that are not vertically integrated[74] or where new, pro-BYOP laws are being passed.

Policy Element: Strong regulation and oversight

Fully addressing the impacts of BYOP projects requires an entity representing the public interest, rather than industry, with decision-making authority and the ability to put in place and enforce strong protections.

- **Ensuring entities with expertise, resources, and decision-making authority exist and are empowered to assess *all* BYOP impacts and put protections in place.** This includes but is not limited to energy system and climate impacts (clean energy, grid reliability and resilience, etc.), economic impacts (cost-benefit analysis including energy bills, revenue, etc.), environmental and public health and safety (air, water, noise, working conditions, etc.), local built and natural infrastructure, and cultural resources. In addition to having sufficient expertise and resources to robustly assess all project impacts, these authorities must hold real, discretionary decision-making power to stop projects, put protections in place and ensure compliance, and enforce violations across construction, operation, and decommissioning/restoration. Currently, the extent to which these authorities and capacities exist—and where they sit—varies widely by state, though in all states, they are spread across a patchwork of state and local authorities.[75] Further, BYOP is often sited in areas with reduced land use authority (unincorporated or industrial areas) and in areas of high economic need. Local jurisdictions may be less likely to have the resources and legal tools to evaluate impacts, put protections in place, and enforce noncompliance across these domains. Currently, no states have entities well structured or sufficiently resourced to respond to the speed and scale of BYOP proposals.
- **Ensuring solutions are comprehensive.** Data center and BYOP project impacts are interrelated and experienced simultaneously, yet agency review processes are often siloed. This can create barriers to public engagement and gaps in review, analysis, and mitigation.[76] For example, data center cooling systems often involve tradeoffs between water and energy consumption, but these tradeoffs are often not evaluated in concert (if at all). Comprehensive analysis is particularly essential given the speed and volume of data center and BYOP proposals and the potential for

[74] i.e., states where the utility does not own the generation, transmission, and distribution of electricity. For more information, see e.g., U.S. EPA. Power Market Structure; National Governors Association. Electricity Markets.

[75] See Table 1, Data Centers and the Need for Coordinated Public Oversight, Regulatory Assistance Project, August 2026.

[76] Data Centers and the Need for Coordinated Public Oversight, Regulatory Assistance Project, August 2026.

cumulative impacts. For more discussion of cross-agency collaboration, see RAP's "Data Centers and the Need for Coordinated Public Oversight" report.

- **Prioritizing public interests over industry interests.** It is not sufficient for agencies with expertise to assess all project impacts; they must also make decisions in the interest of the public, particularly those most impacted by and vulnerable to potential project harms. A government entity should not always be assumed to represent community values. For example, government entities have signed NDAs with data center developers and have approved projects that conflict with community priorities. See Policy Element: Community self-determination for more information on meaningful community governance and participation in decision-making.

⚠ RISK: Inadequate environmental review

BYOP projects may also operate outside of laws designed to protect the environment and to ensure opportunities for public participation. Many factors contribute to this risk, including:

- **Widespread dismantling of federal environmental laws and protection, including public participation requirements.** In addition to widespread efforts to dismantle environmental regulation generally, the current federal administration is pursuing a comprehensive roadmap for environmental deregulation of AI data centers specifically, called "Winning the Race: America' s Action Plan." This includes provisions to reduce protections for people and the environment under the Clean Air Act, the Clean Water Act, the Endangered Species Act, the National Environmental Policy Act, and other laws—many of which apply to the BYOP gas buildout.[77] A recent report from the Environmental Protection Network identified "at least 30 federal actions increasing pollution-related health risks" related to AI data centers. The Federal Policy section in Part 3 provides several examples that target BYOP and public participation specifically. These federal rollbacks are particularly significant since, as described below, the majority of BYOP projects are moving forward in states with weaker laws and enforcement capacity.

- **Gas BYOP is predominantly in states and localities with weaker environmental laws.** Currently, approximately 94% of gas (and 86% of renewable) BYOP proposals are in states without State Environmental Policy Acts. Local review, protections, and requirements for discretionary approvals may also be sparse for this type of project as they increasingly move forward in unincorporated areas, or areas zoned industrial.

- **State laws that further reduce environmental review and protections.** Some states are also passing new laws that seek to further remove or streamline environmental reviews or protections for BYOP, including those that reduce local control. See the State Policy section in Part 3 for details.

- **Lack of transparency and cumulative assessments.** The speed of and lack of transparency in the AI data center buildout makes meaningful environmental review challenging, as a complete understanding of the project is required to accurately analyze the full range of impacts and consider alternatives and measures to address them. Moreover, data centers and BYOP projects can cluster and/or operate in areas with existing burdens from legacy or current industrial use, increasing cumulative impacts. Current environmental review processes often do not include a cumulative impact analysis.

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[77] See Executive Order 14318: Accelerating Federal Permitting of Data Center Infrastructure, July 23 2025.

Policy Element: Meaningful environmental review

Given the significant environmental impacts of gigawatt-scale BYOP power plants, comprehensive and meaningful environmental review is essential.

- **Requiring analysis of impacts prior to granting project approvals.** A comprehensive environmental analysis must be conducted before project approvals to inform decision-makers and the public of a project's potential impacts and propose measures to avoid, minimize, and mitigate impacts. The breadth and scale of potential BYOP project impacts merits the most thorough level of environmental review process, equivalent to an environmental impact statement under the National Environmental Policy Act (NEPA). Considerations should include whether the environmental review identifies, analyzes, and proposes measures to avoid, minimize or mitigate direct, indirect, and cumulative impacts on air quality, public health, climate, water, noise, and biological and cultural resources.

- **Considering the whole of the project.** Analysis must cover the whole project, including the data center, primary power generation, fuel transportation or delivery (e.g. gas pipelines, gas or oil deliveries, and storage) and backup generation as well as all reasonably foreseeable future phases and expansions. In addition, the indirect, direct and cumulative impacts of each should be identified, analyzed and mitigated. Particular care should be given to whether segmentation of project components could lead to an incomplete impact analysis, as this can reduce the level of required public review and pollution control requirements. Additionally, this can impact what local approvals are triggered.

- **Public health impacts.** Public health studies and air quality analysis should consider $PM_{2.5}$, NO_X, SO_2, CO, VOCs, NH_3, and hazardous air pollutants (HAPs) such as formaldehyde. These studies should also evaluate whether the project will cause or increase disproportionate pollution burdens on overburdened communities.[78] Analysis should include a thorough needs assessment that utilizes screening tools such as EJScreen, Climate and Economic Justice Screening Tool and the EDF's Climate Vulnerability Index. For projects developed on brownfields or former industrial sites, occupational health impacts must be considered to ensure workers and communities are not exposed to toxic pollution and other health hazards.

- **Cumulative Impacts.**[79] Environmental reviews should include an analysis of the cumulative impacts of all past, current and reasonably foreseeable development within the area including but not limited to industrial projects, transportation, and data centers, and explicitly include back-up and primary power generation. Rather than evaluating projects in isolation, agencies should assess how new development may interact with and compound existing pollution burdens, public health stressors, and infrastructure impacts. This review is especially important in overburdened communities, including low-income communities and communities of color that have historically borne a disproportionate share of environmental and public health harms.

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[78] See, for example, New York State's Environmental Justice Siting Law, which requires agencies under the state's Environmental Quality Review Act to consider whether an action may cause or increase a disproportionate pollution burden on a disadvantaged community (DAC).

[79] "The EPA recognizes cumulative impacts as the totality of exposures to combinations of chemical and nonchemical stressors and their effects on health and quality-of-life outcomes." From EPA's 2024 Interim Framework for Advancing Consideration of Cumulative Impacts.

- **Public participation.** The public should have robust public comment and participation opportunities to provide feedback throughout the review process. This should include engaging the public early to determine what impacts and alternatives should be studied and sharing scoping and draft environmental review documents for public comment. To ensure adequate opportunities for participation, comment periods should be at least 90 days with the opportunity to request extensions, and several public hearings should be held once the draft has been posted. Reviewing agencies should be required to respond to substantive comments before finalizing review, with final decisions documented in a publicly available record explaining what was decided. Participation policies should center outreach to and meaningful engagement with overburdened communities and those who face barriers to participation. Engagement opportunities must be at accessible locations and times, include language translation support, and provide other relevant support to ensure those with the highest barriers to participation can engage.

Policy Element: Community self-determination

Local communities have the right to understand BYOP projects and establish policies and safeguards to protect their health, steward local assets, and advance economic interests, including determining if BYOP projects should move forward and under what conditions.

- **Resourcing and centering frontline communities.** The communities most affected by BYOP projects should shape decision-making. The NAACP and community leaders have developed The Frontline Framework Community Data Center Guiding Principles as a unifying guide for organizers, activists and communities. Sufficient resources should be provided to enable meaningful, sustained participation over time, particularly for communities with histories of disinvestment and extraction. Governance and stewardship processes of Tribal Nations should be supported with adequate time and any additional studies or information requested by Tribal Councils or Agencies.

- **Community-centered planning.** There are many approaches to support a community's right to self-determination, and the appropriate approach will depend on community context. Examples include consent-based siting or participatory siting practices. Another approach is establishing a new general plan element for data centers and any associated energy infrastructure, which can allow time for communities and elected officials to fully understand this new use, think holistically about if and how it may fit into broader planning goals, and provide a venue for meaningful public participation. Moratorium or pauses on AI data centers and associated BYOP projects can allow communities more time to develop these types of plans, as well as more comprehensive and protective land use policies. Co-created planning and public participation should occur prior to permitting approvals.

- **Avoid "by right" zoning, and other streamlined approval processes.** Land use and zoning policies which allow BYOP projects to move forward ministerially "by right" rather than through a discretionary process such as conditional or special use permit remove the opportunity for project-by-project consideration of impacts. This includes opportunities for meaningful community input and the ability for decision-makers to deny projects or impose conditions that protect local health. State legislation that incentivizes BYOP through streamlining local permitting should be carefully scrutinized.

- **Providing communities full information, well in advance, to enable meaningful participation in decision-making.** Policies should institutionalize transparency, including through banning use of non-disclosure agreements that conceal information material to public decision-making and by requiring public disclosure of key project information (such as permit applications) prior to approvals and throughout the project lifecycle.[80,81] A community's ability to understand the information is paramount; we encourage support for communities to access independent legal and technical advisors.

Economic Impacts

AI data center companies and some policymakers have framed BYOP as a purported "affordability solution" to address concerns around electricity bill increases for existing customers. But this narrative is oversimplified at best: While BYOP data centers may potentially delay, avoid, or decrease certain grid-related costs, serious potential affordability impacts remain. Some experts believe data centers with no grid connection and no consequent grid infrastructure costs may actually have worse impacts on affordability than grid connected data centers.[82] This is because they compete with utilities for specialized equipment and put pressure on gas prices but are not charged utility rates to mitigate their cost impacts. BYOP data centers also do not fully avoid stranded asset risks. Though fully-islanded BYOP data centers may pose lower electric grid-related stranded asset risks than fully grid dependent data centers, those that are built and later connect to the grid have similar stranded asset concerns, especially so for new gas pipeline infrastructure, often to rural areas that would not otherwise be built. Additionally, BYOP data centers with no grid connection avoid any mechanisms that do exist to pay for grid and transmission system upgrades that can benefit the entire grid. This can be particularly imbalanced for rural and Tribal communities hosting data center infrastructure that overwhelmingly need grid upgrades for reliability and resilience.

BYOP data centers also do not fully avoid stranded asset risks. Though fully-islanded BYOP data centers may pose lower electric grid-related stranded asset risks than fully grid dependent data centers, those that are built and later connect to the grid have similar stranded asset concerns, especially so for new gas pipeline infrastructure, often to rural areas that would not otherwise be built. Regardless of the BYOP configuration, determining cost causation and predicting cost impacts is very complex, and there is no quick or easy way to ensure the public does not bear costs from massive AI data center power use. For instance, while it is possible to charge grid connected data centers the cost of new equipment or grid upgrades, which could theoretically lower fixed costs for ratepayers,[83] determining a data center's "fair share" of costs is challenging in practice. Many states are currently

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[80] Policy examples include: City of Tucson ordinance limiting use of NDAs; Gov. Shapiro Executive Order limiting use of NDAs; "No Data Center NDAs Act"; ND SB 2406; Wisconsin's SB 969 banning NDAs

[81] For more policy recommendations regarding transparency, see State Policy Toolkits For Data Center Regulation: Transparency and Accountability (ClimateXChange), and The Secret Data Center Buildout (Public Citizen)

[82] See J. Rissman (June 2026). Behind-the-meter data center gas plants will raise U.S. energy bills. Utility Dive; and S. Lacey (July 2026). The Off-grid Data Center Fantasy. Latitude Media.

[83] Note: there have been a few studies recently that found that data centers have lowered electricity prices by spreading fixed costs among more customers, in particular see "Have Data Centers Raised Your Electric Bill? Causal Evidence from the United States". These studies must be viewed with caution: while it is theoretically possible for data centers to lower rates, that is not consistently what we are seeing in practice today. The EPRI study uses national data which obscures localized price impacts, and uses only 2019-2024 data despite 2025 being the year when data center growth exploded. Source: G. Hering, et al. (Oct. 2025). Data center grid-power demand to rise 22% in 2025, nearly triple by 2030. S&P Global.

grappling with the complexities of structuring large load tariffs and fair cost allocation. Additionally, many states lose significant revenue from data center and associated BYOP incentives and tax breaks.

⚠ RISK: Higher energy bills

BYOP projects could impact energy bills through several pathways, including:

- **Higher gas fuel prices:** Current BYOP proposals are overwhelmingly gas, which can drive up already volatile gas prices by increasing demand. Increasing U.S. exports of gas already threaten to drive up prices,[84] and significant domestic demand growth could exacerbate impacts.[85] For example, ICF projects a 31% increase in gas prices by 2030, while Wood Mackenzie predicts a 49% increase by 2030–2035. While all gas-powered approaches can contribute to this risk, less efficient technologies used by large-scale BYOP data centers require more gas to produce the same amount of energy.

- **Higher wholesale electricity and capacity prices:** There are several ways that BYOP projects could impact electricity market prices, including: driving up gas prices, increasing wholesale electricity prices, and increasing capacity market prices. By **driving up gas prices**, BYOP projects will also drive up the cost of electricity because gas is currently the largest energy source in the U.S. and sets the price of electricity during most hours in most markets.[86] In 2025, the U.S. EIA reported that increases in day-ahead electricity prices were "driven largely by higher natural gas prices to electric generators," a trend which will only worsen as gas prices increase. BYOP projects that plan to draw some amount of power from the grid can also put upward pressure on electricity bills by increasing demand for electricity at a particular moment in time (**raising wholesale electricity prices**) and by increasing the overall capacity the grid needs to meet demand (**increasing capacity market prices**). While these price effects may not be as significant as those of data centers powered entirely by the grid, the impacts of grid-connected BYOP data centers cannot be categorically excluded.[87] Additionally, there are concerns that grid-connected BYOP data centers could contribute to higher electricity prices by engaging in power trading practices. Examples include buying grid power when it is cheap and selling it when it is expensive, or being compensated for demand response by using BTM generation, among other electricity market behaviors.[88]

- **Electric infrastructure and service costs:** Serving grid power to grid-connected BYOP data centers, even for just backup power, can require new generation and grid infrastructure upgrades, the costs of which have historically been socialized among ratepayers. BYOP data centers may require fewer upgrades than fully grid-dependent data centers, but impacts can still be significant, particularly if and when a BTM generator becomes grid connected in the future. There are also stranded asset risks that can occur when infrastructure is built in sparsely-populated areas given the projected shift from large-language model training to inference load, especially if data centers

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[84] T. Slocum (April 2026). LNG Exports And American Unaffordability. Public Citizen.

[85] D. Wamsted (April 2026). The Misguided Stampede to Build Gas Power Plants. Institute for Energy Economics and Financial Analysis, p. 5.

[86] U.S. EIA (Feb. 2026). U.S. wholesale day-ahead electricity prices rose in 2025 with higher natural gas prices; U.S. EIA. Electricity explained.

[87] For more information on electricity markets, see Resources for the Future's U.S. Electricity Markets 101.

[88] University of Houston. New Power Players: How Big Tech Firms Are Disrupting Energy Markets; Utility Dive. The Data Center Dependency Crisis: When our Grid Can't Function without Big Tech.

that start islanded eventually connect to the grid. BYOP projects may also impact costs as technology companies and investors have the balance sheets to outbid utilities for electric grid infrastructure.[89,90] According to Wood Mackenzie, data centers could take up as much as 40% of the electricity equipment market by 2030, as compared to less than 2% in 2020.

- **Gas Infrastructure costs:** Gas BYOP is also driving up the costs of gas turbines, pipelines, and other gas infrastructure. Gas turbines, which are the largest driver of gas plant costs, are becoming more and more expensive.[91] Wood Mackenzie forecasts a 195% price increase for all customers by the end of 2027, as compared to prices in 2019. As is the case for electric grid infrastructure, technology companies can outbid utilities for turbines and other gas infrastructure. Additionally, to service new gas demand, major new pipeline projects or expansions will be required. Pipeline costs, like other data center-related infrastructure costs, are rising rapidly. A 2025 analysis by BTU Analytics found that pipeline construction costs have increased by 90% for projects completed since 2024, as compared to those completed before 2024. Ratepayer exposure primarily arises when a data center seeks gas service through a regulated gas utility, as the costs of this infrastructure may be recovered through rates charged to the gas utility's broader customer base.[92] Cost impacts could be even worse if data center demand does not materialize as planned, creating stranded gas infrastructure which other ratepayers may have to pay for unless protections are in place. These risks could be worse for plants that start as off-grid gas plants, as they are often more expensive to build and operate than their grid connected counterparts.[93]

⚠ RISK: Lost revenue from incentives

Even though BYOP serves private data centers, the public still pays for it through subsidies, tax exemptions, and abatements that can lead to significant forgone tax revenue. Data centers can cost states and local governments billions of dollars in lost revenue, and BYOP projects can contribute to those losses. Thirty-seven states have implemented sales and use tax exemptions for *data center* equipment, which can cost state and local governments hundreds of millions to billions of dollars annually in lost tax revenue, as the bulk of the value of a data center comes from chips and servers.[94,95] Because servers, chips, cooling systems, and related equipment undergo recurring replacement, an open-ended exemption creates continuing revenue losses at a state and local level rather than a one-time construction subsidy. Based on our review of state-level data center incentives across all 50

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[89] A. Valainis (May 2026). Going Off Grid: The False Panacea of Islanding High-Impact Loads. Regulatory Assistance Project.

[90] Wood Mackenzie (April 2026). U.S. data center electrical equipment market surges to $65B, reshaping industry dynamics.

[91] Capital costs of combined-cycle gas turbines ranged from $1,300–1,600/kW at their highest between 2015 and 2025, now costs sit between $2,400–2,600/kW. See: Lazard (June 2025). Lazard Releases 2025 Levelized Cost of Energy+ Report; D. Wamsted (April 2026). The Misguided Stampede to Build Gas Power Plants. Institute for Energy Economics and Financial Analysis.

[92] See pg. 6: NARUC (Dec. 2025). Economic Development Cohort Roadmap.

[93] According to the University of Texas at Austin, 2026 "the LCOE of off-grid configurations are about four to six times higher than the average LCOE of fully grid-connected power systems" in VA, TX, CA, IL, OR, and AZ. See Soham Ghosh, Jaya Damodara, Scalable data centers – Power generation and delivery challenges and solutions, Energy Reports, Volume 15, (June 2026)

[94] Good Jobs First (June 2026). Even Cloudier with a Greater Loss of Spending Control: How Data Center Tax Abatements Undermine Public Budgets.

[95] Virginia Joint Legislative Audit and Review Commission (Nov. 2025). Economic Development Incentives 2025 Spending and Performance.

states,[96] many states extend these exemptions to BYOP either explicitly by naming energy infrastructure or energy-related costs, or implicitly through an overly broad definition of equipment or infrastructure. Additionally, according to the National Conference of State Legislatures, as of April 2026, 14 states extend the sales tax exemption to electricity used at the facility.[97]

At a local level, data centers often take advantage of property tax breaks and other incentives by locating in areas with existing tax incentives designed to attract more job-intensive industries and negotiating directly with governments.[98] These can include property tax abatements, discounted Payments in Lieu of Taxes (PILOTs), tax increment financing, income tax credits, industrial revenue bonds, and Opportunity Zone treatment—in addition to public grants. This trend is extending to energy exclusively serving data centers: For example, in Texas, Energy Forge One received a $228 million school property tax break for a BYOP project.[99] In New Mexico, Project Jupiter received an integrated property tax package covering both the AI campus and its fossil microgrid.[100] This means that in addition to massive subsidization of data centers themselves, state and local governments now provide additional tax breaks to BYOP facilities. Local governments that do receive meaningful economic outcomes tend to be wealthier, have stronger land use authority and ability to creatively capture revenue outside of property taxes, while "post-industrial" communities or those with weaker land use authority may negotiate less and grant public subsidies more often—further entrenching existing inequities.[101]

Policy Element: Cost responsibility and economic protections

Policies must carefully, thoroughly, and proactively analyze and address the costs of BYOP projects to protect the public, including direct and indirect costs impacting other customers' energy bills, lost state and local tax revenue, and decommissioning and restoration costs, in addition to public health costs, infrastructure and housing impacts and potential displacement.

- **Preventing direct and indirect BYOP costs from being passed to other ratepayers.** Policies should comprehensively address potential impacts of the multiple pathways BYOP can increase energy costs, including increased gas prices, wholesale electricity and capacity prices, utility and grid infrastructure costs, and gas infrastructure costs. For BYOP data centers that will be grid connected either now or in the future and will thus require new grid infrastructure, costs must be fully assigned to data centers.[102] Additionally, there should be transparent information about what

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[96] We examined how energy equipment might be treated in each state, building off: Scott Wright, et al. (Jan. 2024). Tricks and Traps of Data Center State Tax Incentives. Tax Notes. See our dataset.

[97] See: N. Miller (Apr. 2026). Does Your State Offer Data Center Tax Incentives? National Conference of State Legislatures. The 13 states are AR, CT, FL, IN, IA, MA, MO, NV, NC, OK, SC, TN, and TX; treatment ranges from full exemption to Tennessee's reduced 1.5 percent rate. MN is listed, but repealed the exemption for energy purchased by data centers in 2025.

[98] R. Strauss. (2026). Balancing Benefits and Burdens: A Diagnostic Analysis of Community Outcomes in Data Center Development.

[99] See pg. 3, "Estimated M&O gross tax benefit," from this Texas Comptroller Letter (Jan. 2026).

[100] C. Dodd. (Sept. 2025). Doña Ana County approves $165 billion in bonds for massive AI data center near border. Santa Fe New Mexican.

[101] R. Strauss. (2026). Balancing Benefits and Burdens: A Diagnostic Analysis of Community Outcomes in Data Center Development.

[102] For specific cost allocation recommendations, see Energy Futures Group (Sept. 2026). Common Challenges in Large Load Cost Allocation and their Solutions.

grid services are being used, and how those costs are assigned.[103] To prevent spikes in electricity and capacity prices, BYOP data centers with grid connection should be curtailed during periods of grid stress (but prohibited from relying on fossil-fuel backup generation) and must not be overcounted in load forecasts.

- **Meaningful economic returns for local communities.** There are multiple approaches needed to ensure meaningful economic returns for communities, including:
  - **Ending subsidies:** Public costs arise through tax exemptions, property abatements, utility contracts, infrastructure, regulatory privileges, and forgone revenue. States and localities should end subsidies for data centers and BYOP, including ending industry-specific federal, state, and local tax policies which subsidize data centers and associated energy generation, as well as ensuring that data centers and associated energy generation are not able to take advantage of existing incentive programs designed to attract development (often to low-income or former industrial communities).[104,105] Where public assistance remains, lawmakers should cap and sunset the aid, protect school and local revenues, prohibit subsidy stacking, disclose every recipient and corporate parent, and put mechanisms in place to recover subsidies when promises fail.
  - **Fees or surcharges**: More recently, additional surcharges have been recommended, such as assistance fund fees, new taxes, and system benefit charges.[106] These mechanisms can ensure communities are getting economic returns.
  - **Shared wealth:** Efforts include developing proactive federal, state and local policies to ensure communities with BYOP data centers receive a meaningful and consistent economic outcome that captures the scale of capital investment—including capturing recurring capital investments in chips and servers—and avoids perpetuating cycles of economic injustices.[107]
- **Fiscal impact and cost-benefit analyses.** Local governments can strengthen decision-making on economic development incentives by requiring both a fiscal impact analysis and a cost-benefit analysis, performed by an independent third party, before granting approvals. A fiscal impact analysis evaluates whether the incentivized project will generate sufficient tax revenue to offset the costs borne by the government. This includes estimating forgone revenue through tax breaks and other incentives, new revenues generated by the project, and any additional costs that the government will experience because of the project. This analysis helps determine whether a project

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[103] Earthjustice (Sept. 2026). Michigan's Public Service Commission Grapples with AI Data Center Load.

[104] Recommendations related to ending federal subsidies have included: prohibiting opportunity zone funds from investing in data centers/BYOP, removing 100% bonus depreciation on assets to build data centers and excluding rents paid to REITs (real estate investment trust) by new data centers from the tax-favorable REIT regime. Examples at the state level include Minnesota ending the state sales tax exemption for energy used at data centers. Multiple other states are seeking to end sales and use tax exemptions for data center equipment entirely. Additional efforts include legislation restricting municipalities granting data centers property tax abatements.

[105] Recent reporting shows industrial tax breaks for data centers (both state and locally) can run to millions per job created (see IDA for Genesee County, $6.4 M per jobs).

[106] See, e.g., State Support Center (Aug. 2026). Large Load Grid Surcharge: A State Regulatory Fee on Data Centers to Fund Grid Modernization .

[107] Examples include: Proposal for the Taxation of Data Centers; proposals to require Community Benefit Agreements (CBAs) with a set floor such as Pennsylvania legislation requiring CBAs with a value of at least 10% of capital investment; or local collection of gross receipts or impact-fees on large water and energy users. We note that these tools may still create outcomes which harm long-term economic sustainability or which may be coupled with other incentives or subsidies.

is sustainable from a local budget perspective. A cost-benefit analysis assesses whether the project is beneficial overall, and evaluates many different economic, environmental and social impacts on the community, not just government finances. This includes benefits such as job creation, wage growth, and potential spillover effects such as attracting suppliers, as well as costs like lost tax revenue to tax breaks, reduced property values, environmental harms, health costs, or displacement of residents and small businesses. This analysis helps determine whether the project produces a net benefit for the community as a whole. Because these analyses address different questions and may lead to different conclusions, best practice is to require both. To ensure transparency and meaningful public input, the final analyses, along with the underlying data and assumptions, should be publicly available at least 90 days before any approvals.

- **Protecting communities from bearing future decommissioning, site restoration, and stranded asset costs.** It is important that the public is protected from bearing decommissioning and site restoration costs. Policy approaches include decommissioning obligations and strong decommissioning bonds—updated every five years accounting for inflation—with a requirement of funding as a condition of project approval, rather than near the end of project life. Terms should ensure that the obligation to decommission, restore, or continue to pay for the energy built survives a bankruptcy or change of ownership, such as a term binding these obligations on successors-in interest. And lastly, it is important to require surety bonds to cover scenarios if the data center (or successor) no longer needs the power.[108] Additionally, for planned BYOP data centers that do not get built or do not require as much infrastructure as originally stated, the data center must pay full costs of any new infrastructure to protect the public from stranded asset costs. Even for fully islanded data centers that will not need new grid infrastructure, new gas pipelines and gas infrastructure poses stranded asset risks. Marginalized communities attempting to decommission harmful yet operational energy assets in the U.S. have faced lengthy, onerous, and costly processes, and should be given additional support to do so.[109]

[108] Energy Futures Group (Jan. 2025). **Review of Large Load Tariffs to Identify Safeguards and Protections for Existing Ratepayers**.

[109] See: Klamath River Dam Removal **case research and history from USGS**. A multitude of similar cases persist. Despite decreasing returns on energy, regulators operators argued against decommissioning citing costs to remove as a barrier for decades.

Crosscutting Element: Enforcement

What mechanisms and resources will ensure that policy compliance is independently verified and that penalties for violations are sufficient and enforced?

Policies that lack sufficient penalties for and enforcement of non-compliance risk functioning as voluntary standards rather than requirements. Independent verification, regular public reporting, and providing clear pathways for affected parties to raise concerns and seek review are essential. Ensuring that policies are not only established but that agencies and the public have the authority, recourse and resources to enforce them is particularly important given that the capacity of local, state, and federal agencies has been eroded over time, while the developers proposing these projects have enormous financial resources and strong incentives to move projects forward quickly. Enforcement mechanisms should include penalties that are sufficient to deter noncompliance for this industry in particular, rather than allowing violations to become simply another cost of doing business, as well as clear authority to suspend or revoke project approvals for serious or repeated violations.

Enforcement is relevant to and should be considered across all risks and other policy elements.

Part 3: The rapidly evolving policy landscape

At both federal and state levels, there have been substantial efforts to establish policies to govern the AI data center buildout, many of which tangentially relate to BYOP or would indirectly incentivize it.[110] In this section, we focus on those policies where BYOP is a central and direct topic. Taken collectively, **current federal and state BYOP policies are inadequate to address—and in many cases exacerbate—the risks posed by widespread gas BYOP buildout.**

Federal policy

At the federal level, there are many ongoing efforts to enable and accelerate AI data center development, including supporting BYOP and fossil power infrastructure. The current federal administration's plan for environmental deregulation for AI data centers includes reducing protections under the Clean Air Act, the Clean Water Act, the Endangered Species Act, the National Environmental Policy Act, and more—many of which apply to gas BYOP. This includes, for example, the July 2025 "America's AI Action Plan"[111] and it is also a core component of the recent draft permitting reform legislation,[112] both of which incentivize and entrench dependence on polluting gas and would leave

[110] For example, laws that require data centers to curtail during periods of grid stress, or those that have significant requirements for large load interconnection.

[111] See "Winning the Race: America's AI Action Plan" and America's AI Action Plan After One Year: What the Administration Has Done, and What Comes Next.

[112] Politico (Sept. 2026). Here's what's inside the Senate's new bipartisan permitting proposal; Earthjustice Action (Oct. 2026). Statement on Senate Permitting Bill.

communities with less recourse and influence over decisions that impact their health, livelihoods, and future. Specific actions include:

- **Dismantling of environmental laws and protections**: The current federal administration's plan for environmental deregulation for AI data centers includes reducing protections under the Clean Air Act, the Clean Water Act, the Endangered Species Act, the National Environmental Policy Act, and more—many of which apply to gas BYOP. A recent report from the Environmental Protection Network[113] identified "at least 30 federal actions increasing pollution-related health risks" related to data centers, many of which relate to BYOP specifically. The U.S. EPA has, for example: exempted islanded power from the Clean Air Act's Acid Rain Program, proposed allowing construction to begin prior to obtaining permits, reduced monitoring and reporting for small and medium "temporary" turbines, and required advanced approval by senior staff for any orders or enforcement actions that would "unduly burden or significantly disrupt energy production." The EPA also recently issued guidance concluding that, in areas that do not meet federal air-quality standards, regulators may issue permits before required pollution offsets have been identified and secured, provided the offsets are obtained before the facility begins operating. They also proposed a rule change which would allow state environmental regulators to eliminate public participation requirements for so-called "minor" air pollution sources—notable given the trend of **segmentation** where developers build projects in phases to qualify as a series of "minor" sources rather than one major source.

- **FERC show cause orders**: The Federal Energy Regulatory Commission (FERC) is a federal agency that regulates the interstate transmission of electricity and natural gas. FERC has been increasingly engaging in data center and BYOP policy. In June 2026, FERC issued "show cause" orders to all of the six regional grid operators under its jurisdiction, which directs them to justify or reform the rules that govern how data centers and other large energy users connect to the electric grid. As part of their response, regional grid operators must address several topics that will have a significant impact on BYOP development, including "accommodating co-location agreements and behind-the-meter generation." While full proposals have not yet been filed, proposed frameworks may build on existing efforts to incentivize BYOP development; this includes PJM's July 2026 proposal which directs Electric Distribution Companies (EDCs) to curtail new large loads that do not "bring their own capacity" before other customers during grid capacity shortages.

- **Ratepayer Protection Pledge:** In March 2026, Trump launched his ratepayer protection pledge, originally signed by Amazon, Google, Meta, Microsoft, OpenAI, Oracle, and xAI, "ensuring that tech companies build, bring, or buy power for data centers." This policy framework has been a key driver of the **oversimplified affordability narrative**, framing BYOP as a way to "protect Americans from electricity price hikes due to data center energy requirements now" rather than a construct to support accelerated data center buildout. As of August 2026, the Ratepayer Protection Pledge has been signed by over 300 state regulators, electricity buyers and sellers, and data center developers.

- **Federal legislation**: Several bills have been introduced in 2026 in the U.S. Congress that address BYOP, with much more activity likely in the coming years. These include the DATA Act (Cotton, S.3585) and the GRID Act (Hawley, S.3852), both of which explicitly incentivize or require data centers to use BTM power plants. The DATA Act focuses exclusively on fully islanded BYOP,

[113] Environmental Protection Network (Sept. 2026). The Hidden Health Costs of AI Data Centers.

creating a framework for privately-owned power systems to serve data centers without relying on the grid, while enabling the BYOP projects to bypass regulations from the Federal Power Act, FERC, and Department of Energy. The GRID Act would require new data centers to be fully off-grid and prohibit existing data centers from using grid electricity unless DOE certifies that they will not impact rates for other utility customers. Other proposed bills incentivize BYOP but still preserve a grid-connected model; for instance, the Energy Cost Fairness and Reliability Act (Schiff, S. 4559) primarily preserves a grid-connected model while requiring large loads to bring additional power resources and pay for associated grid upgrades. The Power for the People Act (Van Hollen, S.3682) maintains a grid-connected model while incentivizing new low- or no-carbon generation, backup resources, batteries, and load flexibility. All ostensibly focus on energy affordability,[114] and only one bill would incentivize "low- or no-carbon" energy (the Power for the People Act). The draft permitting reform legislation, which published just days before this report, will likely have a significant impact on BYOP AI data centers.[115]

State policy

As of August 2026, we have identified more than 10 states with BYOP-focused laws, all enacted in 2025 and 2026 (Table 3), and at least three states with executive orders addressing BYOP. In general, while the field is continuing to evolve rapidly, we currently see **laws that predominantly enable and facilitate BYOP, including through creating new BYOP-specific classifications and reducing regulatory oversight and community self-determination.** These laws tend to focus on economic and grid reliability risks, while climate, environmental, and health protections are rare.

> ***"These contracts allow providers to meet growing demands outside of normal regulatory processes while ensuring that large load consumers bear full costs and existing ratepayers are not negatively impacted."***
>
> —Utah State Legislature, in a press release for Senate Bill 132 which created a framework to serve new large loads like data centers

Some laws have sought to establish stronger guardrails, focusing in particular on clean energy—but **even these emerging protections are often voluntary and address only a narrow subset of BYOP risks.** Moreover, the strongest policies have generally emerged outside the states with the largest proposed gas BYOP buildout.

Given that most of these statutes and executive orders are new, the impacts largely remain to be seen, particularly given the disproportionate power and resources of AI data center companies and their track record of attempting to circumvent guardrails.

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[114] The DATA Act's press release states "Cotton Introduces Bill to Lower Energy Costs for Arkansans," while the Energy Cost Fairness and Reliability Act and GRID Act ("Guaranteeing Rate Insulation from Data Centers Act") incorporate rate affordability in their titles, and the Power for the People Act is explicitly intended "to mitigate the impact of data centers on other electricity consumers".

[115] Politico (Sept. 2026). Here's what's inside the Senate's new bipartisan permitting proposal; Earthjustice Action (Oct. 2026). Statement on Senate Permitting Bill.

Summary of Enacted State Legislation

While the BYOP-focused statutes we identified vary considerably in their scope and approach, several themes emerged. We summarize these observations below, using "policy elements" identified in Part 2 to frame the extent to which the statutes address BYOP risks. This analysis is focused specifically on provisions contained in the BYOP-focused statutes listed in Tables 3 and 4; it does not capture other state laws or regulations that may separately address relevant issues such as environmental review or public participation and therefore should not be read as a comprehensive assessment of each state's broader legal framework. See **Appendix 3: Policy summaries** for full methodology, along with more comprehensive summaries of enacted bills, examples of recent BYOP-focused bills that have been introduced but not passed (e.g., the Illinois POWER Act), and links to various policy trackers.

Clean energy provisions are absent in states with significant proposed gas buildout and limited elsewhere

Most laws are fuel agnostic (**Table 3**), which in practice can enable the proliferation of gas BYOP. This is particularly true for states with significant proposed gas buildout: four of six states in **Table 3** with more than 1 GW proposed gas BYOP are fuel agnostic (WV, OH, UT, NE), and one requires some gas generation (OK). New Mexico's Microgrid Law HB93 creates a loophole for near-term gas buildout by effectively exempting BYOP microgrids from the state's renewable portfolio standard until 2035 (via classification as non-retail sales), while creating a longer-term requirement of "net-zero-carbon-resources" by 2045, a definition that can include carbon-emitting generation offset through qualifying methane reductions.

Excluding New Mexico, **only three laws include clean energy provisions—but they are mostly voluntary pathways rather than requirements**, or require partial but not complete use of clean energy. Maryland and New Jersey include incentives but not mandates for clean and renewable energy. Delaware is unique in that it essentially requires BYOP: In HB 445, large energy-use facilities must produce or procure sufficient generation to meet 100% of their annual energy needs, and HB 310 conditions tax credit eligibility on compliance with this requirement. BYOP generation must meet the state's RPS *percentages*. Delaware's HB 13 also specifies that "single-cycle or open-cycle power generation"—technologies commonly used in gas-powered BYOP—are "not an acceptable energy generation technology." As noted above, states with clean BYOP provisions currently do not have significant gas proposals anyway: New Jersey, Maryland, and Delaware together only have 0.33 GW of planned gas BYOP.

Furthermore, none of these statutes comprehensively address the topics outlined in the "Clean Energy that Benefits All" policy element: new, near, now, mitigating grid impacts, and delivering meaningful grid, community, and energy-related benefits. **Table 3** notes cases when statues with clean energy provisions do address a subset of these topics.

Table 3. Climate provisions in BYOP-focused state laws as of August 2026, listed in order of most to least proposed gas BYOP.

State	Proposed gas BYOP in state (GW)	Clean energy that benefits all: new, near, now, mitigating impacts, delivering benefits
WV HB 2014 (2025)	**17 GW**	× fuel agnostic × removes prior renewable provision
OH HB 15 (2025)	**16.6 GW**	× fuel agnostic
UT SB 132 (2025)	**6.8 GW**	× fuel agnostic
NM HB 93 (2025)	**4.5 GW**	× effectively exempts from RPS until 2035, though net-zero carbon required by 2045
NE LB 1261 (2026)	**3 GW**	× fuel agnostic
OK SB 480 (2025)	**1 GW**	× requires gas component
NJ A796/S731 (2026)	**0.33 GW**	+ incentivizes (does not require): clean, new + includes provisions related to mitigating grid impacts through curtailing data centers first and DERs
TN HB 1847 (2026)	**0.25 GW**	× fuel agnostic
MD HB 1532 (2026) and SB 937 (2025)	**0 GW**	+ incentivizes (does not require): clean, new, near
NH HB 672 (2025)	**0 GW**	× fuel agnostic
DE HB 445 (2026)	**0 GW**	+ requires compliance with RPS targets + limits certain fossil technologies for BYOP + all BYOP resources (including clean) must be "near" and "new"

Limited regulatory oversight and accelerated approval pathways

Many of the bills exempt islanded or BTM power generation facilities from rate regulation and traditional utility oversight. In some instances, BYOP projects are not subject to local ordinances or review timelines for siting are accelerated.

- **New BYOP structures create pathways around traditional utility oversight.** Several states have created new classifications for BYOP facilities that allow data centers or third parties to generate and, in some cases, sell electricity without being treated as traditional utilities (**Table 4**). This can remove projects from rate regulation, utility planning, interconnection requirements, or other forms of public-utility oversight. West Virginia's HB 2014, for example, exempts qualifying BYOP from PSC regulation of rates, certificates of convenience and necessity, and certain siting and interconnection requirements, while broadly preempting local regulation. New Hampshire's HB 672 similarly exempts qualifying off-grid energy providers from public-utility regulation, which includes the state's RPS requirements. New Mexico's HB 93 allows electricity generated and sold by qualified microgrids to be excluded from "retail sales," effectively removing it from specified RPS requirements until 2035.
- **Siting and environmental review are streamlined rather than strengthened.** BYOP-focused statutes generally do not establish location-based safeguards to prevent projects from exacerbating existing environmental, public-health, or community burdens. Instead, several accelerate review or remove local siting controls. West Virginia's HB 2014 broadly preempts local zoning, land-use, permitting, and code-enforcement requirements for qualifying projects, while Ohio's HB 15 establishes expedited siting review and approval timelines. In Maryland, data centers designated as "Platinum" under the Voluntary Clean Capacity Rating Program (HB 1532) receive "a guarantee that permit applications submitted to the Department of the Environment shall be processed within 12 months after submission, pending compliance with applicable State and Federal laws, including existing environmental justice requirements." None of the statutes we assessed require comprehensive consideration of cumulative impacts or establish criteria for avoiding communities with high existing pollution or public-health burdens, sensitive ecological or cultural resources, or other locations where BYOP could create disproportionate harms.

Table 4. BYOP structures and provisions that address regulation and oversight, environmental review, and community self-determination in BYOP-focused state laws as of August 2026. For full methodology and definition of terms in this table, see Appendix 3.

State	BYOP structure(s): types of BYOP addressed, details of new classifications	Regulation and oversight; environmental review; community self determination
WV HB 2014 (2025)	**BTM** new classification: "microgrid", non-utility	× exempts from obtaining a CPCN and other PUC regulation × severely limits local control × applications are confidential and exempt from FOIA
OH HB 15 (2025)	**BTM** new classification: "mercantile customer self-power systems", non-utility, non-retail sales	× classification as non-utility and non-retail sales may effectively exempt from regulation × expedited and automatic ("shot clock") siting approvals under certain conditions
UT SB 132 (2025)	**Islanded** new classification: "closed private generation", non-utility **Interconnected** new classification: "connected generation system", non-utility	× "closed private" exempt from commission oversight or utility regulation × "connected generation" exempt from utility regulation, but requires commission approval of some terms of private contract + required registration with commission, providing permit documentation, air quality impacts, and generation information
NM HB 93 (2025)	**BTM and interconnected** new classification: "qualified microgrids", non-retail sales	× effectively exempts from RPS until 2035 + regular reporting required
NE LB 1261 (2026)	**BTM** no new classification	× eminent domain carveout with Nebraska Power Review Board approval
OK SB 480 (2025)	**BTM and interconnected** no new classification, but defined as non-utility	× as non-utility may effectively exempt from utility regulation + interconnection, registration, and cost requirements
NJ A796/S731 (2026)	**BTM and interconnected** no new classification	+ oversight by commission + compliance reporting required
TN HB 1847 (2026)	**BTM and interconnected** new classification: "independent power producer", non-utility	× classification as "non-utility" may effectively exempt from utility regulation
MD HB 1532 (2026) and SB 937 (2025)	**Interconnected and BTM** no new classification exempt non-utility	+ voluntary clean capacity program under PUC oversight + registration and reporting of BYOP resources required under "large load registry" × expedited environmental review for 100% clean energy projects
NH HB 672 (2025)	**Islanded** new classification: "off grid," non-utility	× exempts from utility regulation, which includes RPS
DE HB 445 and HB 310 (2026)	**BTM and Interconnected** no new classification requires 100% BYOP within 10 years	+ requires compliance with RPS

Erosion of community self-determination

We found no BYOP-focused statute that meaningfully protects or expands community participation or establishes a clear, community-centered process for determining whether and under what conditions projects proceed. Conversely, West Virginia's HB 2014 actively restricts community self-determination, broadly preempting local authority, including local zoning, permitting, and land-use controls, while allowing project and certification information to be kept confidential.

Focus on energy bill impacts

Of the 11 BYOP-focused statutes we assessed, most include provisions separating costs to serve data centers from those that benefit the grid generally—ostensibly to protect other ratepayers from higher energy bills associated with data center load. Several states address these issues through separate statutes or broader utility laws rather than in their BYOP-focused legislation.

Beyond direct energy bill impacts, the statutes do not address other economic impacts of BYOP, including lost tax revenue, public subsidies, local fiscal impacts, public health, environmental, or decommissioning and site restoration costs.

Governance and enforcement are underdeveloped

Governance and enforcement mechanisms are generally absent or underdeveloped, lacking specificity on how compliance will be independently verified, how commitments will be monitored, and how violations will be penalized. A few states, including New Mexico, New Jersey, Utah, and Maryland, require reporting or registration with commissions, but these mechanisms primarily provide information to regulators rather than explicitly ensuring compliance or creating meaningful consequences for noncompliance. Even where statutes establish penalties or fees (e.g., Delaware), it remains unclear whether they would be sufficient to deter noncompliance for large data center developers.

Summary of Executive Orders

August through early September 2026 saw at least three executive orders announced relating to BYOP.[116] Texas Governor Greg Abbott's August 3 directive and Pennsylvania's EO 2026-05, summarized in more detail in Part 4, both ostensibly seek to reduce ratepayer impacts and may directly or indirectly incentivize BYOP. Massachusetts EO 658, issued on September 8, 2026, directs the Massachusetts Department of Environmental Protection to develop protocols ensuring that data centers >25 MW "have procured sufficient incremental new clean electricity generation to meet their annual electric consumption and that such electricity procured meets the eligibility requirements to qualify under the Clean Energy Standard." The penalty for not complying with this requirement is a fee paid into the ratepayer protection fund.

[116] In mid- to late-September, additional EOs were announced in Virginia and Maryland, which are not analyzed in detail here.

Part 4: Case Studies

The following case studies—Homer City Generating Station in Pennsylvania, segmented projects in Ohio, and McCloud Generation in Texas—illustrate our key findings and the variety of configurations emerging in gas BYOP proposals.

Case Study: Homer City Generating Station

Coal plant redevelopment and streamlined permitting in a gas-producing state

The Homer City Generating Station is a planned **4.5 GW gas**-fired power plant located in Indiana County, PA, intended to power a co-located 3,200+ acre AI data center campus with 36 planned data center buildings. This project is a redevelopment of a **former 2 GW coal-fired power plant**, which prior to decommissioning in 2023 was the largest coal-burning plant in Pennsylvania.



The former Homer City coal plant. Photo: AP

Redevelopment plans were announced in April 2025, long before the data center tenants were identified in August 2026, when Amazon was reported to be in talks. The Homer City site was chosen, in part, because of what it inherits from the legacy coal plant: "Much of the critical infrastructure for the project is already in place [...] including transmission lines connected to the PJM and NYISO power grids, substations, and water access."[117] The coal plant's closure also grants the site **emissions reduction credits** (ERCs), which net against the gas plant's emissions and enable them to avoid **more stringent air permitting review for NO_x**.[118] Homer City also sits within the Marcellus Shale formation (Figure 8), the largest fossil gas field in the U.S., giving the plant access to abundant fracked gas.

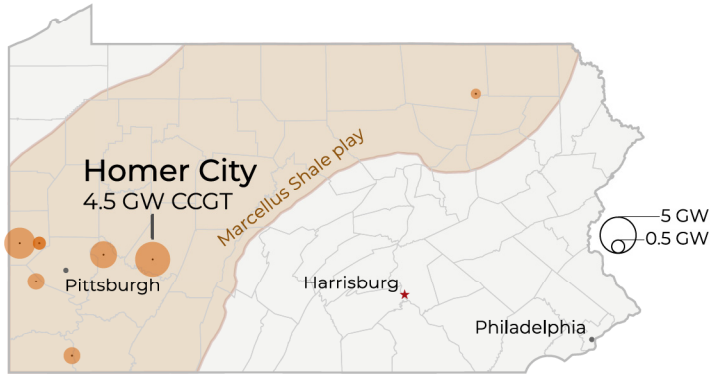


Figure 8. Map of BYOP gas plants in Pennsylvania.

[117] A. Carleton (Jan. 2026). Will an Old Pennsylvania Coal Town Get a Reboot From AI? Capital & Main.

[118] Homer City Generation, Prevention of Significant Deterioration Permit Application ("PSD application"). Revised July 2025. See Table 3-11, pg. 18. ERCs include NO_x: 2,031.8 tpy and $PM_{2.5}$: 220.1 tpy, allowing them to bypass Prevention of Significant Deterioration (PSD) and Nonattainment new source review (NNSR) for NO_x. Note that the Clean Air Council et al. are challenging the validity of these ERCs (PA EHB Case No. 2025135).

Technology & impacts

The gas plant will consist of seven 634 MW combined cycle turbines (4.4 GW total) and ten 25 MW simple cycle, aeroderivative turbines (0.25 GW total).[121] The CCGTs—the first of which will be delivered later in 2026—will have an efficiency of 63% and will be used for dispatchable primary power; the SCGTs (efficiency of ~36%) will likely be used to quickly respond to variations in data center demand with up to 150 shutdowns anticipated per year.[122] The developer markets this project as making "power generation cleaner and more efficient" and "reducing CO_2 emissions by 60–65% per megawatt hour compared to the former coal plant." While its emissions intensities per MWh will indeed be lower, Homer City's total $PM_{2.5}$, VOC, and CO_2 emissions will be significantly higher than the coal plant (Table 5). **Homer City's expected CO_2e emissions of 10.5 million short tons per year—2.4 times higher than the coal plant's 2022 levels—would increase Pennsylvania's total CO_2 emissions from electricity generation by nearly 15%.** Using the EPA's estimates for the social cost of carbon,[123] the global cost of the plant's CO_2 could exceed $2.5 billion per year in 2030.

Table 5. Expected annual emissions for the proposed Homer City gas plant, compared to actual emissions from the retired coal plant from 2021–2022.[119]

	Emissions in short tons per year (tpy)		
Pollutant	Coal plant 2021–2022	Gas plant[120]	Change
$PM_{2.5}$	220	504	129%
NO_x	2,032	685	-66%
CO	4,097	663	-84%
VOC	11	199	1,664%
SO_2	4,461	127	-97%
CO_2e	4.34M	10.5M	142%
Capacity	2,012 MW	4,686 MW	
Annual TWh	4.35	24.63	
Capacity Factor	25%	60%	

The gas plant's NO_x emissions—while 66% lower than the coal plant—would still place it in the top 9% of NO_x emitters among U.S. power plants. The area around Homer City is already considered to be in "moderate nonattainment" for ozone—because it lies in the ozone transport region—and in moderate maintenance for the 24 hr $PM_{2.5}$ standard (2006). EPA's COBRA model estimates Homer City's criteria air pollutant emissions could result in **$210–360 million in annual monetized health damages**,[124] primarily stemming from the estimated 13–22 premature mortalities per year due to $PM_{2.5}$ and ozone exposure.

The Homer City gas plant will primarily use water for evaporative cooling of the CCGTs and will withdraw water from the Two Lick Creek, using pre-existing water allocations from the coal plant. Based on permit disclosures, we estimate the gas turbines could **withdraw up to 34 million gallons per day (MGD), of which ~27 MGD is consumed by evaporation** and the remainder is discharged to

[119] Compiled from Tables 3-7 and 3-9 from the PSD application (revised July 2025)

[120] These are expected emissions estimated by multiplying 60% capacity factor by the worst-case potential to emit (PTE) figures from Section 3.1 in the PSD application.

[121] GE Vernova 7HA.02 with duct burners (combined cycle) and Mitsubishi FT8 MOBILPAC (simple cycle).

[122] See pg. 11, PSD application.

[123] $246 per short ton CO_2, 2030 emission year, 2023 dollars. See Appendix 2, **Social cost of carbon**.

[124] See Appendix 2, **Health damages estimates**.

Blacklick creek as blowdown.[125] Annually, this results in withdrawal up to ~12.5 billion gallons per year (BGY, or 38,000 acre-ft) and consumption (evaporation) up to 10 BGY (30,600 acre-ft).

The developer notes that the gas plant's water usage will be "roughly the same" as the coal plant. But this withdrawal level—which doesn't include any usage from the associated data centers—can strain the Two Lick Creek Reservoir's capacity during droughts: in 1985, the coal plant drew down the reservoir to just 20% of its capacity.

Decision-making & policy

State

Consistent with a larger push to encourage "all of the above" energy production in the state, Pennsylvania has directly supported Homer City Generation's conversion of the former coal plant site to natural gas, even issuing a discretionary $5M state grant for pipeline construction.

Pennsylvania's energy generation market is deregulated, and the state's Public Utility Commission was not required to approve plans for the Homer City gas plant. Pennsylvania's Department of Environmental Protection (DEP) provided the Homer City plant a "concierge level of service," approving its air permit in just seven months—when projects of this size often take over a year. The former coal plant's capacity interconnection rights were transferred to the proposed gas plant by the PJM grid through a private process. Homer City Generation plans to sell power to the grid,[126] and its developers have advocated to regulators for expedited interconnection for projects with colocated power generation.[127]

Despite being located in a recognized Environmental Justice community, the project has **reduced regulatory barriers** because of its location on the site of a decommissioned coal plant with emission reduction credits and preexisting water allocations. Most federal air and water permits relevant for this power plant (e.g. PSD, NSR, Title V, NPDES)[128] have been delegated to the Pennsylvania DEP.[129] As of July 2026, Homer City has received initial approvals of its air quality plan, pipeline interconnection approval, and stormwater permits.[130] As the gas plant comes online, Homer City will need to amend their Title V operating permit, as well as several water management permits (NPDES and WQM permits). Pennsylvania does not have a state statute requiring environmental review for projects (see **Appendix 3: Policy summaries**).

Ongoing legal challenges have been filed to the state's Air Quality Plan approval on a number of grounds,[131] including: the Pennsylvania constitution's Environmental Rights Amendment, which courts

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[125] "Major WQM Amendment Application – Outfall 027 Modification" (May 1, 2026), p. 77. WQM: Water Quality Management.

[126] Homer City Generation initially planned to sell 1 GW or less to the grid, serving the rest directly to the data center campus, but recent announcements of Amazon's plans have made it unclear how much power will be distributed to Amazon through the grid or BTM.

[127] The PUC recently adopted a model tariff for grid-connected large load customers, including those employing BTM generation, though it is nonbinding and its impact will not be seen until future utility rate cases.

[128] NSR: New Source Review, NPDES: National Pollutant Discharge Elimination System

[129] "DEP reviews permit applications for individual regulated activities associated with a data center project, not the project as a whole," PA DEP. Fact Sheet: DEP's Oversight of Data Center Development

[130] See also: PA DEP's list of pending and approved permits issued to Homer City Generation Site Redevelopment.

[131] Dockets 2025135 and 2025136 (see https://efiling.ehb.pa.gov/docket-search/)

have recently interpreted as requiring government officials to act as a "trustee" in conserving natural resources; the project was not considered holistically (including the data center use); and an adequate alternatives analysis was not conducted. The granting of emissions reduction credits has also been challenged.[132]

Local

Siting of the project was aided not only by its location on a legacy industrial site, but by limited local land use regulations and the pro-industry orientation of decisionmakers. Under Pennsylvania law, local approval of even high-impact proposals like Homer City Generation is **largely ministerial** if a locality has not chosen to enact and enforce strong development standards.[133]

Center and Black Lick Townships, where the Homer City campus sits, **do not have a zoning code** that would geographically limit where particular uses may be sited, in common with a third of other municipalities in Pennsylvania.[134] Development approvals for the "energy block" portion of the campus were issued by Indiana County with minimal public process or substantive conditions of approval.[135]

The County's Planning Commission has stated that "[t]he guiding principle of our SALDO ['Subdivision and Land Use Ordinance'] is to promote, encourage, and ensure responsible development rather than to restrict development."[136] While Indiana County is now exploring adopting a SALDO amendment "to address community impacts for [future] large electric load / large-scale industrial projects, including data center developments," any **changes may come too late** to impact the Homer City campus.[137]

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[132] Ibid.

[133] Pennsylvania Governor's Center for Local Government Services. Subdivision and Land Development in Pennsylvania: Planning Series #8.

[134] K. Colaneri (Feb. 2014). Pa. towns with no zoning rules unlikely to limit gas drilling. NPR. See also Pennsylvania Department of Community & Economic Development, Municipal Statistics database. Center Township has recently restated its intention not to adopt any zoning ordinances.

[135] Approvals were issued under the County "Subdivision and Land Development Ordinance (SALDO)," a type of state-authorized local law that sets out general requirements and procedures to be met by proposed land development projects. Discretion to deny the application was limited and conditions (such as to address negative project impacts) had to be voluntarily agreed to by the developer. Materials related to the approved and pending land development plans for the Homer City campus can be accessed here.

[136] Indiana County Office of Planning and Development website, accessed 9/18/26.

[137] Ibid.

The rapidly evolving Pennsylvania policy landscape

Pennsylvania's state policy regarding data centers and BYOP has been rapidly evolving over the last year, with recent actions appearing to set some guardrails for data center development while accelerating energy development. In May 2026, Governor Josh Shapiro unveiled the "Governor's Responsible Infrastructure Development (GRID) Standards" which, among other things, required developers to "**agree to build, bring online, or buy incremental electric capacity** needed to meet new energy demand," in order to access state support including streamlined permitting (via participation in Pennsylvania's 'Fast Track' program) and state tax incentives.

After Pennsylvania's politically-divided legislature failed to pass related reforms, the Governor's August 2026 Executive Order Protecting Pennsylvania Consumers from Data Center Impacts, sought to unilaterally add teeth to the GRID standards by requiring DEP to incorporate them into the agency's permit review process for all future data center proposals. Notably, the August EO makes *data centers* ineligible for the Fast Track Program, but not *power plants*. Rather, it directs DEP to "identify mechanisms to **expedite permitting and remove permit-related barriers for new clean, reliable, affordable energy generation** and storage facilities on brownfield and previously developed sites and facilities, [...] as well as mechanisms to remove barriers to deploying advanced reconductoring and other advanced transmission technologies." Local approvals are also required before DEP permit review can begin, though the impact of this will vary depending on the relative strength of local regulations. Homer City is not currently enrolled in Pennsylvania's 'Fast Track' program, and needs largely ministerial local approvals.

With industry opposition to key aspects of the GRID standards including clean energy, **it is not yet clear to what extent the new permitting incentives will shape behavior or may face legal pushback.** Bills encoding the GRID standards (HB 2650) and addressing BYOP (SB 939 and HB 1834) remain sitting in the Pennsylvania state legislature.

Meanwhile, **Pennsylvania faces escalating pressure from a strained power grid and few limits to the expansion of fossil fuel power generation**. The Public Utility Commission has declared an impending reliability crisis due to data center growth unless electric supply also significantly increases. The landscape is also shaped by a powerful natural gas industry and lack of strong carbon limits following the state's withdrawal from the Regional Greenhouse Gas Initiative (RGGI) in 2025 and the stallout of the Governor's proposed replacement "Lightning Plan," which would have coupled incentives with increased clean energy requirements.

Case Study: Ohio

Expedited approvals with local preemption, tax incentives, and segmented projects

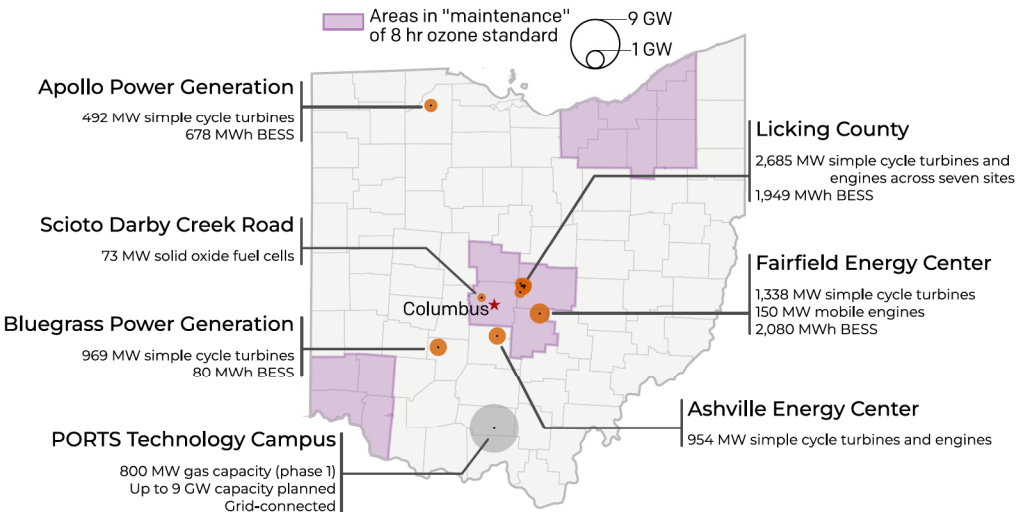


Figure 9. Map of gas BYOP projects in Ohio. Purple regions are in "maintenance" status for the 8 hr ozone air quality standard. Orange circles are BTM; PORTS, in grey, plans to grid connect.

As of August 2026, Ohio has **nearly 16 GW of proposed BYOP capacity—including SB Energy's grid-connected 9 GW** PORTS Technology campus.[138] Of this, 6.6 GW will be fully islanded across 12 facilities intended to serve data centers (see Table 6). This development spree has been driven by a combination of the state's generous tax incentives for data centers, estimated at over $1 million per job,[139] and legislation designed to boost energy generation, including BYOP (HB 15).

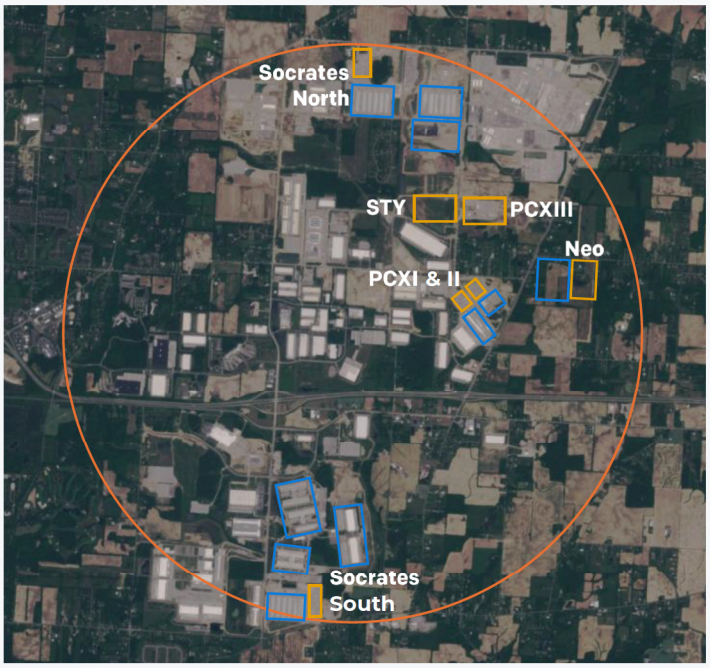
Segmentation: splitting up energy projects to speed up permitting and evade rigorous review

Seven of Ohio's proposed off-grid BYOP facilities—totaling 2.7 GW in capacity—are concentrated within a 2.5-mile radius in New Albany (Licking County), about 15 miles northeast of Columbus. Together, these gas plants could emit up to 1,137 tpy of NO_x and 768 tpy of $PM_{2.5}$, and though they serve just two companies—Meta and EdgeConneX—the potential emissions for each site falls just under the 250 tpy major source threshold. This **physical segmentation—submitting separate permit applications for facilities split across nearby but non-contiguous parcels—is a strategy by developers to avoid the more rigorous PSD review that would occur if the facilities were classified as a single source.**[140] This can accelerate approval timelines by as much as a year and in many cases relax permit requirements around emissions controls and ongoing monitoring.

[138] The PORTS campus is currently slated for 800 MW to 2 GW of power in the first phase with expansions planned up to 9.2 GW. Parts of this capacity are intended to serve the grid. See OPSB Case No. 26-0746-EL-BGN.

[139] Z. Schiller (May 2026). Indefensible Tax Breaks for Data Centers Will Cost Ohio. Policy Matters Ohio.

[140] While two sites are still pending approval, so far the Ohio EPA has determined these sites to be non-adjacent and to not constitute a single source.



Satellite imagery of Meta Prometheus (Socrates North and South, STY, Neo) and PowerConneX (PCX I–III) facilities in Licking County, OH. Off-grid generation sites are highlighted in orange and approximate data center locations in blue. The overlaid circle has a 2.5-mile radius. Overlays based on project filings. Image: Copernicus Sentinel-2, 6/2026.

Four of these applications (Socrates North, Socrates South, STY, and Neo) will serve a single development project at Meta, their Prometheus "cluster." With 1.7 GW of nameplate capacity, their total potential emissions are 868 tpy NO_x and 482 tpy $PM_{2.5}$, well above the PSD threshold of 250 tpy.

Developers also **financially segment** projects using holding companies and partners to separate the ownership of the generation projects from the data centers. One outcome of this structuring is the ability to file separate air permits for primary power and the backup diesel generators fleets, which could also emit hundreds of tons per year of NO_x and other pollutants.[141] The Ohio EPA will likely consider these to be separate sources as well, since they have previously followed the U.S. EPA's narrow interpretation of adjacency requiring common control.[142] This common practice is being contested elsewhere, including a forthcoming lawsuit against a Vantage data center in Texas.

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[141] Better Data Center Project (March 2026). Diesel Generators at Data Centers: Status, Impacts, and Protective Practices.

[142] Since 2019, the U.S. EPA recommends permitting authorities only consider sites under "common control" as a single source, dropping a previous practice of considering "functional interrelatedness". Because the data centers and power generation facilities are owned by distinct legal entities, these will not be considered under "common control". See: U.S. EPA (Nov. 2019). Interpreting "Adjacent" for New Source Review and Title V Source Determinations in All Industries Other Than Oil and Gas.

Another related strategy is **temporal segmentation**, where a larger project is broken into phases, with one or more phases qualifying for a minor source permit. A number of data centers in Texas, including OpenAI's Abilene campus, have taken this approach to receive approvals in just weeks.

Other examples of projects using segmentation are included in **Appendix 2**.

What are the potential impacts of segmentation?

By avoiding major source PSD review, segmented projects often face less restrictions on their emissions and operations. For example, PSD review can trigger cumulative modeling to demonstrate compliance with National Ambient Air Quality Standards (NAAQS), which can force projects to implement operating restrictions like staggered startups.[143] Minor sources also tend to have reduced ongoing monitoring and testing requirements.[144] Less frequent testing increases the risk that facilities could operate with faulty or poorly maintained emissions controls and emit more pollution than their permit allowed.

Major source permits also have more public notice, opportunities for comment, and opportunities to appeal. Because of federal efforts to remove environmental regulations for BYOP—including targeting minor sources—segmentation may result in fewer opportunities for public participation. And by obscuring the full extent of the project, these practices make meaningful and cumulative environmental review and informed decision-making more challenging.

Technology & impacts

Almost all of the proposed 6.6 GW of off-grid projects in Ohio use simple cycle gas turbines or gas generator engines with relatively low electrical efficiencies of about 38–43%.[145] In total, these gas plants have estimated annual emissions of 1,530 tons of NO_x, 1,100 tons of $PM_{2.5}$, 600 tons of SO_2, and 1,050 tons of VOC (see **Table A11**, Appendix). Relative to Ohio's entire power-sector emissions, these potential emissions would represent increases of up to 23% for $PM_{2.5}$ and 5% for NO_x.[146]

Using EPA's COBRA model, we estimate that the increased $PM_{2.5}$ and ozone exposure from these projects could cause 36–64 premature mortalities per year, 110 new asthma cases, and 5,100 school loss days. The costs from these health impacts could reach $590 million to $1 billion in health damages per year (see **Appendix 2, Methodology**), with about half the burden falling on Ohio residents and the remainder in Michigan, Pennsylvania, and downwind states in the Northeast. These health cost

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[143] i.e. to comply with the 1 hr NO_2 standard, restrictions may be set on how many turbine units can be started at the same time. During start-up, SCR is not active and NO_x emissions are much higher. See e.g., the Homer City PSD application which specified no more than four turbines could start per hour.

[144] Combined with the U.S. EPA's recent memo interpreting islanded turbines as exempt from Acid Rain Program requirements, segmented minor source projects are less likely to be required to employ continuous emissions monitoring systems (CEMS) and may only be subjected to annual compliance testing.

[145] PowerConneX II and III use Wartsila 18V50SG engines which have slightly higher efficiency at ~50%. Amazon's 73 MW fuel cell project in Hilliard will use Bloom fuel cells with 53–65% efficiency. The grid-connected PORTS technology campus plans to use a combination of CCGT and SCGT.

[146] Ohio's $PM_{2.5}$ from eGRID 2021 estimates: 4,756 tons. NO_x from eGRID 2023 data: 28,608 tons.

estimates exclude the 9 GW PORTS campus—since few details are yet available about its expected emissions and technology split—but we expect PORTS to nearly double these costs (adding $500–900M per year) if built to full capacity.[147] Ohio is already in the top 15 states by adult asthma prevalence (at 11%) and in the top 11 by chronic obstructive pulmonary disease (COPD) prevalence (at 8.6%).

Table 6. Proposed and approved off-grid generation capacity for data centers in OH.[148]

		All gas	SCGT	RICE	SOFCs	BESS	
Company (Project Name)	County	MW	MW	MW	MW	MWh	Status
Vantage (Fairfield Energy Center)	Fairfield	1,488	1,338	150	—	2,080	Pending
Amazon (Bluegrass Power Gen.)	Fayette	969	—	—	—	80	Approved
Amazon (Scioto Darby Creek Rd)	Franklin	73	—	—	73	—	Approved
EdgeConneX (PowerConneX I)	Licking	142	—	142	—	72	Construction
EdgeConneX (PowerConneX II)	Licking	289	—	289	—	201	Construction
EdgeConneX (PowerConneX III)	Licking	578	—	578	—	—	Pending
Meta (Neo Power Gen.)	Licking	711	701	10	—	520	Pending
Meta (Socrates North Power Gen.)	Licking	308	270	38	—	462	Construction
Meta (Socrates South Power Gen.)	Licking	308	270	38	—	462	Operating
Meta (Socrates the Younger Power)	Licking	350	340	10	—	232	Approved
EdgeConneX (Ashville Energy Center)	Pickaway	954	465	489	—	—	Pending
Meta (Apollo Power Generation)	Wood	492	477	15	—	678	Approved
	Totals:	**6,660**	**3,861**	**1,758**	**73**	**4,787**	

It should be noted that these health cost estimates are just for the projects within the state. Ohioans will also be affected by pollution from BYOP projects in other states: Ohio could face 48–97 premature mortalities and $0.8–1.4 billion in total health damages each year from the entire national gas BYOP buildout.

Many of these BTM plants are located in or near areas that are in maintenance for air quality standards: Fairfield and Licking counties are considered to be in "Marginal - Maintenance" status for the 2015 8-hr ozone standard, and the EPA's air monitors in Franklin County (which many of the projects border) have been above or near the threshold for 2024 $PM_{2.5}$ standard in recent years. In 2025, Franklin

[147] PORTS emissions were estimated at 1,650 tpy NO_x; 1,300 tpy $PM_{2.5}$; 1,200 tpy VOC; and 111 tpy SO_2; using a 60% capacity factor and our average "fleet mix" described in Appendix 2. Actual emissions and costs will depend on the exact equipment deployed.

[148] Companies listed are the associated data center operator and/or tenant, not the power generation developer. Data compiled from permit-to-install applications. Capacity totals are for peak nameplate capacity, and as such are higher than the hot-weather capacity ratings sometimes reported by developers and listed on the OPSB website. Abbreviation: battery energy storage systems (BESS)

County had an average $PM_{2.5}$ concentration of 9.5 µg/m3, above the 2024 $PM_{2.5}$ standard of 9.0 µg/m^3.[149]

Ohio's 16 GW of gas BYOP, including PORTS,[150] could emit 41 million short tons of CO_2 per year, which would **increase Ohio's total CO_2 emissions from electricity generation by 58%**.[151] Using the EPA's estimates for the social cost of carbon, the global cost of these projects' CO_2 could exceed $8.5 billion per year in 2030.

Water usage for these gas plants will be relatively low, as the RICE and SCGTs being deployed are mostly air-cooled. Fairfield Energy Center will employ evaporative inlet cooling and withdraw ~26M gallons of water (~79 acre-ft) per year, which is similar to the annual home water usage of ~860 people.[152] PORTS will use CCGT—which is typically much more water intensive—but the cooling technology has not been disclosed.

Decision making & policy

State

Approvals for major power generation facilities are streamlined through the centralized authority of the Ohio Power Siting Board (OPSB), which overrides some aspects of regular multilevel, multiagency state review. Passage of HB 15 in 2025 dramatically accelerated statewide development of BTM generation for data centers; prior to 2025, Ohio had no BTM generation serving data centers. The exponential growth of these projects since the law's enactment has been accompanied by a **corresponding increase in fracking approvals** on Ohio's public land.

Under HB 15, large power plants (including those that are BTM), can now access OPSB's expedited permitting "shot clock" under certain circumstances. **Unless regulators act within 60 to 90 days, siting applications are deemed approved**, with total review not to exceed 150 days.[153] HB 15 also clarified and expanded the legal framework for BTM generation, exempting it from the definition of a public utility and allowing projects to qualify as BTM when sited on non-contiguous land or when serving multiple tenants on one site. This provision therefore likely enables the physical segmentation strategies discussed above to avoid major source PSD thresholds. HB 15 also lowered the tangible personal property tax assessment rate on generation equipment from 25% to 7% and provided incentives for development at brownfields and former coal mines. (See Appendix 3 for more on HB 15).

State law does not require BTM resources to be permanently islanded and it is expected that many will seek interconnection. Further encouraging BTM or islanded projects, the state's largest utility imposed a moratorium on data center interconnection before adopting a data center-specific tariff. Broader application of similar data center rate classes are contested, with the tariff settlement currently under court challenge by industry and state legislation pending.

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[149] Designations of nonattainment or maintenance have yet to be made for the 2024 annual $PM_{2.5}$ standard. The 3-year $PM_{2.5}$ design value in Franklin County, OH was 9.4 µg/m^3 for 2023–2025.

[150] Assumes 60% capacity factor. PORTS will use CCGT and SCGT, though the mix has not been disclosed, so its emissions were estimated for an average intensity of 900 lb CO_2/MWh.

[151] EIA 2024 data: OH's electric power sector emitted 71 million short tons of CO_2 in 2024.

[152] The average American uses ~82 gal/day at home according to the EPA. Fairfield: 26-0160-EL-BGN.

[153] See: O.R.C. § 4906.03 (H)(3); M. Bryden (June 2026). Behind-the-meter is no solution for data center energy demands. Policy Matters Ohio.

Data center and associated energy development in Ohio have also been fueled by an expansive tax incentive structure. Major companies including Amazon, Meta, and Google were granted exemptions **from all sales and use taxes for up to 40 years for any data centers and associated** power generation facilities **they build statewide.**[154] Others have qualified for 100% 15 year local property tax exemptions and together the overall cost to the state grew to as much as $1.6 b/yr before a current indefinite pause on new approvals by the Ohio Tax Credit Authority. Additional state incentive programs applicable to data centers and/or energy generation allow for up to 30-year property tax abatements in defined zones, TIFs (tax increment financing districts which allow developers to divert tax obligations to fund their projects), and other incentives.[155]

Ohio's Environmental Protection Agency manages water permitting and recently abandoned an effort to impose a statewide NPDES general permit for data center wastewater discharge following public outcry. Gas pipeline approvals are under the Ohio Power Siting Board's jurisdiction.

Local

Local decision-making is significantly preempted by state law that routes key approvals related to power generation (including but not limited to those associated with data centers) through the Ohio Power Siting Board (OPSB). **Localities must accept OPSB's approval decision and are stripped of authority to regulate their location, design, or pollution,**[156] **a loss of control with increasing** consequence **following the passage of HB 15 and a larger landscape incentivizing BYOP for data centers**.

However, municipalities retain some power to regulate the location (via zoning) and the impact of data centers themselves, as well as whether to approve select tax incentives for both data centers and associated BYOP facilities. Agreements negotiated between proposed BYOP projects and local authorities have provided monetary contributions in exchange for discretionary tax benefits, infrastructure improvements or access, and cooperation by local authorities. Although a growing number of localities have enacted data center moratoria or adopted permanent laws constraining data center development—which indirectly impact the extent to which BYOP projects may be proposed in those localities—wide areas concentrated in southeast and east Ohio do not have zoning laws.

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[154] Under O.R.C. § 122.175(4)(b), these sales and use tax exemptions apply to equipment used to "generate, transform, transmit, distribute, or manage electricity [...] to be used in conducting a computer data center business."

[155] J. Zuckerman (July 2024). **Ohio and its cities are throwing hundreds of millions at tech giants and their data centers**.

[156] 4906.13(b): "No public agency or political subdivision of this state may require any approval, consent, permit, certificate, or other condition for the construction or operation of a major utility facility or economically significant wind farm authorized by a certificate issued pursuant to Chapter 4906. of the Revised Code."

Case Study: McCloud Generation in El Paso, TX

Utility-owned BTM plant with potential to connect to grid



Meta's Wurldwide data center. Photo: Brandon Bell, Getty Images

McCloud Generation is a 366 MW gas power plant—designed with redundancy to produce constant power of 225 MW—that will be **owned and operated by the utility** El Paso Electric Company "EPE," but will **exclusively serve Meta's Wurldwide data center** behind-the-meter during a "bridge period" of 3–5 years.[157] Once this period ends, the gas plant could apply to connect to the grid, which could shift costs for the facility from Meta to EPE's ratepayers. In our nationwide analysis, it is rare for utilities to own and operate a BTM plant for a private company.[158]

EPE and Meta **originally indicated the project would be powered by renewable energy**,[159] but when Meta later expanded and accelerated the project—up to 440 MW by 2027 and 1 GW by 2029—EPE decided to meet part of this demand with inefficient but rapid-to-deploy modular gas generators.[160]

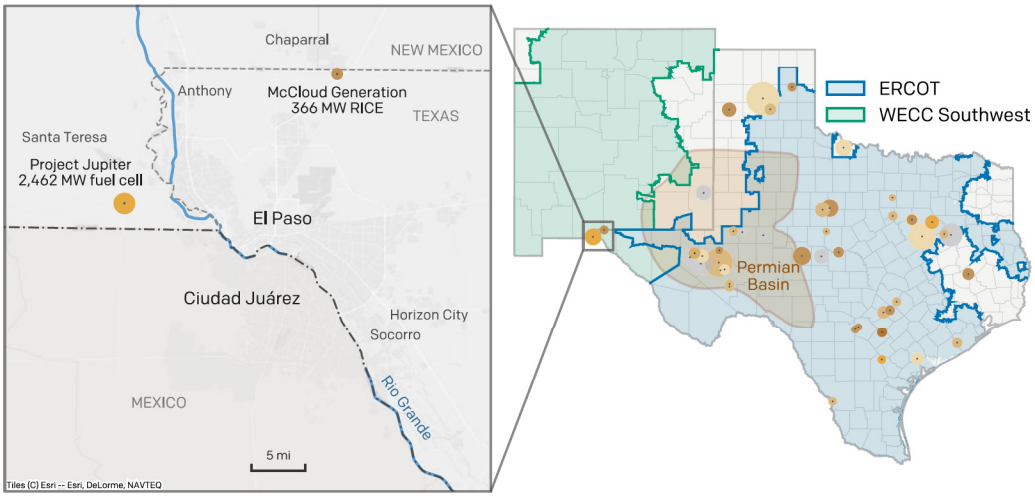


Figure 10. Map of gas BYOP projects in Texas with detail of El Paso area. El Paso Electric lies in the WECC Southwest grid region, not in ERCOT. The Permian Basin, which supplies much of the region's gas, is shown in brown.

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[157] D. Mendoza-Moyers (March 2026). El Paso Electric filings detail power plant impact behind Meta's $10 billion data center. El Paso Matters. See also PUCT Docket No. 59076.

[158] The only other example we are aware of are: AEP Ohio's fuel cell projects for Amazon and Cologix (25 MW) in Ohio.

[159] M. Pskowski (Jan. 2026). Meta Wants Data Center in Sunny El Paso to Rely on Natural Gas. Inside Climate News. In a contract with the city, it was noted Meta "is exploring (but shall not be obligated to pursue) options to use alternative energy sources, including solar panels, geothermal cooling and wind energy".

[160] See page 7: "Rebuttal Testimony of James Schichtl on Behalf of EPE Company", 6/23/2026. 59076-128.

Technology & impacts

McCloud Generation will use a fleet of 813 Enchanted Rock gas generators,[161] each with a capacity of 450 kW. Notably, these engines have an efficiency of only 31%—about half that of combined-cycle turbines or SOFCs, and 20–40% lower than SCGTs or lean-burn RICE. This inefficiency could increase fuel and operation costs by >60% over power plants using SCGTs (Table 7). Cost comparisons were compiled from the testimony of Scott Norwood and Evan D. Evans.

Table 7. Operations & maintenance (O&M) and fuel costs for McCloud vs. comparable SCGT power plants.

	SCGT	McCloud	Increase
Fixed O&M, $/kW-yr	$24	$59	146%
Fuel, $/MWh	$24–29	$43	51–82%
O&M + fuel, $/MWh	$28–33	$55	66–96%

In filings and testimony, EPE emphasizes that these units were **chosen over more efficient alternatives because they could be installed quickly**, just 18 months from the permit application.[162] When questioned on costs to ratepayers, EPE stated "there will be no rate impact on any customer other than [Meta] during the bridge period," without quantifying what will happen afterwards. However, administrative law judges overseeing the case recommended approval "be conditioned on EPE holding its customers other than Wurldwide harmless from the [capital and operating] costs of the Project."[163] The Public Utility Commission of Texas (PUCT) will issue their decision by December 2026; it remains to be seen if they will adopt these retail customer protections.

Table 8. McCloud Generation's annual permitted vs. potential-to-emit emissions.

	lb/MWh	Permitted tpy	Potential tpy
NO_x	0.07	68.36	112
CO	0.1	97.99	160
VOC	0.02	18.76	32
$PM_{2.5}$	0.05	46.84	80
SO_2	0.01	9.39	16
HAPs	0.02	20.46	30.69
CO_2e[164]	1,440	1.35M	2.30M

McCloud has a 3x higher carbon intensity than EPE's current fleet average, and its projected annual emissions of 1.35M tons CO_2e would represent a 50% increase in EPE's entire carbon footprint.[165] The facility's potential emissions, if operated at full capacity, would exceed the Title V major source thresholds for NO_x and CO (100 tpy) as well as HAPs (25 tpy) (Table 8).

McCloud received a "synthetic" minor permit, however, as they plan to limit the data center's maximum power draw to 225 MW. Synthetic minor permits stay under major source thresholds by adopting enforceable operating restrictions (e.g.

[161] These are 4-stroke rich-burn (4SRB) reciprocating engines. Due to the higher fuel-air ratio, these have lower efficiency, higher CO emissions, and lower CH_4 slip than the lean-burn RICE units discussed in the Fossil Fuel Technologies section. Instead of SCR, these units use a three-way catalyst that controls NO_x, $PM_{2.5}$, VOC without any reagent (e.g. ammonia).

[162] "Rebuttal Testimony of James Schichtl on Behalf of El Paso Electric Company", 6/23/2026. 59076-128. Pg. 10: "a combined-cycle gas unit could not be designed, approved, and constructed in the timeframe required by Wurldwide".

[163] Proposal for Decision at pg. 37 and 58, PUCT Docket No. 59076-176. Sept. 23, 2026.

[164] Includes CH_4 slip. Enchanted Rock's generators emit ~1,404 lb CO_2/MWh at 31.4% LHV efficiency (12,000 Btu/kWh). 4SRB engines emit ~1.2–2.7 lb CH_4/MWh—5–10x lower CH_4 slip than lean-burn—resulting in an additional 2–5% of CO_2e emissions, see: T. Vaughn, et al. (2021). Methane Exhaust Measurements at Gathering Compressor Stations in the United States. Env. Sci. & Tech.

[165] El Paso Electric, 2025 Sustainability Report. In 2025, EPE generated 10.8 GWh at 0.2412 tCO_2e/MWh (483 lb/MWh), corresponding to 2.6 million tons of CO_2e.

number of units running at once, operating hours, or amount of fuel consumed). Developers use this strategy to receive faster review, reduce public participation, avoid stricter pollution controls, and limit ongoing monitoring and compliance testing.

McCloud's health costs estimated using the EPA's COBRA are $6–11M per year,[166] but these costs do not account for cumulative effects from Wurldwide's backup diesel generators,[167] or any increase in operations of on-grid gas plants as a result of Wurldwide's total added demand of 1 GW. The project's NO_x and VOC will contribute to ozone formation, and El Paso already has some of the highest ozone levels among U.S. cities: The American Lung Association gives El Paso an "F" for high ozone days and a "fail" for annual $PM_{2.5}$ pollution. In 2021, the EPA designated El Paso County as in non-attainment for the 8-hr 2015 ozone standard (0.07 ppm), and though the DC Circuit Court reversed this in 2023, El Paso's ozone levels regularly exceed the standard. $PM_{2.5}$ levels also sit near or above the 9 $\mu g/m^3$ annual standard.[168]

Beyond air impacts, the combined thermal load of McCloud and the Wurldwide data center could cause local heat island effects, which could be particularly dangerous for nearby residents given El Paso is the third-fastest warming city in the country.

Residents from Chaparral, New Mexico—which is directly across the street from McCloud and Wurldwide—are also contending with construction impacts: noise, dust, light pollution, and traffic. For seven months, residents dealt with low water pressure from their wells due to Meta.[169] Chaparral is home to a population of 18,000 people with a poverty rate of 27.4%, and 92% of its residents are Hispanic.

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[166] COBRA Desktop 5.2, 2028 analysis year. Inputs: Location: El Paso County, TX; sector: "Fuel Combustion: Industrial", subsector: Gas; permitted emissions from Table 8; discount rate: 2%. Because this is a synthetic minor permit for a project expected to run nearly constantly, we used full permitted emissions, not those at 60% capacity factor.

[167] On 2/20/2026, Wurldwide received a permit-by-rule (PBR) permit for four diesel backup generators— which are separate from the McCloud gas generators—with emissions up to 99.9 tpy of NO_x. See permit 183096-405380. This is for the first phase of the project, and the backup fleet will likely expand over time.

[168] Based on EPA AQS data, four of six El Paso County monitoring sites recorded at least one 3-year design value in violation from 2020–2025. The daily mean $PM_{2.5}$ for all six sites averaged 9.7 $\mu g/m^3$, 2020–2024.

[169] "Se llevan el agua de Chaparral a El Paso," Telemundo, April 15, 2026.

The rapidly evolving Texas policy Landscape

Texas leads the nation in the number of proposed gas plants dedicated to data centers. In a state policy landscape long characterized by anti-regulatory tendencies, recent regulatory reaction to increasing data center power impacts may further incentivize BYOP. Texas elected officials have begun responding to power shortages and water shortages due to high demand from data centers with policy interventions that significantly impact generation projects that seek grid connection. In 2025, Texas legislators passed SB6, imposing mandatory curtailment on ERCOT-connected data centers and increasing the effective costs of grid connection.

In early August 2026, Governor Abbott ordered the Public Utility Commission of Texas (PUCT) and the Electric Reliability Council of Texas (ERCOT) to audit data center interconnection requests in ERCOT's queue, stating that the **audit must be completed "before any data center project moves forward. Any project that fails to comply with the requirements set forth by the PUCT and ERCOT will be denied connection to the Texas grid**." The order also required the PUCT and ERCOT to collect information on the extent to which data centers are planning to bring their own power. While some frame this order as a "moratorium," we note that it only applies to data centers requesting interconnection in ERCOT.

For those subject to them, these regulatory shifts may increase the number of projects that are first initiated as islanded, potentially inefficient, configurations despite expectations that most BTM projects would seek grid connection for reliability, among other reasons.

Decision-making & policy

State

While the majority of Texas operates as its own grid known as ERCOT where FERC jurisdiction does not apply and power generation is largely deregulated, the McCloud facility in El Paso is located in a small corner of the state that is part of the Western Interconnection grid. As a result, it is **obligated to seek the PUC's approval for the project based on a finding of necessity and public benefit**. That decision is still pending in a strongly contested regulatory proceeding. It remains unclear to what extent the El Paso data center may be affected by new standards and audit requirements advanced by Governor Abbott, with local officials seeking detailed clarification and Meta maintaining that key terms are unchanged.

The state's anti-regulatory approach to permitting and environmental review reduces or removes typical constraints on the configuration and siting of BTM power generation facilities. Longstanding practices like reviewing emissions as minor sources without considering cumulative impact and limiting public participation are now aligned with significant changes being proposed or implemented by the EPA at the federal level, leading to Texas issuing a high rate of standardized and extraordinarily

fast approvals for BTM power at data centers. In keeping with these practices, the **air permit for the McCloud plant was issued within 20 days, without public notice and participation**.[170]

Local

El Paso authorities initially provided public land, zoning, municipal water, and tax incentives for Meta's proposed data center. However, as the larger scope of the project including the McCloud power plant became known, raising significant public concern about energy affordability,[171] climate impact,[172] and water supply, they began significantly reconsidering their approach to such projects. Many critical local approvals for Meta's data center were issued in quick succession in late 2023: The city council approved rezoning as well as the sale of 1,039 acres of publicly-owned land for just under $8.5m ($8,156 per acre) to the special purpose entity Wurldwide, without disclosing Meta as the end user. Tax incentives and an accompanying 'reinvestment zone' were also approved by the city and county that same week, amounting to an 80% abatement for 25 years and public funding for road improvements in exchange for minimum investment levels and a modest commitment to create at least 50 permanent full time jobs. Concurrently, El Paso's Water Board entered into an agreement with Wurldwide indefinitely guaranteeing reservation of 2.5 million gallons per day and disallowing imposition of future data-center-specific rates.

Local authorities had expected a significant portion of the data center's power to be provided by solar, based on representations and commitments from both Meta and EPE. After learning of plans to power the project with an adjacent gas plant (via regulatory filings with the PUC), the city of El Paso moved to intervene in that still-ongoing proceeding to approve the McCloud facility, urging that the project be rejected as proposed.[173] These strongly worded filings reflect significant public concerns about future ratepayer impacts and risk of asset stranding (given that EPE's current service capacity is just 2000 MW for all customers).

After the public became more aware of the nature and potential impact of Meta's plans, the local government has faced significant outcry and pressure to renegotiate the terms of its agreements with Meta. While the city council maintained it could not break the legal agreements it previously approved, in July it passed a detailed policy package to regulate future data centers, including a "pause" on issuing new tax incentives.

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[170] Standard air permits were granted in October 2025. A description of the permitting process and a copy of the issued air permit are included with EPE's PUC filings.

[171] Community organizing in El Paso against Meta began as a ratepayer issue. Ratepayers were challenging EPE's rate increase in the summer of 2025, in the wake of EPE's sale to a private fund controlled by JP Morgan Chase, when they found out about Wurldwide. Existing rate increases are already threatening El Pasoan's economic stability, even before any potential increases if McCloud is brought on the grid. See Sembrando Esperanza Coalition (May 19, 2026). Comments from 1118 Protestors, Docket No. 59076-111 pp. 1-9.

[172] In 2023, EPE opposed and helped defeat an El Paso climate referendum that would have imposed renewable energy mandates and authorized a feasibility study for the municipalization of the utility. El Paso adopted a voluntary Climate Action Plan in 2026.

[173] See PUCT Docket No. 59076-151 and No. 59076-161

Part 5: Intervention Points

This section outlines important intervention points for communities facing BYOP proposals. We focus on intervention points that are especially important for or unique to BYOP proposals, many of which overlap with intervention points for fully grid-dependent data centers (e.g., we do not discuss data center moratoriums as those are focused on data centers themselves, though they can deter gas BYOP buildout). **This list is non-exhaustive and is intended as a starting point.** Which of these will be relevant will vary by project and jurisdiction, and there may be additional intervention points not covered below.

For additional resources regarding *federal permits*, see: Holding Data Centers Accountable: A Guide to Federal Environmental Permitting (Environmental Protection Network & Lawyers for Good Government), The Hidden Health Costs of AI Data Centers More Power, More Pollution, Fewer Federal Protections (Safer Not Sicker, Environmental Protection Network), and Data Center Energy Infrastructure: Federal Permit Requirements (Congressional Research Service). For additional resources related to *data center intervention points*, some of which include energy infrastructure, see: Data Center Decision Tree and Resources and Data Center - Anticipated Approvals and Permits (Fair Shake), Getting It Right: Local Approaches to Data Center Development (Southern Environmental Law Center), Texas Data Center Policy Guide (Public Citizen), Seven Intervention Gateways (Stop Bad Data Centers), and Data Center Policy Guide (We Build Progress) for customizable ordinance and moratorium templates.

What power generation technology is being proposed?

The choice of energy generation technology for a BYOP project largely determines the project's environmental and public health impacts, and therefore related opportunities for public engagement and intervention. Given that many BYOP projects are initially planned to be BTM, typical intervention points in utility processes may not be available. It is even more important in these instances to consider the below intervention points.

INTERVENTION POINT: Air Permit

If the project emits air pollution, which will be the case for any energy generation using fossil fuels including RICE, SCGT, CCGT, and SOFCs, it will require an air permit under clean air laws. In most states, the permitting program is administered by a state or local environmental agency under authority delegated by the U.S. EPA. The permit will authorize, and set conditions for, the construction of the project; source operating conditions may be included or may be subject to a later, separate permit. Depending on the project's expected emissions, it may require either a **major source** permit or a **minor source** permit. Major source permits generally involve more extensive review, public notice, and opportunities for comment, and opportunities to appeal,[174] as well as more advanced pollution control, while minor source permitting procedures vary by state.

INTERVENTION POINT: Segmentation

As discussed in the Ohio case study, a common approach developers are taking to avoid major source permits is to divide a larger project into multiple smaller facilities or phases. If related

[174] See: Earthjustice (Aug. 2023). Riverview Energy Loses its Permit for Indiana Coal-to-Diesel Refinery; Clean Air Council (Dec. 2025). Clean Air Council, PennFuture, and Sierra Club Appeal Air Pollution Permit for Nation's Largest Fracked Gas Power Plant for Homer City Data Center.

facilities are evaluated separately rather than as a single source, emissions may be underestimated and the project could avoid more stringent permitting requirements. EPA regulations establish when such segmentation should be disallowed by the permitting agency,[175] though they have not established bright-line rules for these factors, and whether aggregation will be required is highly fact-specific. Recently, attempts to segment data center air permits have been challenged.[176]

INTERVENTION POINT: Climate or Clean Energy Requirements

Because BYOP data centers are largely powered by new gas generation, they can be incompatible with climate laws or clean energy requirements. For example, in some instances, there may be potential legal and policy interventions related to requiring analysis of the climate impacts of fossil fuel generation or compatibility with RPS/CES standards in certain states. New York's Climate Leadership and Community Protection Act (CLCPA) is one such example, with multiple challenges of cryptomining use of onsite gas generation.[177,178]

INTERVENTION POINT: Gas Pipeline Approvals

Many fossil-fueled BYOP projects will require new or expanded gas pipelines or other gas infrastructure. Those facilities are often subject to separate approval processes from the power plant itself. Jurisdiction depends on the type and location of infrastructure. We expect that many BYOP projects will have intrastate pipelines and local distribution facilities which are typically regulated by state utility commissions, environmental agencies, or local governments. Separate environmental reviews, land use approvals, easement proceedings, or construction permits may also apply.

INTERVENTION POINT: State environmental policy acts or specific power generation laws

Some states have environmental policy acts akin to NEPA. While the requirements vary significantly by state, including whether requirements apply to state, local, and/or private actions, these laws may provide opportunities for intervention. Many other states have more limited environmental review requirements that may nevertheless provide intervention opportunities for gas-fired BYOP projects, particularly where the project requires a state permit, funding, or other governmental approval. For more information see State Environmental Policy Acts in Appendix 3. Some states also have power-generation-specific laws that require consideration of environmental impacts as part of the approval process. For example, Nevada's Utility Environmental Protection Act requires applicants for certain BYOP facilities to provide environmental-impact information and requires the reviewing agency to make findings concerning environmental impacts including

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[175] 40 C.F.R. 51.166(b)(6)(i). If pollution sources have the (1) same industrial grouping; (2) are located on contiguous or adjacent properties; and (3) are under common control of the same person or persons, they must be aggregated for permit applicability.

[176] Sierra Club filed a notice of intent to sue in July related to aggregation at a Vantage data center site in Texas, where Vantage is seeking several minor source permits.

[177] The Greenridge Gas Plant in NY was repurposed in 2020 to provide onsite power for 24/7 bitcoin mining operations, which increased plant emissions significantly from prior levels. The Title V permit renewal was challenged under the CLCPA. See also: Statement from the New York State Department of Environmental Conservation on Denial of the Title V Permit Renewal for Greenidge Generation, LLC. (June 30, 2022).

[178] In 2022, a cryptomining company sought New York Public Service Commission approval to purchase the Fortistar gas plant for BTM power, which significantly increased the gas plant's emissions. The ownership transfer was also challenged under the CLCPA.

whether new facilities "represent the minimum adverse effect on the environment, considering the state of available technology and the nature and economics of various alternatives."

INTERVENTION POINT: State cumulative impacts laws

Some states require permitting agencies to consider a proposed facility's cumulative environmental and public-health impacts, particularly when the facility would be located in an environmental-justice or otherwise overburdened community.[179] In some states, these requirements can create an additional basis to challenge or condition permits based on the facility's contribution to existing pollution burdens.[180] New Jersey's environmental justice law (S. 232) is one notable example, and was the first law in the country to mandate denying or conditioning certain environmental permits on the basis of cumulative impacts in overburdened communities.[181]

INTERVENTION POINT: New BTM Disclosure laws

Some states have recently passed laws that require reporting or disclosures of BTM generation for large loads like data centers. These laws represent an emerging trend, and at present it is unclear the degree to which they will create meaningful intervention opportunities. Most of these disclosure laws require reporting to the PUC, and it remains to be seen how accessible that information will be to the public. Strong disclosure laws going forward should mandate public reporting. Examples include Texas's SB 6, Maryland's Large Load Registry, and Utah's SB 132.

INTERVENTION POINTS: Water Permits or Approvals

Water rights and how water use is regulated varies greatly by state.[182]

Withdrawal: Most states require permits for surface water or groundwater withdrawals over a certain rate (e.g., 100 gallons per minute or 20,000 gallons per day) or by use (e.g., municipal, industrial, or irrigation).[183] High-capacity water users often have to submit records of use to maintain validity of their permits, though publicly available information varies by state.[184]

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[179] According to Climate XChange, "Colorado, Connecticut, Massachusetts, Minnesota, New Jersey, New York, and Wyoming currently require analysis of cumulative impacts when issuing or renewing permits for certain pollution-generating facilities within or near environmental justice communities, typically focused on power plants, landfills, incinerators, sewage treatment plants, and major manufacturing plants. As the laws are written, project permits for major and minor sources may only be approved if a facility or unit would not exceed cumulative impact thresholds or limits defined by the state."

[180] New Jersey, New York, Minnesota, and Massachusetts all have laws that require permit denial based on cumulative impacts in overburdened communities. See: J. Harrison, et al. (2025). Precaution, Cumulative Impacts, and Environmental Justice in Environmental Permit Review. Environmental Justice.

[181] N. Sheats, et al. (2025). They Said It Couldn't Be Done: A Case Study of New Jersey's Landmark Environmental Justice Law (S. 232). Environmental Justice.

[182] This map provides an overview of the primary water rights systems by state.

[183] Texas is a major exception to this permitting practice. Instead of state-level regulations, Texas is divided into Groundwater Conservation Districts (GCDs). Each GCD is responsible for setting their own regulations regarding groundwater use. Generally, Texas has followed the 'rule of capture' or 'law of the biggest pump' where landowners are allowed to pump as much water as they would like. Some GCD do impose limits, some require new industrial users to buy or lease existing water rights. However, some rural locations fall outside the jurisdiction of any GCD and thus groundwater extraction can be unregulated.

[184] For example, in Ohio, each facility with a well capable of producing 100,000 GPD or more must report annual usage volumes and these records can be accessed through the Ohio Department of Department of Natural Resources Withdrawal Facility Locator tool. Other states, such as Texas and Virginia report water use data aggregated by county and/or use. Even in states with reporting requirements, some do not have strong enforcement mechanisms which leads to many permitted users failing to report any data.

Regardless of use or size, all states require permits for the construction of certain new wells and submission of drilling completion reports by a licensed driller, which are often publicly available.[185]

Stormwater, Fill, and Discharge: During construction and operation, developers may need to obtain federal Clean Water Act (CWA) permits if it affects U.S. waters, or if a BYOP data center plans to discharge pollutants or heat into U.S. waters or municipal wastewater systems, impact or fill wetlands, or impact stormwater mitigation. These permits can include National Pollutant Discharge Elimination System (NPDES) wastewater permits (CWA 402), Construction Stormwater Permits (CWA 402(p)), Industrial Stormwater Permits (CWA 402(p)), Dredge and Fill Permits (CWA 404), Pretreatment Requirements (CWA 307), Water Quality Certifications (CWA 401), and Cooling Water Intake Structure Certifications (CWA 316(b)). Many water-related permits are often delegated to state or local authorities and thus approval processes can vary significantly. Safe Drinking Water Act requirements may also be relevant if the project will affect public water supplies.

What local approvals are required for BYOP in your jurisdiction, and what powers do local governments have to include protections?

BYOP facilities—particularly when fossil power plants—may produce local air quality, noise, and water impacts affecting the health, safety, and general welfare of their inhabitants. Under their powers to protect the general welfare of their communities, local governments may have rights to impose standards including where infrastructure is located and other actions that limit "nuisance."

These powers may vary depending on the extent to which state law preempts local authority, including through "operational preemption" where a state or federal agency already regulates the same aspect of a use. Additional factors include whether incentives are in place to expedite local permitting and the scope of local governments' inherent authority. In most states, local jurisdictions retain some authority through zoning and land use and through their police powers may impose more stringent requirements related to air quality, water, noise, siting, and other impacts to local health, safety and welfare.

Typically, BYOP projects will likely require at least one local permit at each stage of development, including pre-construction, construction, operation and decommissioning. These approvals can range from "ministerial" permits, which are generally issued by a planning or building department when an application meets specified requirements and provide little or no discretion to deny the permit or impose additional conditions, to "discretionary" approvals, which may include zone changes, conditional-use permits and some tax incentives and can provide opportunities for public review and impose additional conditions.

INTERVENTION POINT: Zoning and Land Use

Zoning and land use regulations can provide a key tool for a locality to assert influence or decision-making authority over BYOP facilities. In some cases primary power may be included in the definition of a data center. States often delegate zoning power to local governments, allowing them to limit specific land uses to defined geographic districts and to regulate aspects of development like scale, density, noise and distance from sensitive locations. (Some states, however, have limited or partially preempted local authority in this area as part of incentivizing energy generation and

[185] Some states, like Texas, may redact some details such as well construction design and exact coordinates of wells which are deemed part of "critical infrastructure" (e.g., power plants and drinking water supply).

BYOP projects.) For more details on zoning considerations for data centers, see Getting It Right: Local Approaches to Data Center Development from the Southern Environmental Law Center.

INTERVENTION POINT: Other Local Approvals and Regulations

There are a range of other approval and intervention points that localities can use to shape or limit gas BYOP development. A jurisdiction's access to specific tools will depend on the scope of powers that have been locally delegated versus retained by the state. Examples include:

- Noise, cumulative impacts of pollution, and general nuisance
- Stormwater impacts (including detailed mitigation plans), and water use and discharge
- Reporting and transparency requirements
- Developer Agreements, including provisions for cost of infrastructure impacts and improvements, and Community Benefit Agreements
- Comprehensive planning processes can be updated for these new uses or given teeth by requiring applicants demonstrate consistency with such plans as part of their applications and approvals

INTERVENTION POINT: Incentives and Subsidies

A range of subsidy and incentive programs may provide a direct opportunity for localities to exercise discretionary authority, or to impose critical limits or conditions on eligibility for BYOP projects connected to data centers. Other incentive programs, however, may allow for only ministerial approvals and should be considered for reform if possible. It is important for localities to ensure they have accurate and full information about the holistic data center and BYOP project, including infrastructure needs and potential impacts and externalities.

INTERVENTION POINT: Decommissioning

Given the speculative and uncertain future for data center and associated power infrastructure, communities should consider seeking or imposing "decommissioning" commitments. These can include requiring the submission and approval of a decommissioning and restoration plan, as well as mandating the developer provide security bonds to cover future costs. These may be standalone requirements, or be included in a local development agreement or as a condition in a land use approval. This model has been developed in the context of oil and gas production to deal with abandoned wells and is emerging as an important tool in addressing future impacts for data centers and connected BYOP projects.

Is it or will it be partially grid connected?

If a BYOP project connects the grid, from the beginning or connects sometime after operations begin, its grid impacts and associated costs will be evaluated according to rules and tariffs as governed primarily by the state PUC. **The intervention points outlined below are consistent with intervention points related to energy, ratepayer, and grid impacts of traditional, fully grid-dependent data centers, and as such are not summarized in depth in this report.** The type of decisions that are made at PUCs regarding interconnecting data centers and associated BYOP generation include: how much it will pay and/or be paid for energy, the type of energy, cost allocation for necessary infrastructure and grid upgrades, whether and how the BYOP will participate in wholesale market(s), curtailment

requirements, financial protections, and more. State PUC proceedings can also be a forum to advocate for community protections and benefits.

INTERVENTION POINT: Large Load Tariff Proceeding

Large Load Tariffs or Large Customer Tariffs are the rules that apply to customers like data centers that have high and consistent usage. Many states and PUCs are actively discussing large load tariff policies. For more details see: Database of Emerging Large-Load Tariffs (Smart Electric Power Alliance), Review of Large Load Tariffs to Identify Safeguards and Protections for Existing Ratepayers (Energy Futures Group), Comparing Large Load Tariffs for Data Centers Across U.S. Utilities (E3), and Electricity Rate Designs for Large Loads: Evolving Practices and Opportunities 2026 Update (Lawrence Berkeley National Laboratory). The public can participate in these proceedings to develop the rules that will govern all similar projects if and when the data center and gas plant connect to the grid.[186]

INTERVENTION POINT: Special Contract or Power Purchase Agreement Review and Approval

In most states, when utilities enter into unique agreements with parties outside of their existing tariff (often the case for data centers), they have to be approved by the PUC. These are often, but not always, public proceedings and offer an opportunity to weigh in on the terms of the agreement that can include any of the items listed above. For example, see the Michigan Public Service Commission's approval of data center tariff provisions.

INTERVENTION POINT: Rate Cases

Utilities recover costs for infrastructure investments, like those required to connect a BYOP data center to the grid, in proceedings at PUCs called rate cases. Rate cases are the forums where infrastructure costs are reviewed and things like the allocation of costs between customers and data centers is made. Large loads can significantly impact fair cost allocation.[187]

INTERVENTION POINT: Energy Infrastructure Siting Cases

Siting is the process of determining where a new generator or power line can be built. In some states, siting is done through a proceeding at PUCs called a Certificate of Public Convenience and Necessity (CPCN).[188] In others, a siting board or other body makes the decisions. These proceedings allow the public to ask questions and make recommendations to the PUC or siting board.

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[186] Energy Futures Group (Jan. 2025). Review of Large Load Tariffs to Identify Safeguards and Protections for Existing Ratepayers ; Earthjustice (Sept. 2026). Michigan's Public Service Commission Grapples with AI Data Center Load .

[187] Energy Futures Group (Sept. 2026), Large Load Cost Allocation: Framework for States to Reduce Cross-Subsidization and Risk to Existing Customers.

[188] See General Assembly 2026 Session FISCAL AND POLICY NOTE Maryland SB 596 for an explanation of how CPCNs function in one state (MD).

Conclusion

We are at a critical moment. The United States is facing an unprecedented AI data center gas BYOP build-out that, if allowed to proceed, will have devastating impacts on communities and our planet. Our existing regulatory systems are unequipped to handle the scale and pace of expansion, and many new policies seek to further erode protections, oversight, and public participation. Meanwhile, data center developers are attempting to bypass remaining legal safeguards.

But the majority of this build-out has yet to occur, and strong action now is critical. Comprehensive policy solutions that address all risks associated with AI data center BYOP, and that empower and resource communities to engage in decision-making, can lead us to better outcomes.

We do not have to accept the prioritization of AI data center "speed to power" over the health of our communities, natural resources, and local economies. As we face a growing number of BYOP data center proposals which could lock in an unprecedented amount of gas infrastructure for decades, it is critical that decisions on how to proceed prioritize clean air and water, community self-determination, and a stable climate.

Appendix 1: Terms and definitions

Examples of BYOP terminology usage

- New Hampshire's HB 672: "**Off-grid** electricity provider" means "an entity, person, private company, electric cooperative, municipal agency, or otherwise, that engages in any combination of generating, transmitting, distributing, or selling electricity at retail to consumers; is not connected to any existing electric transmission or distribution system within the state for either primary or backup supply, operates independently of existing utilities and other regulated entities, is not located within or crosses any federal, state, or municipal roadway or right-of-way, or cross state boundaries. Off-grid electricity providers are not public utilities."
- New Jersey's S731: "**Co-located** generation" means "an electric power generation facility that is interconnected directly with a data center customer's electrical load, regardless of whether or not the facility is also interconnected with the transmission or distribution system, and regardless of whether or not the customer receives supplemental or backup service from an electric public utility. "Co-located generation" shall not include emergency electric power generation."
- NYISO defines "**Behind-the-Meter Net Generation Resource**" as "a facility within a defined electrical boundary comprised of a Generator and a Host Load [...] where the Generator routinely serves, and is assigned to, the Host Load and has excess generation capability after serving that Host Load."
- EPA's Clarification of Acid Rain Program Regulatory Provisions Concerning Islanded Power Generation Facilities Memo defines "**islanded**" facilities as facilities with "no physical connection to the utility grid."
- In the PJM show cause proceeding, FERC defines "**co-located**" as a "configuration [that] refers to end-use customer load that is physically connected to the facilities of an existing or planned Customer Facility on the Interconnection Customer's side of the Point of Interconnection to the PJM Transmission System."
- Under PJM's Interim Resource Adequacy Service Proposal, large loads would be required to "**Bring Your Own New Capacity (BYONCE)**" or else be subject to curtailment in periods of high demand before other customers. Qualifying BYONC resources must provide incremental capacity, but are not limited to new builds. Demand response, uprates, and repowering deactivated generators can all qualify as BYONC. Additionally, BYONC resources do not have to be in the same PJM region as the load.
- The Environmental Integrity Project's report The Power Behind AI considers "a power plant to be '**behind-the-meter**' if it would supply some electricity directly to a data center without routing it through the wider electrical grid. Some developers have publicly stated that they eventually plan to connect a power plant, or some portion of the power plant, to the grid in the future so that they can sell excess electricity back to the grid. We still considered these power plants to be 'behind-the-meter.'"

Terms and definitions

Power terms and units

CCGT Combined cycle gas turbine (CCGT). Combines a steam turbine with a simple cycle turbine to recover waste heat. Also sometimes called a combined cycle combustion turbine (CCCT) or a natural gas combined cycle (NGCC) turbine.

Aeroderivative turbine Lightweight simple cycle gas turbine with design derived from or inspired by aerospace applications.

SCGT Simple cycle gas turbine (SCGT)

RICE Reciprocating internal combustion engines (RICE). RICE units that use gas as fuel typically use spark-ignition (as opposed to compression- ignition used for diesel-fired RICE). RICE generators are sometimes referred to as natural gas generators or natural gas engines.

SOFCs Solid oxide fuel cells (SOFCs) convert fuel (H_2 or CH_4 typically) into electricity using electrochemical conversion with a catalytic solid oxide ceramic layer.

kWe or ekW kilowatt-electric, the *electrical* output power of a generator in kW. Power capacity of generators and engines are sometimes reported in kWe or MWe, to distinguish between the mechanical power produced by the engine from combusting fuel, and the electrical power produced by the generator set.

GWac, GWdc
MWac, MWdc
kWac, kWdc Solar cells (or photovoltaics, PVs) produce power as direct current (DC), which is then passed through inverters to create alternating current (AC) for the grid. Because of energy losses during this conversion, and oversizing to reduce costs on inverters, DC power capacities (expressed as kWdc, MWdc, or GWdc) are usually ~30% higher than AC capacities (expressed as kWac, MWac, GWac). The ratio between these is called the inverter loading ratio (ILR), typically ILR ≈ 1.32 = kWdc/kWac.

Btu British thermal unit (Btu). Heat required to raise the temperature of a pound of water by 1 °F. Heat rates are commonly expressed in Btu or MMBtu (1 million Btu) per hour or per kWh. Note: 1 kWh = 3,412 Btu when converting heat values directly, but this conversion does not work for kWh-electric. In that case, the efficiency of the engine/turbine needs to be considered.

HHV and LHV Higher heating value (HHV) and lower heating value (LHV). These are two measures for the heat of combustion, where LHV excludes the energy lost to vaporizing water during combustion. For natural gas, HHV is ~10% higher than LHV, so efficiencies quoted on an LHV basis (common for turbine manufacturers) are higher than on an HHV basis (used by EIA and EPA). Most emissions factors provided by EPA and others are on an HHV basis, so HHV heat rates should be used for emissions calculations.

Short ton and tpy Equal to 2,000 lb (~907.2 kg or 0.9072 metric ton). Air permit limits are usually expressed in tons per year (tpy), and these are almost always short tons. Values in this report are short tons unless specified otherwise.

Metric ton Metric ton (or tonne), equal to 1,000 kg (~2,205 lb, or ~1.1 short tons). Often abbreviated as t or MT (e.g. $MTCO_2e$). Confusingly, the abbreviation for million metric tons can be Mt or MMT. Metric tons are standard for reporting CO_2 and CO_2e emissions, including under EPA's Greenhouse Gas Reporting Program, but air permits in the U.S. typically report CO_2 in short tons.

Pollutants

CO Carbon monoxide (CO) is formed from incomplete combustion of hydrocarbons into CO_2, At the levels emitted by diesel generators, CO does not pose a direct health risk. However, it can contribute to ozone formation (along with NO_x and VOCs) and alter atmospheric chemistry.

CO_2e CO_2 equivalent emissions, which takes into account that different molecules can have greater global warming potential (GWP) than CO_2 based on the wavelengths of light that they absorb. For example, methane (CH_4) has a 100-yr GWP of 28x CO_2, and nitrous oxide (N_2O) has a 100-yr GWP of 265. In other words, one ton of CH_4 emissions is equivalent to 28 tons of CO_2 emissions.

HAP Hazardous air pollutants. HAPs are pollutants, such as formaldehyde, benzene, and toluene, that are "known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects".

NO_x Nitrogen oxides, which can be a combination of nitric oxide (NO) and nitrogen dioxide (NO_2). NOx has direct adverse health effects on the respiratory system (e.g. aggravating asthma symptoms), but can also react with other pollutants to generate ozone and particulate matter.

NMHC Non-methane hydrocarbons. This is a measure of hydrocarbon emissions that excludes methane, which is a greenhouse gas but does not participate in ozone formation. NMHC typically consists of aromatic compounds (like benzene, toluene), alkanes, alkenes, and aldehydes.

PM Particulate matter (PM) is liquid or solid particles in the air, such as dust, dirt, smoke, pollen, or mold spores. Gas combustion primarily generates fine particulate matter (**$PM_{2.5}$**, or particles less than 2.5 μm in diameter), which are linked to cancer and particularly harmful to health as they can enter the airways and the bloodstream.

VOC Volatile Organic Compounds (VOCs): organic molecules with high vapor pressures at room temperature (i.e. they readily evaporate). Common VOCs include methanol, formaldehyde, and alkynes. VOCs on their own can be hazardous to health, but they can also interact with nitrogen oxides to form ground-level ozone (O_3).

Note that VOCs are generally a subset of NMHC, as the EPA excludes non-ozone-forming compounds (such as methane, ethane, and acetone) from their definition of VOCs.

NH_3 Ammonia (NH_3) is emitted by gas turbines and engines that are controlled by SCR. These emissions are called "ammonia slip", as they represent unreacted ammonia

which escaped through an engine's exhaust. NH_3 can react in the atmosphere to form secondary $PM_{2.5}$. Some states require NH_3 slip to be monitored and controlled to 5–10 ppm, while other states put no permit conditions on it. EPA's COBRA tool does not currently consider NH_3 in its health damages estimates.

Emissions controls

SCR Selective Catalytic Reduction (SCR) is a form of **NO_x emissions control** that uses a catalyst and a reductant (usually ammonia) to convert nitrogen oxides into N_2 and H_2O (i.e. $NH_3 + NO_x \rightarrow N_2 + H_2O$). Some SCR systems use urea ($CO(NH_2)_2$), which contains carbon and releases CO_2. SCR typically reduces NO_x emissions by ~90%. SCR only operates efficiently at high temperatures (a typical threshold is 300 °C, or 572 °F), and thus generally does not run during start-up and shut-down periods.

Oxidation catalyst Oxidation catalysts are a form of **CO, VOC, and HAP emission control**. Oxidation catalysts work like a catalytic converter: they force exhaust through small channels coated with precious metals such as Pt or Pd, which in turn help promote oxidation of CO and VOCs, reducing the emissions of each by 20–90%. These catalysts also oxidize NO into NO2, which can be more readily reduced by SCR downstream. These flow-through devices are placed in the exhaust stream.

Dry Low-NO_x burners Dry Low-NO_x (DLN) or Dry Low Emission (DLE) combustors are a form of NO_x emissions control that premixes fuel and air before combustion, producing a leaner, cooler flame that forms less NO_x, without the need to inject water or steam. Modern DLN turbines typically emit ~9–25 ppm NO_x before any downstream controls such as SCR. DLN performance generally degrades at low loads and during start-up.

Steam or water injection Steam or water injection is a form of **NO_x emissions control**, where adding water to the inlet air lowers flame temperature in a turbine's combustor and thus reduces NO_x formation down to 25 ppm at the lowest. The technique slightly increases power output but consumes large volumes of high-purity water and can increase CO emissions. It has largely been replaced by DLN combustors in new large turbines but remains common in aeroderivative turbines. This control method is rare among current gas BYOP proposals.

Air permitting

NAAQS National Ambient Air Quality Standards. Limits set by EPA under the Clean Air Act on outdoor concentrations of six "criteria" pollutants: CO, lead, NO_2, ozone, PM ($PM_{2.5}$ and PM_{10}), and SO_2. Current standards are set to protect public health. Areas that meet a standard are designated as being in "attainment," while areas that do not are in "nonattainment," which determines which permitting rules apply.

NSR New Source Review. The Clean Air Act's preconstruction permitting program for new or significantly modified stationary sources, such as power plants. Major sources fall under one of two branches, PSD or NNSR, depending on the attainment status of the area; smaller sources fall under minor NSR, which is administered by states.

PSD Prevention of Significant Deterioration. The NSR program for major sources in attainment areas, generally those with the potential to emit 100 or 250 tpy (depending on the source category) of a regulated pollutant. PSD permits require BACT and air quality modeling to show that the source will not cause or contribute to a NAAQS violation.

NNSR Nonattainment New Source Review. The NSR program for major sources in nonattainment areas, where major source thresholds can be as low as 10 tpy, depending on the severity of nonattainment. NNSR permits require LAER, as well as emission offsets (see ERC) so that the new source does not worsen local air quality.

BACT/LAER Best Available Control Technology (BACT) is the emission limit required under PSD, set case-by-case considering energy, environmental, and economic impacts. Lowest Achievable Emission Rate (LAER), required under NNSR, is stricter: the most stringent limit achieved in practice or required by any state, without regard to cost. EPA's RACT/BACT/LAER Clearinghouse records past determinations.

ERC Emission reduction credits. Certified, permanent reductions in emissions (e.g. from a facility that has shut down or installed new controls) that can be banked and sold. New major sources in nonattainment areas must acquire ERCs to offset their emissions, usually at a ratio greater than 1:1.

Water

Water withdrawal Water removed from a surface water or groundwater source (or purchased from a utility). Withdrawn water may be returned to its source after use, though often warmer or with altered water quality.

Water consumption The portion of withdrawn water that is not returned to its source, mostly because it evaporates. Consumption is always less than or equal to withdrawal, and the two can differ dramatically: a gas combined cycle plant with once-through cooling withdraws ~11,000 gal/MWh but consumes only ~100, while one with cooling towers withdraws ~50 times less but consumes about twice as much. Withdrawal affects aquatic ecosystems at the intake, while consumption permanently removes water from the local watershed.

Once-through cooling A cooling system that withdraws water, passes it once through a condenser to absorb heat, and discharges it back to the source at a higher temperature. Once-through cooling requires very large withdrawals and is rarely used for new plants.

Evaporative and recirculating cooling Recirculating (or closed-cycle) cooling reuses the same water many times: water absorbs heat, is cooled in a cooling tower or pond, and is sent back. Because the heat is mainly rejected by evaporating a portion of the water, these systems are also called evaporative cooling. They withdraw far less water than once-through systems, but consume more of it. Dry (air) cooling avoids most water use, at the cost of lower efficiency and higher capital costs.

Grid

FERC Federal Energy Regulatory Commission. The independent federal agency that regulates interstate electricity transmission and wholesale power markets, including the RTOs and ISOs that operate them. FERC also oversees rules for interconnecting new generators and co-locating large loads, such as data centers, with power plants.

RTO/ISO Regional transmission organizations (RTOs) and independent system operators (ISOs) are FERC-regulated entities that operate the high-voltage grid and run wholesale electricity markets across a region. About two-thirds of U.S. electricity demand is served by an RTO or ISO.

PJM PJM Interconnection, the largest U.S. RTO, spans all or part of 13 states and Washington, D.C., from New Jersey to Illinois. PJM's territory includes Northern Virginia, Ohio, and Pennsylvania, several of the states where data center growth has been most concentrated.

Appendix 2: Methodology and analysis

Methodology

Our full dataset is available at www.earthjustice.org/byop-dataset.

BYOP gas project selection criteria

We relied on datasets compiled by EIP, GEM, and Cleanview[189] to identify projects, as well as FracTracker Alliance's data center tracker. We also identified projects and related permits with our own direct searches on state websites.[190] We considered only U.S. projects starting operations in 2024 or later, and our dataset includes announcements through August 2026.

Our total gas capacity figure of 177 GW differs from EIP, GEM, and Cleanview, partly because of new announcements and canceled projects since each respective report was published, and partly due to different selection criteria. For reference: in June 2026, Cleanview identified 90 GW of behind-the-meter gas power for data centers; in July 2026, EIP compiled 143 GW of gas plants "dedicated to serving data centers"; and in August 2026, GEM reported 189 GW of gas projects with data centers listed as a "captive industry".

For our analysis, we considered any gas project that was explicitly contracted to power one or more specific data center projects to be "BYOP"—whether they were fully islanded, behind-the-meter with potential for exports to the grid, or front-of-the- meter (FTM). By classifying grid-connected projects as "BYOP", we do not claim that 100% of costs will be covered by data center developers. As we detail in the report, there are many pathways for BYOP to pass costs to ratepayers regardless of their grid connection. Cost allocation is complicated, can change over time,[191] and for projects that interconnect, will be decided on a case-by-case basis through utility proceedings.

For FTM and utility-operated projects, we looked for announcements of agreements or contracts between the power developers and data centers. For example, we included the 2.3 GW gas expansion of the Schahfer Generating Station in Jasper County, Indiana, which is being built to meet Amazon's data center demand through a partnership between Amazon and the local utility. However, we excluded utility-owned projects that were built in anticipation of generic increased data center demand, such as the Bay County power station planned by Consumer's Energy in Michigan. We emphasize that the total number of gas plants being built across the U.S. in response to data center demand will be larger than the "BYOP" portion. As of August 2026, GEM's gas plant tracker identifies a total of 378 GW of gas projects—including those not linked to data centers directly—across the U.S.

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[189] Cleanview's data was accessed through the Data Center Advocacy Hub's Tracker Plus.

[190] e.g., Texas Commission on Environmental Quality's (TCEQ) permit search portal, the Ohio Permit Siting Board's (OPSB) natural gas projects map, Utah Department of Environment Quality's (DEQ) document portal, and Wyoming's OpenAir portal.

[191] In many cases, the duration of the electric service agreement (ESA) between the data center developer and the utility is shorter than the project's pay-off period, so ratepayers could be responsible for project costs after the ESA ends. Costs could also shift to ratepayers if a project fails or developers pull out of a contract. See e.g.: P. Arbaje (Aug. 2026). "Meta Hides Data Center Info As it Pushes More Risks to Entergy's Customers". Union of Concerned Scientists.

Out of the 177 GW of gas BYOP we identified, about 121 GW will be configured BTM (at least initially), 27 GW will be delivered through the grid (front of the meter, FTM), and 29 GW are BTM + Grid or unclear.[192] These estimates are approximate and likely to change over time. As discussed in **BYOP archetypes**, plans for whether a facility will be fully islanded or configured as BTM + Grid are not always clearly disclosed, but several existing BYOP projects have started fully islanded then switched to BTM + Grid when interconnection became available.

Renewable and zero-carbon capacity estimates

To compare gas and renewables over the same timeframe, we only considered U.S. projects starting operations in 2024 or later, and our dataset includes announcements through August 2026. We gathered proposed, announced, and committed renewable projects from corporate press releases, news reports, and sustainability reports (e.g. Meta's sustainability map, and Amazon's carbon-free energy projects database). To be as inclusive as possible, we included everything from early-stage proposals (for example, 6 GW of solar proposed by Creekstone Energy in Delta, Utah) to PPAs with finalized contracts.

Most of the renewables projects we identified were PPAs, which in many respects are not comparable to islanded gas BYOP projects that provide a dedicated supply to a single data center. However, disentangling how much new capacity PPAs lead to—and how much of this capacity is "near" or deliverable to the data centers they serve—is not straightforward and out of the scope of this report. For this reason, **we include all PPAs we could find from major data center developers to provide the most generous, upper-bound estimate of new renewable capacity attributable to data centers**.[193] We tracked PPAs and zero-carbon projects from Amazon, Crusoe, Google, Equinix, Meta, Microsoft, and Switch. We excluded deals for renewable energy credits as well as on-site solar associated with office buildings and warehouses.

We identified 75 GW of proposed renewable capacity associated with data centers, consisting of 63 GWac of solar,[194] 8 GW of wind, and 4 GW of geothermal. Proposals also include 164 GWh of battery storage. In addition, about 6–7 GW of nuclear capacity is proposed to come online by 2032,[195] with 22 GW planned by 2040, bringing the total to 97 GW of proposed zero-carbon energy resources.

Because we included all announced capacity, rather than just closed PPA deals, these capacity totals are higher than reported by Clean Energy Buyer's Association (65 GW from 2024 through Q1 2026 reported in their "2026 State of the market"), S&P Global (49 GW for data centers in 2024 and 2025 in North America), and BloombergNEF (64 GW in 2024 and 2025 in the Americas). These reports do not clearly disaggregate corporate PPAs by sector, except for S&P global which notes that "data centers accounted for nearly 90% of deals in Europe and North America".

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[192] Grid + BTM includes Homer City Generating station, which will sell power to the grid, but is likely to also serve power BTM to the co-located Amazon data center campus.

[193] We tracked PPAs and zero-carbon projects from Amazon, Crusoe, Google, Equinix, Meta, Microsoft, and Switch. We did not include deals for renewable energy credits. We also excluded solar associated with Amazon warehouses.

[194] We report solar capacity in alternating current (AC, e.g. GWac or MWac). When compiling projects, we assumed capacity figures were reported in MWac unless otherwise specified. For figures reported in direct current (DC), we converted to AC assuming an inverter loading ratio (ILR) of 1.32 (MWac = MWdc/1.32). This is the same assumption used by NLR in the 2025 annual technology baseline.

[195] We estimate 6–7 GW of nuclear power will be operational by 2032 based on announced development timelines. We included new projects, plant recommissions, as well as projects where the PPA is claimed to have prevented retirement.

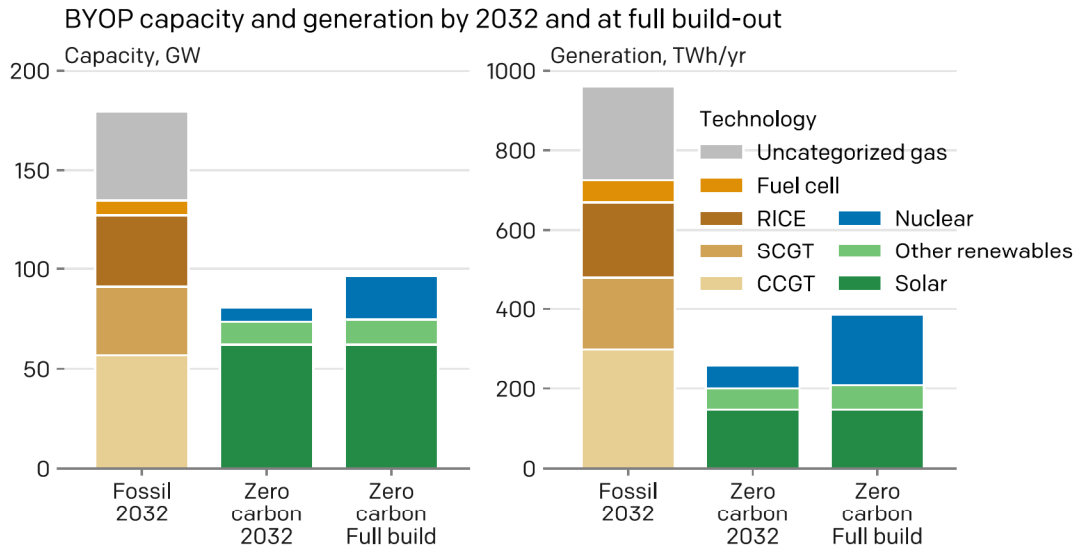


Figure A1. Expected capacity (left) and annual energy generation (right) for BYOP projects by 2032 and at full build-out. Almost all proposed gas, solar, and wind projects are planned to be online by 2032, while most nuclear capacity will come online between 2032–2040.

Capacity factor assumptions

To compare total energy generation from gas and renewables, we accounted for technology-dependent capacity factors. Capacity factor assumptions are also needed to estimate total emissions and the consequent health and climate impacts from these gas projects. As defined earlier in this report, capacity factor is the average amount of power produced by a resource divided by the nameplate power capacity, usually measured over a yearly average. **Table A1** compares our assumed capacity factor for each technology with typical values for grid-connected resources.

Capacity factors for solar and wind are mainly determined by location and weather.[196] For example, capacity factors for solar can reach 29–34% (AC basis) in the sunny Southwest but are closer to 21% in the Pacific Northwest and the Northeast. Wind turbines average 33–35% nationally but can reach over 50% in the Great Plains. Geothermal and nuclear, in contrast, generally run nearly constantly with capacity factors typically exceeding 90%.

For gas generation on the grid, capacity factor is mainly constrained by economics. These technologies can in principle run continuously (barring maintenance outages) and can feasibly achieve capacity factors of almost 90%. However, inefficient generators like SCGT and RICE have a high marginal cost of electricity (due to fuel costs and maintenance) and are only dispatched on the grid when demand is high or fluctuating quickly (which is why they are called "peaking" power plants), with capacity factors typically below 20% (see **Figure A2**). CCGT power plants are more efficient and cost effective and typically are deployed as load-following / intermediate load resources on the grid (meaning they will often lower output when solar or wind production is high or demand is low), with capacity factors of 60–70% for modern units.

[196] Location influences CF because of average weather (cloudiness or windiness) as well as latitude: higher latitudes have less sun in the winter, lowering CF. Technology also influences capacity factor. For example fixed angle solar panels have lower CF than single-axis tracking panels, which rotate over the day to follow the sun.

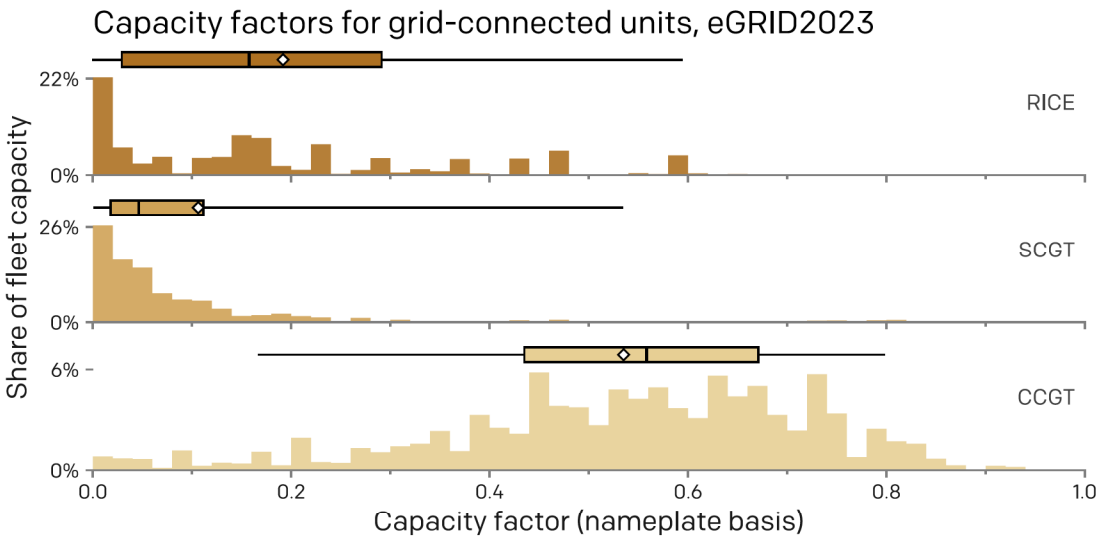


Figure A2. Capacity factors for grid-connected RICE (top), SCGT (middle), and CCGT (bottom) based on eGRID 2023 data. Box-plots show capacity-weighted fleet medians (line) and averages (diamond); boxes show 25–75th percentile, whiskers 5–95th percentile.

However, these grid economics are not relevant for islanded gas generation for data centers, at least while the associated data centers await grid interconnection. Instead, we expect the capacity factor of BYOP gas generation to be determined by the power needs of their associated data centers. Hyperscale data centers used for AI training workloads are expected to average 75–85% power utilization (which means a 1 GW data center will use 0.75–0.85 GW on average).[197] Islanded power plants are often over-provisioned by 20–30% (e.g. a 1 GW data center will have 1.2–1.3 GW of power) for redundancy and to account for capacity derating on hot days.[198] Putting these together, we expect capacity factors for a behind-the-meter plant to range from 50–70%.[199] As a base-case, we assume a 60% capacity factor for CCGT, SCGT, and RICE. Again, this technology-agnostic capacity factor may seem odd given traditional grid operation, but each of these technologies (as well as fuel cells) has been proposed as the sole generation source for >1 GW BYOP projects (see **Table A8**).

Data from operational BTM gas plants supports these assumptions. For example, the Vantage VA2 facility in Ashburn, VA—which is a data center behind-the-meter gas plant with 132 MW of SCGTs—operated at a capacity factor of approximately 70% in 2025, and emitted 69% of its permitted $PM_{2.5}$ limit and 47% of its NO_x limit.[200] Greenidge Generation—a long-running 106 MW on-site gas plant at a cryptomining facility in NY—operated at 52–78% capacity factor from 2021–2025, based on EPA (CAMPD) data, and emitted 34–60% of its permitted NO_x limit.

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[197] See Pg. 21 of S. Smith, et al. (June 2026). United States Data Center Energy Usage Report: 2025 Update. LBNL.

[198] For example, the Ashville Energy Center in Ohio has a nameplate capacity of 954 MW (465 of SCGT and 489 of RICE), while the associated PowerConneX data center has a peak load of 690 MW. See OPSB Case No. 26-196-EL-BGN. Capacity de-rating occurs because gas turbines produce less power when air is hot and less dense, since power is roughly proportional to mass flow. Compressing warmer air also takes more work, which cuts into power output.

[199] e.g. if 25% of a project's capacity is redundant, and the data center has 80% power utilization: CF = (100%-25%)×80%≈60%. Capacity factors may be lower for data centers used mainly for AI inference, though limited data is available to determine realistic power utilization values for these facilities.

[200] While no direct capacity factor or energy generation totals are reported for the Vantage VA2 facility, we estimated the capacity factor to be 68–73% in 2025 based on the reported NO_x emissions, $PM_{2.5}$ emissions, emissions factors, and hours of operation. See Tables 1–3 from Virginia Department of Environmental Quality (2026). Stationary Source Assessment (SSA) Response to Health Impact Claims Related to the Vantage Data Centers VA2 Facility.

Table A1. Assumed capacity factor (CF) for BYOP projects compared to grid average.

Technology	Assumed CF	Grid average CF from EIA[201]	Notes
CCGT	60%	55–61%	CCGT units started after 2010 averaged 64% CF in 2022.
SCGT	60%	12–14%	60% based on data from operating BTM gas plants.
RICE	60%	15–20%	60% based on data from operating BTM gas plants.
Fuel cells	85%	70–90%	Fuel cells ramp slowly and work best at a constant output. However, capacity factor declines as they degrade.
Solar	27%	23.2–24.4%	Avg. CF calculated for project sites, reported in AC.[202]
Wind	39%	33–35%	Avg. CF calculated using NLR's wind supply curves.
Geothermal	90%	65–69%	Modern geothermal plants are expected to deliver higher CF than the existing fleet, above 90%.[203]
Nuclear	92%	91–93%	

Note: Solar and wind project sites in our dataset have a higher CF than the national grid average, as these projects tend to be sited in areas with more solar and wind supply.

As shown in **Figure A1**, we estimate that in 2032 roughly 80% of BYOP generation will come from gas projects, ~12% from solar, 4% from wind and geothermal, and ~4% from nuclear. As more nuclear and geothermal proposals come online in the mid 2030s, gas's share of generation is expected to fall to about 70% (based on currently announced projects). It should be noted that projections this far out are subject to much more uncertainty.

Emissions calculations

Throughout this work, we report expected emissions for typical operations, which are estimated by multiplying a facility's "potential-to-emit" totals by the assumed capacity factor of 60% (or 85% for fuel cells). Potential-to-emit is the maximum amount that could be emitted by the technology if it were running continuously, 24/7/365, with emissions controls operational.

When available, we used permitted emissions limits from EIP's dataset or from permits and permit applications we gathered and analyzed. To estimate the annual potential emissions from BYOP facilities without permits, we compiled manufacturer specification sheets and permitted emission factors for 25 models commonly deployed in BYOP projects and determined the median emissions

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[201] EIA Tables 4.08.A and 4.08.B. Ranges are for the U.S. grid fleet from 2020–2024. Fuel cell ranges calculated from 2025 EIA-923 and EIA-860 data from Equinix deployments.

[202] We used NLR's solar supply curves to estimate capacity factor for each solar project in our database and calculate a capacity-weighted average CF of 27% for the entire fleet. Note: EIA reports solar CF for AC nameplate capacity. To convert CF_{AC} to CF_{DC}, divide by 1.32 (ILR assumption).

[203] Geothermal "capacity factor is not 100% due to local resource degradation, seasonal efficiency changes, scale formation on piping surfaces, and intentional load following." From: Center for Sustainable Systems, University of Michigan (2026). Geothermal Energy Factsheet. While the current U.S. geothermal fleet averages 65–69%, modern geothermal plants are expected to have CF>90%. See: U.S. DOE Geothermal Technologies Office (2022). Chapter 2: Geothermal Takes the Stage.

factor for each technology (**Table A2** and **Table A3**). For sites where the generation technology was not disclosed, we used capacity-weighted emission factors—the "fleet mix" in **Table A3** which averages the emissions of CCGT, SCGT and RICE—assuming that all uncategorized projects followed the same mix as disclosed projects.

Table A2. Median and typical range for electrical efficiency, heat rate, unit power capacity, and greenhouse gas emissions factors for gas-fired technologies.

Type	Efficiency (%, LHV) [204]	HHV Heat rate (Btu/kWh)	Unit Capacity (MW)	CH_4 (lb/MWh)	CO_2 (lb/MWh)	CO_2e (lb/MWh)
RICE	44% (42–50%)	8,620 (7,531–8,944)	2–20	5 (2–11)	1,010 (800–1,050)	1,180 (850–1,350)
SCGT	39% (35–43%)	9,655 (8,580–10,700)	15–220	<0.09	1,130 (1,000–1,250)	1,140 (1,003–1,260)
CCGT	62% (58–64%)	6,080 (5,880–6,503)	80–664	<0.06	711 (688–761)	718 (690–767)
SOFC	59% (53–65%)	6,400 (5,811–7,125)	0.325	—	756 (679–833)	756 (679–833)
Fleet mix	50.5%	7,760	—	1.43	908	962

Notes: Ranges reflect variation between models typically deployed by data centers, compiles for models including: Siemens SGT-A35, SGT-800, SGT6-5000F; Solar Titan 130, 350; GE Vernova LMS100, LM6000, 7HA.02; MHI M501JAC; Caterpillar G3520H; Wärtsilä 18V50SG, 20V34SG; Jenbacher JGC 620 715; Bloom Energy ES-5 and ES-6.5.

A project's annual expected emissions for each pollutant are calculated from their emissions factor (EF) from **Table A3**, the technology-specific capacity factor (CF) from **Table A1**, and the project power capacity in MW with equation 1:

$$\text{Annual emissions [tpy]} = EF\left[\frac{\text{lb}}{\text{MWh}}\right] \times \left[\frac{\text{ton}}{2000\ \text{lb}}\right] \times \left[\frac{8{,}760\ \text{hr}}{\text{yr}}\right] \times \text{Project capacity [MW]} \times CF \qquad \text{Eq. 1}$$

These estimates do not include maintenance, startup and shutdown emissions, which vary based on operating conditions but can increase total emissions by 1–15%. They also do not include emissions from auxiliary equipment, such as backup generators, black start generators, auxiliary boilers, or duct burners (which are used to adjust steam output on CCGTs). Nor do they include emissions from the extraction, processing, or transportation of natural gas—these upstream emissions can represent 10–50% of a gas plant's lifecycle GHG emissions.[205]

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[204] Efficiencies (in lower heating value, or LHV basis) are specified by manufacturers at standard reference conditions, which include air temperatures of 15 °C (59 °F) for turbines (ISO 3977), and 25 °C (77 °F) for RICE (ISO 3046). Efficiency can decrease from these levels by 1–2% at 35–40 °C (95–104 °F). See

Terms and definitions for explanation of HHV and LHV.

[205] Estimates of upstream emissions vary widely based on region and methodology: a 2024 DOE report estimated they account for ~13% of lifecycle emissions, while direct aerial measurements of gas production sites show some regions can have 3–10x higher methane leakage. See: (a) H. Khutal, et al. (2024). **Life Cycle Analysis of Natural Gas Extraction and Power Generation: U.S. 2020 Emissions Profile**. U.S. DOE NETL; and (b) E. Sherwin, et al. (2024). **U.S. Oil and Gas System Emissions from Nearly One Million Aerial Site Measurements**. Nature.

Table A3. Median and typical range of air pollutant emissions factors for gas-fired generation technologies with SCR and oxidation catalyst emissions controls.

	Emissions factor (lb/MWh)					
Type	**NO_x**	**CO**	**VOC**	**$PM_{2.5}$**	**SO_2**	**NH_3**
RICE	0.1 (0.05–0.31)	0.13 (0.08–0.34)	0.09 (0.02–0.51)	0.07 (0.03–0.09)	0.005 (0.003–0.006)	0.06 (0.05–0.12)
SCGT	0.07 (0.06–0.08)	0.08 (0.06–0.21)	0.05 (0.02–0.06)	0.06 (0.05–0.11)	0.006 (0.003–0.006)	0.07 (0.06–0.14)
CCGT	0.05 (0.04–0.06)	0.03 (0.027–0.032)	0.02 (0.01–0.02)	0.04 (0.03–0.04)	0.004 (0.003–0.006)	0.05 (0.04–0.09)
SOFC	0.003	0.02 (0.01–0.03)	0.015 (0.01–0.02)	–	–	–
Fleet mix	0.07	0.07	0.05	0.053	0.005	0.06

Note: Fuel cells emit very little SO_2 since they pre-treat fuel to remove sulfur, which poisons SOFC catalysts. They also emit no ammonia, because they do not use SCR (as they intrinsically emit less NO_x).

Other assumptions:

- Average natural gas higher heating value (HHV) of 1,020 Btu/scf.
- **SO_2 emissions**: We use AP-42 Table 3.2-2 value for SO_2 emission factor of 5.88×10^{-4} lb/MMBtu for all units except SOFCs (which use desulfurization beds). This factor assumes 100% conversion fuel sulfur to SO_2 and 0.2 gr S/100 scf fuel content (PG&E reports an average ranging from 0.16–0.19 gr S/100 scf). Permitted SO_2 emissions factors are often set higher than is realistic with modern fuel quality.
- **Ammonia slip**: When direct data was unavailable, NH_3 factors were calculated from heat rate and an assumed 5 ppm slip using EPA Method 19.
- **Methane slip**: AP-42 section 3.2, Table 3.2-2 specifies 1.25 lb/MMBtu for 4-stroke lean burn engines (RICE). Wärtsilä claims they've achieved 1–2 g/kWh on some models, which corresponds to 0.25–0.5 lb/MMBtu. We assume a median value of 0.7 lb/MMBtu across all RICE units, adding ~170 lb CO_2e/MWh. For turbines, CH_4 slip factors are derived from EPA AP-42 Table 3.1-2a.
- **CO_2e**: CO_2e is calculated using the 100-yr global warming potential (GWP) of 28 for CH_4. N_2O emissions are neglected, as their emissions factors are poorly characterized and generally increase gas engine CO_2e by <1%.

Table A4. Total potential (PTE) and expected emissions for all 177 GW of gas BYOP.

Pollutant	PTE (tpy)	Expected (tpy)
NO_x	58,300	35,000
CO	87,300	52,500
VOC	38,900	23,400
$PM_{2.5}$	38,700	23,200
SO_2	6,700	4,000
NH_3	46,000	27,600
CO_2e	745M	454M

Note: Expected totals account for capacity factors in **Table A1**. Values in short tons per year (tpy).

Dollar years, discount rate, and model years

For the health and carbon costs discussed below, we report all dollar values in 2023 dollars at a 2% discount rate. EPA Benefit per ton (BPT) estimates and social cost of carbon were converted from 2019- and 2020-dollar years, respectively, using the Bureau of Labor Statistics CPI-U. These values were chosen to provide consistent comparisons with COBRA's default outputs.

Model years often differ from dollar years, as these reflect adjustments for population and not changes in dollar values. We use a 2028 population baseline for COBRA, 2025 model year for BPTs, and 2030 emission year for the social cost of carbon.

Health damages estimates

Gas turbines and engines emit air pollutants including fine particulate matter ($PM_{2.5}$, particles 2.5 micrometers in diameter or smaller), nitrogen oxides (NO_X), sulfur dioxide (SO_2), volatile organic compounds (VOCs), ammonia (NH_3), and hazardous air pollutants (HAPs) such as formaldehyde. Many of these pollutants can also react in the atmosphere to form additional secondary $PM_{2.5}$ as well as ground-level ozone.[206] A large body of research has tied long-term $PM_{2.5}$ and ozone exposure to increased risk of premature mortality, cardiovascular disease, and respiratory illnesses.[207] Studies analyzing over 60 million Medicare enrollees have found that these risks can persist even at low concentrations that meet air quality standards.[208] There is broad scientific consensus that there is a "no-threshold linear" relationship between long-term $PM_{2.5}$ exposure and mortality.[209] In plain english, this means that there is no known safe concentration of $PM_{2.5}$; total health impacts decrease when $PM_{2.5}$ concentration is lowered, but they do not disappear.

According to the U.S. EPA's Integrate Science Assessments (ISAs), short-term NO_x and SO_2 are causally linked to exacerbated respiratory symptoms, such as asthma attacks. Ozone exposure is also causally linked to worsened respiratory symptoms and increased hospital admissions for respiratory conditions and is associated with a broad range of health effects, including cardiovascular and metabolic effects. EPA's 2024 IRIS review concluded formaldehyde is "carcinogenic to humans by the inhalation route of exposure."[210]

To assess the magnitude of air pollution health impacts from these projects, we used EPA's CO-Benefits Risk Assessment (COBRA) health impacts screening and mapping tool. COBRA is widely used

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[206] NO_x, VOCs, CO, CH_4, and formaldehyde are ozone precursors. NO_x, VOCs, SO_2, and NH_3 are PM2.5 precursors.

[207] U.S. EPA (2016). Integrated Science Assessment (ISA) for Oxides of Nitrogen – Health Criteria; U.S. EPA (2019). ISA for Particulate Matter; U.S. EPA (2015). ISA for Ozone and Related Photochemical Oxidants; U.S. EPA (2017). ISA for Sulfur Oxides – Health Criteria.

[208] H. Boogaard, et al. (2024). Assessing Adverse Health Effects of Long-Term Exposure to Low Levels of Ambient Air Pollution: The HEI Experience and What's Next? Env. Sci. & Tech.; Q. Di, et al. (June 2017). Air Pollution and Mortality in the Medicare Population. NEJM; X. Wu, et al. (June 2020). Evaluating the impact of long-term exposure to fine particulate matter on mortality among the elderly. Science Advances.

[209] E. Coffman, et al. (2020). Quantitative Characterization of Uncertainty in the Concentration-Response Relationship Between Long-Term $PM_{2.5}$ Exposure and Mortality at Low Concentrations. Environmental Science & Technology.

[210] U.S. EPA (Aug. 2024). IRIS Toxicological Review of Formaldehyde (Inhalation), Executive Summary, p. 2.

among policy makers and researchers to estimate the population-level health impacts that result from changes in air pollutant emissions.[211]

COBRA takes as inputs county-level changes in NO_x, VOC, $PM_{2.5}$, and SO_2 emissions, then uses a reduced-form air quality model to estimate how these emissions will alter ambient $PM_{2.5}$ and ozone concentrations across the lower 48.[212] It then applies peer-reviewed "health impact functions" to estimate how these concentration changes affect incidence of health outcomes like new asthma cases and premature mortality. Finally, it converts incidence into economic damages using standard monetization methods, such as the value of a statistical life.

We used COBRA Desktop version 5.2 with the 2028 emissions and population baseline and a discount rate of 2% (costs in 2023 dollars). We prepared an emissions scenario file containing each of the 129 gas BYOP projects' estimated emissions in tpy placed as a new source row in its respective host county. COBRA uses effective-height bands for stack heights, and we place RICE and fuel cells in the low band and SCGT and CCGT in the medium band.[213] When available, we used permitted emissions limits multiplied by the assumed capacity factors from **Table A1**. For projects without a permit, we used **Eq. 1** with the median emissions factors for each technology in **Table A2** to calculate annual emissions.

COBRA's health estimates do not capture all of the potential impacts from gas combustion. For instance, ammonia (NH_3) emissions—which are released by selective catalytic reduction (SCR) systems used to control NO_x—can react with other pollutants in the atmosphere to form secondary $PM_{2.5}$.[214] The U.S. EPA acknowledges that ammonia is a $PM_{2.5}$ precursor,[215] but the current version of EPA's COBRA tool does not model this pathway, and hence likely underestimates the $PM_{2.5}$-induced mortality and respiratory symptoms.

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[211] See, e.g., work from EmPower Analytics Group: M. Cork, et al. (Feb. 2026). **Air Quality, Health, and Economic Impacts of the Vantage Data Center Facility**; M. Cork (Aug. 2026). **Air Pollution, Health Impacts, and Associated Economic Damages of the Proposed Cumberland Energy Center** (this study used InMAP to model $PM_{2.5}$ impacts and COBRA for ozone impacts). See also: Clean Air Task Force (2024). **2024 Toll from Coal Health Impacts Methodology**.

[212] "Reduced-form" means that COBRA uses a precomputed "source-receptor matrix" to calculate how a change in emissions in any county affects $PM_{2.5}$ and ozone concentrations in downwind counties, rather than running a computationally-intensive simulation of how pollutants move and interact in the atmosphere each time the software is used. The source-receptor matrix itself is built from rigorous photochemical modeling, but its accuracy is somewhat limited because it averages effects on a county-level spatially and uses coarse bins for release heights (area/ground-level, low, medium, high), rather than considering precise project coordinates and equipment-specific stack heights. See the **COBRA user manual** for more detail.

[213] Note: in the web version, there is no direct way to set stack heights, so users must choose appropriate combustion sectors which most closely match the expected stack height. In the desktop version, we directly set the stack height band.

[214] Ammonia slip from the SCR reacts with sulfuric acid (from SO_2 oxidation) and nitric acid (from NO_x oxidation) in the atmosphere to form ammonium sulfate ($(NH_4)_2SO_4$) and ammonium nitrate (NH_4NO_3), both of which are secondary $PM_{2.5}$. See J.H. Seinfeld & S.N. Pandis (2016). Atmospheric Chemistry and Physics: From Air Pollution to Climate Change (3rd ed.), Chapter 10. Wiley

[215] See U.S. EPA Memo, S. Mathias and R. Wayland (May 30, 2019). **Fine Particulate Matter (PM2.5) Precursor Demonstration Guidance**.

Table A5. COBRA estimates (Desktop 5.2, 2028 population baseline, 2023 dollars) for the national health costs from BYOP gas plants. O_3 is ozone.

Health Endpoint	Pollutant	Change in Incidence (cases, annual)		Monetary Value ($, annual)	
		Low	High	Low	High
Mortality	$PM_{2.5}$ + O_3	330	580	$5,300M	$9,200M
Mortality, $PM_{2.5}$ All Cause	$PM_{2.5}$	220	470	$3,500M	$7,400M
Mortality, O_3 Short-term	O_3	5	5	$75M	$75M
Mortality, O_3 Long-term	O_3	110	110	$1,700M	$1,700M
Nonfatal Heart Attacks	$PM_{2.5}$	160	160	$15M	$15M
Infant Mortality	$PM_{2.5}$	2	2	$29M	$29M
Asthma Onset	$PM_{2.5}$ + O_3	1,300	1,300	$105M	$105M
Asthma Symptoms	$PM_{2.5}$ + O_3	210,000	210,000	$46M	$46M
Minor Restricted Activity Days	$PM_{2.5}$	160,000	160,000	$21M	$21M
School Loss Days	O_3	68,000	68,000	$130M	$130M
			Total PM Health Effects:	**$3.6B**	**$7.6B**
			Total Ozone Health Effects:	**$2.0B**	**$2.0B**
			Total Health Effects:	**$5.6B**	**$9.5B**

Notes: categories exceeding $10M in annual health costs are included; low and high values represent estimates from different health-impact functions derived from two epidemiological studies.

The anticipated 27,600 tpy of ammonia emissions from these projects (Table A4) could increase total health damages by more than $2.4 billion per year, based on the EPA's benefit per ton (BPT) estimates of $90,200–103,600 per ton of ammonia for internal combustion engines and industrial boilers (2025 model year values in 2023 dollars, 2% discount rate). We emphasize these are rough estimates to provide a sense of scale for the additional burden from ammonia, but more detailed photochemical modeling would be needed to accurately capture ammonia's interactions with other pollutants.

Capacity factor sensitivity: These estimated costs roughly scale with the actual average operating capacity factor of these gas plants. For instance, if these projects operated at an average capacity factor of 50% instead of 60%, health costs would fall to $4.7–7.9 billion. At 70% CF, they would rise to $6.5–11.1 billion.

Comparing COBRA to EPA's benefits per ton

In Table 2, we provided representative, nationally-averaged health costs for 1 GW plants operated at 60%. These costs were based on EPA's sector-based BPT estimates,[216] which are calculated using a similar methodology as COBRA but have slightly different underlying models and assumptions. It should be noted BPT estimates are averaged nationally or regionally, whereas COBRA spatially resolves emissions and impacts at the county level.

Overall, at a national scale BPT estimates agree well with COBRA; for the 177 GW of gas analyzed here, BPT yields $10–11 billion in health damages per year. However, actual health impacts from individual gas plants can vary dramatically depending on where they are built, based on population density and other regional factors. Table A6 illustrates the approximate health costs for a 1 GW gas plant built in 10 different counties.

Table A6. Representative annual monetized health damages for a 1 GW gas plant operated at 60% capacity factor for various gas-fired technologies. Estimates from EPA's COBRA (Desktop 5.2, 2028 population baseline, 2023 dollars).

County	Pop. within ~50 miles	EPA COBRA Annual Health Costs			
		RICE	SCGT	CCGT	SOFC
Loudoun County, VA	5.92M	$143–253M	$107–191M	$64–112M	$2.1–2.5M
Indiana County, PA	2.40M	$77–131M	$61–107M	$37–63M	$1.3–1.6M
Licking County, OH	2.68M	$85–148M	$67–119M	$40–70M	$1.4–1.7M
Jasper County, IN	1.36M	$84–152M	$66–123M	$39–72M	$1.3–1.7M
DeSoto County, MS	1.47M	$62–114M	$45–84M	$27–49M	$0.9–1.1M
Richland Parish, LA	0.28M	$36–60M	$28–49M	$17–29M	$0.7–0.8M
Hill County, TX	0.95M	$76–133M	$56–101M	$34–59M	$1.2–1.3M
Pecos County, TX	0.03M	$12–18M	$9.0–15M	$5.7–8.8M	$0.3–0.4M
Laramie County, WY	0.52M	$16–26M	$12–21M	$7.5–12M	$0.3–0.4M
Millard County, UT	0.08M	$13–19M	$9.9–16M	$6.2–9.5M	$0.3–0.3M

Notes: Populations are 2025 estimates aggregated at the county level from StatsAmerica's Big Radius Tool. Emissions increases in tpy are input using representative values in Table 2.

Social cost of carbon

To quantify the economic damages from the CO_2 emissions of these projects, we use the EPA's social cost of carbon: $230 per metric ton CO_2 for a 2030 emissions year, 2% discount rate, and 2020 dollars.[217] Converted to 2023 dollars, this is $271/MT$CO_2$ or $246 per short ton CO_2. The social cost of

[216] U.S. EPA (2026). Sector-based PM2.5 and Ozone Benefit Per Ton Estimates. We use values for the electricity generating unit, internal combustion engine and industrial boiler sectors.

[217] See Table ES.1. U.S. EPA (2023). EPA Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances.

carbon captures the global economic damages of climate change caused by an additional ton of carbon, considering factors such as mortality, agricultural productivity, flood risk, and energy costs.[218]

Water consumption

Table A7. Typical water consumption factors for gas-fired technologies with various cooling (air vs. evaporative) and NO_x control (water/steam injection) configurations. Annual consumption estimates are for a representative 1 GW gas plant operated at 60% capacity factor.[219]

Technology	gal/MWh	gal/yr @ 1 GW	acre-ft/yr	Source/Note
SCGT or RICE, air-cooled	0.1	0.59M	1.8	Closed-loop systems can use water for system make-up
SCGT, water injection[220]	40 (17–100)	210M (89–526M)	645 (274–1,613)	Derived from Table 5-5, Pg. 5-44, EPA-453/R-93-007
SCGT, steam injection	73 (54–125)	384M (284–657M)	1,177 (871–2,016)	Derived from Table 5-5, Pg. 5-44, EPA-453/R-93-007
SCGT, evaporative inlet cooling	8 5–22	42M (26–116M)	129 (81–355)	Fairfield application; Dwyer 2011.
SCR add-on	0.1	0.53M	1.6	Derived from typical turbine specs.
CCGT, air-cooled	4 (0–25)	21M (0–131M)	65 (0–403)	Steam cycle make-up: 2–12 gal/MWh; may use inlet cooling.
CCGT, recirculating evaporative cooling	205 (130–300)	1,077M (683–1,577M)	3,307 (2,097–4,839)	Table 2, Macknick et al. 2012.
SOFC (start-up)	1,200 gal/MW	1.2M	3.7	Bloom Energy ES-5000 datasheet, assumes one start-up per year.
SOFC (steady-state)	0	0	0	Water in exhaust is recycled

To estimate water consumption from BYOP gas plants, we used typical water consumption factors for combined cycle turbines: 130–300 gal/MWh for those with recirculating evaporative cooling and 0–25 gal/MWh for those with air-cooling (see Table A7). Because cooling configurations are not clearly disclosed for many projects, our estimates assume 50–100% of CCGT projects use recirculating

[218] Resources for the Future (2025). Social Cost of Carbon 101.

[219] Sources: J. Macknick, et al. (2012). Operational water consumption and withdrawal factors for electricity generating technologies: a review of existing literature. Env. Res. Lett.; B. Clark (2018). Alternative Options: Low/no-water cooling alternative for combined cycles. Water & Wastes Digest; Fairfield Energy Center application, figure 03-7 (OPSB Case 26-0160-EL-BGN); A. Dwyer (2011). Evaporative Cooling Technology for Gas Turbine Inlet Cooling. ASME Turbo Expo 2011; U.S. EPA (1993). Alternative Control Techniques Document: NO_x Emissions from Stationary Gas Turbines (EPA-453/R-93-007), Table 5-5; Bloom Energy ES-5000 datasheet (note: BE no longer specifies start-up water use for their latest models).

[220] Steam- and water-injection are emissions controls used to reduce NO_x formation, but they are rarely used in current proposals because they are less effective than SCR and use more water. See Appendix 1, Terms and definitions section for more details on different types of emissions controls.

evaporative cooling (examples include Homer City Generation and Fermi America's Project Matador) and 0–50% use air-cooling. We assume no CCGT projects will use once-through cooling.

With these assumptions, we estimate the proposed 56 GW of CCGT for BYOP could consume between 0.05–0.24 billion gallons per day (Bgal/d) if operated at 60% capacity factor.[221] This would increase the total U.S. power sector's water consumption by 2–9% (the USGS estimates that U.S. thermoelectric power plants consumed 2.7 Bgal/d in 2020).[222]

Note: These estimates reflect national totals and annual averages and are intended to illustrate the range and magnitude of potential water consumption rather than actual project-specific impacts. The impacts of this consumption may be more acute in specific regions facing water stress and on peak water usage days. Actual water withdrawals, consumption, and discharges depend on the specific cooling technology, emissions controls, water source, and climate and drought conditions. Where possible, project-specific permit applications and manufacturer data should be used instead of the generic technology factors in Table A7.

Limitations

The $5–10 billion in yearly health costs we estimate are limited to these BYOP gas projects, and do not include costs from backup diesel generator emissions at the associated data centers, or from increased emissions from grid resources due to grid-connected data centers. Researchers from UC Riverside and CalTech found that increased grid-connected power plant emissions associated with data center demand could cause $8–24 billion in annual health costs by 2028, and backup diesel generators could contribute to another $0.8–1.8 billion per year.[223]

While we believe a 60% capacity factor is a reasonable operating assumption for fully islanded facilities, many of the data centers associated with these projects intend to pursue grid interconnection. Once that happens, data centers using inefficient SCGT and RICE will most likely shift to cheaper grid energy for much of their electricity needs, and operate their BTM plants more like traditional peaking plants during hours of peak electricity demand. In this scenario, capacity factors may fall to <20%, while projects using CCGT will likely remain cost-effective and continue to operate at >60% capacity. This means the total health costs of some BYOP projects and their associated data centers could change over time, but the magnitude and direction of change will depend on the energy mix and marginal emissions of the regional grid for a given project.

Another way real-world emissions could differ is that we assume projects follow permit conditions and properly use and maintain their emissions controls. For instance, almost all gas units we tracked are equipped with SCR, which cuts NO_x emissions by about 90%. That means a unit's NO_x emissions could be up to 10 times higher than assumed if its SCR system isn't operating properly—whether due to maintenance issues, operator negligence, or noncompliance. Even a small fraction of units running this

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[221] This total just accounts for steam cycle cooling water usage. We expect water consumption from evaporative inlet cooling for the entire 177 GW fleet of gas BYOP to add another 1–5% over the annual cooling consumption from CCGTs (roughly 0.001–0.005 Bgal/day). Evaporative inlet cooling is not installed on all units and is only used during hot weather.

[222] A. Galanter, et al. (2023). **Thermoelectric-Power Water Use Reanalysis for the 2008-2020 Period by Power Plant, Month, and Year for the Conterminous United States**. USGS. Note: these estimates are for steam cycle condenser cooling and do not include water used for control technologies, such as steam-injection or evaporative inlet cooling.

[223] See Table 1, Scope 1 and 2 from: Han, Y. et al. **Health-Informed Computing: Estimating and Addressing the Public Health Impact of Data Centers**. Communications of the ACM (accepted), 2026.

way could meaningfully raise total emissions above our estimates. Given the reduced scrutiny many projects are facing (see sections on **Federal policy** and **Segmentation**), there is a risk that some projects could emit more pollution than their permits allow.[224]

Our estimates assume all projects are built to full claimed capacity, but **this is by no means guaranteed**: supply chain shortages, financial risks, and data center opposition could all lead projects to get delayed or canceled. If projects using certain technologies fail more often (e.g. if the gas turbine supply chain issues continue to delay deployment, or if new nuclear technologies do not make it to market on schedule), the actual amount of generation that is zero-carbon or gas could vary.

Finally, it is worth putting our total estimated generation figures in context. As shown in **Figure A1**, we estimate these 177 GW of gas projects could result in 960 TWh of generation per year at full build-out, with most of these projects planned to come online by 2032. However, projections of U.S. data center electricity consumption— which include grid-connected data centers—range from 400–850 TWh by 2030.[225] This difference highlights the uncertainties in this field and means that either current energy use projections are too low, not all of this capacity will get built, actual capacity factors will be lower than 60% long-term, or some combination of all of the above. Energy use projections have shifted up over the last few years; for example, **EPRI's 2030 projection** doubled between their 2024 and 2026 reports.

Supplemental project details

Table A8. Example GW-scale BYOP projects using a single primary generation type

Project	Location	Capacity (GW)	Technology
Fermi America Project Matador	Carson County, TX	11 GW	CCGT[226]
GW Ranch (Amazon)	Pecos County, TX	7.6 GW	SCGT
Monarch Compute (Anthropic)	Mason County, WV	2 GW phase 1 8 GW total	RICE
Project Jupiter (Oracle, OpenAI)	Doña Ana County, NM	2.4 GW	Fuel cells

[224] Air permit violations are not unheard of: A 2024 study found **6% of Title V permitted facilities had "high priority violations."** (This study is not specific to gas plants).

[225] See Smith et al. United States Data Center Energy Usage Report: 2025 Update.

[226] Some of Fermi America's turbines will initially be commissioned as SCGT and later retrofitted to CCGT.

Table A9. BYOP projects using fuel cells

Company, Project	Location	Capacity (MW)	Timeline/Status	Fuel cell provider
Oracle/OpenAI, Project Jupiter	Doña Ana County, NM	2,462	Application filed 2026	Bloom Energy
Hedgehog Power	Rice, TX	1,500	Application filed 2025	Bloom Energy
AEP (includes Amazon, Cologix, and BFC Power projects below)	Multiple sites	100–1,000	Announced 2024	Bloom Energy
AEP and Amazon, Scioto Darby Creek Rd	Hilliard, OH	73	Under construction, operating by 9/2027	Bloom Energy
AEP and Cologix	Franklin County, OH	—	Unknown	Bloom Energy
AEP and BFC Power, Project Jade	Laramie, WY	100–900	Approved 2026	Bloom Energy
ECL, TerraSite-TX1/Lambda	Houston, TX	50–1,000	Unknown	PowerCell (Hydrogen)
Diversified Energy/TESIAC	Multiple sites (KY, VA, WV)	360		FuelCell Energy
Microsoft/Nebius, DataOne	Vineland, NJ	250–328	Under construction, operating by 2027	Bloom Energy
Equinix, IBX	Multiple sites across the U.S.	105	Announced 2015, Expanded 2025	Bloom Energy
Terra Green Data Center	Santa Clara, CA	99	Unknown	Bloom Energy
T5 Data Centers	Chantilly, VA	60		Bloom Energy
ECL CSC-1	Santa Clara, CA	35	Operating in 2024	PowerCell (Hydrogen)
Connecticut Data Park	Colchester, CT	18		Bloom Energy
CoreWeave, Chirisa Technology	Volo, IL	14	Unknown status	Bloom Energy
Atticus Power Opco 1	Pawnee, TX	248	Permit approved 2026	Bloom Energy

Table A10. Co-located or on-site zero-carbon projects. (n.q. = capacity not quantified publicly).

Project, Company Status	County, State	Gas (MW)	Solar (MW)	Wind (MW)	Nuclear (MW)	Notes
Redwood Energy microgrid Crusoe; Redwood Materials Operating	Storey, NV	–	12	–	–	Off-grid. 12 MW solar and 63 MWh of second-life EV batteries run Crusoe Spark modular data center units. Planned to scale to 84 MW.
Quantum Clean Energy Google; Intersect Power Operating	Haskell, TX	–	640	–	–	640 MW solar and 1.3 GWh storage online June 2026, co-located with the campus (still under construction). ERCOT treats the site as one load-plus-generation node.
Meitner Energy Center Google; Intersect Power Under construction	Gray, TX	330	340	460	–	Co-located wind and solar with firming by on-site gas engines (BTM). Renewables are FTM; wind is nearby in Roberts County. GEM (gas), GEM (solar)
Project Jackalope Google; AES Contracted / permitting	Wilbarger, TX	–	600	945	–	20-year PPAs for co-located generation, ERCOT-interconnected. Unclear whether the campus is behind a shared meter.
Roman Energy Center Google; Intersect; Chermac Contracted / permitting	Deaf Smith, TX	1,664	425	n.q.	–	Gas engines permitted as firming power; Roman Solar I & II got a stormwater permit July 2026. Unclear if the solar serves the campus directly or via SPP. GEM
Crusoe-Blue Energy Crusoe; Blue Energy Contracted / permitting	Victoria, TX	1,100	–	–	1,500	Gas first, then up to five BWRX-300s from ~2032 beside Crusoe's campus. NRC construction permit Part 1 filed Sept 2026. GEM
Stargate Milam (Freebird) OpenAI; SoftBank; SB Energy Contracted / permitting	Milam, TX	–	n.q.	–	–	New utility scale solar and storage "to support the energy requirements of the Milam County" 1.2 GW data center. ERCOT-connected.
Switch Tahoe Reno Citadel Switch Contracted / permitting	Storey, NV	–	127	–	–	127 MW solar plus 240 MWh storage behind the meter, alongside NV Energy tariff supply. Build status unclear.
GW Ranch Energy Center Pacifico Energy; Amazon Planned	Pecos, TX	7,693	750	–	–	Starting as a private grid isolated from ERCOT, with simple cycle turbines and solar and storage. GEM
Griffin Energy Project Copia Power Planned	Pinal, AZ	500	550	–	–	Solar, storage and gas to directly power a nearby (but non-adjacent) data center. GEM
Monarch Data Center Copia Power (Carlyle) Planned	Lyon, NV	500	200	–	–	Gas described as backup; 200 MW on-site solar and storage planned. GEM. (Not to be confused with 8 GW gas Monarch Compute in WV).
Red Butte Energy Centre BrightNight Planned	Iron, UT	1,500	300	–	–	Solar and storage co-located with gas; grid connection not stated. On hold under a county moratorium. GEM
Ridgeline Facility Fundamental Data Planned	Tucker, WV	3,885	1,300	–	–	Press reports ~1.3 GW solar. Islanded microgrid, with no sales to the grid. GEM
Quantica Big Sky Quantica Planned	Yellowstone, MT	1,785	3,600	1,600	–	Interconnection applications for generation near the campus, delivered over NorthWestern transmission (FTM).
Project Goodnight Google; Crusoe Planned	Armstrong, TX	933	–	266	–	Off-grid gas. Potential supply agreement with Goodnight Wind, not contracted. GEM (windfarm), GEM (gas plant)
Project Matador Fermi America Announced / marketing only	Carson, TX	11,280	1,750	–	6,000	Solar and nuclear capacity claimed in Fermi's Form S-11 (Sept. 2025). First 1 GW nuclear reactor end of 2031. GEM
Creekstone Delta Gigasite Creekstone Energy Announced / marketing only	Millard, UT	2,000	6,000	–	–	Marketing claims 6 GW solar on 30,000 acres; nuclear and geothermal being explored. No solar filings. GEM
Stratos / Wonder Valley O'Leary Digital; West GenCo Announced / marketing only	Box Elder, UT	1,000	500	–	–	Solar shown in marketing diagram as part of "long-term power strategy"; gas is phase 1 only. GEM.

Examples of project segmentation

In addition to the segmented projects in Licking County, Ohio (see section on Segmentation above), we identified a number of other projects using these strategies. We estimate that about one third of minor source permits or applications that have been disclosed for gas BYOP so far (13 of 37 minor source permits, as of 9/1/2026) use physical segmentation. Some examples include:

Adams Fork Energy Campuses in Mingo County, West Virginia

TransGas Development Systems is building two identical, 2.5 GW RICE projects in the same county (13 miles apart): Adams Fork Data Center Energy Campus and Adams Fork Harless Data Center Energy Campus. Both fall under the 250 tpy major source threshold and neither is undergoing PSD review.

Vantage and VoltaGrid in San Antonio, Texas

Vantage has contracted VoltaGrid to power two of its data centers in San Antonio, Texas: the VoltaGrid SAT-1 and SAT-2 power plants are across the street from one another but filed separate air permits. Combined, SAT-1 and SAT-2 have 414 MW of RICE and would likely exceed the PSD threshold for CO. Diesel backup generators at the associated data centers were also permitted separately. This project is being challenged by EIP, Sierra Club, and Public Citizen.

Joule Capital power stations in Millard County, Utah

Joule Capital plans to build up to 4 GW of gas in Millard County, Utah at full capacity. So far, they have permitted 873 MW of RICE across five identically-designed sites. Each site consists of 69 Caterpillar G3520K gas generator sets (RICE), 2.5 MW capacity each. Total permitted NO_x is 230 tpy per site (below 250 tpy PSD threshold), but 1,150 tpy total across all 5 sites.

Misae Wilson and Misae Dunamis in Wilson County, TX

Misae Wilson (TCEQ reg. 182518, issued 2026-01-14) and Misae Dunamis (reg. 183795, issued 2026-05-04) are identically-designed facilities in Wilson County, Texas, located about one mile apart but registered to different LLCs. Both facilities are permitted for 515 MW of RICE, consisting of 206 Rolls-Royce RICE engines (mtu 20V4000L64FNER). Each site falls 25 tpy under the 250 tpy PSD threshold.

LPI Palmer Generating Station in Ellis County, TX

Liberty Energy's LPI Palmer Generating Station is a 700 MW gas project split into eight identically-designed facilities with separate air permit applications, each with 87.5 MW of RICE (Caterpillar G3520K). Liberty Energy announced a 330 MW Energy Service Agreement (ESA) with an undisclosed "leading data center developer" in February, 2026.

Additional case study details

Table A11. Potential emissions from proposed and approved BTM gas plants in Ohio. For approved projects, emissions are permitted limits; for proposals, emissions are taken from the applicants' "potential-to-emit" calculations based on continuous operation at maximum capacity.

			Potential-to-emit limits in short tons per year (tpy)						
Project	**County**	**MW**	**NO_x**	**CO**	**SO_2**	**$PM_{2.5}$**	**VOC**	**NH_3**	**CO_2e**
Fairfield Energy Center	Fairfield	1,488	436	635	72	284	198	—	7.17M*
Bluegrass Power Gen.	Fayette	969	495	520	56	238	155	—	4.72M
Scioto Darby Creek Road	Franklin	73	0.5	10.9	—	5.9	5.1	0.0	0.24M
PowerConneX I†	Licking	142	35	81	—	36	61	30	0.47M
PowerConneX II†	Licking	289	72	165	—	72	125	61	0.97M
PowerConneX III	Licking	578	161	219	10	178	244	214	2.78M*
Neo Power Gen.	Licking	711	243	245	189	197	173	476	3.47M
Socrates North Power Gen.	Licking	308	239	223	123	90	104	205	1.51M
Socrates South Power Gen.	Licking	308	239	223	123	90	104	205	1.51M
Socrates the Younger Power	Licking	350	148	186	148	104	102	265	1.83M
Ashville Energy Center	Pickaway	954	289‡	695‡	74‡	402	330‡	171‡	4.66M‡
Apollo Power Gen.	Wood	492	192	235	198	140	141	341	2.48M
	Totals:		2,550	3,439	992	1,837	1,742	1,969	31.82M

*Where CO_2 emissions estimates were not provided, we estimated potential emissions assuming 1,100 lb CO_2/MWh (corresponding to ~40% electrical efficiency) and continuous 8,760 hr/yr operation.
†PowerConneX I and II are subject to a single permit. Totals here are split proportionally to each site's capacity.
‡In their June 2026 permit-to-install application, Ashville Energy Center's emissions calculations contained mistakes which resulted in underestimates. These totals represent our corrected emissions estimates based on manufacturer specifications and EPA AP-42 emissions factors.

Appendix 3: Policy summaries

Methodology for analysis of state BYOP-focused statutes

Analysis of BYOP-focused state legislation included legislation that was enacted through August 2026. We focused on legislation that directly and substantially addresses bring-your-own-power (BYOP), self-generation, behind-the-meter (BTM) or islanded/co-located power supply for data centers, including measures that reward data centers for procuring or paying for grid-connected generation or other dedicated resources. We excluded legislation focused primarily on broader grid, utility, or ratepayer impacts—such as protections against shifting data-center-related costs to other customers—even where those provisions could indirectly incentivize BYOP (examples include Texas SB 6, Montana HB 424, Michigan HB 4906, Washington SSB 5982, North Dakota HB 1539, Indiana SEA 421, and Maryland SB 474).

To identify relevant legislation, we reviewed existing state policy trackers and databases from Climate XChange, Sierra Club, and National Conference of Environmental Legislators, as well as reports including Climate XChange's State Policy Toolkit on Greenhouse Gas Emissions and MultiState's States Look at Ways to Encourage Off-the-Grid Power for Data Centers. We also consulted directly with NCEL and Climate XChange to identify additional bills and validate our findings.

For purposes of the analysis, we also used the following classifications to characterize how statutes define and BYOP configurations (**Table 4**):

- **"New classification"** denotes statues where a new term was created for BYOP configurations , rather than considering or classifying BYOP as part of an existing term, classification, or definition
- **"Non-utility"** denotes when statutes clearly define power producers as *not* utilities. For example, New Hampshire's HB 672 states that "off-grid electricity providers are not public utilities;" Tennessee's SB 2128 states that the definition of public utility "does not include an independent power producer." This can have the effect of exempting them from regulations that apply to utilities.
- **"Non-retail sales"** denotes cases where there is an exemption from classification as retail sales. For example, New Mexico's HB 93 states that "energy generated and sold from a self-source generation **resource** that is owned in whole or in part by a qualified microgrid shall not be considered retail sales."

Policy summaries: Enacted state laws

For additional information on proposed legislation relating to clean energy for data centers, see Climate XChange's State Policy Toolkit on Greenhouse Gas Emissions. For ongoing monitoring of data center legislation including those that address BYOP, there are several trackers and databases including those maintained by Climate XChange, Sierra Club, Data Center Policy, datacentertracker, and National Conference of Environmental Legislators.

Maryland's Data Center Clean Capacity and Registry HB 1532 (2026) and SB 937 (2025)

In May 2026, Maryland's Data Center Clean Capacity and Registry was signed into law as part of the Utility RELIEF Act (HB 1532 pages 37 and 72-83, also summarized in the fiscal policy note pages 29-39). In addition to establishing a "large load registry" (7-233, pages 74-80), voluntary large-load interruptible interconnection process (4–212, page 37), and process to study flexible load and behind the meter storage, this law directs the Maryland Public Service Commission to establish, among other things:

- **"Voluntary clean capacity rating program" which sets standards for data centers to bring their own clean capacity** (7–234, pages 80-83): "Gold" for data centers that bring clean capacity corresponding to 80%+ of their load, and "Platinum" for data centers that bring 100%. Clean capacity can be behind the meter or newly connected energy storage, non-emitting demand response, a virtual power plant (i.e., a connected aggregation of DERs), or other new clean generation located within the "Locational Deliverability Area"[227]. Both types of data centers must pay prevailing wage in their construction. The statute directs the PSC to "establish penalties" for those designated under the standard that violate its terms, but does not specify what those penalties shall entail. Incentives to participate in this voluntary program include: prioritization for load studies and interconnection for "Gold" data centers; **prioritization for load studies and interconnection, guaranteed environmental permits within 12 months, and fast-tracked substation builds** for "Platinum" data centers.
- **A registration fee towards energy assistance and energy efficiency** benefits (7-233, page 77): As part of "registration" for the large load registry, a fee of not less than $1,000 per MW of peak load is charged. The fee revenue is to be used for energy assistance and energy efficiency upgrades through the low income energy efficiency program. Because this fee applies to retail electric customers as part of registration with the new Large Load Registry program, it appears to apply to entities buying power from the grid (i.e., not BYOP resources).

This law also includes provisions aimed at eliminating AI data center cost shifts to other ratepayers (4–212, pages 33-36).

[227] PJM's definition of Locational Deliverability Area (LDA) is a "geographic area within the PJM Region that has limited transmission capability to import capacity to satisfy such area's reliability requirement, as determined by the Office of the Interconnection in connection with preparation of the Regional Transmission Expansion Plan, and as specified in Reliability Assurance Agreement, Schedule 10.1."

In 2025, Maryland passed The Next Generation Energy Act (SB937), summarized in the fiscal note (page 9), which contains a provision authorizing the PSC to "apply specified costs to behind-the-meter co-located commercial or industrial customers and generating stations". These costs include "any direct or indirect costs, fees, and obligations that are normally applied to retail electric customers in the service territory" and "any avoided wholesale costs that PSC determines have been or may be shifted inappropriately to other retail electric customers as a result of the provision of the direct supply of electricity through the co-location arrangement, including costs associated with transmission, energy, capacity, and ancillary services." This provision applies to entities that: "enter into a contract for the provision of electricity in a way that bypasses (1) interconnection of the load with the electric transmission and distribution systems or (2) the distribution services of an electric company." The bill does have a notable exemption for "the use of electricity from an on-site generating station that has been approved under the CPCN exemption process."

New Hampshire's HB 672 (2025)

New Hampshire's HB 672, signed into law in August 2025, establishes a specific category for "off-grid" electricity providers, states they are not utilities, and exempts them from Public Utility Regulations—which includes the state's Renewable Portfolio Standard. If an energy provider ultimately connects to the grid, they will cease to be exempted.

New Jersey's Data Center Fair Share Act S731/A796 (2026)

New Jersey's S731/A796 was signed into law in 2026. In addition to directing the New Jersey Board of Public Utilities to create a large load tariff for data centers[228], this law also directs the PUC to establish standards that, among other things:

- Incentivize data centers to bring their own new clean generation or energy storage and prioritize the interconnection of data centers that make clean power (and other) commitments (§ 1(b)(5), page 5).
- **Develop a tariff framework for data centers "served in whole or in part by co-located generation"**, including costs attributable to their actual or potential use of the electric public utility system (§ 1(b)(6), page 5).
- Ensure the curtailment of large data centers before residential customers during grid strain, with the exception of data centers that procure BYOP capacity (regardless of whether it is clean or not), who are to be protected from advanced curtailment (§ 1(b)(11), page 6).
- Develop a voluntary "demand reduction trade program" where new large loads can pay to reduce demand elsewhere on the system to offset their capacity obligation (§ 1(d)(4), page 8).[229] The law directs the PUC to identify the parameters for this program, including eligible categories of demand reduction (e.g., energy efficiency, demand response, BTM storage, and managed electrification) and methods to demonstrate demand reductions are "quantifiable, additional, coincident with the

[228] Note: this allows the PUC to "relax" requirements protecting ratepayers from increased costs due to large load data centers if the data center "commits to providing sufficient operational flexibility or commits to bringing additional sources of energy and capacity online to meet its load, such that these requirements are not necessary to protect ratepayers."

[229] https://www.nj.gov/governor/news/2026/20260707a.shtml

periods of system or local need, and measured using advanced metering infrastructure."[230] According to Governor Sherrill, this "first of a kind" retail program, operating outside of the PJM market, will drive "accelerated deployment of distributed energy resources paid for by data centers."[231] Under the demand reduction program, data centers can also export energy to the grid during peak hours.

- This statute **addresses segmentation of data centers** by directing the PUC to establish a definition that aggregates facilities "under common ownership or control, located on the same site or contiguous sites, or share substantial physical, operational, or interconnection infrastructure," and by directing the PUC to address challenges "including measures to ensure that no person evades the requirements of this section through corporate structuring, project segmentation, behind-the-meter configurations, off-tariff arrangements, or other similar arrangements" (§ 1(b)(1), page 5). It does not appear to include a provision specifically addressing segmentation of the energy generation facilities.

West Virginia "Microgrid Law" (2025)

In April 2025, West Virginia enacted the Power Generation and Consumption Act (HB 2014) to encourage data centers to develop in West Virginia and generate their own power via so-called microgrids, emphasizing WV's "least restrictive regulatory environment in the Nation" and fossil resources.[232] This law creates **arguably the most supportive environment for BYOP development in the nation**, with a variety of regulatory exemptions and local preemptions including prohibiting counties or municipalities from "imposing or enforcing local laws and ordinances concerning the creation or regulation of any certified microgrid district or certified high impact data center" (§ 5B-2-21b(c)(2)).

Specifically, the law establishes a "Certified Microgrid Development Program" (§5B-2-21) which among other things:

- (§ 5B-2-21(b)(8)) Allows **unlimited number and size of microgrid districts *if 70% of the electricity generated serves 1 or more "High Impact Datacenters" (HIDC)***[233]—only two may be certified for other uses.
- Despite being able to sell up to 10% of the power generated to the grid (i.e., PJM's wholesale market)(§ 5B-2-21(c)(6)), microgrids are **exempt from PSC regulation on rates, obtaining a certificate of convenience and necessity**, siting requirements, and conditions of service or complaints, as well as net metering and interconnection standards (§ 5B-2-21(c)(1-3)).
- (§ 5B-2-21a(e)) Allows the PSC to approve special contracts for a microgrid customer within the microgrid district.

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[230] https://pub.njleg.state.nj.us/Bills/2026/A1000/796_R4.PDF

[231] https://www.nj.gov/governor/news/2026/20260707a.shtml

[232] https://westvirginiawatch.com/2025/04/30/morrisey-signs-priority-bill-meant-to-incentivize-data-centers-micro-grids-locating-in-wv/ and https://www.wvlegislature.gov/Bill_Status/bills_text.cfm?billdoc=hb2014%20sub1%20enr.htm&yr=2025&sesstype=RS&i=2014

[233] "High Impact Data Centers" must have 90 MW+ of critical IT load in aggregate

- (§ 5B-2-21a(h)) Specifies that microgrid applications ("Letter of Intent") will be **confidential and beyond the reach of the Freedom of Information Act (FOIA)** (§5B-2-21a(e)).
- No longer includes the renewables requirement present in the prior 2022 microgrid law (SB 4001), which created *two* 2,250 acres microgrid districts.[234]

As part of the "High Impact Data Center Program," provision, this law, among other things:

- Explicitly states that any information identified by the data center as confidential business information shall be **exempt from FOIA** (§5B-2-21a(e)).
- **Severely limits local control** and puts the legislature in charge of "the whole field of the creation and regulation of certified microgrid districts and certified high impact data centers" (§5B-2-21b(a)(3)) in a variety of ways—providing a pathway for further deregulation and minimal oversight—including:
  - Prohibiting "counties and municipalities, whether by ordinance, resolution, administrative act, or otherwise, from enacting, adopting, implementing, or enforcing ordinances, regulations, or rules which limit, in any way, the creation of, and acquisition, construction, equipping, development, expansion, and operation of any certified microgrid district or certified high impact data center project" (§5B-2-21b(c)(1)).
  - Prohibiting "counties and municipalities from imposing or enforcing local laws and ordinances concerning the creation or regulation of any certified microgrid district or certified high impact data center therein" (§5B-2-21b(c)(2)).

Ohio House Bill 15 (2025)

Ohio House Bill 15 took effect in August, 2025, introducing a broad set of reforms related to energy infrastructure development. As it relates to BYOP, it clarifies and expands upon self generation options for Mercantile Customers,[235] prohibits recovery of self generation related costs from other customers, and requires review and approval of infrastructure siting in shorter timelines. Specifically, HB 15:

- **Codifies BYOP** through introduction of a "Mercantile Customer Self-Power System," (4928.73(A)(2), page 74) which, among other things, is defined as an electric generation and/or storage facility that produces energy "primarily" for consumption of a Mercantile Customer or customers and connects to the generation behind the meter (not through the utility grid). It also allows Mercantile Customer Self-Power Systems to sell energy to other large customers (4928.73(B), page 74) without being considered a utility. Indeed, Mercantile Customer Self-Power Systems and "self-generators" are excluded from the definition of a utility (4905.03(C), page 19) and from being considered "retail electric service" (4933.81(E), page 79).

  Notably, the definition of Mercantile Customer Self-Power System specifies being located on "a property owned or controlled by a mercantile customer member or the entity that owns or operates the mercantile customer self-power system" or "land adjacent to a mercantile customer member if

[234] https://www.microgridknowledge.com/policy/article/55305988/west-virginia-microgrid-law-aims-to-attract-and-power-data-centers-then-share-the-wealth-they-generate

[235] Commercial or industrial customer using 700,000kWh per year or is part of a national account involving multiple facilities in one or more states (4928.01(A)(19), pages 38-39).

the facilities connect directly with the customer" (4928.73(A)(2)(d), page 74). This definition may enable segmentation practices: According to Bricker, Graydon & Wyatt, "the Ohio legislation includes what is perhaps the most expansive industrial microgrid framework in the nation. This comprehensive approach allows multiple large users to aggregate behind-the-meter resources—even across separate sites—without strict proximity requirements."

Finally, HB 15 directs the PUC to adopt rules to implement the mercantile customer self-power system provision that are applicable to electric distribution utilities (4928.73(D), page 74).

- **Prohibits cost recovery of certain BTM costs**, including stranded costs, from ratepayers not receiving the BTM service (4905.311(C), page 11). This bill also directs the PUC to conduct periodic compliance audits.
- Directs the board to adopt "accelerated review"[236] for construction certificates, including for:
  - Electric generating plants, transmission lines, or gas pipeline infrastructure "in a priority investment area." Application compliance determination is 45 days after submission and final decision is 45 days after the compliance determination. If the board does not render decisions in these timeframes, applications are deemed in compliance or approved, respectively (4906.03(G), pages 15-16).
  - Major utility facilities[237] that are located on property owned by the applicant (or under a lease term of 25 years) and/or on an easement or right-of-way—as long as no additional consent for construction is required other than the power siting board. Decisions must be rendered within 60 days after applications are received or be automatically approved (4906.03(H), pages 15-16).
- **Adds "linear generator" to the definition of "renewable energy resource"**, with no stipulations for fuel type or source (4928.01(A)(37)(a), page 42).
- **Reduces the percentage of tangible personal property (TPP) tax**, including for new and converted or repowered electric generation (5727.111(A)(2), page 87).

Utah Senate Bill 132 (2025)

Utah enacted Senate Bill 132 in 2025. This legislation created a framework to serve new large loads like data centers with fewer barriers and more options to procure generation outside of traditional utility service.[238] According to a press release from the Utah Legislature, "These contracts allow

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[236] The non-accelerated review includes: a 45 day determination of compliance after applications are filed, and if no determination is issued in this timeframe, the application is deemed in compliance (49606.06(G), page 18). The power siting board shall conclude public hearing proceedings "as expeditiously as practicable," holding them between 45 and 60 days after compliant applications are filed (4906.07(A), page 18). A final decision must be made within 150 days of submission of a complete application; if the board does not make a decision in this timeframe, the application is deemed approved (4906.10(D), page 19).

[237] 4906.01(B)(1) "Major utility facility" means: (a) Electric generating plant and associated facilities designed for, or capable of, operation at a capacity of fifty megawatts or more; (b) An electric transmission line and associated facilities of a design capacity of one hundred kilovolts or more; (c) A gas pipeline that is greater than five hundred feet in length, and its associated facilities, is more than nine inches in outside diameter and is designed for transporting gas at a maximum allowable operating pressure in excess of one hundred twenty-five pounds per square inch.

[238] Defined as cumulative demand of 100MW or more over five years (54-26-101(12))

providers to meet growing demands outside of normal regulatory processes while ensuring that large load consumers bear full costs and existing ratepayers are not negatively impacted."

The statute creates a new classification for large load customers that procure power from "closed private generation systems," i.e., resources that are completely disconnected from the grid (54-26-504, page 14). Closed private generation systems are exempt from commission oversight or regulation as a public utility.

Large load customers not pursuing a closed private generation agreement submit a service request to the utility. If the utility is unable to provide service without major upgrades or mutually agreed-upon terms, the large load customer can pursue a second new classification called "connected generation systems," which is essentially BYOP that is connected to the transmission grid (54-26-505, pages 14-15). The generation providers in this case are exempt from commission regulation as a public utility. These "large-scale generation providers" must maintain sufficient generation capacity to serve all contracted load, cover all of their own infrastructure and incremental costs, provide curtailment provisions if the large load's demand exceeds their power resources, and show financial stability (54-26-301, page 9). The PUC reviews the contracts to serve these large loads (54-26-302, page 10), but they are exempt from the rate and tariff rules applicable to utilities and are only subject to a compliance review with a 60-day review period (54-26-302, page 11).

In both "closed private generation" and "connected generation" cases, the generators must register with the commission before providing service and report on the generation resources used (among other things). They also have to submit documentation of all required permits obtained, including environmental permits, and the estimated impact of generating sources on the state's implementation plan for air quality (54-26-501, page 12).

The PUC is required to review the impact of the legislation in 2027 and every three years thereafter with a report that is informed by stakeholder input and public comment (54-26-802, page 18).

New Mexico Advanced Grid Technology Plans Act HB 93 (2025)

As part of grid modernization efforts, New Mexico passed and enacted the Advanced Grid Technology Plans Act in 2025. Section 6 established the structure for Self-Sourced Power Generation from a qualified microgrid (20MW or larger and capable of operating independently of the grid) (§ 6(E)(3), page 17) to sell excess power to others, including the utility, as long as an agreement is in place with the utility. The law allows electricity generated by "qualified microgrids" to not be treated as retail sales, and effectively exempts microgrids–like those proposed for Project Jupiter– from New Mexico's renewable portfolio standard of 50% renewables by 2030 and 80% by 2040 (§ 6(C), page 16).[239] The law does create a separate requirement that microgrids come from "net-zero-carbon resources" by 2045, and requires them to regularly report on compliance progress (§ 6(C), page 16). In 2026, lawmakers attempted to tighten this framework through the Microgrid Oversight Act, which was postponed indefinitely in the House.

[239] https://clean.energy.nm.gov/clean-energy-concierge/utility-scale-generation-pathway/

Oklahoma SB 480 (2025)

Senate Bill 480 was enacted in 2025. Its primary impact was to allow owners and operators of onsite generation to sell excess power to other customers (not the public) and the utility without being regulated as a public utility, though they do have to comply with interconnection and registration requirements (§ 151(B), page 4). Those utilizing this section are required to include "a natural gas component" in their generation capacity (§ 151(B), page 4).

Tennessee HB 1847 / SB 2128 (2026)

Tennessee enacted HB 1847 / SB 2128 in 2026, which creates a data-center specific definition for "independent power producers," that can sell to data centers or wholesaler purchasers (7-70-101(6)(B)). These independent power producers can be located BTM or provide power to a data center via the grid. If the data center takes service from an electric utility and BTM resources, written approval is required from the utility (7-70-102(e)). This statute specifies that independent power producers are *not* utilities (65-4-101(6)(E)), effectively exempting them from public utility specific regulations.

The legislation also provides a framework for allocation of costs between data centers and other customers.

Delaware HB 445 (2026) and HB 310 (2026)

Delaware HB 445, enacted in 2026, **requires 100% "near" BYOP** for large energy users, stating that "a large energy use facility may not operate in the State unless the facility produces sufficient power or procures sufficient generation to meet 100% of the large energy use facility's annual energy needs from a facility or facilities interconnected in the State or within PJM's DPL transmission zone or within a transmission zone contiguous by land to the DPL transmission zone and with sufficient existing transmission infrastructure to deliver this additional electricity to Delaware" (8066(a)(1)). Facilities that do not meet the 100% BYOP requirement immediately may ramp up over 10 years, but they can't interconnect unless they have at least 25% of its required energy generation energized and interconnected (8066(d)(1)). They are also subject to curtailment and must participate in PJM demand response programs—and those that continue to operate during curtailment are required to "use back-up generation systems including at least 50% power met by battery storage or clean energy technology" (8066(b)). In addition, the statute specifies that "single-cycle or open-cycle power generation"—technologies commonly used in gas-powered BYOP—are "not an acceptable energy generation technology for purposes of this subsection" (8066(a)(5)).

This statute also requires that all power generated for a large energy use facility "must **meet the renewable energy portfolio standard**" (8066(a)(3)) and be "produced by clean energy technology" including those that qualify in the RPS, nuclear, and energy storage. The statute also includes BTM resources within the RPS clause, stating that compliance with that requirement "may be achieved through any combination of procurement of renewable or clean energy resources, onsite or directly interconnected generation, power purchase agreements, or other mechanism approved by the electric utility's regulatory body" (8066(a)(4)). The penalty for large energy users that do not comply with the RPS percentage requirements is a fee "in an amount determined by the electric utility's regulatory body" (8066(b)).

Within its definition of "Large energy use facility" (102(2)b) this statute also **addresses segmentation**, stating that "multiple facilities may be aggregated and treated as a large energy use facility for the purposes of this definition if the electric utility or the electric utility's regulatory body determines they would pose reliability risks to the electric system because of their electricity use, proximity, and operational characteristics. Factors that may be considered include close physical proximity, common ownership or control, or ownership or control through an affiliated company, and sharing of local electrical infrastructure." Like New Jersey, it does not appear to include a provision specifically addressing segmentation of the energy generation facilities.

Delaware HB 301, also enacted in 2026, conditions tax credits on compliance with BYOP provisions above.

Nebraska LB 1261 (2026)

Nebraska LB 1261, enacted in 2026, protects "privately owned electric generation facilities" that provide service to an industrial customer with loads >1000MW from being assumed by a utility through eminent domain (§ 70-670(5)(a), page 2). To gain this protection, generation facilities must be co-located with the customer (§ 70-670(5)(a)(i), page 2), have received approval from the Nebraska Power Review Board (70-670(5)(a)(i), page 2), and have a PPA or other contract with utilities and transmission authorities (70-670(5)(a)(ii), page 2). The statute requires that industrial customers pay all associated costs .

Policy summaries: Introduced state legislation

Highlights from a few introduced BYOP-focused bills are below. There are many additional relevant bills not summarized here, with more expected in the future (see policy trackers above for further examples).

- **Illinois POWER Act (HB5513),** introduced in February 2026, contained a number of consumer-oriented provisions, including a prohibition on cost shifting, requirement that data centers bring their own clean energy and contribute to affordability and environmental programs, and faster interconnection incentives for clean energy projects.[240] According to the IL Clean Jobs Coalition, the bill included new rules that during peak electricity times, "**data centers can only use the amount of power proportional to the amount of new clean energy they bring to the grid**".[241] HB5513 did not pass in the IL General Assembly this spring, but remains in negotiations this summer.[242]
- **New Mexico's** proposed Microgrid Oversight Act, introduced in 2026, directs the public regulation commission to create a microgrid renewable portfolio standard "that **requires a microgrid to achieve incremental benchmarks for electricity generation from renewable and zero carbon resources**, culminating in one hundred percent electricity generation from zero carbon resources by 2045." Notably, it would give the PUC oversight over microgrids that operate independently from the grid.

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[240] HB5513 - Illinois 104th General Assembly

[241] Illinois Clean Job Coalition (Spring 2026). Support the POWER Act (SB4016/HB5513): Hold Data Centers Accountable and Protect Our Water, Energy, and Utility Bills.

[242] Hytrek, N. (2026, May 30). POWER Act data center regulation won't move forward this spring. Capitol News Illinois

- **Colorado** SB26-102 was introduced in 2026. Among other things, this bill would require large loads to generate, purchase, or otherwise acquire a quantity of electricity generated from renewable resources necessary to meet 100% of the large-load data center's total annual electricity consumption. They must also achieve an hourly matching requirement. Additionally, if the large-load data center is proposed in a disproportionately impacted community, a cumulative impact analysis from a third-party contractor must be performed before the development begins and the developer must enter into a community benefit agreement.

State environmental policy acts

Ma, Becker, and Kilgore identify 16 states as having what are often referred to as state environmental policy acts ("SEPAs") or "mini-NEPAs", which are state environmental laws modelled after the federal National Environmental Policy Act ("NEPA").[243,244] These states, along with Washington DC and Puerto Rico which have similar policies, include:

1. California
2. Connecticut
3. District of Columbia
4. Georgia
5. Hawaii
6. Indiana
7. Maryland
8. Massachusetts
9. Minnesota
10. Montana
11. New York
12. New Jersey
13. North Carolina
14. Puerto Rico
15. South Dakota
16. Virginia
17. Washington
18. Wisconsin

Environmental review requirements differ across states, including in terms of the types of actions subject to review. The Montana Environmental Quality Council's **comparative review** found that states vary in whether environmental review applies to state and local actions, government-permitted projects, and certain private actions. California and New York also require review of certain state projects for their potential climate change and greenhouse gas impacts.[245]

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[243] Ma, Becker, and Kilgore identify 16 U.S. states as having adopted "tier one" state environmental review policies comparable to the federal National Environmental Policy Act (NEPA). Their classification includes New Jersey, whose SEPA-like requirements were established by executive order rather than statute. The 16 state classification refers to states, and therefore does not include the District of Columbia or Puerto Rico; however, DC and Puerto Rico are sometimes included in broader lists of U.S. jurisdictions with SEPA or "mini-NEPA" type environmental review requirements. See: Ma, Becker, and Kilgore, "**Characterising the Landscape of State Environmental Review Policies and Procedures in the United States: A National Assessment,**" *Journal of Environmental Planning and Management* 52 (8): 1035–51(2009).

[244] See: Brigit Rollins and Jason Roberson, **States' "Mini-NEPA" Laws**, The national Agricultural Law Center, October 15, 2025; N. Yost (May 2014). **Appendix 4: State "Mini-NEPAs" and Other State Environmental Review Requirements**. NEPA Deskbook, 4th Edition. Environmental Law Institute; D. Rolle and W. Snape (June 2023). **Mini-NEPAs as Tools for Environmental Justice**. Environmental Justice State by State.

[245] See Montana Environmental Quality Council, **Environmental Review in Montana,** chap. 5 (2000), for a comparative discussion of the types of actions subject to environmental review across states; Zhao Ma, Dennis R. Becker, and Michael A. Kilgore, "**Characterising the Landscape of State Environmental Review Policies and Procedures in the United States: A National Assessment,**" *Journal of Environmental Planning and Management* 52, no. 8 (2009): 1035–51, for a national assessment of variation in state environmental review requirements; and Ballotpedia, "**State Environmental Policy Acts**," for state-specific examples.