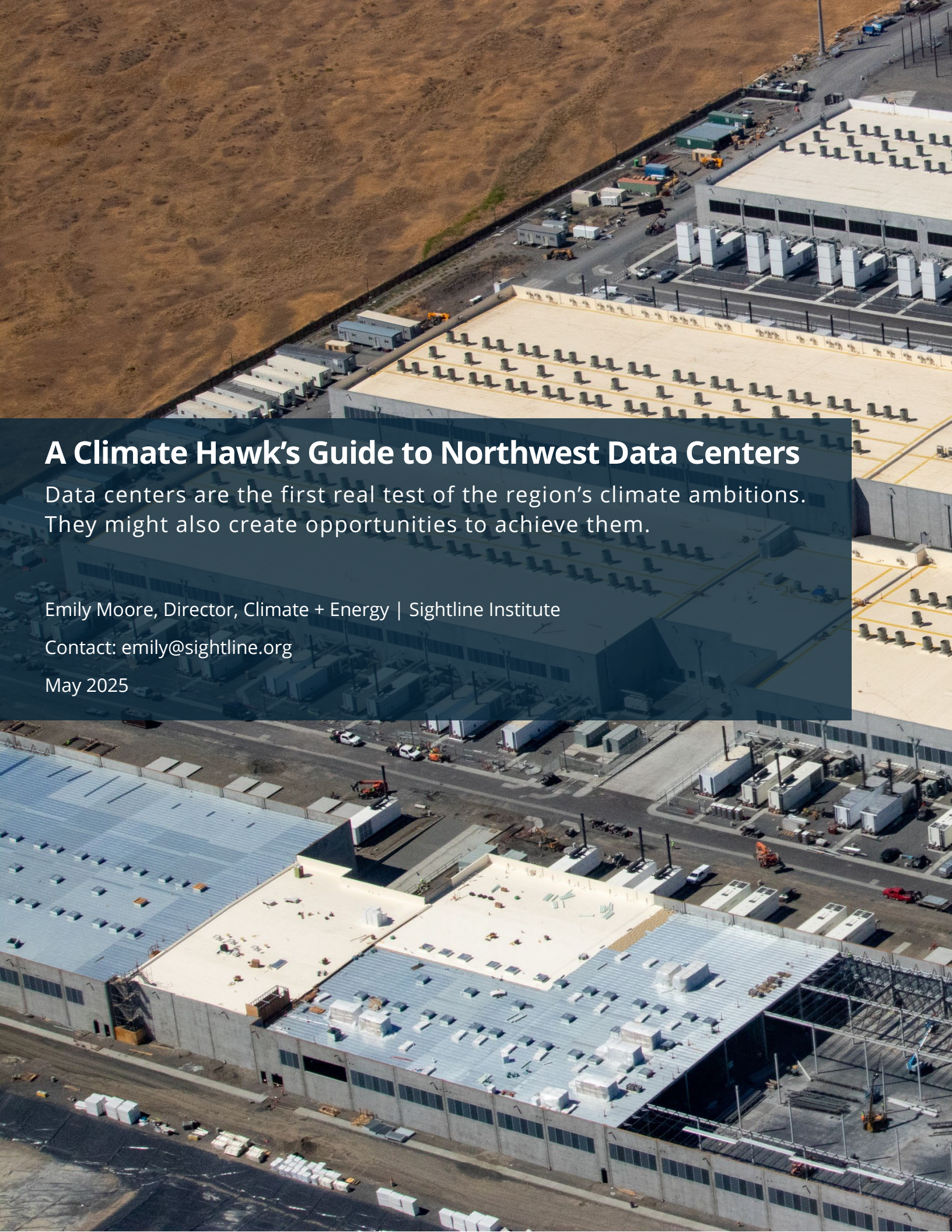

A Climate Hawk's Guide to Northwest Data Centers

Data centers are the first real test of the region's climate ambitions. They might also create opportunities to achieve them.

Emily Moore, Director, Climate + Energy | Sightline Institute

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Executive Summary

"Northwest data centers' electricity use could more than double, imperiling climate goals."[1]

"Data centers guzzle power, threatening WA's clean energy push."[2]

"*Energy demand from data centers growing faster than West can supply, experts say."*[3]

Reading these and other recent headlines, it would be reasonable to conclude that a few power-hungry data centers could force Oregon and Washington State to capitulate on their US-leading climate goals. Is that true?

In this report, Sightline analyzes the extent to which data centers have contributed to global warming pollution in Oregon and Washington. Further, Sightline examines how the industry's continued growth could affect the Northwest's ability to meet its ambitious commitments to transition from polluting fossil fuels to abundant clean energy.[i]

To be sure, data centers arouse a host of concerns unrelated to greenhouse gas emissions. Worries include data centers inflating residential utility bills, the facilities' seemingly unquenchable thirst for water, and the biases in the artificial intelligence (A.I.) models that data centers increasingly power. This report does not touch on those topics, intentionally keeping a narrow focus on data centers' climate impacts.

What we found complicates typical media narratives.

Climate-warming emissions, including those from generating electricity, have dropped in both Oregon and Washington over the past decade despite data center load growth. Further, state policies prevent utilities from building new fossil fuel–generating plants in Oregon and Washington to power data centers, shielding the region from the alarming trend taking hold across the United States.

Data centers have, however, increased a handful of Northwest utilities' reliance on purchasing dirty electricity and likely slowed each state's transition to carbon-free energy. And if data centers gobble up electricity at the levels many analysts anticipate, they could push some Northwest utilities to rely on power from gas and coal burned in neighboring states with weaker environmental regulations for decades longer than they would have otherwise.

Still, the current spotlight on data centers' power consumption obscures the even greater electricity demand—from cars, buildings, and industry—that will follow if decarbonization goes according to plan.

Northwest leaders can transform today's challenge meeting data centers' demand for electricity into an opportunity to accelerate an economy-wide clean energy transition, drawing from tech companies' deep pockets to help pay for it. They can speed build-out of

[i] This report focuses on Oregon and Washington because these states are the two biggest data center markets in Cascadia.

the electric grid to unlock everyone's access to the cheapest solar and wind power; make it easier for tech companies to invest in clean energy innovation; lift obsolete limits on data center operators sourcing clean resources; and transform data centers from passive energy hogs into active grid participants—and maybe even grid assets. All the while, leaders can work to make Northwest data centers the cleanest in the world.

Data centers are the first test of the Northwest's climate ambitions. How leaders respond may chart the course for the rest of the economy's clean energy transition.

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The Dalles, Oregon, and the Columbia River. Photo by Gary Gilardi, via Shutterstock.

Baseline: Northwest data centers' climate record

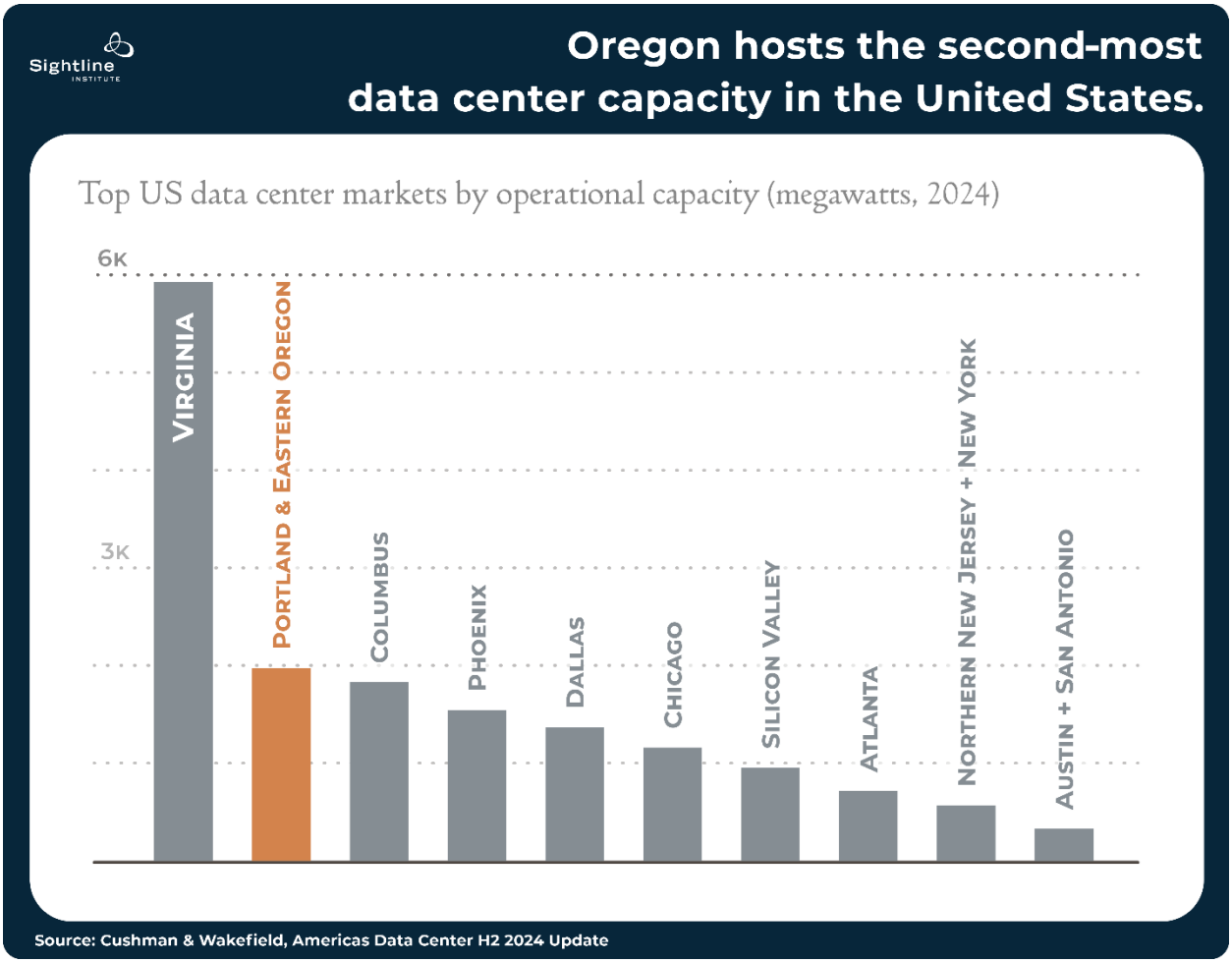
Low taxes and cheap power attract data centers to the Northwest

Data centers have dotted the Northwest for decades. For example, the Westin Building Exchange, a data center in downtown Seattle, began leasing its server space to tech companies in 2001.[4] In 2006 Google opened its first data center in The Dalles, Oregon.[5] Today Oregon and Washington each host roughly 100 data centers, ranking them among the top ten US states by number of data facilities.[ii, 6]

Oregon, however, dominates the data center market in the Northwest, and in the United States as a whole. By the end of 2024, only Virginia, the world's largest data center market, hosted more data center capacity than Oregon (see Chart 1 below).

[ii] Exact estimates vary by source.

CHART 1. US LOCATIONS HOSTING THE MOST DATA CENTER CAPACITY.



Above all, tax breaks and cheap renewable power lure data centers to the region. (Other attractions include a skilled workforce, proximity to tech companies and major cities, and fiber connectivity.[7])

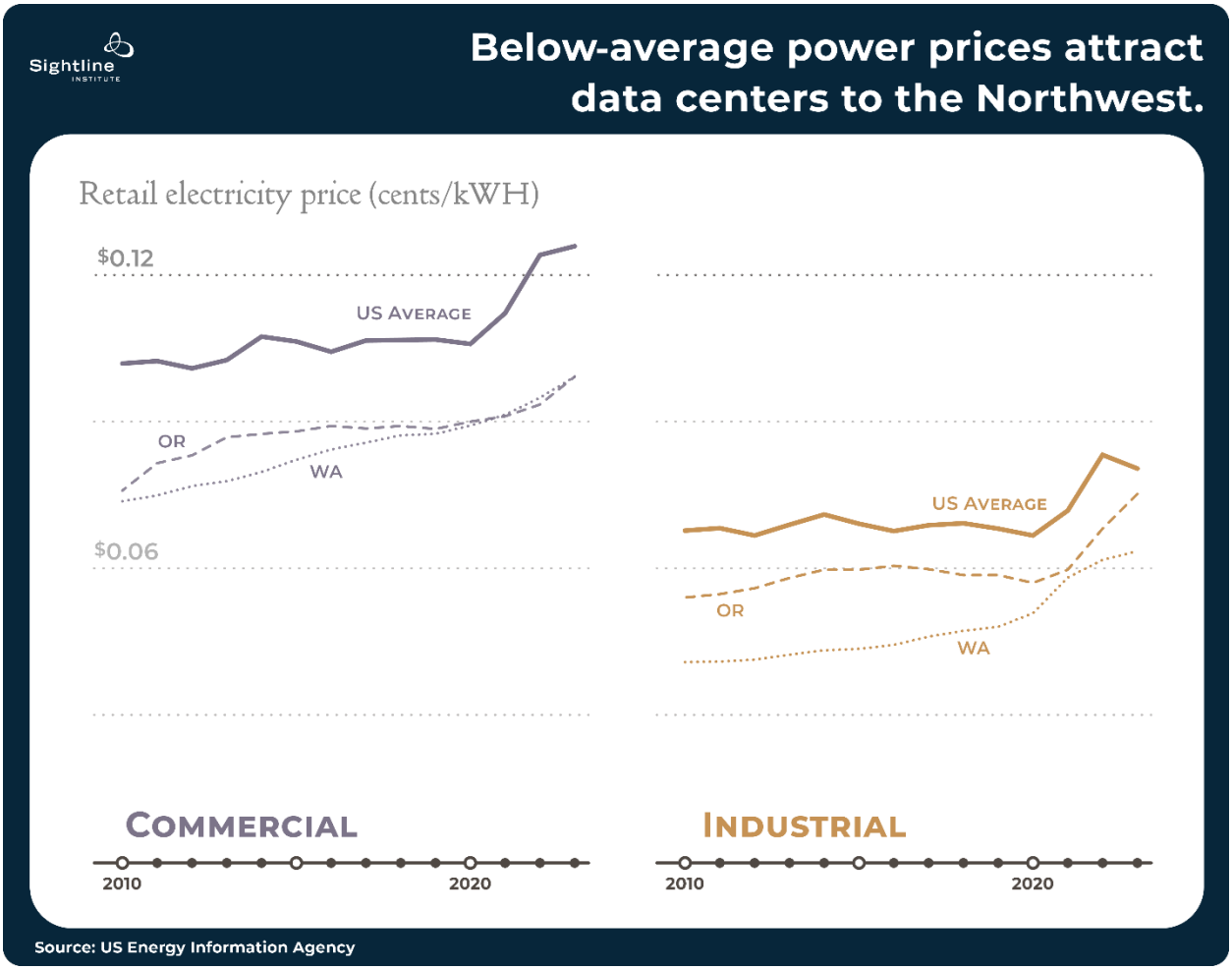
In Oregon, data center operators pay no or low property taxes thanks to the state's enterprise zone program.[8] The program, established in 1985, abates local property taxes for three to five years, subject to certain employment criteria. Roughly three-quarters of these tax breaks go to tech companies for data centers, according to a 2023 analysis by the *Oregonian*.[9] Further sweetening the pot, Oregon lacks a sales tax. Data center operators can "literally save $2 million right on deployment" by not paying sales tax, Dr. Vijay Gadepally, senior staff at MIT's Lincoln Laboratory Supercomputing Center and co-founder and CTO of Radium, a cloud computing platform that owns several data centers, told Sightline.

Washington, too, attracts data centers with low taxes, though not to the same degree as its neighbor to the south. The state exempts data center equipment purchases and installations from sales and use tax.[10] Tech companies avoided paying more than $474 million in taxes between 2018 and 2023 thanks to this special treatment, with Microsoft raking in more than 65 percent of those savings, according to the *Seattle Times*.[11]

Cheap electricity further entices tech companies to the region. Oregon and Washington's electricity prices consistently remain below the US average, largely because of abundant and federally owned hydropower. Hydroelectric dams supply roughly 60 percent of Washington's power and 42 percent of Oregon's power.[12] The federal government owns most of these dams, and federal law mandates that Bonneville Power Administration (BPA), the dams' designated marketing agent, sell the power at cost to consumer-owned utilities in the Northwest.[iii, 13]

Drought—and likely data center load growth—in the Northwest threatens these low prices, however. In 2023 Oregon and Washington's electricity rates reached their highest level in more than a decade.[14] Chart 2 below shows Oregon and Washington's commercial and industrial retail electricity prices from 2010 to 2023, compared to the US average. [iv]

CHART 2. AVERAGE COMMERCIAL AND INDUSTRIAL RETAIL ELECTRICITY PRICES, 2010–23.



The carbon-free bona fides of the Northwest power supply have also drawn tech companies to the region. Amazon, Google, Meta, and Microsoft (all companies with data

[iii] For an overview of consumer-owned utilities in the Northwest and how they differ from investor-owned utilities, refer to this resource: Jeanne Currie, "Demystifying the Northwest Utility Landscape," Clean Energy Transition Institute, Jan. 29, 2025, https://www.cleanenergytransition.org/post/demystifying-the-northwest-utility-landscape.

[iv] Depending on the utility and the size of the facility, data centers may pay industrial or commercial rates.

centers in Oregon or Washington) have committed to sourcing clean electricity. Google and Meta also signed the 24/7 Carbon-Free Energy Compact, pledging to match energy demand with clean supply every hour of every day.[15]

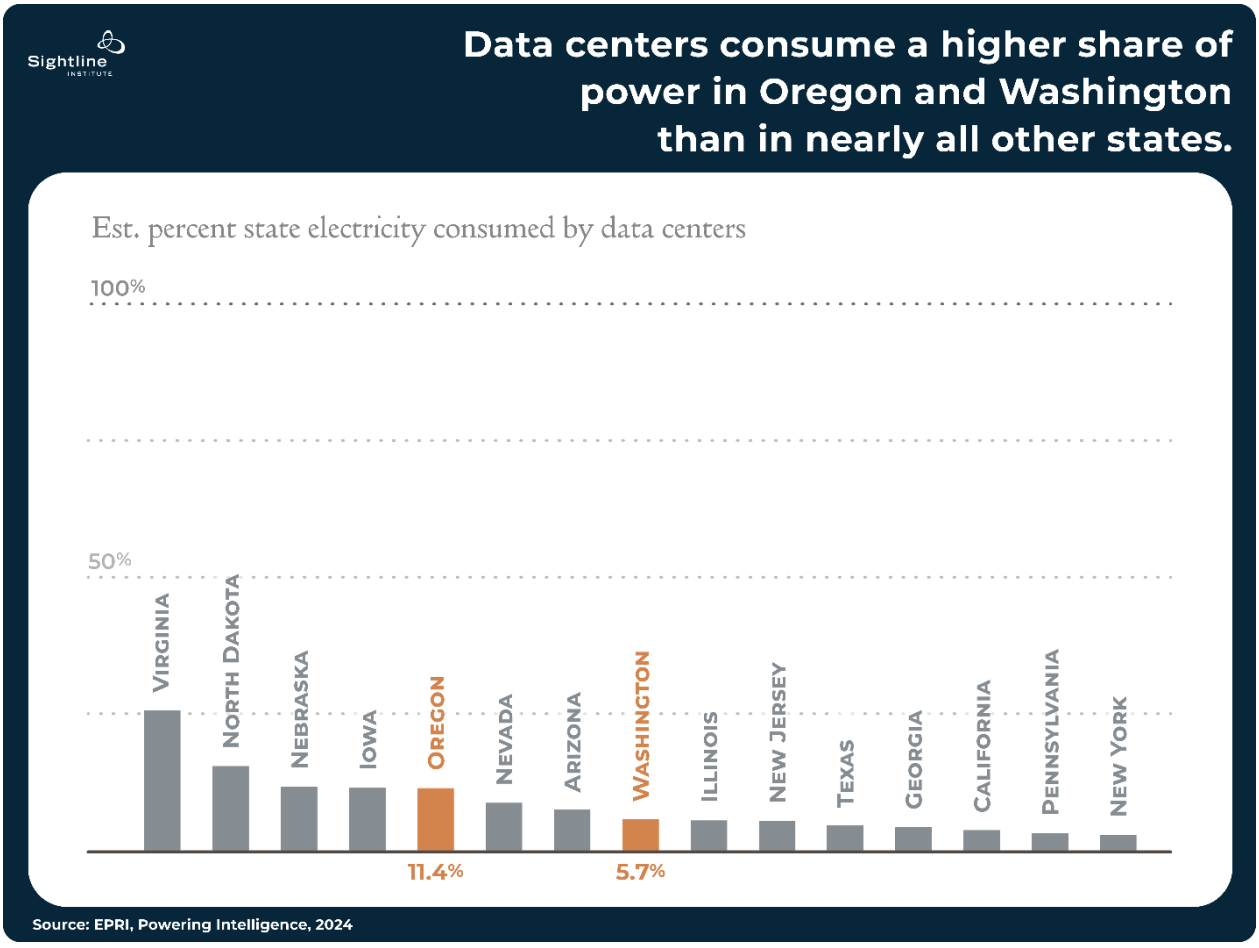
However, today's A.I. arms race is testing the durability of the tech companies' clean energy promises.[16] Data centers powering A.I. can require upward of 100 megawatts (MW) of electricity capacity—four to ten times more than data centers of the not-so-distant past—translating to about as much electricity as a small city uses annually.[17] A.I. fuels almost all the anticipated growth in data centers' power demand.[18]

"Really, it's just cheap and reliable power" driving data center site selection today, Dr. Gadepally of MIT and Radium told Sightline. Indeed, in 2025, Microsoft announced its willingness to use gas-fired electricity to run its data centers.[19]

Electricity emissions have dropped in Oregon and Washington, despite data center growth

Both Oregon and Washington rank among the top 15 states in terms of the percentage of the state's electricity that these facilities use. Data centers consumed roughly 11 percent of Oregon's power and about 6 percent of Washington's in 2023, according to a 2024 report by energy research organization EPRI, as shown in Chart 3 below.[20]

CHART 3. PERCENTAGE OF STATE ELECTRICITY CONSUMED BY DATA CENTERS.

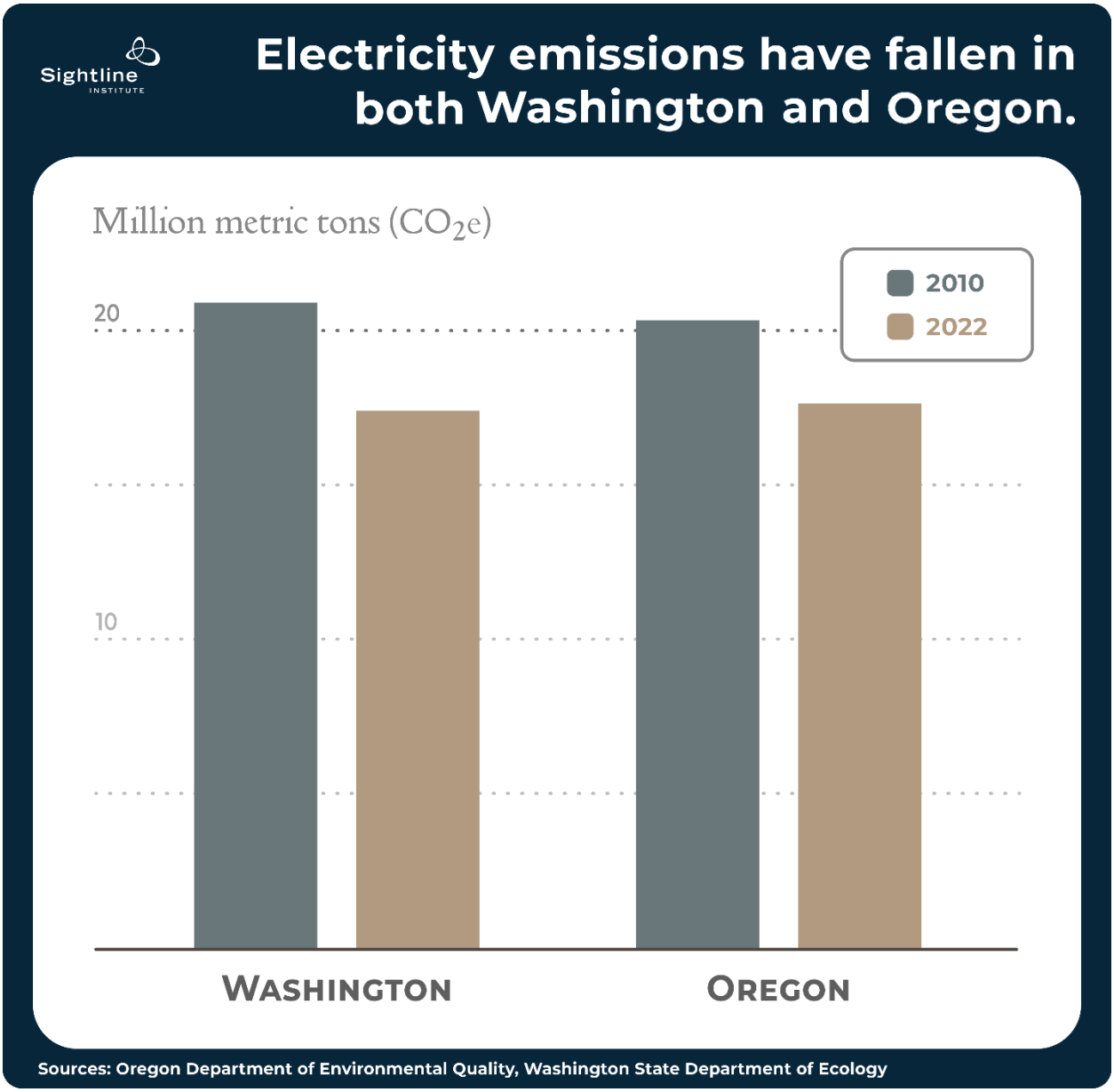


Of the two states, though, only Oregon's overall power demand has spiked in the past decade. Between 2013 and 2023, Oregon's electricity consumption rose by 22 percent, with nearly all that increase stemming from the commercial and industrial sectors, according to the US Energy Information Administration (EIA). Data centers undoubtedly drove a major share, if not almost all, of this growth.

In Washington, by contrast, total electricity demand *dropped* by 4 percent between 2013 and 2023, according to the EIA.

Further, both Oregon and Washington pollute less to generate electricity than they did a decade ago, largely thanks to state policies requiring utilities to stop burning coal for power. Chart 4 below shows greenhouse gas emissions from electricity generation in both states in 2010 compared to 2022.

CHART 4. GREENHOUSE GAS EMISSIONS FROM ELECTRICITY GENERATION.



This economy-wide decline in electricity emissions, however, obscures the fact that data centers have unleashed pollution from a handful of utilities.

Just 6 of the more than 100 utilities in Oregon and Washington absorbed nearly all new data center loads over the past decade, as shown in the table below: Douglas County Public Utility District (PUD), Grant County PUD, Northern Wasco County PUD, PacifiCorp, Portland General Electric (PGE), and Umatilla Electric Cooperative.

TABLE 1. SIX UTILITIES IN OREGON AND WASHINGTON HAVE ABSORBED THE BULK OF NEW DATA CENTER LOAD. [v]

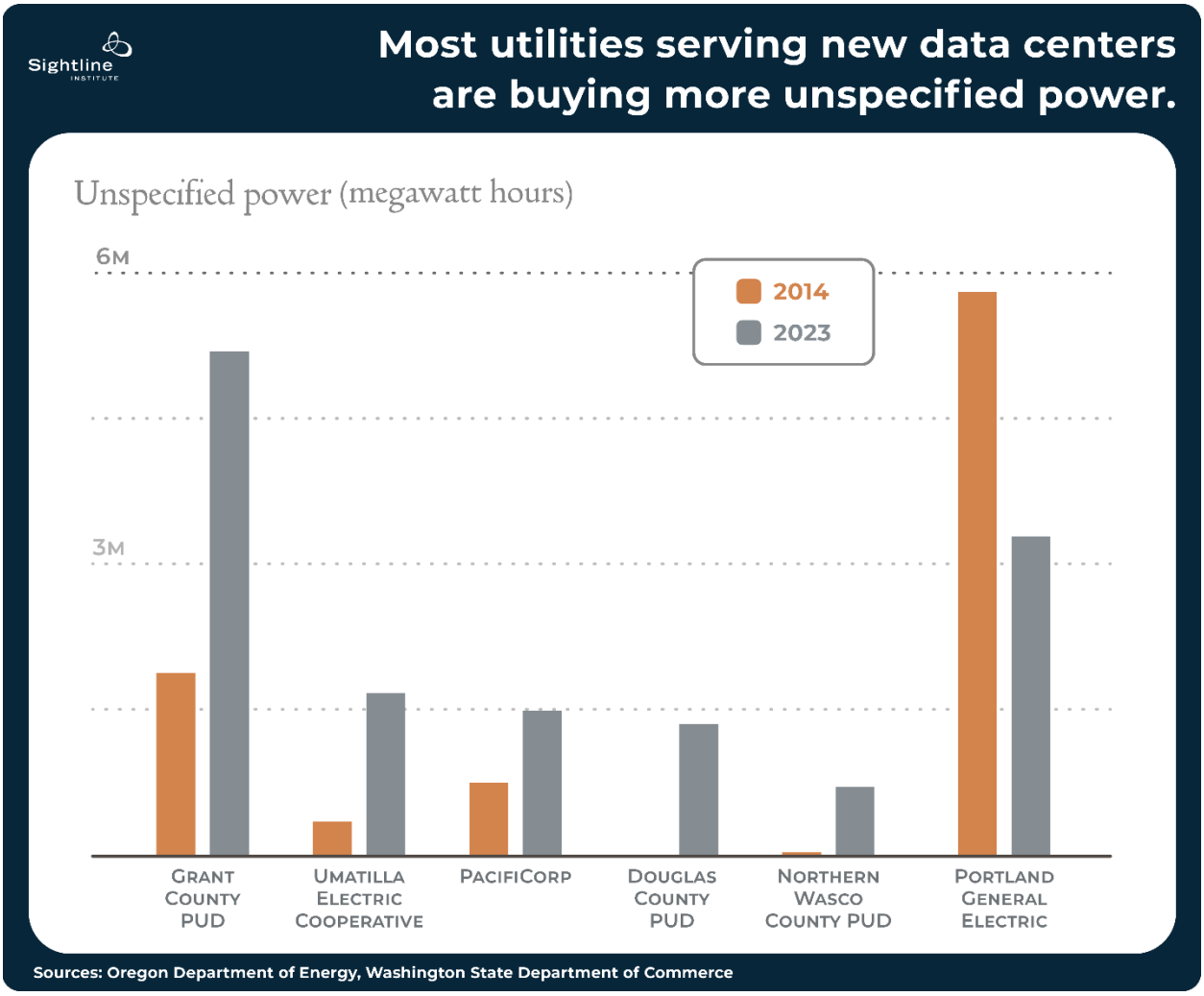
Utility name	**Share of state's new load growth in industrial and commercial sectors, 2013–23**	**Overall utility load growth change, 2013–23**	**Large data center customers** (not exhaustive)
Oregon			
Umatilla Electric Cooperative	44%	554%	Amazon
Portland General Electric	15%	10%	Several co-location centers in Hillsboro
PacifiCorp	10%	8%	Meta (Facebook parent company), Apple
Northern Wasco County Public Utility District	6%	142%	Google
Washington			
Grant County Public Utility District	42%	52%	Microsoft
Douglas County Public Utility District	12%	74%	Microsoft

Source: Sightline analysis of US Energy Information Administration's Annual Electric Utility Data

To accommodate their new energy-hungry customers, five of these six utilities rely far more on so-called unspecified power than they did ten years ago—that is, power they purchase from wholesale electricity markets. Below, Chart 5 compares the volume of unspecified power each of these utilities purchased in 2014 and 2023. Unspecified power is dirtier than the hydropower most of these utilities have historically used because most electricity in the United States is still generated by burning either gas or, to a lesser extent, coal.[21] (Washington estimates that emissions from unspecified sources roughly equal those from burning natural gas.[22])

[v] See appendix for methodology.

CHART 5. CHANGE IN UNSPECIFIED POWER PURCHASED BY UTILITIES SERVING MOST NEW DATA CENTERS.



In other words, without data centers, Oregon and Washington's greenhouse gas pollution in the electricity sector might have fallen further, faster.

Still, emissions from unspecified sources of power make up just 7 and 5 percent of Oregon and Washington's total greenhouse gas pollution, respectively.[vi,23] It's as if Oregon and Washington are hiking to a clean energy summit and data centers have added a few rocks to their already heavy backpacks—enough to slow them down but not enough to throw them off course.

[vi] Total unspecified purchases of electricity in Washington in 2023 were 13,238,961 MWh. That equals 5.79 million metric tons of CO2e, using the state's emissions factor of 0.437 metric tons CO2e/MWh for unspecified sources. Washington's total emissions were 96.1 million metric tons CO2e in 2021 (the most recent year data is available). Emissions from unspecified fuel in Oregon totaled 4.2 million metric tons of CO2e in 2023, and the state's total emissions was 61 million metric tons of CO2e in 2021 (the most recent year data is available).

Most Northwest hydropower is off-limits to data center operators

Another common concern is that data centers will devour the Northwest's finite hydropower resources, making it more difficult for everyone else to meet clean electricity targets. The dams' devastating legacy on tribal communities, including but not limited to flooding of sacred sites, decimation of salmon populations, and tribal displacement, rightfully preclude new hydropower development in the region.

Some utilities serving large data center loads, including Grant County PUD, have sold their carbon-free hydropower to tech companies and backfilled with dirty unspecified power.[24] Ironically, corporate climate commitments are the very thing motivating utilities to do this.

Grand Coulee Dam, in Washington. Photo by the author.

However, most utilities cannot cut these deals. The Northwest Power Act prohibits consumer-owned utilities from using power they buy from BPA to serve new single loads with capacities greater than 10 MW.[25] (Any major new data center exceeds 10 MW in capacity.) Only utilities that own hydroelectric dams or other renewable resources outright can sell that power to data center operators. In 2023 BPA provided roughly 75 percent and 60 percent of Oregon and Washington utilities' hydropower, respectively.[vii]

Put another way, data center operators can't touch most of the Northwest's hydroelectricity.

[vii] Sightline analysis of utility fuel mix data from the Washington State Department of Commerce and the Oregon Department of Environmental Quality.

Scenarios: How data centers could influence Northwest utilities' transition to carbon-free electricity

If data centers' climate impact in the Northwest has been modest to date, what can the region expect in the future?

Most analysts anticipate data centers' ravenous appetite for power will grow unabated over the next several years. Data centers could consume 13.4–24 percent of electricity in Oregon and 6.8–13 percent in Washington by 2030, according to a 2024 paper by EPRI.[26] (For comparison, EPRI estimates that data centers will consume 4.6–12 percent of total US power in 2030, up from roughly 4 percent today.)

Still, some doubt the boom will materialize. "Nobody has any idea what electricity demand for data centers will be beyond a few years from now," Dr. Jonathan Koomey, a former researcher at the Lawrence Berkeley National Laboratory, said on a recent episode of the energy podcast Catalyst.[27] He predicts that the insatiable demand these projections depend on will turn out to be a mirage. Indeed, Microsoft canceled several data center leases in 2025, which could indicate "unclear demand for A.I. services," according to a tech industry website.[28]

Further complicating the story is whether A.I. might actually *reduce* emissions, by better anticipating wind or solar farm output or optimizing buildings' energy consumption, for instance. A 2025 IEA report found that globally, A.I. could reduce emissions more than data centers increase them, depending on how the technology is adopted.[29] However, the report cautioned that pollution reductions from A.I. are "far smaller than what is needed to address climate change."

If enormous data center load growth does appear, the primary climate risks in the Northwest are that utilities (1) build new gas-fired power plants, (2) delay retiring gas plants, or (3) burn more coal and gas in states with weak environmental protections, shifting clean resources to Oregon or Washington. Below Sightline explains why the first scenario is unlikely, the second possible, and the third likely.

Unlikely: Utilities build new gas plants in Oregon or Washington

Many climate advocates worry, rightly so, that utilities will build new gas-fired power plants to keep pace with massive electricity demand growth from data centers. Several utilities, including Duke Energy and Georgia Power, which serve customers mostly in the US Southeast, intend to do just that.[30]

But Oregon and Washington laws make constructing new gas plants nearly impossible, and no utility in either state has proposed doing so.

For starters, Oregon's clean electricity law, the 2021 Clean Energy Targets Act (better known as HB 2021) expressly prohibits the state's siting agency from permitting new fossil fuel–generating facilities, including gas-fired power plants. In 2023 Amazon attempted to sidestep this limitation by proposing to build 24 MW of natural gas–powered fuel cells to energize data centers; Oregon only requires facilities larger than 25 MW to secure state siting permits.[31] Amazon withdrew its application after community opposition.[32]

Receiving permits for a new gas-fired plant would also be a tall order in Washington. Any facility that could increase air pollution in the state needs a "prevention of serious determination" permit from the state Department of Ecology.[33] Cowlitz County PUD recently abandoned a proposed landfill gas-to-electricity project after failing to secure this permit.[viii, 34] Washington last approved a new gas-fired power plant in 2005.[35]

Both states' clean electricity requirements also weaken the prospects of new gas plants in the Northwest. Oregon's HB 2021 requires the two largest investor-owned electric utilities in the state, PacifiCorp and PGE, to reduce emissions from the electricity they sell in the state to 80 percent below baseline levels by 2030, 90 percent below baseline levels by 2035, and 100 percent below baseline levels by 2040. The law exempts all of Oregon's consumer-owned utilities as well as Idaho Power because it counts fewer than 25,000 customers in the state.[36]

Going a step further, Washington's 2019 Clean Energy Transformation Act requires all electric utilities in the state, including consumer-owned utilities, to sell greenhouse gas–neutral power by 2030, ratcheting up to 100 percent emissions-free by 2045.[37] The law also demands that the electricity nonresidential customers, including data center operators, purchase from wholesale markets meets these same targets.

One complication to this optimistic picture is that both states cap costs under their clean electricity laws. That carve-out means that if utilities' transition to renewable power raises electricity rates above a certain level (which is different in each state), regulators must consider a utility to be in compliance, even if the company hasn't actually met clean energy targets. To date, though, no utility has triggered the cost threshold in either Oregon or Washington.[ix, 38]

Possible: Utilities delay retirement of existing gas plants

A more likely scenario than utilities building new gas plants is that they delay retiring one or more of the 17 gas-fired power plants currently running in Oregon and Washington.[39] (Delayed coal plant retirement in these states is off the table. Oregon's last coal-fired power plant, in Boardman, shuttered in 2020; Washington's only coal plant, in Centralia, will close at the end of 2025.[40])

[viii] According to an email to Sightline from the Washington State Department of Ecology.

[ix] Oregon assessment is based on Sightline's review of PGE and PacifiCorp's most recent rate cases.

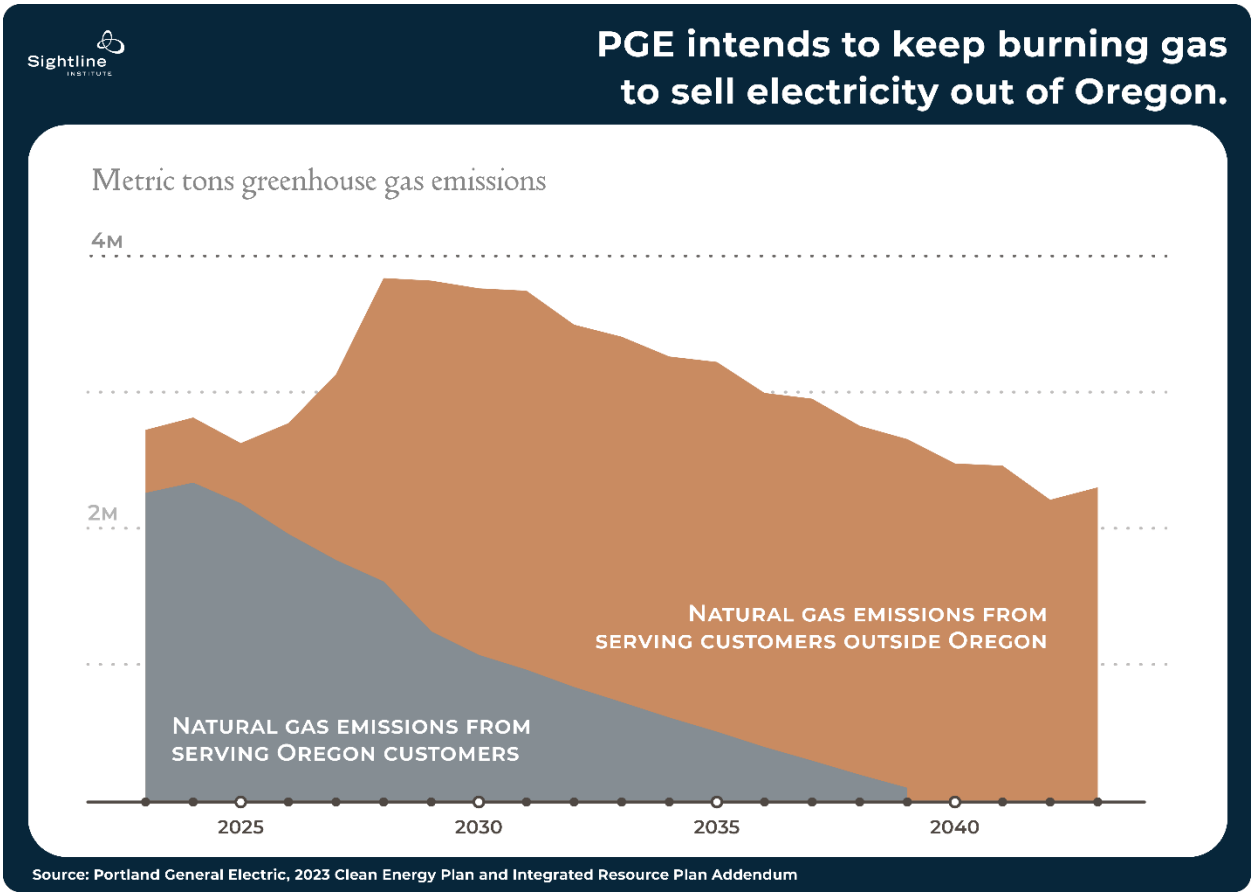
If new renewable power or electric transmission line build-out lags demand from data centers (an unfortunately likely scenario), utilities could keep gas plants running longer than they would have otherwise by appealing to the cost or reliability exemptions in the two states' clean electricity laws.[41]

Goldendale Generating Station gas-fired power plant, in Klickitat County, Washington. Photo by John Gardner, cc, via Flickr.

Additionally, Oregon's Climate Protection Program (CPP), which sets a declining cap on greenhouse gas emissions for certain regulated companies, excludes emissions from generating electricity.[42] In Washington, by contrast, electric utilities that emit more than 25,000 metric tons of carbon dioxide annually must reduce their pollution in line with the Climate Commitment Act's emissions cap.

Oregon's CPP exception means electric utilities can keep burning their gas-fired power plants in Oregon and sell the dirty electricity to customers in other states. In fact, that's exactly what PGE intends to do. The chart below shows PGE's estimates of greenhouse gas emissions from burning natural gas to serve customers in Oregon (grey) and outside of Oregon (orange) over the next 20 years. In this case, out-of-state data center load growth could keep Oregon's gas plants from retiring on cue.

CHART 6. PGE-ESTIMATED EMISSIONS FROM BURNING NATURAL GAS TO GENERATE ELECTRICITY.



Likely: Utilities shift renewables to the Northwest, backfilling with new dirty power elsewhere

The most likely climate impact of rising power demand from Oregon or Washington data centers could occur outside these states' borders. Utilities working across state lines could shift renewable resources to serve Northwest data centers, making up the difference by burning more coal and gas in places that lack strong environmental protections.

Avista, for example, whose electric service territory spans eastern Washington and western Idaho, modeled adding a new 200 MW data center in Washington in its 2025 Integrated Resource Plan (IRP). To meet the data center's demand for power while remaining in compliance with Washington's Clean Energy Transformation Act, the company indicated it would add 95 MW of gas plant capacity in Idaho and then shift wind resources that would have served Idaho customers to Washington.[43]

In other words, Washington data centers would cannibalize some of the clean power currently serving Idahoans, and Avista would pollute more in Idaho to make up the difference.

Likewise, PacifiCorp, a subsidiary of Warren Buffett's Berkshire Hathaway Energy that works across six western states, intends to burn more coal and gas outside Oregon and Washington to meet rising power demand.[44] The utility added roughly 4,000 MW of new

gas-fired power plants, delayed the retirement of several coal-fired plants, and extended the expected lifespan of gas-fired plants from 10 to 40 years, according to its 2023 IRP update (published in 2024), compared to the plans it outlined in its original 2023 IRP.[45]

PacifiCorp does not explicitly cite data centers as a reason for this backtracking. Instead, it explains that court rulings in Utah and Wyoming favorable to fossil fuels led the company to plan to burn more coal and gas. Still, the phenomenon Avista outlined is likely underway at least in part. PacifiCorp may shuffle its renewable sources to serve new data center load growth in the Northwest and make up the difference by burning more fossil fuels in the states that allow it.

Coal-fired power plant, central Wyoming. Photo by Greg Goebel, cc, via Flickr.

Finally, recall that Oregon, unlike Washington, exempts both consumer-owned utilities and power purchased on the wholesale market from meeting the targets in the state's clean electricity law, HB 2021. That exemption applies to 38 utilities, which collectively serve about 37 percent of the state's electricity load, including some already powering large data center loads.[46] Without policy change, these utilities can keep buying dirty power generated elsewhere to serve data centers, and more could join them.

Transmission lines in Seattle's Beacon Hill neighborhood. Photo by the author.

Opportunities: Policy paths for Northwest leaders

Pacific Northwest policymakers can certainly do more to reduce data centers' environmental impact. Oregon legislators, for example, could expand the clean electricity requirements in HB 2021 to cover consumer-owned utilities and market purchases. Policymakers in both Oregon and Washington could require renewable energy sourcing and energy efficiency measures from data center operators by, say, conditioning the states' generous data center tax breaks on meeting environmental outcomes.[47] For inspiration, they could look to Germany's 2023 "Energy Efficiency Act," which requires all data centers to be completely powered by renewables by 2027 and to meet stringent energy efficiency levels; or they could eye bills policymakers introduced in California, New York, and Virginia, all of which aim to clean up or reduce data centers' energy use.[48]

Frankly, though, these ideas are likely a hard political sell in the near term. In 2023 Oregon lawmakers did attempt, with HB 2816, to hold data centers to meeting the same greenhouse gas reduction levels as the state's large investor-owned electric utilities.[49] Amazon killed the bill, and lawmakers have not reintroduced it.[50] And none of the US bills mentioned above have passed.

Policymakers also need to balance the potential benefits of stricter environmental safeguards in Oregon and Washington with the risk of pushing data center operators to environmentally lax states such as Georgia, where utility Georgia Power is planning to extend the lifespan of coal plants in part to support the swelling data center industry. Or Tennessee, where Elon Musk's A.I. data center is now one of the biggest emitters of smog-producing nitrogen oxides in majority-Black and already heavily-polluted Shelby County, due to its reliance on unregulated gas turbines.[51] Tech companies have shown that their quest for A.I. dominance supersedes their corporate climate commitments. They are unlikely to remain in the Northwest if they can get online faster elsewhere.

If stricter environmental regulations in the Northwest risk backfiring and leading to more pollution elsewhere, what opportunities do policymakers have to further their commitment to a clean and healthy climate? One path could be for regional leaders to try to draw on tech companies' deep pockets and business interests to facilitate the broader economy's transition to abundant clean electricity. Here are four ideas to get started.

1. Accelerate grid build-out, with investment from data center operators

The Northwest's electricity demand could double over the next two decades.[52] The tech sector, including data centers, is expected to drive near-term demand growth, but electric vehicles, hydrogen production, and, to a lesser extent, building electrification, will push up the need for power in the medium-term, overtaking estimated demand from data centers.

Lawmakers can facilitate access to clean energy for *both* data centers *and* the broader economy by expanding the Northwest's congested electric transmission system.[53] A right-sized modern grid could let data centers tap wind from Montana or sun from California instead of encouraging them to locate in states with no commitment to clean power. At the same time, expanding electric transmission capacity, especially by upgrading existing lines, is the most cost-effective way other than energy conservation to meet future growth in electricity demand from other sectors.[54]

Transmission tower in Eastern Washington. Photo by the author.

One way to expand transmission capacity is to create a state transmission authority, which two ultimately unsuccessful bills in the 2025 Oregon and Washington legislatures would have done.[55] These entities, based on examples in Colorado and New Mexico, empower states to finance and build new transmission lines, typically in partnership with private developers, instead of relying on utilities or the federal BPA.[56]

State transmission authorities might also facilitate tech companies investing in new transmission lines, reducing their cost for everyone else. Data center companies could, for example, act as so-called anchor tenants, guaranteeing demand for a line before it is built

and lowering the project's risk. This type of arrangement is technically possible for a data center company to pursue with a utility even absent a state transmission authority. However, private developers may be more willing than risk-averse utilities to explore innovative partnership agreements; a state authority opens the door to their participation in building out the region's grid.

Lawmakers and regulators could also charge data center operators for investments in greater grid capacity through higher electricity rates. Oregon's HB 3546, which the legislature is currently considering, could pave the way.[57] The bill would require the state's Public Utility Commission to create a new rate class for large energy facilities (i.e., data centers), charge those users for the proportional costs utilities incur to serve them, and require electric utilities and large energy users to enter into contracts that obligate large energy facilities to pay a minimum amount or percentage of costs associated with their projected energy use. If the data center company doesn't use all the energy it anticipated needing, the rest of the ratepayers would still benefit from the investments the tech company paid for.

This and other regulatory innovations might even lay the groundwork for something more ambitious down the road: data center operators not just paying for the incremental cost of serving their own operations but also underwriting grid investments necessary for the economy-wide clean energy transition.[58]

2. Leverage tech companies' risk tolerance for clean energy innovation

Unlike utilities, which are risk-averse and bound by regulators to pursue least-cost solutions on behalf of customers, tech companies are willing to bet big on new technologies, including in the energy sector.

Policymakers can take advantage of this risk appetite by updating green tariff programs, for example. Green tariffs are higher rates that utilities, including in the Northwest, offer customers in exchange for clean electricity.[59]

Crimson Energy Storage Project, a 350-megawatt battery storage system in eastern Riverside County. Photo by Axium Infrastructure and Canadian Solar Inc., via Bureau of Land Management California.

One concern with green tariffs is that in states with 100 percent clean electricity laws such as Oregon and Washington, these higher rates simply lead to customers subsidizing renewable generation that utilities would have had to procure anyway.[60] But tech companies, with their deep pockets and corporate climate commitments, alongside their eagerness to ensure a robust energy supply to power their business plans, may be ideal underwriters of Oregon and Washington's clean energy transition.

Regulators in Oregon and Washington have capped participation in green tariff programs.[61] State leaders could remove these caps and then design green tariffs to take advantage of tech companies' ability to invest in innovative higher-cost clean energy resources, such as long-duration battery storage, that utilities cannot.

For example, Nevada utility NV Energy offers a new tariff that allows Google to pay a premium for advanced geothermal energy.[62] The utility would not have invested in this technology without the tariff, due to its obligation to procure least-cost resources. Duke Energy, Amazon, Google, Microsoft, and Nucor announced agreements in 2024 to explore similar tariffs.[x] This type of arrangement could help also help assuage concerns that data centers are gobbling up the cheapest, most efficient renewable resources, leaving utilities and their ratepayers to invest in more expensive power sources down the road.

3. Lift limits on data center companies' clean energy procurement

Direct access programs are another mechanism data center operators and other large energy users rely on to source clean energy in places with vertically integrated utilities like the Northwest. Unlike green tariffs, direct access programs allow customers to source their own power. These customers then pay the utility to send the power over its wires.

Wind turbines and transmission lines in Eastern Washington. Photo by the author.

[x] Duke Energy, "Responding to Growing Demand, Duke Energy, Amazon, Google, Microsoft and Nucor Execute Agreements to Accelerate Clean Energy Option," May 29, 2024, https://news.duke-energy.com /releases/responding-to-growing-demand-duke-energy-amazon-google-microsoft-and-nucor-execute -agreements-to-accelerate-clean-energy-options.

In 2018 the Oregon Public Utility Commission required electric utilities to develop direct access programs for new loads larger than 10 MW.[63] Washington has no statewide equivalent, but bespoke agreements exist. For example, regulators approved a 2017 deal between Puget Sound Energy and Microsoft that allowed the tech giant to directly procure clean energy.[64] (No source Sightline spoke to cited Washington's lack of a direct access program as a problem, perhaps because Washington's statewide load growth from data centers has been small so far.)

Just as it does for green tariff programs, Oregon caps participation in the state's direct access programs.[65] Regulators initially set these caps because of uncertainty about how new programs could affect residential customers' bills. For their part, utilities pushed for caps on direct access programs since they erode the companies' ability to own generating resources and thus earn a profit.

However, the Oregon Citizens' Utility Board (CUB), a ratepayer advocate group that originally supported the caps, now views both green tariffs and direct access programs as "viable options" for meeting data center load growth, Bob Jenks, CUB's executive director, told Sightline. Direct access programs, he explained, might even benefit residential customers by reducing the risk that utilities overbuild generating resources to meet data center loads that never materialize.

4. Transform data centers from passive energy users to active grid participants

Finally, policymakers can catalyze new arrangements between data centers and utilities that reduce facilities' impact on the grid and might even turn them into assets.

Google data center in The Dalles, Oregon. Photo by Visitor7, cc, via Wikicommons.

One option is facilitating data centers' participation in utility demand response programs. These programs reward customers for reducing energy use or shifting power demand to a different time or location when the grid is overloaded. If data centers ratcheted down their power demand for an average of about one week annually (and for about two hours at a time), the Northwest could add at least 3.8 GW of new data center load without needing to expand the grid or add new generating resources.[66]

Oregon and Washington already require utilities to use demand response when cost-effective.[67] However, Sightline only found evidence of one Northwest data center operator participating in a demand response program: a 2023 blog post describing Google's pilot with Northern Wasco County PUD in The Dalles, Oregon.[68] (Neither Google nor Northern Wasco County PUD responded to Sightline's request for more information.)

"You're signing yourself up to be interrupted," a tech company representative told Sightline off the record, explaining why the company has historically steered clear of demand response programs.

A.I.'s unique computing profile could make data center participation more feasible, though, and lawmakers in Oregon and Washington could require utilities to develop demand response programs tailored to data centers' unique energy profiles.[69] These programs could, for example, incentivize data centers to adjust when they train their models to times when renewable energy is abundant by offering faster interconnection to the grid.

Going a step further, data centers might even one day offer stability and flexibility to the grid. One way, for instance, would be to store excess renewable resources in on-site batteries and dispatch them back to the grid when needed. In October 2024 research organization EPRI launched an initiative, DCFlex, whose members include PGE, "to explore how data centers can support the electric grid, enable better asset utilization, and support the clean energy transition."[70] And several companies, including Microsoft in Ireland, have piloted "grid-interactive" data centers.[71] The concept remains nascent and faces challenges, including the cost of data center operators building excess power capacity, but it is worth policymakers tracking and encouraging.[72]

Prineville, Oregon, a data center hub. Photo by Gary Halvorson, Oregon State Archives.

Conclusion

With leadership from policymakers, data center companies could help underwrite the Northwest's clean energy transition

Tech giants have flocked to Oregon and Washington to set up data centers, drawn by low-cost clean power and generous tax incentives. A handful of utilities now meet most of this new electricity demand by, for the most part, relying more on dirty electricity than they would have otherwise.

Even so, overall electricity emissions have continued to drop in both states over the past decade, including in the electricity sector, largely thanks to laws phasing out coal power. And state laws essentially prohibiting utilities from building new gas-fired power plants shield the region from some of data centers' most noxious environmental impacts.

Faced with insufficient solar, wind, or other clean power sources, though, utilities could delay shutting down one or more of the 17 gas plants currently operating in both states, or, in Oregon, buy more dirty power in the wholesale market. Utilities could also drive up overall pollution by diverting out-of-state solar or wind power to power data centers in Oregon and Washington, burning more coal or gas in states with lax environmental laws to backfill the loss.

Climate-concerned policymakers wondering what to do should not lose sight of the bigger picture: creating a clean, healthy Northwest free of polluting fossil fuels will require building vast amounts of new clean energy resources and expanding the grid capacity. That's true even if eye-watering projections for data center load growth do not pan out.

Rather than pushing data centers to places with fewer environmental regulations than Oregon and Washington, Northwest policymakers can take advantage of tech companies' hunger for power, strategic business interests, corporate climate commitments, and deep pockets. They can accelerate build-out of the electric transmission system, encourage tech company investment in clean energy innovation, lift obsolete caps on data centers' sourcing clean energy, and transform data centers from drags on the grid to flexible and perhaps even useful resources.

Surging data center electricity demand growth is the first true test of Oregon and Washington's ability to achieve climate goals. If all goes well, it won't be the last.

Appendix

Methodology for Utilities' Share of Oregon and Washington Data Center Load Growth

Sightline summed the gross increase in industrial and commercial electricity sales between 2013 and 2023 by using the US Energy Information Administration's Annual Electric Utility Data to estimate data center loads added in Oregon and Washington over that period. Sightline then divided individual utilities' change in commercial and industrial sales over that period by the states' gross new commercial and industrial sales to estimate which utilities have absorbed most of each state's load growth in these sectors. Sightline then cross-checked these utilities with media reports and utility sources to identify which companies' load growth likely resulted from data centers specifically. Sightline excluded from Table 1 utilities whose commercial or industrial load growth resulted from other sources, according to publicly available information. For example, Sightline did not include Pend Oreille Public Utility District because crypto mining facilities, not data centers, have driven its load growth. Sightline also excluded non-utility companies (e.g., Calpine Energy Solutions) from Table 1.

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