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UNIVERSITY of VIRGINIA

Prepared for: The Lemelson Foundation

Understanding Oregon's Data Center Industry

An Evidence Based Assessment

SEP 2026

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This work relies on information derived from government agencies, private statistical services, reports prepared by others, interviews with individuals, and other sources believed to be reliable. ECOnorthwest and the University of Virginia have not independently verified the accuracy of all such information and make no representation regarding its accuracy or completeness. Any statements nonfactual in nature constitute the authors' current opinions, which may change as more information becomes available.

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Oregon Data Centers: Key Findings and Policy Considerations

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Purpose of the Assessment

Data centers are the physical infrastructure behind much of today's digital life. They are where the servers and other computing equipment used to store, process, and transmit digital information are housed. When people access banking or financial records, store photos and files in the cloud, shop online, use social media, conduct an internet search, or stream digital content, those activities ultimately rely on computing infrastructure housed in data centers.

Behind these everyday services are specialized facilities containing servers, data storage and networking equipment, along with the electricity, cooling, and communications infrastructure needed to keep those systems operating. Data centers are also part of broader digital networks, linking computing resources across facilities, telecommunications networks, and cloud platforms.

Although the rapid growth of artificial intelligence has brought new attention to data centers, the industry long predates the current AI boom. Cloud computing, financial services, e-commerce, telecommunications, and other digital services have relied on data center infrastructure for decades. AI represents another phase in that evolution, creating rapidly growing demand for computing capacity that can require specialized hardware and substantial amounts of electricity.

Data center development has expanded rapidly in Oregon, bringing substantial private investment and economic activity while increasing demand for electricity, land, water infrastructure, and other public and private systems. Public discussion has often focused on individual facilities or specific issues, while comprehensive information about the size, geography, economic contribution, and resource implications of the industry across Oregon has remained limited.

This assessment establishes a common foundation for understanding Oregon's data center industry. It examines the location, scale, and characteristics of existing and planned facilities; electricity and water implications; workforce and economic contributions; property taxes and incentive programs; land-use and host-community characteristics; and Oregon's position relative to selected peer markets. The analysis draws on facility-level data, confidential employment records, economic modeling, county property tax records, geospatial analysis, public utility and water-resource information, and other state, federal, and industry sources. It also identifies areas where data are insufficient to understand impacts, and further research or reporting is needed.

The assessment does not determine (nor does it seek to determine) whether data center development is good or bad for Oregon or its economy, nor does it predict development beyond the identified project pipeline. Its purpose is to provide data and information to help policymakers, communities, utilities, industry participants, and other stakeholders understand the economic effects, infrastructure and resource demands, and tradeoffs associated with data center development.

No single metric can capture the significance of Oregon's data center industry. Data centers generally support relatively limited direct operational employment while bringing substantial capital investment, construction activity, and economic contributions. At the same time, they can require substantial amounts of electricity and other infrastructure. The scale and significance of these effects also vary considerably by facility type, location, and geography. This report therefore examines the industry across multiple dimensions, using the best available data to provide a more complete picture of its impacts, demands, and broader implications for Oregon.

Oregon Already Has a Large and Geographically Concentrated Data Center Industry

Oregon already has a substantial data center market, with 111 operational facilities representing approximately 22.1 million square feet of gross building space. An additional 32 facilities are identified as planned or under construction, representing approximately 6.9 million square feet of potential future development. The composition of this pipeline differs notably from the existing market. Hyperscale facilities dominate Oregon's operational data center footprint, accounting for 67 of the 111 operational facilities and approximately 71 percent of existing building space. In contrast, wholesale facilities account for 19 of the 32 facilities in the identified development pipeline and approximately 68 percent of planned building space. This shift suggests that future growth may differ from Oregon's existing data center market in the types of facilities being developed.

Retail	Wholesale	Hyperscale	Telco	Powered Shell
Multi-tenant facilities serving several smaller customers. Usually smaller footprints and lower average power intensity.	Large blocks of space and power leased to major tenants. A key part of Oregon's current and future market.	Very large facilities linked to cloud and AI-scale computing. These dominate Oregon's installed capacity.	Facilities that support telecommunications and network exchange functions. Typically small in physical scale.	Buildings prepared for data center use, often with power and core infrastructure in place before full IT buildout.

S&P's classifications aren't based on a single size threshold. They reflect the facility's operating and development model as identified through S&P's research. Size and power capacity are tracked separately, so a facility doesn't automatically become for example a hyperscale because it exceeds a particular number of megawatts or square feet.

DEFINITION:

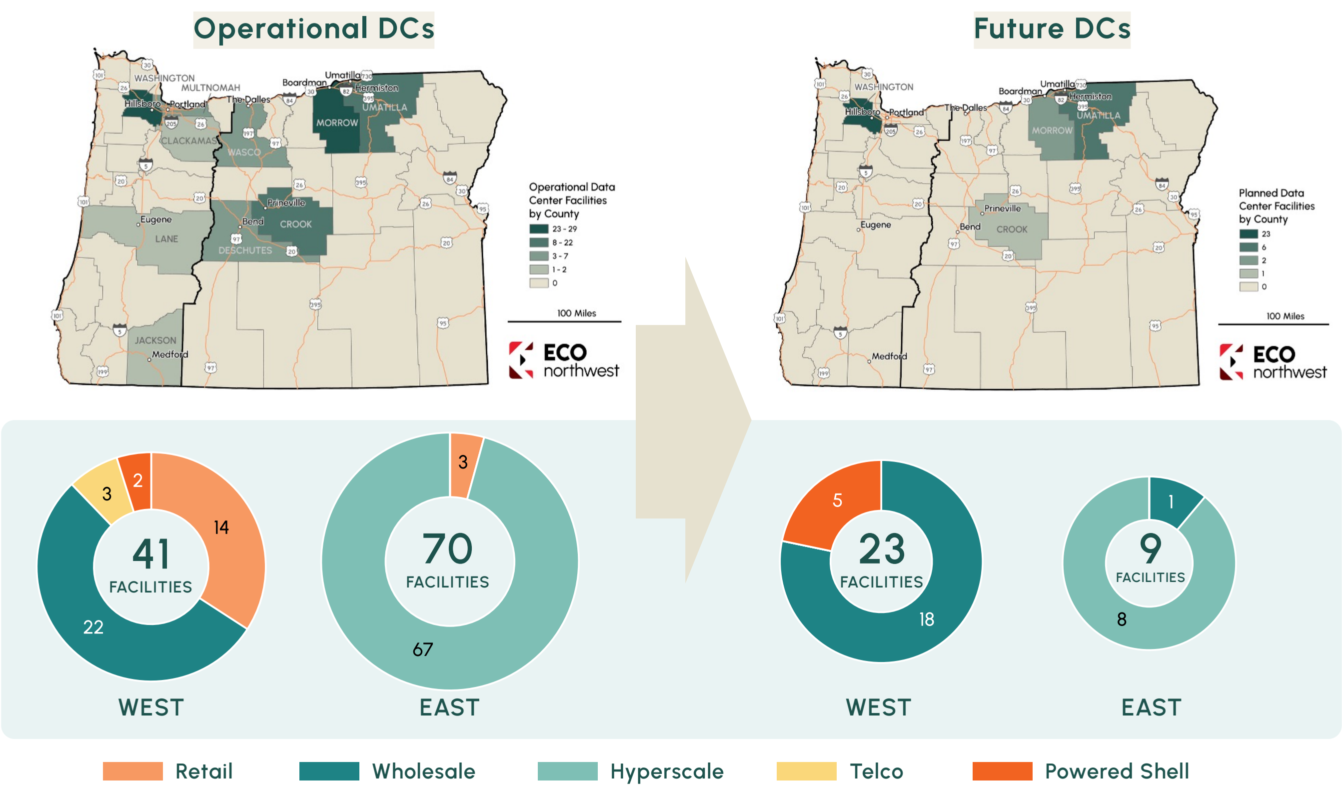
Planned Facility

The S&P Global data used in this analysis identify operational facilities through 2025 and planned and under-construction facilities through 2030. S&P does not include every proposed or potential data center in its planned-facility inventory. Rather, planned facilities are included when S&P determines that there is a relatively high probability that the project will be developed; more speculative projects and facilities still going through the siting process may therefore not be included. The planned facilities presented in this report should consequently be understood as S&P's identified development pipeline through 2030, rather than a comprehensive inventory of all proposed projects or a forecast of facilities that will ultimately be built.

Development is highly concentrated geographically. Washington, Morrow, Umatilla, and Crook counties account for approximately 81 percent of operational facilities and more than 92 percent of operational gross building space. Eastern Oregon contains the larger existing physical footprint and all of the operational hyperscale facilities identified in the dataset, while Western Oregon has a more diverse facility mix and contains a larger share of the identified future pipeline.

Facility counts alone do not capture the scale or significance of data center development. A small retail or telecommunications facility and a large hyperscale campus may both be classified as data centers, but they are not equivalent units of development. Such facilities can differ substantially in building area, electricity demand, capital investment, employment, land requirements, infrastructure needs, and their potential implications for host communities. For this reason, this assessment considers facility type and scale alongside the number of facilities.

Facility Growth is Concentrated in The West



Electricity Demand is One of the Industry's Most Significant Infrastructure Considerations

Every data center needs electricity for its operations, and continued industry growth will require electrical infrastructure planning. Oregon's operational data centers are estimated to have consumed approximately 14.05 terawatt-hours (TWh) of electricity in 2025. For context, this estimated consumption is equivalent to approximately 71 percent of electricity sales to Oregon's residential sector and approximately half of the electricity sold to all other commercial and industrial customers.

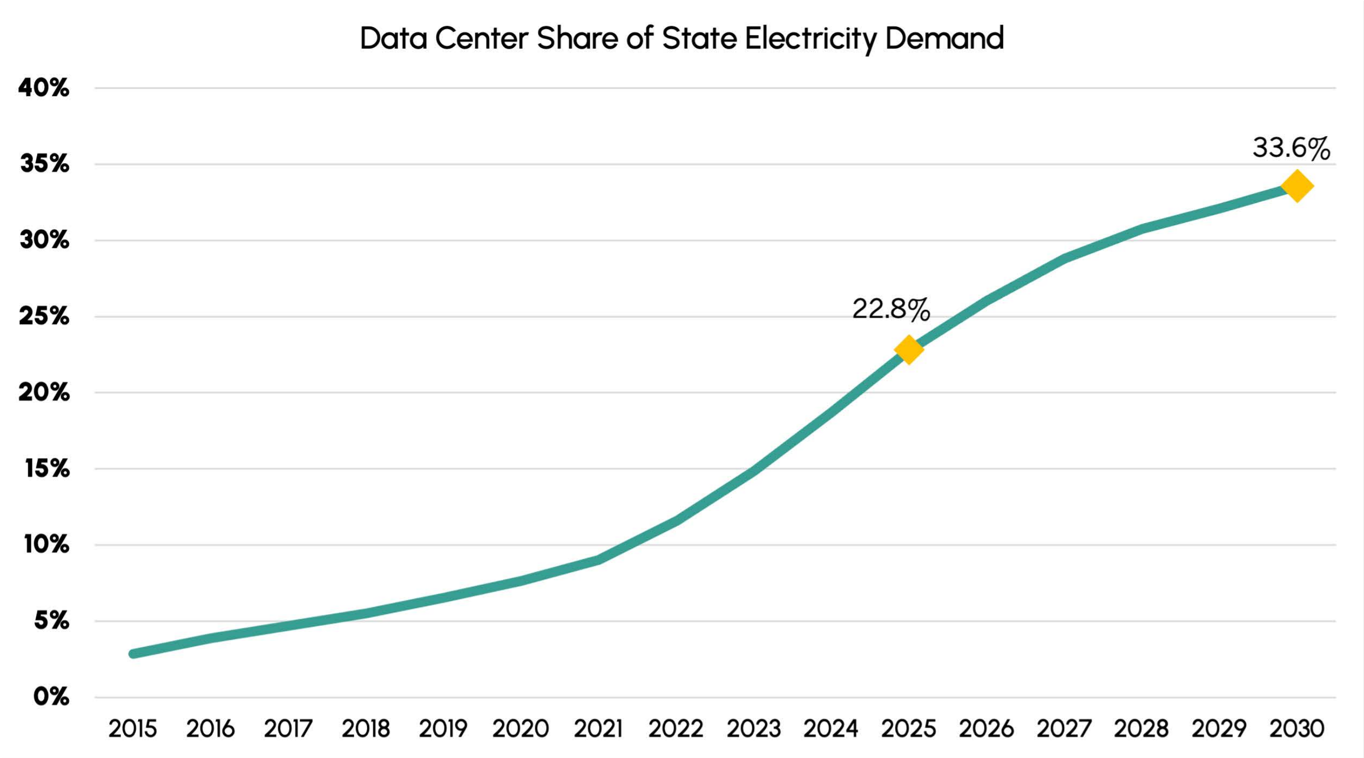
Estimated data center electricity consumption has increased rapidly, rising from approximately 3.89 TWh in 2020 to 14.05 TWh in 2025, an increase of approximately 10.15 TWh. Over the same period, Oregon's reported retail electricity sales increased by approximately 10.55 TWh. On this accounting basis, the increase in estimated data center consumption was equivalent to most of the increase in statewide retail electricity sales over that period. In 2025, modeled data center consumption was equivalent to approximately 23 percent of statewide retail electricity sales. These comparisons are based on estimated data center consumption rather than observed facility-level utility data and do not establish that data centers caused the increase in statewide electricity sales.

Based on operational facilities and developments already identified in the pipeline, estimated annual data center electricity consumption reaches approximately 24.76 TWh in 2030. Beyond 2030, the range of possible outcomes becomes considerably wider. The scenarios evaluated in this analysis produce estimates ranging from approximately 70 to 108 TWh by 2050, representing approximately 58 to 68 percent of implied statewide retail electricity demand. These longer-term scenarios are mathematical illustrations rather than forecasts of actual development.

The ability to serve future data center loads depends on more than having sufficient electricity generation on an annual basis. The Northwest Power and Conservation Council identifies planning for large data center and other high-technology loads as one of the major challenges facing the regional power system. These loads can be large, geographically concentrated, relatively constant, and added over comparatively short periods of time. The Council concludes that serving forecast growth will require new electricity resources and additional transmission capacity. Oregon's POWER Act (HB 3546, 2025) also directs the Oregon Public Utility Commission to establish a separate classification and rate structure for large energy-use facilities, including qualifying data centers, intended to appropriately allocate the costs of serving these customers and reduce financial risks to other customer classes.

Electricity therefore links data center economic development directly with resource and infrastructure planning. The timing and location of future loads, the infrastructure needed to serve them, the allocation of associated costs and risks, and the time required to provide new capacity are all important considerations for future development.

Electricity Demand Through 2030



Source: S&P 451 Data Center Database; UVA analysis.

Source: Hrach Hovhannisyan/Shutterstock

Water Use Depends Heavily on Facility Technology and Local Conditions

Available data do not support a reliable statewide estimate of water withdrawals or consumption by Oregon data centers. No comprehensive facility-level dataset consistently identifies water withdrawals, consumption, water sources, cooling technologies, or seasonal demand. Even for those facilities for which data are publicly available, definitions and reporting practices vary substantially across operators.

Water requirements can vary considerably among facilities. Cooling technology, facility design, climate, operating conditions, and computing equipment all influence water demand. The distinction between water withdrawals and water consumption is also important: water withdrawn from a system may be returned, discharged, or reused, while consumptive use represents water that is not returned to the immediate water system. Without facility-level data, these variations in use make it impossible to draw conclusions about the amount of water used, impacts on water delivery systems, or impacts on ground or surface water availability.

Water quality is another potential consideration, although available research is more limited than for water quantity. Available literature identifies several ways in which data center operations could affect water quality. Evaporative cooling can concentrate salts and other constituents already present in source water, while chemicals may be added to cooling systems to control operating conditions. Wastewater from these systems may therefore contain concentrated constituents or treatment chemicals. Water temperature may also be a consideration where heated water is discharged to receiving waters. The potential for water-quality impacts depends on facility-specific factors, including cooling technology, source-water quality, chemical treatment, wastewater management and discharge

Source: Itthipol007/Shutterstock

Source: Hrach Hovhannisyan/Shutterstock

practices, and the characteristics of the receiving water or wastewater system. Available information does not support conclusions about the magnitude of these potential impacts across Oregon data centers.

Available research finds that Oregon data centers primarily receive water through municipal or other public water systems, rather than through direct groundwater withdrawals or surface water diversions. However, municipal systems themselves rely on groundwater, surface water, or a combination of sources, and those supplies can vary over time. A facility served by a municipal system may therefore still increase demand on an underlying groundwater or surface-water resource. Conversely, the presence of a data center in an area experiencing groundwater constraints does not establish that the facility itself withdraws groundwater or contributes to groundwater depletion.

Without better data, it is not possible to reliably estimate total water withdrawals or consumption by Oregon data centers or fully evaluate how water use and its implications vary by place or facility type. A more complete assessment would require information about the amount and timing of facility demand, cooling technology, the source and capacity of the local water system, and underlying water-resource conditions. Oregon evaluates these conditions through surface-water and groundwater monitoring, water-availability assessments, and regional and basin-level studies, while additional statewide water-budget and surface-water availability tools are under development. Better and more consistent facility-level information would allow data center water demands to be evaluated both statewide and in the context of local water-resource conditions.

Why Water Impacts Vary

Understanding water impacts requires looking beyond how much water a facility uses to where the water comes from and the conditions of the local water system and resources.

Data Centers Have a Distinct Economic Profile: Relatively Few Operational Jobs but Substantial Economic Activity

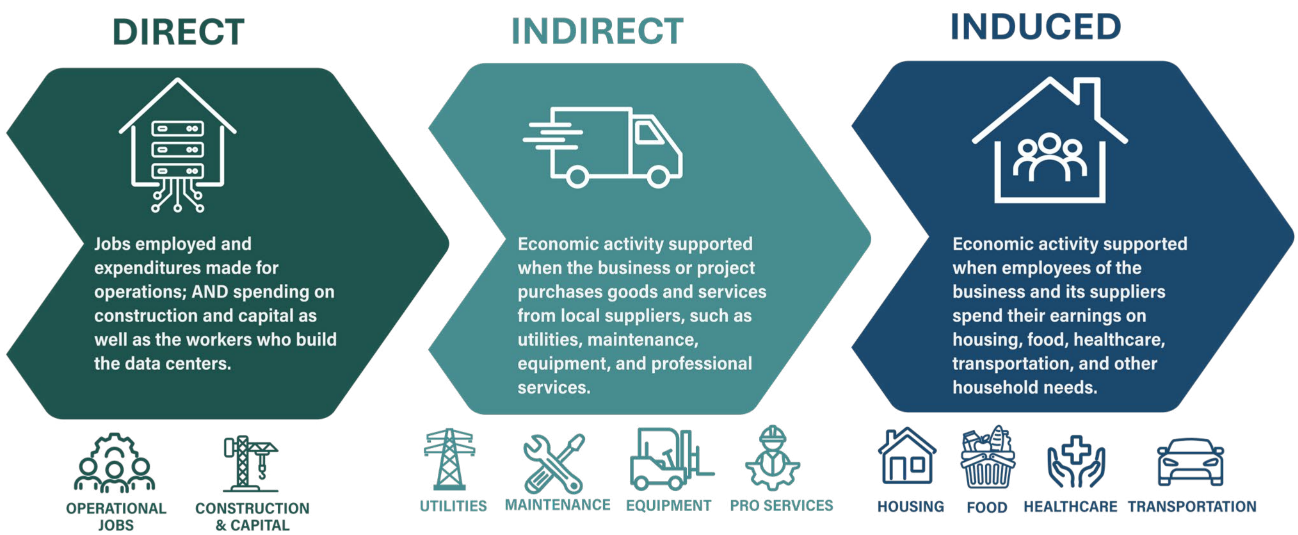
Oregon's existing data centers directly employ approximately 2,630 workers in their operations, representing about 0.2 percent of statewide employment and 0.5 percent of statewide wages. However, there are important regional differences. Approximately 83 percent of these workers, or 2,205 employees, are located in Eastern Oregon, where data center operations represent approximately 1.2 percent of regional employment and 4.6 percent of regional wages.

Employment is only one dimension of the industry's economic contributions. Data center operations currently pay approximately $622 million in wages, salaries, and benefits to employees, or direct labor income, and generate an estimated $2.4 billion in direct economic value added. Value added represents the economic value generated by data center activity in Oregon, including income earned by workers and taxes associated with that activity. When the contributions of purchases from Oregon suppliers and household spending supported by data center activity are included, existing operations support an estimated 10,400 jobs, $1.17 billion in labor income, and approximately $3.5 billion in value added statewide.

Construction adds another dimension to the industry's economic contribution. Data center development requires substantial capital investment and supports construction workers, contractors, equipment suppliers, and other businesses during development. Unlike operational employment, these jobs are associated with individual construction projects and are temporary. However, continued development can result in construction activity occurring across multiple years and facilities.

Multiplier Effects of Oregon's Data Center Industry

CASCADE OF DIRECT, INDIRECT AND INDUCED IMPACTS



2,630 DIRECT WORKERS

10.4K TOTAL JOBS

$3.5B TOTAL VALUE ADDED

Data Center Contributions to Property Taxes

Oregon's tax structure shapes how data center development generates revenue for state and local governments. Unlike many states, Oregon does not have a general sales tax, so large purchases of construction materials, equipment, and other goods do not generate sales tax revenue. Oregon does have other business taxes, including the Corporate Activity Tax and corporate income taxes, but the amounts attributable to individual data center facilities are not readily identifiable. At the local level, property taxes are therefore the primary source of tax revenue directly associated with industrial and commercial development.

Oregon also offers several property tax incentive programs intended to encourage business investment and economic development. These programs are available to qualifying businesses across a range of industries and are not specific to data centers. However, because data centers can represent very large capital investments, the amount of property value receiving an exemption can be substantial when these facilities participate in an incentive program.

Property tax incentives do not necessarily mean that a participating data center makes no payments to local governments or communities. Depending on the program and individual agreement, projects may pay taxes on property that is not exempt, make required or negotiated payments to local governments or schools, or provide other community or infrastructure investments. The fiscal implications of a data center therefore depend on both the value of the development and the specific incentive structure when applicable.

In FY 2025-26, approximately $60.2 million in property taxes were imposed on data center properties. These revenues are highly concentrated geographically, with approximately $23 million imposed in Morrow County alone, equivalent to nearly 32 percent of all property taxes imposed in the county. Washington County received a similar nominal amount, approximately $20.5 million, but data centers accounted for only about 1.2 percent of the much larger countywide property tax base.

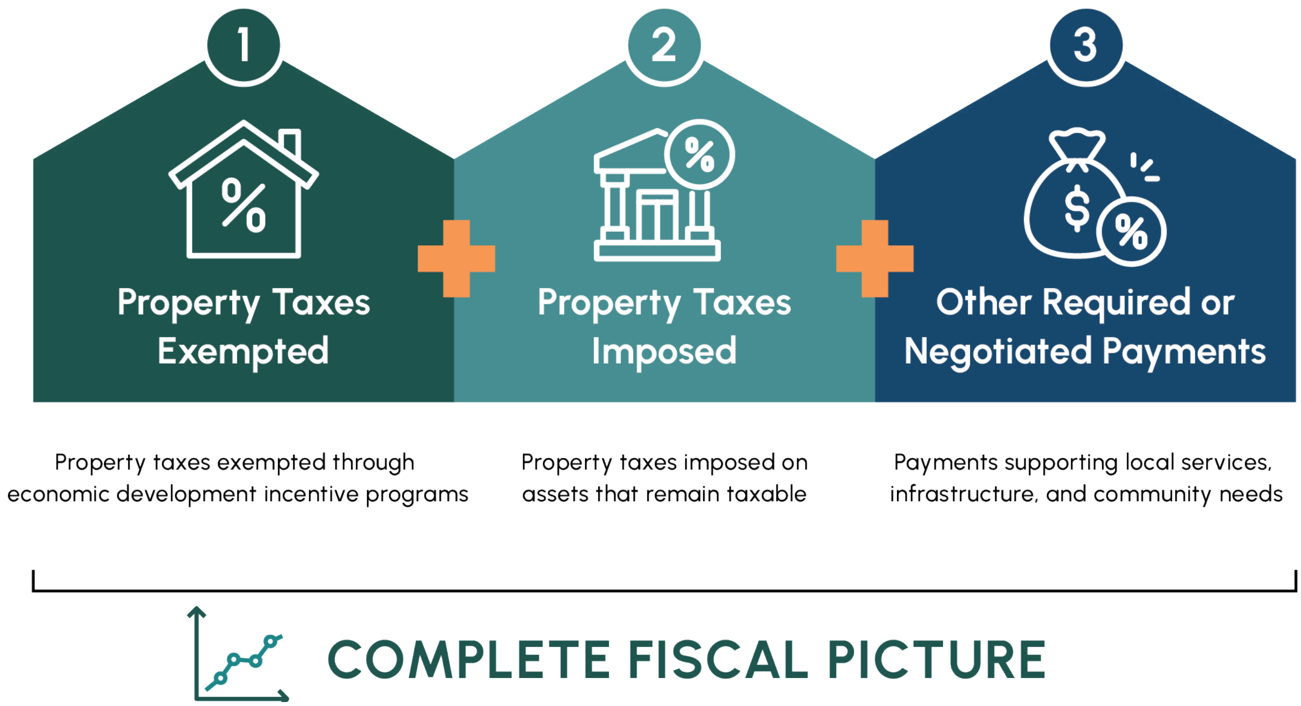
Source: CSNafzger/Shutterstock

At the same time, many Oregon data centers participate in property tax incentive programs. Business Oregon reports approximately $233 million in property taxes exempted for data center projects participating in Long-Term Rural Enterprise Zone agreements in FY 2023–24. The Oregonian has reported more than $450 million in total property tax exemptions for data centers statewide. These figures are not directly comparable with the $60.2 million in property taxes imposed because they cover different years and groups of data centers. Exempted taxes should not automatically be interpreted as revenue that local governments would otherwise have received, because doing so assumes that the same investment would have occurred in the same location and at the same scale without the incentive.

Data centers may contribute to host communities' public revenues in other ways. Depending on negotiated agreements or local regulations, data centers may make community service fee payments, school support payments, negotiated annual payments, public safety payments, infrastructure investments, or other community contributions. These payments can be significant but are not consistently captured in a statewide reporting system.

A more complete evaluation of fiscal impacts would need to consider three components together: property taxes exempted through incentive programs, property taxes imposed on property that remains taxable, and other required or negotiated payments and investments. Neither taxes imposed nor taxes exempted provides a sufficient standalone measure of the fiscal effects of data center development.

Data Center Fiscal Impacts



Land-Use Effects are Small Statewide but can be More Significant Locally

Data centers occupy a relatively small share of Oregon's statewide land base, but development is geographically concentrated and has converted some previously undeveloped and agricultural land.

The data center tax lots analyzed in this study occupy approximately 2,158 acres. Of this land, approximately 959 acres were cultivated cropland prior to development, including 798 acres in Eastern Oregon and 161 acres in Western Oregon. The converted cropland represents approximately 0.03 percent of Oregon's cultivated cropland statewide.

Although small at the statewide scale, land conversion may matter more in communities where data center development is concentrated, particularly where land is limited or in demand for other uses. These effects depend on where development occurs and the type of land being converted.[1]

Previous land cover alone does not indicate what would otherwise have occurred on a site or capture differences in agricultural productivity, economic value, zoning, or comprehensive plan designation. The findings should therefore be interpreted as a measure of previous land conversion rather than an estimate of the economic opportunity cost associated with data center development.

Source: Hrach Hovhannisyan/Shutterstock

Source: M.O. Stevens/Wikipedia

1 Soil class was not analyzed as part of this work.

Communities Near Data Centers Vary in Demographic Characteristics, with More Pronounced Differences Near Planned Development

Communities near existing data centers do not show a consistent pattern of greater economic disadvantage compared to their broader regions. In Eastern Oregon, median household income near operating facilities exceeds the regional average, with slightly lower poverty; in Western Oregon, income and poverty near facilities are similar to regional levels. Racial and ethnic minority populations, however, make up somewhat larger shares near operating facilities in both regions, and limited English proficiency is more common near Eastern Oregon facilities.

Differences are sharper around planned data centers. Racial or ethnic minorities make up about 41 percent of residents within one mile of planned facilities in Eastern Oregon and 46 percent in Western Oregon, compared with 24 percent and 29 percent regionally. This suggests that some demographic characteristics of populations near planned development diverge from those of the broader region.

This descriptive, demographic analysis does not suggest a formal environmental designation justice.[2] It characterizes Census tracts within one mile of operational and planned data centers relative to broader regional populations and should be interpreted as context for evaluating the distribution of potential benefits and impacts rather than as a determination of environmental justice impacts.

Demographic Differences Are More Pronounced Near Planned Data Centers

	Eastern Oregon			Western Oregon		
	Population within 1 mile of DCs	Eastern Oregon	Difference	Population within 1 mile of DCs	Western Oregon	Difference
Operational Data Centers						
Median Household Income	$84,789	$74,573	$10,216	$83,250	$85,061	-$1,810
Minority Population	30%	24%	+5 pp	33%	29%	+4 pp
Poverty Rate	11%	12%	-1 pp	13%	12%	+1 pp
Limited English Proficiency	7%	4%	+3 pp	5%	6%	0 pp
Planned Data Centers						
Median Household Income	$74,563	$74,573	-$10	$104,995	$85,061	$19,935
Minority Population	41%	24%	+16 pp	46%	29%	+17 pp
Poverty Rate	12%	12%	0 pp	10%	12%	-2 pp
Limited English Proficiency	11%	4%	+7 pp	9%	6%	+3 pp

Notes: Differences are calculated as the value for data center study areas minus the corresponding regional value. Differences for percentage-based indicators are reported in percentage points (pp). Figures may not sum due to rounding.

Source: U.S. Census Bureau, ACS 2020-2024, 5-year estimates.

2 Please see Section Host Community Characteristics for more information.

The Significance of Data Center Development Depends Heavily on Location

Eastern Oregon accounts for about 84 percent of the land area of the operational and decommissioned data centers in this study, along with most of the industry's direct workforce and the state's hyperscale footprint. In communities like those in Morrow County, data centers can represent a substantial share of local wages and the property tax base. Western Oregon's larger, more diversified economy means similar contributions typically represent much smaller regional shares, though it holds most of the future pipeline.

The geographic scale of benefits and demands also varies. Property tax revenue and certain community payments accrue to specific jurisdictions, while construction activity, supplier purchases, and household spending extend across broader regional economies. Land conversion and some public-service impacts are highly localized, whereas electricity demand can require generation and transmission infrastructure extending well beyond the facility's jurisdiction.

The same level of investment, employment, tax revenue, land conversion, or resource demand can thus carry very different implications depending on where it occurs, underscoring the importance of local and regional context in assessing both effects and demands.

EASTERN OREGON ACCOUNTS FOR **84%** OF LAND AREA OF DATA CENTERS evaluated in this study

Oregon's Competitive Position Reflects Multiple Factors That are Changing

Oregon has historically attracted data center investment through a combination of relatively low-cost electricity, a cool climate, available land in some markets, strong fiber connectivity, no general sales tax, and property tax incentive programs. While there is no single formula for attracting data center investment, competing locations offer different combinations of electricity costs and availability, infrastructure, land, climate, water conditions, workforce access, and tax treatment that may be more or less attractive for different types of data centers.

Several of Oregon's competitive conditions are now evolving. Data center electricity demand is increasing substantially, and regional as well as state-level planning efforts, such as the Northwest Power Plan, indicate that accommodating large-load growth will require new electricity resources, transmission capacity, and coordinated infrastructure planning. Oregon's tax-policy environment is also changing, with recent state and local actions temporarily restricting or pausing access to some property tax incentive programs for new data center development.

Changes in any one of these conditions may affect Oregon's attractiveness for future data center investment, but location decisions generally reflect a combination of factors. The significance of changes to tax incentives, electricity costs or availability, or other conditions will depend on how Oregon compares with competing locations across the broader set of factors important to data center development.

Better Information Would Improve Oregon's Ability to Evaluate Future Development

A recurring finding across this assessment is that information needed to evaluate data center development is not consistently available or compiled. Relevant information is distributed across utilities, local governments, county assessors, state agencies, and individual incentive agreements. Some information is publicly available; while other information is confidential, not publicly reported, or may not be readily collected. Available data also varies by geographic coverage, reporting periods, and level of detail, making it difficult to develop consistent statewide measures or compare facilities and regions.

Comparable information at the individual facility level is particularly limited. Publicly available employment data do not identify employment at individual data center facilities, and no dedicated industry classification cleanly distinguishes data center operations from other activities. Facility-level electricity consumption and water use are also not consistently publicly available. Property tax and incentive information is more often publicly accessible, but it is maintained across different state and local government agencies and reporting systems. Developing a complete picture for individual facilities can therefore require linking facility locations to property tax accounts, incentive agreements, and other government records.

These limitations do not necessarily mean that entirely new data systems are needed. In some cases, relevant information already exists but is dispersed across sources or reported at different scales and for different periods. In other cases, information needed to answer important policy questions is not publicly available or collected at the facility level. Distinguishing between these circumstances is important: improving the consistency, accessibility, and ability to connect existing information could address some gaps, while others may require additional data collection or reporting.

Considerations for Oregon Policy

The findings point to several considerations that could improve how future data center policies and individual development decisions are evaluated.

1. **Evaluate development in its local and regional context.** Statewide measures can obscure much larger effects in host regions and communities. Economic and fiscal contributions,land conversion, water use, electricity requirements, and infrastructure needs should be considered at the geographic scale relevant to each issue.

2. **Coordinate economic development with electricity and infrastructure planning.** Large data center loads connect economic development decisions with electricity resource and infrastructure requirements. The timing and location of new loads, infrastructure needed to serve them, allocation of costs and risks, and ability to provide service on anticipated development timelines are increasingly interconnected policy questions.

3. **Evaluate tax incentives within Oregon's broader economic development strategy.** Three important questions remain difficult to answer with available information. First, the full fiscal contribution of data center development is not known because property taxes, exemptions,

and other required or negotiated payments and investments are not consistently reported together. Second, the amount of development that would occur in Oregon without existing tax incentives is unknown, making it difficult to determine how much investment can be attributed to those incentives. Third, it is not known what other development might occur, or what economic and fiscal outcomes it might generate, if land, electricity, infrastructure capacity, and other resources were not used for data center development. These uncertainties are important when considering both the costs and benefits of incentives and the role of data centers within Oregon's broader economic development strategy.

4. **Match policy approaches to the type and scale of data center development.** Data centers range from relatively small retail and telecommunications facilities to large hyperscale campuses, with substantially different economic, fiscal, infrastructure, and resource implications. Policies should account for these differences so that the characteristics of one type or scale of facility do not become the basis for evaluating all data center development.

5. **Improve access to consistent information needed to evaluate development.** Oregon could first identify and better connect information already collected across utilities, governments, assessors, state agencies, and incentive agreements, and then determine where important information gaps remain. Consistent facility-level information would improve the state's ability to evaluate economic, fiscal, infrastructure, and resource implications over time.

Source: Hrach Hovhannisyan/Shutterstock

Looking Ahead

Oregon's data center industry is likely to remain an important subject of economic, infrastructure, and resource policy as existing facilities expand and new facilities are developed. This assessment demonstrates that the implications of that development cannot be captured through any single measure of jobs, investment, tax incentives, electricity demand, water use, or land use.

The significance of these benefits and demands depends on the scale and characteristics of individual facilities, the communities and regions in which they are located, and the infrastructure and resources required to support them. Continued evaluation of data center development using consistent information and multiple measures can provide Oregon policymakers and communities with a stronger factual basis for weighing these considerations as the industry and relating policies continue to evolve.

Detailed Findings and Methodology

Source: Hrach Hovhannisyan/Shutterstock

The following sections provide the detailed research and analysis underlying the key findings and policy considerations presented in the first portion of this report. The analysis examines Oregon's data center industry from multiple perspectives, including the location, scale, and characteristics of existing and planned facilities; electricity demand and infrastructure requirements; water use and availability; land use and host community characteristics; workforce and labor market conditions; economic and fiscal contributions; tax incentives; and Oregon's position relative to other data center markets.

Each section describes the data sources, analytical methods, and assumptions used to evaluate these topics and presents the resulting findings at the geographic scale most appropriate to the analysis. Where possible, the assessment draws on facility-level information and Oregon-specific administrative data rather than relying solely on national industry averages or broader industry classifications. The analysis also distinguishes between operational and construction activity, direct and broader economic contributions, and statewide and localized effects where those distinctions are important for interpreting the results.

Data availability and analytical limitations vary across topics. Accordingly, the sections identify important uncertainties and limitations and distinguish between findings that can be quantified consistently across Oregon and those that are best understood through contextual or qualitative analysis. The findings and methodology provide the evidentiary foundation for the integrated conclusions presented earlier in the report and allow readers to examine the data, methods, and assumptions supporting those conclusions.

SECTION 1

Oregon's Data Center Landscape

Source: Hrach Hovhannisyan/Shutterstock

1.1. Data Source and Treatment of the Facility-Level Data

This report uses facility-level data from the S&P Global 451 Research data center dataset as the main empirical source for describing data centers in Oregon. The dataset includes information on facility location, operational status, size, typology, year of construction or retrofit, rack capacity, IT power, utility power, and future development fields. This level of detail is important because the data center sector cannot be understood only by counting facilities alone. A small number of large facilities may have a much larger land-use and electricity footprint than a larger number of smaller facilities. For this reason, the analysis considers several measures of scale, including gross building space, IT space, racks, IT power, and utility power, while placing particular emphasis on gross building space and IT power.

The S&P dataset is especially useful because it allows the Oregon data center sector to be described across multiple dimensions. First, it identifies where facilities are located and how concentrated they are across counties and broader regions of the state. Second, it distinguishes among retail, wholesale, hyperscale, telco, and powered-shell facilities, which differ in size, operational models, and energy implications. Third, it includes information on both operational facilities and future development, enabling an examination not only of Oregon's current data center footprint but also of the pipeline that may expand it over time.[3]

The database contains 155 facility records. Of these, 11 are decommissioned and are excluded from the main analysis.[4] The remaining 144 records form the non-decommissioned baseline used throughout the report. Within this baseline, 112 records are classified as part of the operational/current baseline, and 32 are planned or under construction.[5] This breakdown clarifies, from the outset, how much of Oregon's observed data center footprint

3 During this process, the team consulted with S&P consultants to clarify aspects related to the nature and degree of certainty of their database, specific variables, and how missing information should be interpreted.

4 The 11 data centers are mostly small, older, and part of the retail business model, which is discussed later in this report. In the 11 data centers, there are no hyperscale or wholesale data centers of significant dimension.

5 The few that the database considered as "Land Held" were also included in this broader category of "under construction and planned".

Exhibit 1.1. Decomposition of Oregon Data Center Records

Category	Number of Records	Share of All Records	Share of Non-Decommissioned Records
Decommissioned Facilities	11	7.1%	—
Operational/Current Baseline Records	111	71.6%	77.1%
Planned or Under Construction Facilities	32	20.6%	22.2%
Total Records	**155**	**100.0%**	**—**
Total Non-Decommissioned Baseline	**143**	**92.3%**	**100.0%**

Note: The source dataset identified 144 operational and planned data center records. One facility lacked sufficient information for analysis so was re-classified as decommissioned, resulting in an analytical sample of 143 operational and planned facilities. Please see additional discussion on the treatment of incomplete records below.

Source: S&P 451 Data Center Database.

is already operational and how much remains in the development pipeline. Of the 112 records in the operational/current baseline, one lacked sufficient information for inclusion in the detailed facility analysis. Unless otherwise noted, results in this report therefore refer to 111 operational data centers.

Several data-treatment decisions were required to make the facility-level information suitable for public reporting and time-series analysis.

- As mentioned, decommissioned facilities are excluded from the following analysis.
- A variable named "effective year" was created to describe the historical timing of data center development. When a facility has a construction year but no retrofit year, the construction year is used. When a facility has a retrofit year but no construction year, the retrofit year is used. When both variables are available, the later year is used. This approach is intended to capture the most relevant point at which a facility entered its current technological or operational form.
- In terms of missing data, operational facilities with unknown timing are assigned to the prior to 2010 category for the purposes of historical analysis.[6]
- Planned or under-construction facilities with unknown timing are treated as part of the after-2030 pipeline.[7]
- The analysis distinguishes between current and future capacity. For planned and under-construction facilities, future operational variables are used where available, including future IT power and other future capacity fields.
- The report applies a disclosure rule for public-facing county tables. County-level information is shown where it can be reported without revealing sensitive facility-level details. Counties with only one included data center are grouped into broader "Other Western Oregon" or "Other Eastern Oregon" categories.[8]

Considering this, we now have a consistent analytical framework to support the remaining analysis. Such assumptions were essential for interpreting the geographic, historical, and energy results that follow.

6 This decision was made after a meeting with the S&P consulting team.
7 This allows the report to retain these facilities in the analysis without forcing them into specific years. Another important note is that S&P only includes planned facilities when it assumes a high probability that they will be built in the past. Facilities that are still under certain speculation or are still going through the siting process are not included here.
8 This approach allows the report to describe Oregon's data center geography transparently while avoiding unnecessary disclosure of individual facility characteristics.

Exhibit 1.2. Treatment of Records with Incomplete Status or Timing Information

Data Issue	Number of Records	Treatment in the Report	Reason
Decommissioned facilities	11	Excluded from analysis. One operational facility is considered decommissioned due to a lack of facility specific information provided in the dataset.	They are not part of the current or future data center footprint
Operational facilities with unknown timing	10	Included in "prior to 2010" in historical analysis	Avoids excluding operational facilities while preserving a conservative historical treatment
Planned or under-construction facilities with unknown timing	6	Included in "after 2030"	Retains them in the future pipeline without assigning unsupported year values

Source: S&P 451 Data Center Database; UVA.

1.2. Western and Eastern Oregon Distribution

One first important step is to understand the geography of data centers, as these facilities are not evenly distributed across the state. In this case, we will start by broadly summarizing it as a Western- and Eastern-Oregon classification. The county classification used in this report follows the Western/Eastern Oregon designation provided for this project.

Western Oregon contains 65 of the 143 non-decommissioned records, while Eastern Oregon contains 79. This means Eastern Oregon has a slightly larger number of data center records overall, but the difference becomes more important when the analysis shifts from facility counts to gross building space.

Exhibit 1.3. Western and Eastern Oregon County Designations

Region	Counties Included
Western Oregon	Benton, Clackamas, Clatsop, Columbia, Coos, Curry, Douglas, Hood River, Jackson, Josephine, Lane, Lincoln, Linn, Marion, Multnomah, Polk, Tillamook, Washington, Yamhill
Eastern Oregon	Baker, Crook, Deschutes, Gilliam, Grant, Harney, Jefferson, Klamath, Lake, Malheur, Morrow, Sherman, Umatilla, Union, Wallowa, Wasco, Wheeler

Exhibit 1.4. Data Centers by Western and Eastern Oregon

Region	Current / Operational Records	Current Gross Building Space (million sq. ft.)	Future Pipeline Records	Future Gross Building Space (million sq. ft.)	Share Of Data Centers (Operational and Future)	Share Of Total Gross Building Space (Operational and Future)
Western Oregon	41	6.32	23	5.05	45.1%	39.2%
Eastern Oregon	70	15.74	9	1.89	54.9%	60.8%
Total	**111**	**22.05**	**32**	**6.94**	**100.0%**	**100.0%**

Note: The operational/current baseline includes 112 data center records. One record lacked sufficient information for inclusion in the detailed facility analysis and was excluded from subsequent analysis, resulting in an analytical sample of 111 operational data centers.

Source: S&P 451 Data Center Database; UVA analysis.

The regional split shows that Eastern Oregon has the larger current data center footprint. It contains 70 current or operational records, compared with 41 in Western Oregon, and accounts for approximately 15.74 million square feet of current gross building space. Western Oregon accounts for approximately 6.32 million square feet.

The future pipeline slightly modifies the regional picture. Western Oregon accounts for most of the identified future facilities, with 23 planned or under-construction records compared with 9 in Eastern Oregon. These Western Oregon future records represent approximately 5.05 million square feet of additional gross building space, while the Eastern Oregon future pipeline represents approximately 1.89 million square feet. This does not mean that Oregon's future data center geography is limited to Western Oregon. Eastern Oregon still has the larger total footprint when current and future records are combined, representing about 61 percent of Oregon's total gross building space and 55 percent of operational and future facilities.

Average facility size helps explain differences in the distribution of data centers across Eastern and Western Oregon. Current facilities in Eastern Oregon are, on average, substantially larger than those in Western Oregon. However, future facilities are approximately the same size in both regions and much larger than existing facilities in Western Oregon.

Exhibit 1.5. Average Gross Building Space by Western and Eastern Oregon

Region	Average Current Gross Building Space per Record (Sq. Ft.)	Average Future Gross Building Space per Record (Sq. Ft.)
Western Oregon	150,452	219,391
Eastern Oregon	224,799	210,161
Oregon Total	**196,918**	**216,795**

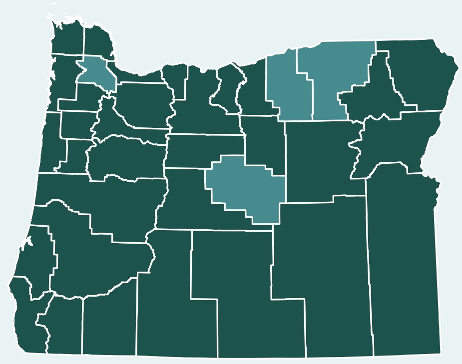
Source: S&P 451 Data Center Database; UVA analysis.

This is an important conclusion. To understand Oregon's data center footprint, the analysis must consider not only the number of facilities in each region but also their scale. When current and future records are combined, Oregon's data center geography is best understood as a two-region pattern. Western Oregon is important because of its concentration in the Portland-area technology and network infrastructure ecosystem and its substantial future pipeline. Eastern Oregon is important because it contains the larger current physical footprint and several of the state's largest data center clusters. These two geographies are connected yet distinct, and both are necessary to understand Oregon's statewide data center landscape. To examine these geographic differences in greater detail, the analysis that follows focuses on the county-level distribution of data centers, where development patterns can differ substantially across local areas.[9]

1.3. County-Level Distribution and Concentration

The Western/Eastern Oregon split provides a useful statewide summary, but data center development is also heterogeneous within these regions. Given the current data center boom, a more spatially granular analysis matters, as many local planning decisions, policies, and controversies are experienced closer to where facilities are located. Land use issues, permitting, zoning, property tax impacts, infrastructure coordination, road access, and water and wastewater systems are usually addressed first at the county or municipal level. Exhibit 1.6 shows this distribution in greater detail.

Of the 36 counties in Oregon, 10 have operational data centers, reflecting the concentration of the state's data center footprint in a relatively small number of counties. Washington County has the largest number of operational data centers, followed by Morrow, Umatilla, and Crook counties. These four counties account for 90 of Oregon's 111 operational data centers, or about 81 percent of the operational total. They also account for more than 20 million square feet of gross building space, or more than 92 percent of Oregon's



WASHINGTON | MORROW | UMATILLA | CROOK COUNTIES

90 OF OREGON'S 111 OPERATIONAL DATA CENTERS

20M SF OF GROSS BUILDING SPACE

WASHINGTON COUNTY
LARGEST # OF DCs AND SF

9 Fang, T. P., and Greenstein, S. (2025). Where the Cloud Rests: The Economic Geography of Data Centers. Harvard Business School Working Paper No. 21-042, revised August 2025.

Exhibit 1.6. Operational Data Centers by County

County	Operational Data Centers	Share of Operational Data Centers	Operational Gross Building Space (Thousand Sq. Ft.)	Share of Operational Gross Building Space
Western Oregon Counties				
Jackson County	2	1.8%	2.3	<0.1%
Lane County	2	1.8%	3.0	<0.1%
Multnomah County	7	6.3%	524.8	2.4%
Washington County	29	26.1%	5,787.3	26.2%
Other Western Oregon County	1	0.9%	1.5	<0.1%
Eastern Oregon Counties				
Crook County	14	12.6%	5,166.0	23.4%
Deschutes County	3	2.7%	71.5	0.3%
Morrow County	25	22.5%	5,003.5	22.7%
Umatilla County	22	19.8%	4,431.4	20.1%
Wasco County	6	5.4%	1,063.6	4.8%
Oregon Total	**111**	**100.0%**	**22,054.9**	**100.0%**

Source: S&P 451 Data Center Database; UVA analysis.

operational data center building footprint. The county rankings change slightly depending on whether the focus is on facility counts or gross building space. Washington County has the largest number of operational data centers and the largest operational gross building footprint. However, Crook, Morrow, and Umatilla counties also account for substantial shares of Oregon's operational data center space. Crook County is especially notable because it has fewer operational facilities than Washington, Morrow, or Umatilla counties but nearly the same gross building footprint as counties with the largest footprints. Among Western Oregon counties other than Washington County, Multnomah County has a smaller but still visible operational presence, while the other counties with operational facilities have much smaller building footprints, as most are small-scale facilities. In Eastern Oregon, operational facilities are distributed across more counties. Besides Crook, Morrow, and Umatilla counties, Wasco County also has a notable presence with six data centers occupying more than one million square feet in the county.

The future development pipeline provides an additional perspective on these geographic patterns, with planned facilities also geographically concentrated, though less so than operational facilities.

Future data center development, including the timing, size, and configuration of planned facilities, is inherently uncertain. The S&P Global 451 Research Datacenter KnowledgeBase tracks planned facilities and expansions using primary research that includes site visits, operator briefings, surveys, and other research.[10] S&P identifies facilities as planned based on its ongoing research into new construction and expansion activity; however, its public methodology

10 S&P Global 451 Database. (2026). "Data Centers" Accessed online at https://www.spglobal.com/energy/en/products-solutions/451-research-datacenter-knowledgebase

does not identify a specific development milestone or probability threshold that a project must meet to be classified as planned. As a result, the S&P pipeline should be understood as a researched inventory of planned development rather than a comprehensive list of every announced or potential project. Even projects included in the identified pipeline may change in size or timing, be delayed, or ultimately not be developed. The planned and under-construction facilities presented in this report should therefore be understood as S&P's identified development pipeline, not as a forecast of the facilities that will ultimately be built.

The identified pipeline also reflects the information available in the S&P dataset at the time the data were collected for this study. Developments announced or identified more recently may therefore not be included, and not every speculative or early-stage project is captured in S&P's planned-facility inventory. For example, the analysis does not include the potential 1-gigawatt exascale data center development evaluated in Morrow County or all of the potential future development represented by recent Enterprise Zone applications in Hillsboro.[11,12] These examples illustrate that the identified pipeline should not be interpreted as a complete inventory of all data center development that could occur in Oregon.

Exhibit 1.7. Operational and Future Data Centers by County

County	Operational Data Centers	Future Pipeline Data Centers	Future Facilities as Share of Operational Facilities	Operational Gross Building Space (Sq. Ft.)	Future Gross Building Space (Sq. Ft.)	Expected Growth in Gross Building Space
Western Oregon Counties						
Clackamas County	1	0	0.0%	1,500	0	0.0%
Jackson County	2	0	0.0%	2,341	0	0.0%
Lane County	2	0	0.0%	3,000	0	0.0%
Multnomah County	7	0	0.0%	524,787	0	0.0%
Washington County	29	23	79.3%	5,787,345	5,046,000	87.2%
Eastern Oregon Counties						
Crook County	14	1	7.1%	5,166,000	300,000	5.8%
Deschutes County	3	0	0.0%	71,500	0	0.0%
Morrow County	25	2	8.0%	5,003,465	208,000	4.2%
Umatilla County	22	6	27.3%	4,431,360	1,383,453	31.2%
Wasco County	6	0	0.0%	1,063,600	0	0.0%
Oregon Total	**111**	**32**	**28.8%**	**22,054,898**	**6,937,453**	**31.5%**

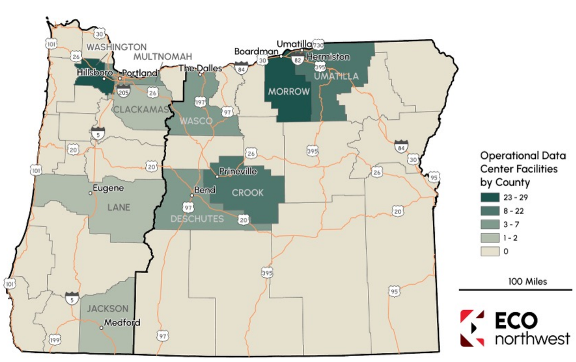
Source: S&P 451 Data Center Database; UVA analysis.

11 Morrow County Board of Commissioners. *Board of Commissioners Land Use Hearing Meeting Packet*. June 18, 2025. https://www.morrowcountyor.gov/sites/default/files/fileattachments/planning_commission/meeting/packets/16997/june_18th_2025_boc_packet.pdf

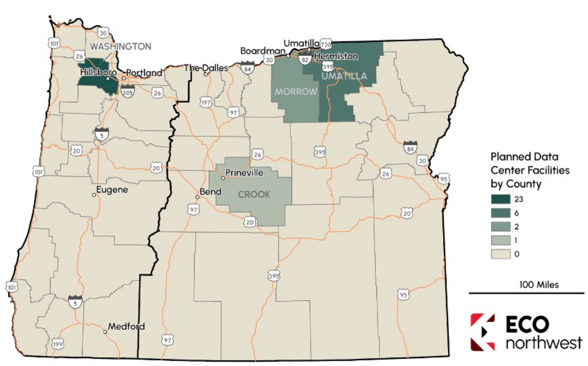
12 City of Hillsboro. "Data Centers in Hillsboro." Last updated September 10, 2026. https://www.hillsboro-oregon.gov/Home/Components/News/News/17625/5252

The future pipeline reinforces Washington County's importance in Oregon's data center geography. The county has 23 future pipeline facilities, compared with 29 current operational facilities, and its future gross building space is approximately 87 percent of its current operational gross building footprint. This suggests that Washington County will account for the largest absolute expansion of Oregon's data center footprint through 2030. Umatilla County, in Eastern Oregon, also has planned development activity. Its six future facilities represent an expected increase in gross building space of about 31 percent relative to its current operational footprint and account for 73 percent of the gross building space planned or under construction in Eastern Oregon. Crook and Morrow counties have smaller future pipelines in the current dataset, but both already have large operational footprints.

The county-level analysis clarifies the two-region pattern described above. Western Oregon's data center geography is heavily concentrated on Washington County, while Eastern Oregon's data center geography is spread across several counties. This county-level concentration has practical implications for local planning as these facilities interact with the rest of the community. The counties with the largest operational footprints may face ongoing questions about land use, infrastructure coordination, and community impacts, while benefiting from local tax revenues or community agreements when applied. This heterogeneity also has potential policy implications across different governmental and legislative dimensions. The remainder of this report will identify potential impacts and policy implications based on the different geographical scales.



Operational DCs



Future DCs

1.4. Historical Development and Changing Scale of Data Centers in Oregon

At this point, it is clear that, from a spatial perspective, it is essential to identify data centers' locations and corresponding sizes, as not all data centers are equal across space. The same holds for the historical development of Oregon's data center sector, which demonstrates why facility counts alone provide an incomplete picture of the industry's growth. The number of data centers has increased over time, but this growth has also brought changes in facility types, business models, technologies, and physical scale of newer facilities. This shift in scale has also contributed to increased media interest in data centers and related concerns among communities.[13]

For operational facilities, the timing variable used in the analysis is the later of the facility's construction year and retrofit year, referred to as the "effective year." Operational facilities without either a construction or retrofit year are assigned to the "before 2015" category. The additional non-operational record is also assigned to this category. For planned and under-construction facilities, the expected construction year is used when available. For presentation purposes, the six future pipeline facilities without an exact expected year are included in the "2030 and after" category.[14]

Exhibit 1.8. Data Center Development by Effective Year

Period/Year	Operational Year	Cumulative facilities	Gross Building Space Added (Million Sq. Ft.)	Cumulative Gross Building Space (Million Sq. Ft.)	Average Gross Building Space per Facility Added (Sq. Ft.)	Cumulative Average Gross Building Space per Facility (Sq. Ft.)
Before 2015	33	33	3.971	3.971	120,333	120,333
2015	5	39	0.145	4.116	29,065	105,547
2016	2	41	0.581	4.697	290,342	114,561
2017	3	44	0.818	5.515	272,667	125,341
2018	3	47	0.731	6.246	243,667	132,894
2019	2	49	0.355	6.601	177,500	134,714
2020	9	58	2.724	9.325	302,689	160,779
2021	12	70	2.995	12.320	249,575	176,001
2022	7	77	1.352	13.672	193,143	177,560
2023	13	90	3.568	17.240	274,462	191,557
2024	13	103	3.016	20.256	232,008	196,662
2025	9	112	1.899	22.155	210,967	197,812
2026	9	121	1.782	23.937	198,000	197,826
2027	8	129	2.610	26.547	326,307	205,793
2028	3	132	0.978	27.525	326,000	208,525
2029	3	135	0.600	28.125	200,000	208,336
2030 and after	9	144	0.967	29.092	107,444	202,030
Total	**143**	**—**	**29.092**	**—**	**203,441**	**—**

Notes: The before-2015 category includes 33 operational facilities completed before 2015 or without a reported effective year and one additional non-operational record. The 2030-and-after category includes three facilities with an expected year of 2030 and six pipeline facilities without an exact expected year. Totals may differ slightly from the sum of displayed values because of rounding.

Source: S&P 451 Data Center Database; UVA analysis.

13 The analysis in this subsection uses the same 144-record universe used throughout the report, after excluding 11 decommissioned facilities. These 144 records consist of 111 operational facilities, 32 facilities included in the future pipeline, and one additional non-operational record.

14 This convention does not mean that these facilities will necessarily be completed after 2030; some may eventually be built earlier.

The table shows that Oregon's data center sector has grown in several distinct phases. Before 2015, there were 33 facilities, including operational facilities accounting for approximately 3.97 million square feet of gross building space. The average facility in this category had approximately 120,000 square feet of gross building space. Between 2015 and 2020, Oregon added 24 operational facilities and approximately 5.35 million square feet of gross building space. These new facilities averaged approximately 223,000 square feet, almost twice the average size of facilities in the pre-2015 category. The annual results, however, show heterogeneous trends: the average facility size increased over this period, except in 2019. The nine facilities added in 2020 averaged approximately 303,000 square feet. Indeed, the largest expansion occurred between 2021 and 2025. During these five years, Oregon added 54 operational facilities and approximately 12.83 million square feet of gross building space. These facilities averaged approximately 238,000 square feet. This period alone accounts for almost half of the 111 operational facilities included in the analysis and more than half of the gross building space associated with the operational inventory.

The future pipeline includes 32 facilities and approximately 6.94 million square feet of gross building space. These planned and under-construction facilities average approximately 217,000 square feet. This is larger than the average for the existing inventory through 2025, but smaller than the average size of the facilities added in both 2023 and 2024. Consequently, the current pipeline seems a steady continuation of the trend that started in 2023. However, there is considerable variation within the pipeline. Nine facilities expected in 2026 average approximately 198,000 square feet, while those expected in 2027 and 2028 are substantially larger, averaging approximately 326,000 square feet each year. After this, the three facilities expected in 2029 have a lower average of approximately 200,000 square feet.[15]

Overall, the historical evidence suggests that the physical scale of Oregon's data center sector increased substantially after 2015 and particularly after 2020. However, the change has not followed a uniform annual pattern. Facility size varies considerably from year to year, and the facilities added in 2023 and 2024 were, on average, larger than those in the future pipeline. This reinforces the main conclusion of this subsection: facility counts alone provide an incomplete measure of data center development. Gross building space added during each development phase is equally important for understanding how the sector has evolved and how its future footprint may change. At the same time, Oregon's data center sector exhibits many characteristics of a mature market. The future pipeline represents approximately 22 percent of the 143 facilities expected by 2030 and approximately 24 percent of the expected total gross building space. In other words, facilities already included in the existing inventory account for approximately 78 percent of the expected number of facilities and 76 percent of the expected building footprint. Oregon's data center landscape through 2030 will therefore continue to be shaped predominantly by its substantial existing base, even as new development changes its scale and geographic distribution.

15 The "2030 and after" category should be interpreted cautiously. It combines three facilities with an expected year of 2030 and six facilities without an exact expected year. Together, they account for approximately 967,000 square feet of reported gross building space. However, some facilities without timing also lack complete information about their expected building size. Consequently, the average shown for this category should not be interpreted as evidence that later facilities will necessarily be substantially smaller. It reflects both the grouping convention and the incomplete information available for some pipeline projects.

1.5. Data Center Types and Facility Scale in Oregon

Data centers are often discussed as if they were a single type of facility. In practice, the term encompasses several distinct business models. Some facilities provide relatively small amounts of space and technical services to many customers, while others lease large sections of a building to a few major tenants.[16] Hyperscale facilities are generally developed for a single large technology company, while powered shells are real estate developments prepared for future data center occupancy and buildout. Retail and wholesale primarily describe how space and services are leased to customers. Hyperscale identifies the scale and type of user, telco refers to a facility's network and telecommunications functions, and powered shell describes the development condition of a building before it is fully occupied and equipped. A facility may exhibit characteristics of more than one category, but this report uses the primary classification assigned by S&P.

The five facility types identified in the Oregon database can be summarized as follows:[17]

Retail data centers lease relatively small amounts of space—such as individual racks, cages, or rooms—to multiple customers. The operator typically manages the building and provides shared services to many businesses. These facilities are generally smaller and are often located near metropolitan areas where they can serve local businesses and provide access to multiple network providers.

Telco data centers support telecommunications networks, network exchanges, and related infrastructure. Many are older facilities located near population and business centers. They tend to have relatively small physical footprints, but their importance can be greater than their size suggests because they serve as connection points within broader communications networks.

Wholesale data centers lease large suites, entire buildings, or substantial portions of a campus to a small number of large customers. In this model, the facility owner may be a specialized data center or real estate company, while the tenant occupying the space may be a cloud provider, technology company, or other large institutional user. Wholesale facilities are typically much larger than retail or telco facilities and may be developed in phases as tenants are secured.

Hyperscale data centers are associated with the largest cloud computing, digital platform, artificial intelligence, and technology companies. In contrast to wholesale, they are generally developed for a single principal user and may be part of a larger campus containing multiple buildings. Hyperscale companies are more likely to make long-term location decisions based on the availability of computational capacity, with data centers operating more hours and closer to full capacity over the long term.

Powered-shell facilities are buildings prepared for eventual data center use but not necessarily fully occupied or built out internally. The developer provides the building shell and major site infrastructure, while a future tenant completes the interior according to its needs. Powered shells therefore reflect the real estate and development side of the data center industry.

16 Ferreira, J.-P., Shobe, W., Rephann, T., and Scheffel, M. (2026). Economic, Fiscal, and Energy-related Impacts of Data Centers in the Great Lakes Region. Center for Economic and Policy Studies, Weldon Cooper Center for Public Service, University of Virginia.

17 The S&P database does not include cryptocurrency facilities as a separate data center type in Oregon. After excluding decommissioned facilities, the operational inventory is distributed across retail, wholesale, hyperscale, telco, and powered- shell facilities. However, other uses including cryptocurrency could occur within Oregon's retail, wholesale, or powered-shell classified data center facilities.

Exhibit 1.9. Operational Data Centers by Type

Data Center Type	Operational Facilities	Share of Operational Facilities	Gross Building Space (Million Sq. Ft.)	Share of Operational Gross Building Space	Average Gross Building Space per Facility (Sq. Ft.)
Retail	17	15.3%	0.93	4.2%	54,435
Wholesale	22	19.8%	4.92	22.3%	223,785
Hyperscale	67	60.4%	15.66	71.0%	233,797
Telco	3	2.7%	0.05	0.2%	16,600
Powered Shell	2	1.8%	0.49	2.2%	246,000
Total	**111**	**100.0%**	**22.05**	**100.0%**	**198,693**

Source: S&P 451 Data Center Database; UVA analysis.

The operational results demonstrate why facility type matters when comparing Oregon with other states that may have similar numbers of data centers but are dominated by retail and telco facilities. Retail and telco facilities together account for 20 of Oregon's 111 operational facilities, or 18 percent. However, they account for less than 1 million square feet, or approximately 4.4 percent of operational gross building space. Retail facilities average approximately 54,000 square feet, while the three telco facilities average fewer than 17,000 square feet. As can be observed, wholesale, hyperscale, and powered-shell facilities are substantially larger. The two operational powered-shell facilities average 246,000 square feet. Although they represent only a small share of the operational inventory, their relatively large size illustrates the relationship between data center development and specialized real estate development, a characteristic that is absent in many U.S. states. Oregon's 22 operational wholesale facilities average approximately 224,000 square feet and account for 22.3 percent of operational gross building space. The state's 67 hyperscale facilities average approximately 234,000 square feet and account for 71 percent of operational gross building space. Hyperscale facilities therefore dominate Oregon's operational inventory in both number and physical footprint.

These business models also help explain the differences in facility size observed in Oregon. Retail and telco facilities generally serve multiple customers from relatively small buildings, while wholesale, hyperscale, and powered-shell facilities require much larger physical footprints and may be developed in multiple stages. Oregon's future pipeline has a different composition from its operational inventory, with planned and under-construction development concentrated entirely in wholesale, hyperscale, and powered-shell facilities. This heterogeneity was already noted in the work of Fang and Greenstein (2025) and Ferreira et al (2026).[18,19]

18 Fang, T. P., and Greenstein, S. (2025). Where the Cloud Rests: The Economic Geography of Data Centers. Harvard Business School Working Paper No. 21-042, revised August 2025.

19 Ferreira, J.-P., Shobe, W., Rephann, T., and Scheffel, M. (2026). Economic, Fiscal, and Energy-related Impacts of Data Centers in the Great Lakes Region. Center for Economic and Policy Studies, Weldon Cooper Center for Public Service, University of Virginia.

Exhibit 1.10. Planned Future Pipeline of Data Centers by Type

Data Center Type	Future Pipeline Facilities	Share of Future Pipeline Facilities	Gross Building Space (Million Sq. Ft.)	Share of Future Gross Building Space	Average Gross Building Space per Facility (Sq. Ft.)
Wholesale	19	59.4%	4.75	68.4%	249,789
Hyperscale	8	25.0%	1.19	17.2%	148,932
Powered shell	5	15.6%	1.00	14.4%	200,000
Total	**32**	**100.0%**	**6.94**	**100.0%**	**216,795**

Source: S&P 451 Data Center Database; UVA analysis.

Wholesale facilities account for 19 of the 32 future projects and approximately 4.75 million of the 6.94 million square feet in the pipeline. They therefore represent 59.4 percent of future facilities but 68.4 percent of future gross building space. The average wholesale facility is approximately 250,000 square feet, slightly larger than the average operational wholesale facility. Eight hyperscale facilities account for one-quarter of the pipeline and approximately 1.19 million square feet. These facilities average approximately 149,000 square feet, smaller than Oregon's existing hyperscale facilities.[20] The five powered shell projects account for another 1 million square feet.

One important aspect that is similar to the observed in many other US regions is the absence of future retail and telco facilities. This suggests that, at the national level, Oregon's future market is increasingly oriented toward large tenants and specialized data centers rather than smaller multi-tenant or telecommunications facilities. When operational and future facilities are combined, hyperscale facilities remain the largest component of Oregon's data center footprint, while wholesale facilities account for a growing share of the market. Exhibit 1.11 is the simple combination of the last two tables.

Exhibit 1.11. Operational and Planned Future Pipeline of Data Centers by Type

Data Center Type	Total Facilities (Operational + Future)	Share of Typed Facilities	Gross Building Space (Million Sq. Ft.)	Share of Typed Gross Building Space	Average Gross Building Space per Facility (Sq. Ft.)
Retail	17	11.9%	0.93	3.2%	54,435
Wholesale	41	28.7%	9.67	33.4%	235,836
Hyperscale	75	52.4%	16.86	58.2%	224,745
Telco	3	2.1%	0.05	0.2%	16,600
Powered Shell	7	4.9%	1.49	5.1%	213,143
Total	**143**	**100.0%**	**28.99**	**100.0%**	**202,744**

Source: S&P 451 Data Center Database; UVA analysis.

20 This can reflect the particular projects currently identified, the phased development of larger campuses, or incomplete information for projects that remain at an early planning stage. So, it should not be interpreted as a general rule that future hyperscale facilities will necessarily be smaller, as this runs counter to what is observed in most US states (Ferreira et al., 2026).

Facility type is also closely associated with geography. Eastern Oregon's operational market is overwhelmingly hyperscale, while Western Oregon has a more diversified combination of wholesale, retail, telco, and powered-shell facilities.

Exhibit 1.12. Operational Data Centers by Type and Region

Region	Data Center Type	Operational Facilities	Future Facilities	Gross Building Space (Million Sq. Ft.)	Gross Building Space (Million Sq. Ft.)
Western Oregon	Retail	14	-	0.85	-
	Wholesale	22	18	4.92	4.05
	Telco	3	-	0.05	-
	Powered Shell	2	5	0.49	1.00
Eastern Oregon	Retail	3	-	0.07	-
	Wholesale	0	1	0.70	-
	Hyperscale	67	8	15.66	1.19
Total		**111**	**32**	**22.05**	**6.94**

Source: S&P 451 Data Center Database; UVA analysis.

The distribution of data centers reveals a distinct divide between Western and Eastern Oregon. All 67 operational hyperscale facilities identified in the database are located in Eastern Oregon. Together, they account for approximately 15.66 million square feet. Eastern Oregon also contains three relatively small retail facilities, but these facilities account for only a small share of the region's total data center footprint. Western Oregon contains all 22 operational wholesale facilities, all 3 telco facilities, both powered-shell facilities, and 14 of the 17 retail facilities. This pattern is consistent with Western Oregon's role as a more diversified metropolitan and network-oriented market centered in the Portland region.

Looking ahead, Western Oregon contains 23 of the 32 future pipeline facilities and approximately 5.05 million square feet of future gross building space. This pipeline consists of 18 wholesale facilities and five powered shell developments, continuing the trend observed in the past and the absence of hyperscale data centers. Eastern Oregon contains nine future facilities and approximately 1.89 million square feet of gross building space. Eight are hyperscale facilities, and the remaining facility represents the region's first identified wholesale development. Eastern Oregon therefore remains primarily associated with hyperscale development, although the addition of a wholesale facility introduces some diversification. The contrast reflects two different data center ecosystems. Eastern Oregon's market is concentrated in large facilities associated with a relatively small group of major technology companies. Western Oregon's market includes specialized data center landlords, multi-tenant operators, telecommunications facilities, and development-ready real estate.

Overall, data center type provides essential context for interpreting Oregon's market. Retail and telco facilities support multiple customers and important network functions but occupy relatively little building space. Wholesale facilities represent large-scale, often multi-tenant real estate developments. Hyperscale facilities reflect long-term investments by major technology companies and dominate Oregon's existing physical footprint. Powered shells represent a development model in which construction and occupancy may occur in separate stages.

1.6. Headquarters Location, Ownership and Business Model

In addition to facility type, size, and location, the headquarters location of the company associated with the data center is also relevant. Headquarters location may influence where strategic decisions are made, where future facilities are located, how facilities are connected to customers and suppliers, and where some of the income generated by the business ultimately accrues. It can therefore provide initial insight into the potential relationship between data center development and Oregon's economy.

For this analysis, in-state ownership is approximated using the headquarters location of the company or operator identified in the S&P database. A facility is classified as in-state when the associated company is headquartered in Oregon. Companies headquartered elsewhere in the United States or in another country are classified as out-of-state.[21] This is descriptive and should not be interpreted as inherently positive or negative. Oregon-headquartered and out-of-state companies may contribute to the state's economy through different channels.

The results show that Oregon's operational data center market is predominantly associated with companies headquartered outside the state. Only eight of the operational facilities, or 7.2 percent, are associated with Oregon-headquartered companies. These eight facilities account for approximately 466,500 square feet, or only 2.1 percent of operational gross building space. The average Oregon-headquartered facility contains approximately 58,000 square feet, compared with approximately 210,000 square feet for facilities associated with out-of-state companies. This difference reflects the substantially smaller physical footprint of the locally headquartered portion of the

Exhibit 1.13. Oregon-Headquartered and Out-Of-State Data Centers by Type and Development Status

Data Center Type	Operational Facilities: Oregon-Headquartered	Operational Facilities: Out-of-State	Oregon-Headquartered Share of Operational Facilities	Future Pipeline: Oregon-Headquartered	Future Pipeline: Out-Of-State
Retail	6	11	35.3%	0	0
Wholesale	2	1	66.7%	0	0
Hyperscale	0	22	0.0%	0	19
Telco	0	67	0.0%	0	8
Powered Shell	0	2	0.0%	0	5
Total	**8**	**103**	**7.2%**	**0**	**32**

Source: S&P 451 Data Center Database; UVA analysis.

21 This is an informative proxy rather than a complete measure of ownership, particularly for wholesale and powered-shell facilities. The data do not identify the ultimate beneficial owner of the facility and do not always separate the owner of the real estate from the tenants using the data center.

market. Ownership is also closely related to facility type. All eight Oregon-headquartered facilities are classified as either retail or telco. Six of Oregon's 17 operational retail facilities are associated with Oregon-headquartered companies, and these six facilities account for approximately half of the gross building space in the retail category. Two of the state's three telco facilities are also associated with Oregon-headquartered companies. By contrast, none of Oregon's operational wholesale, hyperscale, or powered-shell facilities is associated with a company headquartered in the state.

The spatial distribution of Oregon-headquartered facilities shows that six of the eight are located in Western Oregon. Four are in Washington and Multnomah counties, at the center of the Portland-area technology, business, and communications market, while two are located in other Western Oregon counties containing smaller urban centers. The remaining two are retail facilities in Eastern Oregon, but neither is located in Crook, Morrow, or Umatilla counties, which contain the largest concentrations of data centers in Eastern Oregon. Locally headquartered facilities represent only a small share of total data centers, and those are associated with urban markets rather than the Eastern Oregon data center clusters. The future pipeline deepens this trend. None of the 32 planned or under-construction facilities is associated with an Oregon-headquartered company.

The contrast between in-state and out-of-state companies should not be interpreted as a simple comparison between local benefits and local costs. Smaller Oregon-headquartered retail and telco facilities may be more closely connected with local customers, suppliers, workers, and decision-makers. Local headquarters may also increase the likelihood that management functions and a portion of business income remain in Oregon.[22] Out-of-state companies, meanwhile, bring investment from outside Oregon into the state. This external investment can support construction activity, payments to landowners and contractors, and additions to the local property base.[23,24] It also connects Oregon to national and international markets for digital services. In contrast, strategic decisions may be made outside Oregon, and some of the profits generated by these facilities are more likely to accrue elsewhere.

Overall, the ownership results complement the transformation identified in Section 1.5. Oregon's locally headquartered data center presence is concentrated in smaller retail and telecommunications facilities, while its large operational footprint and entire identified pipeline are associated with companies headquartered outside the state. This transition brings external investment and connects Oregon more closely to national and international technology markets. At the same time, it increases the state's exposure to changes in global supply chains, technological priorities, and the investment strategies of large technology companies. Later economic analysis should therefore distinguish between total investment occurring in Oregon, the share purchased from Oregon workers and businesses, and the income and profits that may ultimately accrue outside the state.

22 However, the database does not directly identify customers, suppliers, procurement patterns, or the distribution of profits. Headquarters location indicates the possibility of stronger local linkages but does not demonstrate that they occur.
23 Pham, N. (2017). Data Centers: Jobs and Opportunities in Communities Nationwide. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2998644
24 Joint Legislative Audit and Review Commission. (2024). Data Centers in Virginia. JLARC Report 598. Commonwealth of Virginia.

1.7 Key Findings from the Location, Scale, and Typology Analysis

The analysis in this section shows that Oregon already has a mature and substantial data center market and its evolution cannot be understood through facility counts alone. The principal findings are:

- **Most of Oregon's expected data center footprint already exists.** There are 111 operational data centers and 32 planned ones, meaning that existing data centers account for 78 percent of the total number of facilities and 76 percent of the gross building space expected by 2030. Future development remains significant, but it will expand and modify large existing regional markets rather than creating a new one.

- **The data center footprint is concentrated geographically.** Only 10 of Oregon's 36 counties contain current facilities. The Western and Eastern Oregon distinction is important. Eastern Oregon contains the larger established footprint, while Western Oregon accounts for most of the future pipeline. In terms of counties, Washington in Western Oregon and Morrow, Umatilla, and Crook counties in Eastern Oregon account for approximately 81 percent of operational facilities and more than 92 percent of operational gross building space.

- **Facility size increased substantially over time, although not uniformly.** Facilities assigned to the before-2015 category averaged approximately 120,000 square feet, compared with approximately 223,000 square feet for facilities added between 2015 and 2020 and approximately 238,000 square feet for facilities added between 2021 and 2025. The future pipeline averages approximately 217,000 square feet per facility. This is larger than Oregon's overall existing average but smaller than the average size of the facilities added in 2023 and 2024.

- **Facility type explains much of the difference in physical scale.** Hyperscale facilities dominate Oregon's operational market, accounting for 67 of the 111 operational facilities and 71 percent of operational gross building space. The future pipeline is instead led by wholesale development, which accounts for 19 of the 32 future facilities and approximately 68 percent of future gross building space. No future retail or telco facilities are expected to be built. Oregon's market is therefore increasingly oriented toward hyperscale, wholesale, and powered-shell facilities that have a large footprint in land-use terms but also in other dimensions that will be addressed later in this report.

- **Western and Eastern Oregon represent different data center ecosystems.** Eastern Oregon is principally characterized by established hyperscale campuses associated with major technology companies. Western Oregon has a more diversified existing market and a future pipeline concentrated in wholesale and powered shell development. These patterns suggest that the two regions play distinct yet interconnected roles in Oregon's data center economy.

- **The changing facility mix is accompanied by a change in ownership structure.** Only eight operational facilities, representing 7.2 percent of the operational total and 2.1 percent of operational gross building space, are associated with Oregon-headquartered companies. All eight are retail or telco facilities, and none became operational after 2015. None of the 32 future facilities is associated with an Oregon-headquartered company.

These findings describe Oregon as a relatively mature, geographically concentrated, and increasingly externally owned data center market. Future development is smaller than the existing base but will reinforce the importance of large facility types and increase Washington County's role in the statewide market. External ownership brings investment into Oregon and connects the state with national and international technology markets. However, it also means that strategic decisions, specialized procurement, and part of the income and profits generated by these facilities may occur or accrue outside the state. Other implications also emerge from this growing market and will be addressed in future sections. But most importantly, the implications of Oregon's data center sector depend not only on how many facilities exist, but also on their location, size, business model, development status, technology adoption, and ownership. These findings provide the foundation for the resource, economic, and fiscal analysis presented in the remainder of the report.

Source: Hrach Hovhannisyan/Shutterstock

SECTION 2

Location Matters

Source: Hugh K Telleria/Shutterstock

The economic benefits and community considerations associated with data center development are not distributed uniformly across Oregon. Data centers are concentrated in specific locations and rely on place-specific infrastructure and resources, including electricity infrastructure, water availability, industrial land, fiber connectivity, and transportation networks. As a result, the effects of development occur at multiple geographic scales. Some are experienced primarily within host communities, while others extend across counties or throughout the state through regional labor markets, utility systems, supply chains, and public finance.

Understanding these geographic differences provides important context for interpreting the findings presented throughout this report. Statewide estimates describe the overall economic contribution and resource requirements of Oregon's data center industry, but they do not necessarily indicate where economic benefits accrue or which communities experience associated infrastructure demands, and land use pressure, or other resource considerations. This section examines the characteristics of communities near data center development and the distribution of economic benefits, infrastructure requirements, and resource considerations across Oregon.

Host Community Characteristics

The characteristics of communities near data center development provide one lens for understanding who may experience the localized benefits and impacts associated with development. Environmental justice analyses have historically considered whether minority and low-income populations may experience disproportionate environmental impacts, while more recent state frameworks consider a broader range of demographic and socioeconomic characteristics.[25]

Oregon has established a statutory environmental justice framework and Environmental Justice Council and is developing a statewide environmental justice mapping and screening methodology to support the implementation of state environmental justice policy. Because that methodology has not yet been finalized, this assessment does not apply to a formal state environmental justice designation. Instead, the analysis uses publicly available demographic and socioeconomic indicators to characterize populations living near operational and planned data centers to compare them with the broader Eastern and Western Oregon populations.

Differences in Oregon's Host Communities in Planned and Operational Data Centers

Demographic and socioeconomic characteristics were summarized for Census tracts located within one mile of operational and planned data centers using the U.S. Census Bureau's American Community Survey (ACS) 5-year estimates. Proximity provides a useful lens for considering the distribution of localized impacts because populations living closest to industrial development may have greater potential exposure to site-specific effects such as construction activity, traffic, noise, and emissions from backup power generation. The one-mile analysis area therefore provides a consistent basis for characterizing populations near data center development, but is not intended to define the geographic extent or magnitude of environmental impacts.

Consistent with indicators commonly considered in environmental justice analyses, the assessment examines:

- **Racial or ethnic minority population:** percent of the population identifying as Hispanic or Latino, regardless of race, or as a race other than White alone, non-Hispanic;
- **Poverty rate**: percent of individuals with income below the federal poverty level;
- **Median household income;** and
- **Limited English proficiency:** percent of persons aged 5 and older who speak English less than "very well."

Results are presented separately for operational and planned data centers and for Eastern and

25 Council on Environmental Quality (CEQ). 1997. *Environmental Justice: Guidance Under the National Environmental Policy Act.* Executive Office of the President, Washington, DC. December 10, 1997.

Western Oregon. Demographic characteristics within the data center study areas are compared with the corresponding Eastern or Western Oregon regional population. Regional benchmarks are particularly important because demographic and socioeconomic conditions differ substantially across the state; comparison with the surrounding region helps distinguish characteristics of areas near data centers from broader geographic differences between Eastern and Western Oregon.

The analysis provides a descriptive snapshot of current demographic conditions. For operational facilities, these characteristics may reflect both the communities in which data centers were originally developed and demographic or economic changes that have occurred since development. The analysis therefore identifies differences between populations near data centers and their broader regions but does not attribute those differences to data center development.

Exhibit 2.1. Demographic Differences Are More Pronounced Near Planned Data Centers

	Eastern Oregon			Western Oregon		
	Population within 1 mile of DCs	Eastern Oregon	Difference	Population within 1 mile of DCs	Western Oregon	Difference
Operational Data Centers						
Median Household Income	$84,789	$74,573	$10,216	$83,250	$85,061	-$1,810
Minority Population	30%	24%	+5 pp	33%	29%	+4 pp
Poverty Rate	11%	12%	-1 pp	13%	12%	+1 pp
Limited English Proficiency	7%	4%	+3 pp	5%	6%	0 pp
Planned Data Centers						
Median Household Income	$74,563	$74,573	-$10	$104,995	$85,061	$19,935
Minority Population	41%	24%	+16 pp	46%	29%	+17 pp
Poverty Rate	12%	12%	0 pp	10%	12%	-2 pp
Limited English Proficiency	11%	4%	+7 pp	9%	6%	+3 pp

Notes: Differences are calculated as the value for data center study areas minus the corresponding regional value. Differences for percentage-based indicators are reported in percentage points (pp). Figures may not sum due to rounding.

Source: U.S. Census Bureau, ACS 2020-2024, 5-year estimates.

Communities Near Operational Data Centers

Communities near operational data centers do not exhibit a consistent pattern of greater economic disadvantage relative to their respective regions.

In Eastern Oregon, median household income within one mile of operational data centers is approximately $84,800, compared with $74,600 across Eastern Oregon, while the poverty rate is slightly lower (11% compared with 12%). In Western Oregon, median household income near operational facilities is similar to the regional average ($83,300 compared with $85,100), and the poverty rate is approximately one percentage point higher.

A more consistent difference emerges in racial and ethnic composition. Racial or ethnic minority populations account for 30 percent of the population near operational data centers in Eastern Oregon, compared with 24 percent regionally, and 33 percent near Western Oregon facilities, compared with 29 percent regionally. Limited English proficiency is also more prevalent near operational facilities in Eastern Oregon (7% compared with 4% regionally), while the Western Oregon study areas are similar to the regional average.

Source: Bonita R. Cheshier/Shutterstock

Communities Near Planned Data Centers

Demographic differences are more pronounced around planned data centers. Racial or ethnic minority populations account for 41 percent of residents within one mile of planned data centers in Eastern Oregon and 46 percent in Western Oregon, compared with 24 percent and 29 percent of their respective regional populations. Limited English proficiency is also more prevalent near planned facilities, particularly in Eastern Oregon, where 11 percent of the population has limited English proficiency compared with 4 percent regionally.

These differences are not accompanied by a consistent pattern of greater economic disadvantage. Poverty rates near planned facilities are approximately equal to the Eastern Oregon average and lower than the Western Oregon average. Median household income near planned facilities is approximately equal to the Eastern Oregon average and substantially higher than the Western Oregon average.

These indicators do not suggest a uniform socioeconomic profile for communities near Oregon data centers. Areas near operational and planned facilities are not consistently characterized by higher poverty rates or lower household incomes than their respective regions. However, populations near data centers are more racially and ethnically diverse than their regional populations, with these differences particularly pronounced around planned facilities. Some study areas also have higher rates of limited English proficiency, particularly near planned facilities in Eastern Oregon. These patterns may also have implications for community outreach and engagement as planned development proceeds.

Most Oregon Data Centers Are Located Within Urban Growth Boundaries, but Eastern and Western Oregon Differ

Oregon data centers are predominantly located within cities and urban growth boundaries (UGBs), although the pattern differs substantially between Eastern and Western Oregon. Statewide, 80 of 111 operational data centers (72%) are located within city limits, and another 7 (6%) are within a UGB but outside city limits.[26,27] The remaining 24 operational facilities (22%) are located outside UGBs.

The geographic pattern is particularly pronounced in Western Oregon. All 41 operational data centers in Western Oregon are located within UGBs, including 40 within city limits. In Eastern Oregon, by comparison, 40 of 70 operational facilities (57%) are within city limits, six (9%) are within a UGB but outside city limits, and 24 (34%) are outside UGBs. These differences are consistent with broader geographic patterns identified elsewhere in this assessment, including the concentration of large hyperscale facilities in Eastern Oregon.

Exhibit 2.2. Location of Operational and Planned Data Centers Relative to City Limits and Urban Growth Boundaries

	Eastern Oregon		Western Oregon		Statewide Total	
	Count	Percent	Count	Percent	Count	Percent
Operational Data Centers						
Within City Limits	40	98%	40	57%	80	72%
Within UGB but Outside City Limits	1	2%	6	9%	7	6%
Outside Urban Areas/UGBs	-	0%	24	34%	24	22%
Total Operational Data Centers	41	100%	70	100%	111	100%
Planned Data Centers						
Within City Limits	17	74%	5	56%	22	69%
Within UGB but Outside City Limits	6	26%	1	11%	7	22%
Outside Urban Areas/UGBs	-	0%	3	33%	3	9%
Total Planned Data Centers	23	100%	9	100%	32	100%

Note: Locations reflect current city limits and urban growth boundaries as of August 2026. Planned data centers include facilities identified as planned or under construction in the facility inventory used for this assessment. Percentages may not sum to 100 percent due to rounding.

Source: OR DLCD, 2026; S&P 451 Data Center Database; US Census Bureau, 2026; ECOnorthwest analysis.

26 Oregon Department of Land Conservation and Development. "UGB_2025." *ArcGIS REST Services Directory*. Accessed August 2026. https://services8.arcgis.com/8PAo5HGmvRMIF2eU/arcgis/rest/services/Urban_Growth_Boundaries/FeatureServer/0

27 U.S. Census Bureau. "TIGER/Line Shapefiles 2025." U.S. Census Bureau. Accessed August 2026. https://www2.census.gov/geo/tiger/

The identified development pipeline is even more concentrated within UGBs. Of the 32 planned or under-construction facilities identified in this assessment, 22 (69%) are within city limits, and 7(22%) are within UGBs but outside city limits. Three planned facilities (9%) are outside UGBs, all in Eastern Oregon. All 23 planned facilities in Western Oregon are located within UGBs.

These patterns illustrate an important geographic distinction in how data center development Intersects with Oregon's land-use system. In Western Oregon, all identified operational and planned development is located within UGBs. Eastern Oregon includes development both within and outside UGBs, with approximately one-third of existing facilities and three of the nine planned facilities located outside UGBs. The following analysis considers the historical land cover associated with data center sites to provide additional context about the types of land converted for data center development.

Resource and Pre-Existing Land Use Context

The land-use implications of data center development depend in part on where facilities are built and how those sites were used before development. To characterize these patterns, ECOnorthwest examined historical land cover on the county assessor tax lots associated with Oregon's operational and decommissioned data centers.

Historical zoning and comprehensive plan designations could not be reconstructed consistently across jurisdictions and over time. The analysis therefore focuses on observed land cover rather than regulatory land-use designations. ECOnorthwest used the U.S. Geological Survey's Land Change Monitoring, Assessment, and Projection (LCMAP) dataset to distinguish among previously developed land, cropland, and grassland or shrubland. The U.S. Department of Agriculture National Agricultural Statistics Service's Cropland Data Layer (CDL) was used to provide a more detailed estimate of cultivated cropland present before development.

For facilities with an identified operational year, the analysis generally measures pre-development conditions three years before construction. Land-cover shares are calculated across the county assessor tax lot associated with each facility rather than the building footprint itself. Because multiple data center buildings can occupy the same tax lot, the analysis counts acreage only once for each unique tax lot.

The analysis identifies 114 data center (operational and decommissioned) facilities located on 60 unique tax lots encompassing approximately 2,158 acres. The results reveal an important distinction between the number of data center sites and the amount of land they occupy. More than half of the sites, 33 of 60, were located on land that was already predominantly developed. These infill sites account for only about 179 acres, or 8 percent of the total analyzed land footprint.

Most data center acreage, by contrast, is associated with larger greenfield developments. Seventeen tax lots classified as predominantly cropland before development encompass approximately 1,230 acres, while eight predominantly grassland or shrubland sites encompass approximately 675 acres. Two additional sites totaling approximately 74 acres had mixed pre-development land cover. Overall, approximately 86 percent of the analyzed tax lot acreage was associated with sites classified as predominantly cropland or grassland/shrubland before development.

This pattern differs substantially between Eastern and Western Oregon. Eastern Oregon accounts for approximately 1,810 acres, or 84 percent, of the analyzed data center land footprint. Development there has occurred primarily on larger greenfield sites in Umatilla, Crook, and Morrow counties. Western Oregon contains more data center tax lots, 37 compared with 23 in Eastern Oregon, but they collectively encompass only about 347 acres and include many relatively small infill sites. Washington County illustrates this pattern particularly clearly: it contains numerous data center facilities on previously developed land as well as several larger greenfield developments.

Cultivated cropland accounts for a substantial portion of the greenfield land associated with data center development, particularly in Eastern Oregon. Using the more detailed USDA Cropland Data Layer, ECOnorthwest estimates that approximately 959 acres of cultivated cropland were present on analyzed data center tax lots before development, an area roughly equivalent in size to the Hillsboro Airport.[28] Approximately 798 acres were in Eastern Oregon and 161 acres were in Western Oregon.

Relative to the broader cultivated cropland base, however, the acreage associated with data center development has been small. The approximately 798 acres identified in Eastern Oregon represent about 0.03 percent of the region's cultivated cropland, while the approximately 161 acres identified in Western Oregon represent about 0.02 percent. Statewide, the 959 acres represent approximately 0.03 percent of Oregon's cultivated cropland base.

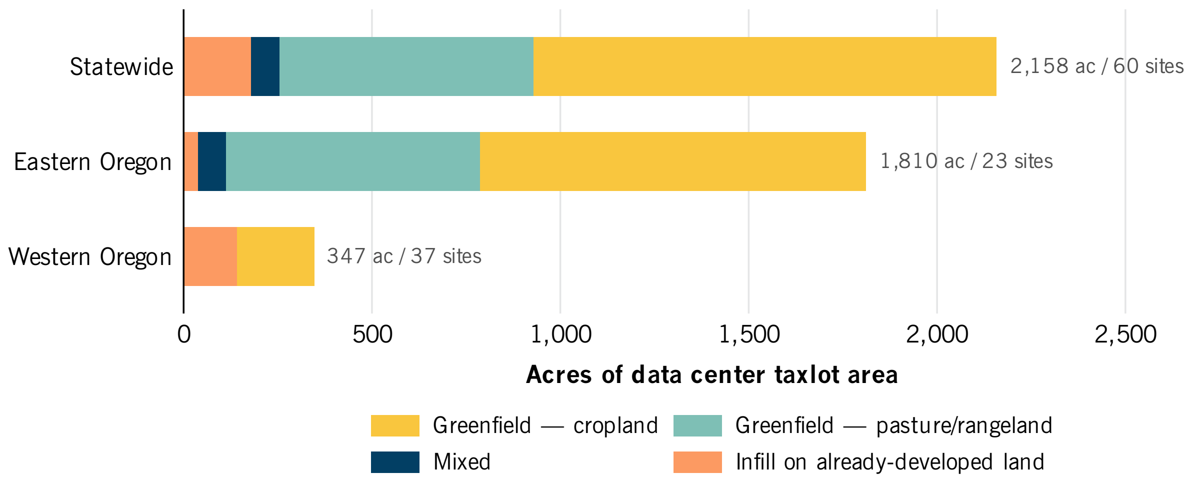
These percentages provide important context for interpreting the land-use effects of data center development. Although greenfield data center development has converted cultivated agricultural land, particularly in Eastern Oregon, the cumulative acreage identified through this analysis represents a small share of the cultivated cropland available at the regional and statewide levels. At the same time, statewide and regional percentages do not necessarily capture the significance of land conversion in individual communities or locations, where development may be more concentrated.

These findings describe the land context in which data center development has occurred; they do not measure the economic opportunity cost of that development. Historical land cover identifies what was physically present before development, but it does not establish a site's zoning or comprehensive plan designation at the time, the productivity or economic value of the previous use, or the development that would otherwise have occurred. The results are therefore best interpreted as evidence about the location and character of past land conversion rather than as an estimate of a specific alternative use forgone.

Source: davidrh/Shutterstock

28 Port of Portland. "Hillsboro Airport (HIO)." *Port of Portland*. Accessed August 2026. https://portofportland.com/HIO?culture

Exhibit 2.3. Most Data Center Acreage Is Associated with Greenfield Development in Eastern Oregon



Note: Sites refer to unique tax lots. The 60 statewide sites include 23 in Eastern Oregon and 37 in Western Oregon.

Source: USGS LCMAP CONUS v1.3 annual land cover (1985-2021, 30m), ECOnorthwest analysis.

Distribution of Economic Benefits

The economic benefits associated with Oregon's data center industry are distributed across multiple geographic scales and are not confined to the communities where facilities are located. While data centers occupy relatively small geographic footprints and are concentrated in a limited number of communities, their economic activity extends well beyond host jurisdictions through construction, supply chains, labor markets, and household spending.

Some benefits are realized primarily within host communities. Property tax revenues, community service fees, negotiated agreements, and infrastructure improvements directly support local governments and taxing districts. Construction activities also generate demand for local contractors, skilled trades, equipment suppliers, lodging, and other businesses, particularly during periods of active development. This economic activity may be most visible within the communities where facilities are constructed.

Other economic benefits extend beyond host communities. Construction materials, professional services, equipment maintenance, and other business purchases support firms located throughout Oregon, while employees contribute to economic activity in the communities where they live rather than solely where data centers operate. As a result, the economic contributions estimated in this report, including employment, labor income, and value added, are distributed throughout the broader state economy.

The geographic distribution of economic benefits is influenced by workforce commuting patterns, the location of suppliers and service providers, the allocation of tax revenues among taxing districts, and the structure of local incentive programs. Consequently, the communities hosting data centers are not necessarily the same communities that receive the greatest share of the industry's overall economic benefits. Understanding how these benefits are distributed across geographic scales is important for evaluating both local and statewide economic outcomes.

Distribution of Community and Infrastructure Considerations

Like economic benefits, the infrastructure requirements and resource demands associated with data center development occur at multiple geographic scales. Some considerations are concentrated within host communities, while others affect regional infrastructure systems or require coordination among utilities, local governments, and state agencies.

At the local level, data center development influences land use planning, industrial land availability, transportation networks, and utility infrastructure. Construction activity may temporarily increase truck traffic, noise, and demand for local services, while long-term operations require ongoing access to reliable electricity, telecommunications infrastructure, and site access. The nature and magnitude of these considerations depend on local zoning, surrounding land uses, and the availability of existing infrastructure.

Other considerations extend beyond individual communities. Data centers are a large electricity consumer in Oregon and may require investments in substations, transmission facilities, and other components of the regional electric system. Water use also varies among facilities depending on cooling technology, operational practices, and local water supplies. Because infrastructure systems and natural resources often extend across jurisdictional boundaries, planning for future data center development frequently involves multiple utilities, local governments, and state agencies.

The geographic context in which facilities are located also influences how resource considerations are evaluated. For example, several operational data center clusters are located within or adjacent to designated Groundwater Management Areas and other groundwater restriction areas. These designations reflect long-standing groundwater quantity or water quality concerns resulting from a combination of hydrogeologic conditions and historical water use. Their proximity to data center development illustrates that facilities are located within diverse resource settings across Oregon, where infrastructure capacity and natural resource conditions differ substantially from one region to another. Because publicly available information on facility-specific water sources and groundwater withdrawals is limited, this study does not evaluate groundwater use by individual data centers or attribute groundwater conditions to any specific water user. Rather, these resource designations provide important geographic context for understanding the settings in which future development may occur.

SECTION 3

Electricity Demand and Implications

Source: FOTOGRIN/Shutterstock

As mentioned earlier, the S&P 451 database provides information on the power requirements of individual facilities. There is a substantial body of literature and publicly available information on this topic because data center power capacity is comparatively observable. Data centers generally maintain backup generators that allow them to continue operating during power outages and other critical circumstances. Because diesel generators may require air-quality and other environmental permits, many facilities must disclose their backup-generation capacity to local, state, or environmental regulators. These disclosures do not measure actual electricity consumption, but they provide an additional indication of the scale of a facility's power requirements. This contrasts with, for example, water use, which is not consistently disclosed at the facility level in many parts of the United States.

In analyzing the energy implications of data centers, one important distinction is that electricity capacity and electricity consumption are related but different concepts. Power capacity is an instantaneous measure, generally expressed in kilowatts (kW), megawatts (MW), or gigawatts (GW). It indicates how much electricity a facility is designed to draw or support at a point in time. Electricity consumption is an energy measure, expressed in megawatt-hours (MWh), gigawatt-hours (GWh), or terawatt-hours (TWh). It measures electricity used over a period of time. The distinction can be illustrated with a simple example. A data center with 100 MW of installed capacity would consume 876,000 MWh in one year only if the entire 100 MW were used continuously for all 8,760 hours. In practice, not all installed capacity is utilized, and equipment in operation does not operate at its theoretical maximum load every hour. Electricity used by cooling, power conditioning, lighting, and other facility systems must also be added to the electricity used by computing equipment.

Exhibit 3.1. Principal Electricity Variables Used in the Analysis

Variable	Unit	Definition and Role in the Analysis
Installed UPS-backed IT capacity	kW, MW, or GW	S&P measure of the power capacity available to support the facility's computing infrastructure. It is a capacity measure, not annual consumption.
UPS utilization or occupancy	%	Share of installed UPS-backed capacity allocated to or occupied by customers and racks. It reflects available versus occupied capacity and is distinct from the temporal load factor.
Utilized UPS capacity	kW or MW	Installed UPS capacity multiplied by UPS utilization. It approximates the occupied computing capacity to which the operating load factor is applied.
Power Usage Effectiveness (PUE)	Ratio	Total facility electricity divided by electricity used by computing equipment. A PUE of 1.30 implies 0.30 additional units of facility electricity used for purposes such as cooling or lighting for every unit used by IT equipment.
Load factor	Ratio	Average electricity draw over time divided by the maximum draw of the occupied capacity. The analysis uses 0.6185, derived from previous studies.
Annual electricity consumption	MWh, GWh, or TWh	Estimated energy used over a year after accounting for occupied capacity, PUE, annual operating hours, and load factor.
Retail electricity sales	GWh or TWh	Electricity sold to Oregon customers across residential, commercial, industrial, and other sectors. These are reported statewide sales, not data-center-specific meter readings.

Notes: UPS means uninterruptible power supply. The S&P cannot be interpreted as direct observations of hourly or annual electricity consumption.

UPS utilization and load factor, therefore, represent two different adjustments. UPS utilization accounts for the portion of installed capacity that is occupied or allocated. The load factor accounts for variation in the use of that occupied capacity over time. For example, even when a portion of a wholesale facility's UPS capacity is fully allocated to tenants, the computing equipment connected to that capacity does not necessarily draw its maximum power every hour. Demand varies over time as computing workloads, server activity, maintenance requirements, and other operational conditions change.[29,30] The formula used to convert installed capacity into estimated annual electricity consumption is:

$$\text{Annual MWh} = \text{UPS capacity (kW)} \times \text{UPS utilization} \times \text{PUE} \times 8{,}760 \times 0.6185 \div 1{,}000$$

When S&P reports utilize UPS capacity directly, that measure can be used in place of multiplying installed capacity by the utilization percentage. The conversion yields a consistent estimate of the facility's total annual electricity consumption. It does not replace metered information and should be interpreted as a modeled estimate based on the best available facility-level information.

29 Shehabi, A., Smith, S. J., Hubbard, A., Newkirk, A., Lei, N., Siddik, M. A. B., Holecek, B., Koomey, J. G., Masanet, E. R., and Sartor, D. A. (2024). 2024 United States Data Center Energy Usage Report. Lawrence Berkeley National Laboratory. https://doi.org/10.71468/P1WC7Q

30 Wu, A., and Brocklehurst, F. (2025). Total Energy Model 4.0—Data Centres. Efficient, Demand Flexible Networked Appliances Platform, IEA 4E Technology Collaboration Programme.

3.1. Installed and Planned Capacity Through 2030

Of the 111 operational data centers identified in the S&P database's analytical baseline, there are 3.14 GW of installed UPS-backed IT capacity. The identified future pipeline contains 32 planned or under-construction facilities. Future capacity information is reported for 26 of them, representing an additional 933.5 MW. If all reported future capacity becomes operational, known capacity would increase to approximately 4.08 GW, representing about a 29.7 percent increase relative to the operational baseline.

Exhibit 3.2. Reported Operational and Future Ups-Backed Capacity by Expected Timing

Status or Expected Year	Facilities	Facilities with Reported Capacity	Capacity Added (MW)	Cumulative Capacity (GW)
Operational Baseline	112	112	3,144.1	3.14
2026	9	9	300.4	3.44
2027	8	8	312.6	3.76
2028	3	3	73.5	3.83
2029	3	3	127.0	3.96
2030 and Later*	9	3	120.0	4.08
Total Reported Capacity	**144**	**137**	**4,077.6**	**4.08**

*Six future facilities to be operational after 2030 do not report usable future UPS capacity.

Source: S&P 451 Data Center Database; UVA analysis.

The near-term pipeline is concentrated in 2026 and 2027. These two years include 17 facilities and approximately 613 MW, or almost two-thirds of the future capacity reported in the database. Capacity additions are smaller after 2027, but this should not be interpreted as evidence that development will necessarily slow.[31]

The regional distribution differs from the distribution of future facilities. Eastern Oregon accounts for approximately 70 percent of reported operational and future capacity because of its large hyperscale footprint. Western Oregon contains the majority of facilities in the identified pipeline and about 666 MW of future capacity. Although electricity planning must occur at the state and broader regional levels because the electricity system is interconnected, important elements of local planning—including substations, interconnection facilities, and related infrastructure—are addressed within individual utility service territories. Similar additions in electricity demand may therefore require different local policies, infrastructure investments, and planning responses and may generate different impacts across communities.

31 As with any other database that includes future data, the S&P database becomes less representative as we move more into the future.

Exhibit 3.3. Reported Ups-Backed Capacity by Region

Region	Operational Capacity (MW)	Future Capacity (MW)	Total Reported Capacity (MW)	Share of Reported Capacity
Western Oregon	563.2	665.6	1,228.8	30.1%
Eastern Oregon	2,580.9	267.9	2,848.8	69.9%
Total	**3,144.1**	**933.5**	**4,077.6**	**100.0%**

Source: S&P 451 Data Center Database; UVA analysis.

Thus, while Eastern Oregon remains central in terms of electricity requirements because of the scale of its current hyperscale facilities, Western Oregon is expected to experience the larger near-term increase. If all reported future capacity becomes operational, Western Oregon's data center power requirements would more than double, primarily because of the addition of wholesale and powered-shell facilities.

Facility type further explains the scale of electricity requirements. Hyperscale facilities account for approximately 2,810 MW (68.9%) of all reported operational and future capacity. Wholesale facilities account for another 986 MW (24.2%), and powered shells account for approximately 254 MW (6.2%). Retail and telecommunications facilities represent a meaningful number of sites but together account for less than 1 percent of reported capacity. As expected, the electricity implications of Oregon's data center sector are therefore driven primarily by large facility types rather than by the number of facilities alone.

3.2. Estimated Annual Electricity Consumption Through 2030

The installed power capacity reported in the S&P database and examined in the previous subsection indicates the maximum scale of a data center's electricity requirements, but it does not show how much electricity the facility consumes over a year. From an energy-market and comparative perspective, converting installed capacity into annual electricity demand is necessary to situate data centers within the broader electricity system. Annual demand is expressed in MWh, GWh, or TWh—the same units generally used to report statewide retail electricity sales and annual electricity generation. This conversion allows comparison of estimated data center electricity use with Oregon's total electricity demand and with the annual output of the resources that supply the state.[32] Importantly, statewide electricity generation and retail electricity sales are not identical. Oregon exchanges electricity with other states, and additional differences arise from electricity consumed by the power sector and losses during transmission and distribution. Even so, expressing

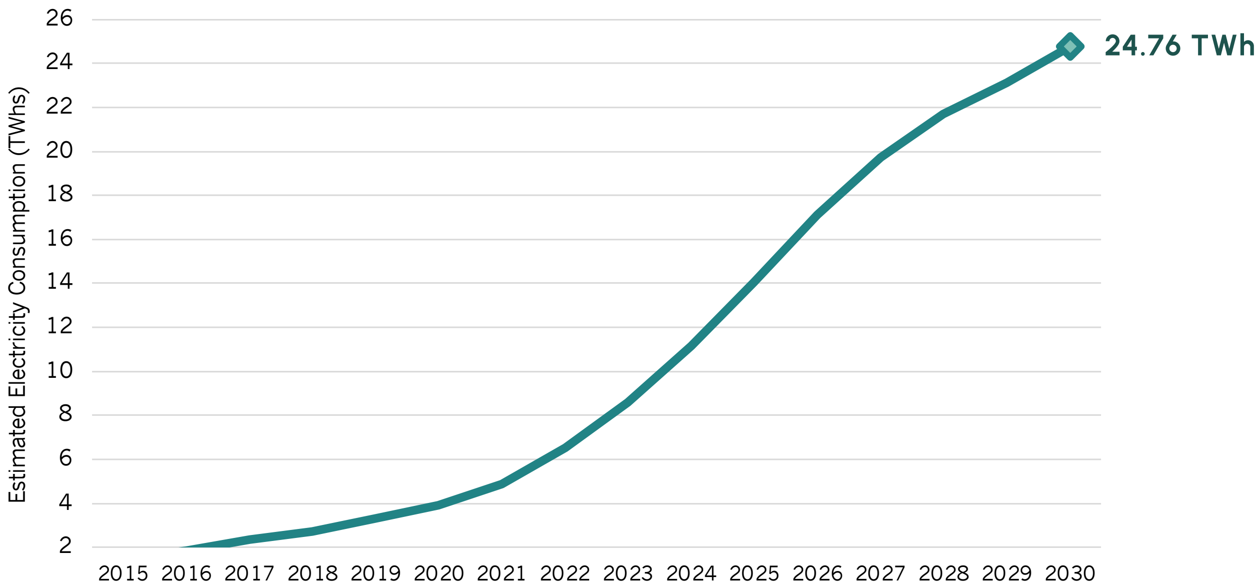
32 A related aspect not addressed in this report, due to insufficient detail in the data, is the relationship between data center loads, peak demand, and the capacity of the electricity system. Annual electricity demand indicates how much electricity must be supplied over the course of a year. A detailed system-capacity analysis would also examine when demand occurs and how it affects interconnection, transmission, distribution, and generation capacity requirements. Such information would also be important for forecasting electricity rates and evaluating how the costs of serving new data center loads may be distributed among customers.

data center consumption in annual energy units provides an appropriate basis for evaluating its scale relative to Oregon's overall electricity system.

The estimates presented in this subsection are derived from the technical characteristics and expected timing of facilities identified in the S&P database. Historical values are based on facilities that became operational in each year. Facilities may have experienced varying occupancy rates and operational ramp-up periods because some data centers become occupied and reach normal operating levels more quickly than others. However, facility-level information on occupancy and operational ramp-up is not available. Estimates for the current period through 2030 incorporate the expected timing and reported capacity of planned and under-construction facilities. Because directly observed annual facility-level electricity consumption data are unavailable, the analysis applies a consistent estimation method across all years. Exhibit 3.4 presents the resulting estimates of annual data center electricity consumption from 2015 through 2030. It also includes an index set equal to 100 in 2015. The index expresses each year's estimated consumption relative to the 2015 baseline, which makes the cumulative scale and pace of growth easier to interpret than using the absolute values alone.

Estimated data center consumption increased from approximately 1.43 TWh in 2015 to 3.89 TWh in 2020 and 11.17 TWh in 2024. The 2024 estimate is almost 8 times the 2015 level. Based on facilities already identified in the pipeline, consumption reaches approximately 17.13 TWh in 2026 and 24.76 TWh by 2030. The 2030 estimate is more than 17 times the estimated 2015 level. A substantial part of the near-term increase occurs early as 2026 and 2027. Estimated consumption rises by almost 6 TWh between 2024 and 2026 and by approximately 8.57 TWh between 2024 and 2027. This result is consistent with the timing of reported capacity additions, which are concentrated in 2026 and 2027.[33]

Exhibit 3.4. Estimated Annual Electricity Consumption by Oregon Data Centers, 2015–2030



Source: S&P 451 Data Center Database; UVA analysis.

33 The estimates after 2027 should be interpreted as the electricity implications of facilities currently identified by S&P rather than as a complete inventory of every facility that may be developed by 2030.

3.3. Data Centers and Recent Trends in Electricity Sales

This analysis compares estimated data center electricity consumption with Oregon's reported retail electricity sales, providing a useful measure of the sector's scale relative to the broader electricity system. The comparison also allows the analysis to assess whether the timing and magnitude of recent growth in statewide electricity sales are consistent with the expansion of data centers identified in the S&P database. Although this comparison cannot establish a direct causal relationship without facility-level metered data, it provides an informative accounting estimate of the portion of Oregon's electricity demand and recent sales growth that may be associated with data centers.

Oregon's reported retail electricity sales fluctuated between 2005 and 2020, fluctuating primarily within a range of approximately 47–52 TWh. Over the full period, sales increased from 46.42 TWh in 2005 to 51.02 TWh in 2020, representing a relatively modest compound annual growth rate of approximately 0.6 percent. After 2020, however, electricity sales increased much more rapidly, reaching 54.14 TWh in 2021, 56.33 TWh in 2022, 57.98 TWh in 2023, 59.68 TWh in 2024, and 61.57 TWh in 2025. Between 2020 and 2025, retail electricity sales grew at a compound annual rate of approximately 3.8 percent. The timing of this acceleration overlaps with the rapid expansion of estimated data center consumption.

Exhibit 3.5. Oregon Retail Electricity Sales and Estimated Data Center Consumption

Year	Retail Electricity Sales (TWh)	Estimated Data Center Consumption (TWh)	Implied Non-Data Center Sales (TWh)	Estimated Data Center Share
2015	50.02	1.43	48.58	2.90%
2020	51.02	3.89	47.13	7.60%
2021	54.14	4.88	49.26	9.00%
2022	56.33	6.53	49.79	11.60%
2023	57.98	8.6	49.39	14.80%
2024	59.68	11.17	48.51	18.70%
2025	61.57	14.05	47.52	22.80%

Notes: Implied non-data-center sales equal reported retail electricity sales minus estimated data center consumption. This is an accounting decomposition, not a direct allocation based on customer meters. Retail-sales data are reported statewide values

Source: U.S. Energy Information Administration, 2025, S&P 451 Data Center Database; UVA analysis.

Between 2020 and 2025, Oregon retail electricity sales increased by approximately 10.55 TWh, or 20.7 percent. Over the same period, estimated data center consumption increased by approximately 10.15 TWh, while the residual attributed to all other customers increased by only about 0.39 TWh. Based on these estimates, nearly 96 percent of the net increase in statewide retail electricity sales between 2020 and 2025 may be associated with data centers. This calculation is based on estimated consumption rather than observed utility data. The same calculation for 2015 through 2025 shows that estimated data center consumption increased by approximately 12.61 TWh, exceeding the statewide retail electricity sales increase of 11.55 TWh. This does not mean that every additional unit of electricity was causally attributable to data centers. Rather, it indicates that implied non-data-center sales declined slightly over the full period and that data centers may have accounted for all of Oregon's net retail sales growth since 2015. These results illustrate the potential scale of data center electricity consumption relative to changes in Oregon's broader electricity market. However, more definitive conclusions would require observed utility data and consideration of other factors that may influence statewide electricity sales.

Exhibit 3.6. Accounting Decomposition of Changes in Oregon Retail Electricity Sales

Period	Change in Retail Sales (TWh)	Estimated Change in Estimated Data Center Consumption (TWh)	Change in Implied Non-Data-Center Sales (TWh)
2015–2020	1.00	2.46	–1.46
2020–2025	10.55	10.15	0.39
2015–2025	11.55	12.61	–1.06

Source: U.S. Energy Information Administration, 2025; S&P 451 Data Center Database; UVA analysis.

To complement our analysis, we used Energy Information Administration (EIA) data on the sectoral distribution of electricity sales (residential, commercial and industrial) as a way to provide an additional consistency check.[34] One important aspect is that residential electricity sales remained nearly unchanged between 2020 and 2025, increasing by only 0.17 TWh. Commercial sales increased by approximately 9.78 TWh, while industrial sales increased by 0.61 TWh. Commercial customers therefore accounted for approximately 93 percent of the net increase in statewide retail sales over this period. The distinction between commercial and industrial sales should nevertheless be interpreted cautiously. Between 2022 and 2023, commercial sales increased by 6.43 TWh while industrial sales declined by 4.49 TWh. This simultaneous movement strongly suggests that part of the change resulted from the reclassification of one or more large customers rather than from changes in electricity consumption alone.[35]

Combining the two sectors helps mitigate the effect of this classification issue. Commercial and industrial sales together increased by approximately 10.38 TWh between 2020 and 2025, accounting for more than 98 percent of Oregon's total retail sales increase. This increase is closely aligned with the estimated increase in data center consumption.. Over the same period, estimated data center consumption increased by approximately 10.15 TWh, equivalent to about 98 percent of the combined commercial and industrial increase.

Finally, it is important to emphasize that this comparison does not directly identify data center consumption in utility records or establish causal attribution. It nevertheless strengthens the conclusion that recent data center expansion is

34 U.S. Energy Information Administration. "Electricity Data: Sales (Consumption), Revenue, Prices, and Customers." 2015-2025. https://www.eia.gov/electricity/data.php

35 EIA allows utilities to classify commercial and industrial customers using industry classifications or characteristics such as rate schedules, demand, and electricity use. Although data centers are generally reported as commercial customers, some large facilities may consequently appear in the industrial category. Also, reclassifications can have been done at the utility level.

already evident in Oregon's reported electricity sales data. To illustrate the relative scale of data center electricity use, if the estimated 14.05 TWh consumed by data centers in 2025 is treated as part of combined commercial and industrial sales and then separated into its own customer class, it would equal approximately 71 percent of the electricity sold to Oregon's entire residential sector and approximately half of the electricity sold to all other commercial and industrial customers combined. Data centers would therefore constitute one of the state's largest electricity-consuming customer classes rather than a marginal component of commercial or industrial demand. This comparison remains an estimate because EIA data do not identify how data center consumption is distributed between the reported commercial and industrial categories.

3.4. Forecasting Electricity Demand From 2031 Through 2050

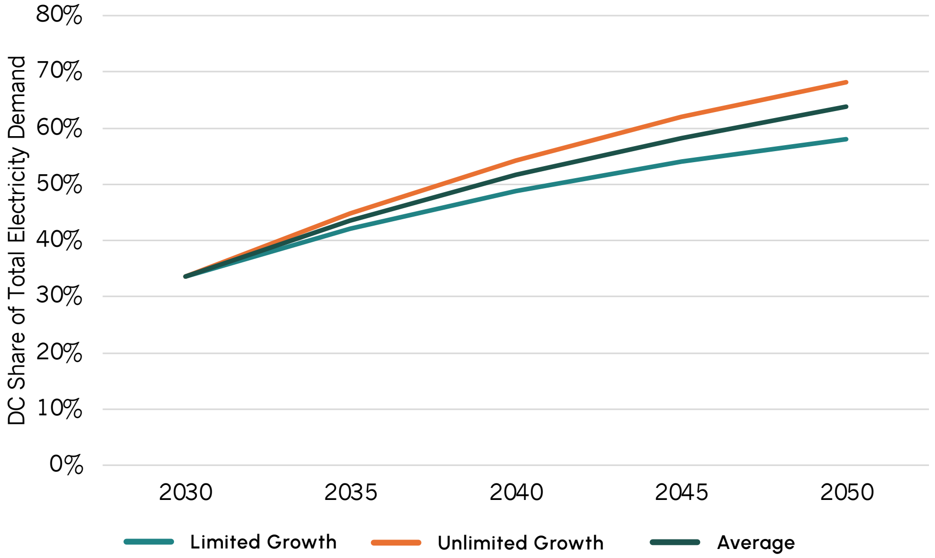
The S&P database provides a comparatively concrete basis for estimating demand through 2030 because most facilities included during this period are operational, under construction, or already in the planning pipeline. After 2030, however, the analysis requires a new methodology. Individual future facilities cannot be identified with the same degree of confidence, so the analysis must shift from facility-based estimation to mathematical forecasting scenarios based on the pattern contained in the 2005–2030 synthetic demand series. The forecasting approach used here follows the logic used of JLARC (2024) and Ferreira et al. (2026).[36] The Oregon scenarios are specified as follows:

- **Limited-growth scenario:** A linear trend is estimated from the recent 2024–2030 facility-based series. After 2030, estimated demand increases by a constant absolute amount each year. This is treated as the lower-growth scenario because it assumes that the recent acceleration will stop and the economy will remain at the same speed. This trend is consistent with a market facing ongoing changes and new real-world constraints, such as resource scarcity, potential policy changes, and new regulations.
- **Unlimited-growth scenario:** Data center electricity demand from 2005 through 2030 is modeled as a function of a constant, a linear time trend, and a squared time trend. The squared term allows annual additions to continue increasing after 2030, as a result of the mathematical modeling, and therefore represents the higher-growth scenario. This is traditionally characterized by an unconstrained scenario.
- **Average scenario:** The average scenario is the arithmetic mean of the linear and squared-trend forecasts. It provides a central path between constant annual additions and continued acceleration.
- **Non-data-center forecast:** Non-data-center retail sales are calculated as total reported retail sales minus estimated data center consumption. A separate linear trend for 2005–2024 is used to extend the residual series. This component grows only modestly and is included primarily to calculate data centers' future share of total retail electricity sales.

All three data center scenarios are anchored to the 2030 S&P-based estimate of 24.76 TWh. The forecasting equations determine changes after

36 There is one important change. In the previous analysis, the application follows a higher-growth polynomial that includes linear, quadratic, and cubic terms. In this case, the Oregon forecasting implementation uses a squared trend as the highest polynomial degree because it was the better fit.

Exhibit 3.7. Alternative Forecasts of Oregon Data Center Electricity Consumption and Share of Retail Sales



Notes: Both scenarios are anchored at the 2030 facility-based estimate. These are scenarios, not precise predictions.

Source: U.S. Energy Information Administration, 2025; S&P 451 Data Center Database; UVA analysis.

2030 rather than replacing the facility-based 2030 value. No external economic predictors are included because data center development has not shown a stable (and statistically significant) relationship with conventional variables such as income, employment, or industrial production. The scenarios instead describe what would occur if the patterns embodied in existing and planned development continue.

As expected, the range widens considerably after 2030. By 2040, estimated data center electricity consumption ranges from approximately 47.44 TWh under the linear scenario to 59.14 TWh under the squared-trend scenario. The average scenario produces an estimate of approximately 53.29 TWh. By 2050, the range expands from approximately 70.13 TWh to 107.72 TWh, with an average-scenario estimate of 88.92 TWh.

The forecast of non-data-center sales changes much more slowly, increasing from approximately 48.51 TWh in 2024 to 50.51 TWh in 2050. Consequently, the share of Oregon retail electricity sales potentially associated with data centers increases under every scenario. Data centers represent approximately one-third of implied statewide retail sales in 2030. By 2050, their estimated share ranges from 58 percent under the linear scenario to 68 percent under the squared-trend scenario, with an average-scenario share of approximately 64 percent.

These percentages should be interpreted as indicators of scale rather than forecasts of a mechanically fixed market share. Total statewide sales may be affected by electrification of transportation and buildings, population and economic growth, market instability, energy efficiency, industrial development, distributed generation, and changes in electricity prices [37,38]

37 Koomey, J., and Masanet, E. (2021). "Does Not Compute: Avoiding Pitfalls Assessing the Internet's Energy and Carbon Impacts." Joule, 5(7), 1625–1628. https://doi.org/10.1016/j.joule.2021.05.007

38 Wu, A., and Brocklehurst, F. (2025). Total Energy Model 4.0—Data Centres. Efficient, Demand Flexible Networked Appliances Platform, IEA 4E Technology Collaboration Programme.

3.5. Electricity Supply and Infrastructure Requirements

The scenarios described above illustrate the potential scale of future data center electricity demand, but they do not evaluate whether the electricity system could accommodate each level of growth. Rapid growth in data center electricity demand is occurring at a time when the Northwest power system is already planning for substantial load growth and changes in the resources used to meet electricity demand. The Northwest Power and Conservation Council's draft Ninth Northwest Power Plan identifies data centers and other high-tech industries as among the largest drivers of recent regional load growth.[39] Data centers can represent very large loads that are added relatively quickly, operate at high and consistent levels throughout the day, and are geographically concentrated. The Council identifies planning for these large loads as one of the major challenges facing the regional power system.

Accommodating this growth will require more than sufficient annual electricity generation. The draft Ninth Plan concludes that serving forecast data center and high-tech loads will require developing new electricity resources at a pace that exceeds recent trends. Its resource modeling identifies a portfolio of conservation, renewable generation, storage, natural gas generation, and other resources across the range of futures evaluated by the Council. The resources available to meet future demand will also be shaped by state clean-energy policies across the Northwest. In Oregon, HB 2021 requires Portland General Electric and PacifiCorp to reduce greenhouse gas emissions associated with electricity sold to Oregon customers by 80 percent below baseline levels by 2030, 90 percent by 2035, and 100 percent by 2040.[40] These requirements mean that planning for substantial new electricity demand must consider not only the quantity and timing of new resources, but also the types of resources that can be used to serve that demand. The specific resources ultimately developed will depend on future load growth, costs, resource availability, policy requirements, and other factors.

Transmission capacity is an additional consideration. The Council reports that the region is encountering transmission constraints and concludes that additional transmission capacity will be needed to efficiently meet forecast load growth. Its regional resource strategy assumes both more effective use of the existing transmission system and the development of additional capacity. The Council also notes that large new loads can create distribution-system requirements that were not specifically modeled in the Ninth Plan. Because generation and transmission projects can require substantial lead times for planning, permitting, interconnection, and construction, the timing and location of new large loads may be as important as their total electricity demand. The Council consequently calls for utilities and transmission providers to plan farther in advance for generation and transmission needs.

Oregon has also begun addressing how the costs and risks associated with serving large new electricity loads are allocated among customers.

39 Northwest Power and Conservation Council. August 2026. "Draft Ninth Northwest Power Plan," https://www.nwcouncil.org/reports/ninthplan/
40 Oregon Public Utility Commission, "HB 2021 Implementation Activities," accessed September 9, 2026, https://www.oregon.gov/puc/utilities/pages/hb2021-implementation-activities.aspx

The POWER Act (HB 3546, 2025) directs the Oregon Public Utility Commission to establish a separate classification and rate structure for large energy-use facilities, including qualifying data centers, to help ensure that the costs of serving these customers are appropriately allocated and reduce financial risks to other customer classes.[41] These requirements address the allocation of costs associated with large-load growth, while the regional planning issues described above concern the physical resources and infrastructure needed to accommodate that growth.

These findings indicate that accommodating rapid large-load growth will require substantial resource development, transmission expansion, and coordinated utility planning. The Council's modeling identifies portfolios capable of meeting projected regional needs, while emphasizing uncertainty in the pace of load growth and resource development. Data center growth therefore creates both a resource requirement and a planning challenge: sufficient generation and supporting infrastructure must be developed and available where and when they are needed to serve new facilities.

3.6. Main Findings and Priorities for Future Analysis

The analysis in this section combines three layers of information that should remain conceptually separate. First, data center electricity consumption through 2030 is estimated from the technical characteristics and expected development dates of facilities identified in the S&P database. Second, Oregon retail electricity sales are reported statewide values from EIA. Third, the values from 2031 through 2050 are mathematical scenarios that extend recent development patterns, rather than estimates based on facilities currently known to be under construction. The degree of uncertainty therefore increases as the analysis moves from reported statewide sales to facility-based estimates and, particularly, to the longer-term scenarios.

The principal findings can be summarized as follows:

- Oregon already has a substantial operational data center electricity footprint. The facilities identified in the database have approximately 3.14 GW of reported operational UPS-backed capacity. This capacity is concentrated in large hyperscale facilities in Eastern Oregon.
- The identified pipeline contains an additional 933.5 MW of reported capacity, representing an increase of approximately 29.7 percent relative to the operational baseline. This should be interpreted as a minimum estimate because six pipeline facilities lack usable future capacity information. Although Eastern Oregon will remain central because of its existing hyperscale footprint, most facilities in the near-term pipeline are in Western Oregon. If all reported future capacity becomes operational, Western Oregon's data center power requirements would more than double.
- Estimated annual data center electricity consumption increased from approximately 3.89 TWh in 2020 to 14.05 TWh in 2025. This increase

41 Oregon Legislative Assembly, "Public Testimony Document 145329," 2025, Oregon Legislative Information System, https://olis.oregonlegislature.gov/liz/2025r1/Downloads/PublicTestimonyDocument/145329.

occurred during a period in which Oregon's reported retail electricity sales also accelerated. Between 2020 and 2025, estimated data center consumption increased by approximately 10.15 TWh, compared with an increase of approximately 10.55 TWh in statewide retail sales. On this accounting basis, data center growth may account for a substantial share of the increase in statewide electricity demand over this period.

- The sectoral distribution of electricity sales provides an additional consistency check. Residential sales remained nearly unchanged between 2020 and 2025, while commercial and industrial sales combined accounted for more than 98 percent of the statewide increase. The estimated increase in data center consumption was equivalent to approximately 98 percent of the combined increase in commercial and industrial sales. If data centers were reported as a separate customer class, their estimated 2025 consumption would equal approximately 71 percent of residential electricity sales and approximately half of the electricity sold to all other commercial and industrial customers combined. Data centers can therefore no longer be understood as a marginal component of Oregon's commercial or industrial electricity demand.
- Based on operational facilities and developments already identified in the pipeline, estimated data center consumption reaches approximately 24.76 TWh in 2030. When combined with forecast non-data-center sales, this would mean that data centers could account for approximately one-third of Oregon's implied retail electricity demand.
- After 2030, the range of possible outcomes becomes considerably wider. By 2050, estimated data center consumption ranges from approximately 70.13 TWh under the limited-growth scenario to 107.72 TWh under the unlimited-growth scenario. The average scenario produces an estimate of approximately 88.92 TWh. Under these scenarios, data centers would represent between 58 percent and 68 percent of implied statewide retail electricity demand in 2050.
- The scale and pace of future data center electricity growth have implications for the resources and infrastructure needed to serve new loads. The Northwest Power and Conservation Council identifies data centers and other high-tech industries as major drivers of regional load growth and concludes that serving forecast demand will require substantial new electricity resources and additional transmission capacity. In Oregon, these resource needs will also be shaped by state clean-energy requirements that affect the types of resources utilities can use to serve growing electricity demand. The ability to accommodate future data center growth will therefore depend not only on annual electricity supply, but also on the timing, location, and type of resource and infrastructure development.

Source: Ed Mucha/Shutterstock

Priorities for Future Analysis

The correspondence between the facility-based estimates and Oregon's reported electricity-sales data is important because the two series were developed independently. Their similar timing and magnitude support the finding that the recent expansion of data centers is likely already visible in statewide electricity sales. However, the comparison does not directly identify data center consumption in utility records and should not be interpreted as demonstrating that data centers caused every additional unit of electricity sold in Oregon. Other economic, demographic, climatic, and technological factors also affect annual sales. The results should therefore be understood as a first systematic statewide estimate and as a foundation for more detailed future analysis.

A first priority for future work is to obtain utility-level or facility-level electricity-consumption data. Annual demand in this report is estimated using reported UPS-backed capacity, UPS utilization, PUE, annual operating hours, and an operating load factor derived from previous research. Actual consumption may differ because facilities experience varying occupancy rates, operational ramp-up periods, workloads, and levels of utilization over time. Metered annual and hourly demand data would make it possible to validate these assumptions, distinguish data centers from other commercial and industrial customers, and identify more precisely the contribution of data centers to Oregon's recent electricity-sales growth. The development of a distinct reporting category for large data center customers would also improve the ability of regulators, utilities, and researchers to monitor the sector without relying on the current commercial and industrial classifications.

A second priority is to maintain and regularly update the inventory of operational and proposed facilities. Planned projects may be delayed, modified, reduced in scale, or canceled, while other facilities not yet included in the database may be announced before 2030. Future updates should track changes in project status, expected completion dates, installed capacity, occupancy, and operational ramp-up. Long-term forecasting should also be updated as additional years of data become available. The scenarios presented through 2050 provide a range of possible outcomes, but they are not predictions of which facilities will be constructed or whether utilities will be able to supply the resulting demand. Future modeling could explicitly incorporate transmission and distribution constraints, generation availability, electricity prices, public policy, environmental regulation, supply-chain limitations, and changes in demand for artificial intelligence, cloud computing, and other digital services. Incorporating these factors would help explain not only how electricity demand might grow but also the conditions that could constrain or accelerate that growth.

Technological change should be treated as both an area for continuing research and a source of uncertainty. Improvements in computing efficiency and PUE may reduce the electricity required to provide a given amount of computing activity. At the same time, lower computing costs and expanding applications may increase total demand for computing services. Greater efficiency at the equipment or facility level therefore does not guarantee that the sector's aggregate electricity consumption will decline. Future scenarios should examine alternative assumptions about computing efficiency, facility design and utilization, and growth in demand for digital services.

Finally, future work should extend beyond annual electricity consumption to examine when and where individual data center loads occur. Annual demand is a useful measure for comparing data centers with statewide electricity sales and generation, but it does not by itself determine the infrastructure required to serve these facilities. While regional planning studies identify growing generation and transmission requirements associated with large-load growth, evaluating the specific effects of Oregon data centers on substations, transmission and distribution networks, generation capacity, reliability, and electricity rates would require more detailed information about the location, timing, and operational profiles of individual loads.

Overall, the results do not imply that a particular development path through 2050 is inevitable. They establish that data centers are already a major component of Oregon's electricity system, that the identified pipeline will likely produce additional near-term growth, and that continued expansion could fundamentally alter the composition of statewide electricity demand. The next step is therefore to move from a statewide estimate of scale toward more detailed monitoring of actual consumption, facility development, local infrastructure requirements, system capacity, and cost allocation. Doing so would provide policymakers, utilities, regulators, and communities with the information needed to plan for data center growth as it unfolds and to evaluate its implications across Oregon.

SECTION 4

Water Use and Water Quality

Source: Iunzhakova Iuliia/Shutterstock

The expansion of data centers has generated growing interest in their potential effects on water resources. These effects are more difficult to quantify than electricity consumption because facility-level water withdrawals, consumption, cooling technologies, and water sources are not consistently reported. No comprehensive source provides facility-specific water-use information for Oregon data centers, preventing a reliable estimate of current industry-wide water use. Publicly available information for individual facilities and water systems provides some insight into water use in specific locations but is insufficient to characterize the industry statewide. This section therefore provides a conceptual framework for understanding where water is used and why impacts vary across facilities and locations, examines available information about Oregon's water-resource context, and identifies the information needed for a more complete Oregon-specific assessment.

Data centers commonly obtain water through municipal or other public water systems rather than developing and operating their own groundwater wells. Connecting to an existing system can reduce the costs and administrative requirements associated with obtaining water rights, constructing wells, treating water, and maintaining independent infrastructure. However, this pattern varies according by geography, local regulations, water availability, facility design, and the capacity of the local water provider. Some facilities use groundwater or surface water directly, while others use reclaimed wastewater or cooling systems that require little consumptive water use. Purchasing water from a municipality, however, does not necessarily mean groundwater is unaffected, as municipal systems may rely in whole or in part on groundwater.

It is also important to distinguish water withdrawals from water consumption. Withdrawal is the total volume removed from a water source or delivered by a utility. Consumption refers to the portion that is evaporated, incorporated into a product, transferred to another watershed, or otherwise not returned for immediate reuse. A data center may withdraw water and subsequently return part of it to a wastewater system, while water evaporated through a cooling tower is generally considered consumed. Both measures are relevant, but water consumption is particularly important when evaluating competition among users during periods of scarcity.[42,43] Conceptually, the total water footprint of a data center can be organized into three scopes. This terminology is used here as an analytical framework rather than as a fully standardized water-accounting system.

Exhibit 4.1. Conceptual Framework for Direct, Electricity-Related, and Supply-Chain Water Use by Data Centers

Scope	Principal Source of Water Use	Where the Impact Occurs	Principal Information Needed
Scope 1: **Direct operational use**	Cooling, humidification, equipment and facility maintenance, and other on-site operations	At the data center and within the water system or watershed supplying it	Water source, withdrawals, consumption, discharge, cooling technology, seasonal use, and WUE
Scope 2: **Electricity-related use**	Water consumed in generating the electricity used by the facility	At power plants and within the watersheds supplying those generators, which may be located outside the community or state where the data center operates	Electricity consumption, generation mix, power-plant cooling technologies, electricity imports, and water-consumption intensity
Scope 3: **Supply-chain and embodied use**	Construction materials, servers, semiconductors, batteries, networking equipment, and other purchased goods and services	Across domestic and international supply chains	Life-cycle inventories, input-output analysis, supplier disclosures, equipment replacement cycles, and geographically specific water-intensity information

Source: UVA.

The remainder of this section focuses principally on Scope 1 and Scope 2 water use. Scope 3 is acknowledged because semiconductor manufacturing, construction, and data center equipment production can require substantial amounts of water.[44]

42 Privette, A. P., Barros, A., and Cai, X. (2026). "Data Centers Water Footprint: The Need for More Transparency." AGU Advances, 7, e2025AV002140. https://doi.org/10.1029/2025AV002140

43 Shehabi, A., Smith, S. J., Hubbard, A., Newkirk, A., Lei, N., Siddik, M. A. B., Holecek, B., Koomey, J. G., Masanet, E. R., and Sartor, D. A. (2024). 2024 United States Data Center Energy Usage Report. Lawrence Berkeley National Laboratory. https://doi.org/10.71468/P1WC7Q

44 Semiconductor fabrication, in particular, relies on ultrapure water to clean and rinse wafers during multiple stages of production. However, the relevant impacts are distributed across complex national and international supply chains, and publicly available information is not sufficient to assign those impacts reliably to individual Oregon facilities. A complete Scope 3 assessment would consequently require a separate life-cycle and supply-chain analysis.

4.1. Direct Water Use and Cooling Technologies

The principal source of direct water consumption at many data centers is cooling. Servers and networking equipment convert much of the electricity they use into heat, which must be continuously removed to maintain safe operating conditions. The amount of water required depends on the cooling system, local climate, facility design, computing density, operating practices, and the extent to which water is reused.

Cooling technologies can be organized into several broad categories. Dry or air-cooled systems transfer heat to the outside air and generally require little water for heat rejection, although they may still use water for humidification and other facility purposes. Water-cooled chillers and evaporative systems use water evaporation to remove heat and can consume substantially more water on site. Hybrid systems combine dry and evaporative cooling and may switch operating modes based on temperature and humidity. Direct-to-chip and other liquid-cooling technologies transfer heat away from computing equipment using a liquid loop. However, liquid cooling should not automatically be understood as consumptive water cooling. The liquid may circulate through a closed system, while the final heat rejection to the environment may occur through either dry or evaporative equipment.[45]

Two efficiency measures are useful for comparing these systems. As discussed in Section 3, Power Usage Effectiveness (PUE) is the ratio of total facility electricity use to electricity used by IT equipment. A lower PUE indicates that less additional electricity is required for cooling and other supporting systems. Water Usage Effectiveness (WUE) measures the facility's water consumption relative to IT electricity use and is generally expressed in liters per kilowatt-hour of IT energy. A lower WUE indicates less on-site water consumption for the same amount of IT electricity.[46,47]

To analyze the resource demands associated with a data center, PUE and WUE should be considered together. Evaporative cooling can reduce the electricity required to reject heat, thereby improving PUE, but it does so by consuming water and may result in a higher WUE. Dry cooling can greatly reduce on-site water consumption and improve WUE but may require more electricity, particularly during hot weather, thereby increasing PUE. Research comparing cooling systems in hot and arid climates has documented this trade-off.[48] However, it is not a universal rule. Climate, system design, operating temperatures, heat-reuse opportunities, and newer cooling technologies can allow some facilities to improve both measures. PUE alone should therefore not be interpreted as a complete

45 Gheni, M., Kerskes, H., and Stergiaropoulos, K. (2026). "Operational Analysis of the Cooling System in a Direct Liquid-Cooled Data Center: A Measurement and Simulation Study on the Impact of Supply Water Temperature." Applied Energy, 403, 127061. https://doi.org/10.1016/j.apenergy.2025.127061

46 The Green Grid. (2011). Water Usage Effectiveness (WUE): A Green Grid Data Center Sustainability Metric. White Paper No. 35. https://www.thegreengrid.org/en/resources/library-and-tools/238-WP%2335---Water-Usage-Effectiveness-%28WUE%29%3A-A-Green-Grid-Data-Center-Sustainability-Metric

47 U.S. Department of Energy, Federal Energy Management Program. (2019). Cooling Water Efficiency Opportunities for Federal Data Centers. https://www.energy.gov/cmei/femp/cooling-water-efficiency-opportunities-federal-data-centers

48 Karimi, L., Yacuel, L., Johnson, J. D., Ashby, J., Green, M., Renner, M., Bergman, A., Norwood, R., and Hickenbottom, K. L. (2022). "Water-Energy Tradeoffs in Data Centers: A Case Study in Hot-Arid Climates." Resources, Conservation and Recycling, 181, 106194. https://doi.org/10.1016/j.resconrec.2022.106194

measure of environmental efficiency, and low direct water use should not be evaluated without considering the additional electricity that may be required.

Seasonality is another important consideration. For facilities using cooling towers or other water-dependent systems, water consumption can increase during hotter periods because more heat must be rejected at higher outdoor temperatures. These peaks may occur during the same summer periods in which stream flows, reservoir levels, or groundwater availability are lower and household, agricultural, and other demands are elevated. Consequently, annual WUE or total water use may understate the pressure placed on a local water system during its most constrained period. The same annual consumption may produce very different local effects depending on whether it is distributed evenly throughout the year or concentrated during several hot, dry months.

For this reason, an Oregon-specific analysis would need information at least monthly rather than only annual totals. In areas experiencing drought or infrastructure constraints, providing weekly or daily information during peak use may also be appropriate. The relevant indicators include water withdrawals and consumption, the source and quality of the water, the share supplied by reclaimed water, discharges to wastewater systems, monthly WUE, and maximum daily demand.

Source: davidrh/Shutterstock

4.2. Indirect Water Use Through the Electricity System

A facility that consumes little water on-site may still have a substantial indirect water footprint because electricity generation may require water. This is the second part of the water-energy nexus. Water used for power generation may be withdrawn or consumed at generating facilities located far from the data center, including in another utility service territory, balancing authority, watershed, or state. Consequently, evaluating only the water delivered to the data center can shift attention away from impacts occurring elsewhere.

The magnitude of this Scope 2 impact depends on the electricity-generation mix and the technologies used by individual power plants. Coal, natural gas, and nuclear generating facilities may use water for steam production and cooling, but their withdrawals and consumption vary significantly depending on plant efficiency and whether the facilities use once-through, recirculating, hybrid, or dry cooling. Wind and solar photovoltaic generation generally require little operational water.[49] Hydroelectric generation introduces a different accounting issue because some studies attribute part of reservoir evaporation to electricity production. The water intensity of electricity therefore cannot be determined solely by separating fossil fuels from renewable resources; it must reflect the specific technologies, cooling systems, and water-accounting assumptions involved.

This distinction is particularly important in Oregon because the electricity system is interconnected. The electricity consumed by a data center is not necessarily generated by the closest power plant, and Oregon both receives and supplies electricity across state boundaries. As a result, the resources serving data center loads can vary over time and may include generation located outside Oregon. A comprehensive Scope 2 assessment is more complex because it requires estimating the water-consumption intensity of the electricity delivered through the relevant balancing authority or utility portfolio, including electricity imports. Ideally, the analysis would also consider how the addition of a large data center affects generation at the margin, rather than relying solely on an annual average generation mix.

National research indicates that the indirect water footprint associated with data center electricity use can be considerably larger than direct on-site consumption, although the relationship varies by region and climate.[50] Additional electricity demand may increase output from water-dependent generating facilities, support the construction of new resources, or affect decisions concerning the operation and retirement of existing plants. Thus, a cooling system that reduces Scope 1 water consumption by using more electricity will transfer part of the water impact from the local water system to the locations where electricity is generated.

Consequently, there is no single cooling technology that minimizes every impact under all conditions. Developers choose cooling systems based on a range of factors, including construction and operating costs, climate, reliability, land availability, water access, electricity prices, and applicable regulatory requirements. Regulatory requirements and incentives can also influence these choices and the relative emphasis placed on direct water consumption, electricity use, and other resource considerations.

49 Although they have embodied water requirements associated with manufacturing and construction.

50 Lawrence Berkeley National Laboratory, 2024 United States Data Center Energy Usage Report. The report distinguishes direct water consumption at data centers from indirect water consumption associated with electricity generation and finds substantial geographic variation in electricity-related water intensity.

4.3. Oregon Water Resource Context

Oregon's data centers operate in regions with substantially different water supplies, infrastructure, and resource constraints. Water demand can also vary considerably across facilities depending on cooling technology, climate, operating conditions, and facility design. No single statewide dataset provides comprehensive facility-level information on water withdrawals or consumption by Oregon data centers. This assessment therefore draws on multiple sources, including academic research, state and local water-resource information, and publicly available corporate sustainability reporting, to characterize available information about water use and water-resource conditions in Oregon.

Most Oregon Data Centers Receive Water Through Public Water Systems

Available research indicates that Oregon data centers primarily obtain water through municipal or other public water systems. This distinction is important because the entity supplying water to a data center and the underlying source of that water are not necessarily the same. Municipal water systems may rely on groundwater, surface water, or a combination of sources, and the composition of those supplies can vary over time.

As a result, understanding the water-resource implications of data center development requires looking beyond the point of delivery to the underlying sources and conditions of the water system serving each facility. A data center supplied by a municipal utility may still contribute to demand on groundwater or surface-water resources, depending on how that utility obtains its water. Conversely, the presence of a data center within an area experiencing groundwater constraints does not establish that the facility itself withdraws groundwater.[51]

Public Reporting Provides Some Facility-Level Information

Corporate sustainability reporting provides additional information about some Oregon facilities, although the availability and level of detail vary substantially across operators. For example, Meta reports annual water withdrawals for its Prineville data center.[52] The company reported approximately 328 megaliters, or 87 million gallons, of water withdrawals in 2024, compared with 180 megaliters in 2023 and 445 megaliters in 2020. These data demonstrate that facility water use can vary substantially over time, but reporting practices are not sufficiently consistent across operators to aggregate individual disclosures into a reliable statewide estimate.

The Significance of Water Demand Depends on Local Water Conditions

The implications of data center water demand depend not only on the amount of water used but also on the source, availability, and existing demands on the water supply serving each facility. These conditions vary substantially across Oregon. Some of the state's largest data center clusters are

51 National Policy Consensus Center, "Water Policy and Innovation Service," Portland State University, June 7, 2026, https://www.pdx.edu/policy-consensus-center/water-policy-and-innovation-service
52 Meta Platforms, Inc. *2025 Environmental Data index*. 2025. https://sustainability.atmeta.com/wp-content/uploads/2025/10/Meta_2025-Environmental-Data-Index.pdf

located in areas where groundwater resources are subject to additional management or restrictions.

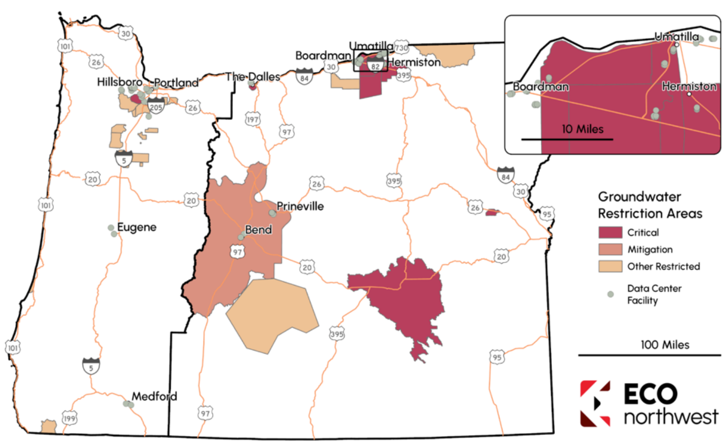
Oregon restricts groundwater development in areas where additional pumping could affect groundwater supplies, existing water users, or connected surface waters. The Oregon Water Resources Department (OWRD) identifies several types of groundwater administrative areas, with restrictions that vary by location and designation. Critical Groundwater Areas can restrict new groundwater development and allow OWRD to curtail existing uses. Groundwater Mitigation Areas require new groundwater uses to offset impacts to hydraulically connected surface waters. The "Other Restrictions" category shown on the map combines areas designated as Limited, Classified, or Withdrawn. Limited and Classified areas restrict new groundwater allocations for specified uses, areas, or aquifers, while Withdrawn areas prohibit new allocations in specified areas or aquifers.[53]

These administrative designations are one way Oregon identifies and manages water-resource conditions, but they are not the only source of information about water availability. OWRD also monitors surface-water flows and groundwater levels and conducts water-availability assessments and regional studies to evaluate water supplies and changes in resource conditions over time. These monitoring and assessment programs provide additional context for understanding the availability and condition of the groundwater and surface-water resources that may ultimately supply municipal systems and other water users.

Several data center clusters, particularly in the Boardman-Hermiston area, are located within or near areas where groundwater resources are subject to additional state management or restrictions. This overlap indicates that some data center development is occurring in regions where water availability is already an important resource-management consideration. It does not establish that data centers caused these groundwater conditions or that individual facilities rely directly on groundwater.

For facilities served by municipal water systems, the relationship between data center demand and local water resources depends on the sources supplying those systems, existing demands on those sources, and the additional demand associated with the facility. Evaluating water demand therefore requires facility-specific information about both water use and water supply.

Exhibit 4.2. Some Oregon Data Center Clusters Are Located in Areas with Groundwater Management or Restrictions



Note: 'Other Restrictions' includes groundwater areas with Limited, Classified, or Withdrawn status. Groundwater management and restriction areas characterize regional water-resource conditions. Their overlap with data center locations does not indicate that individual facilities use groundwater or contributed to the conditions that resulted in these designations.[54]

Source: OWRD, 2026; ECOnorthwest analysis.

53 Oregon Water Resources Department. Oregon's 2025 Integrated Water Resources Strategy. September 2025. https://www.oregon.gov/owrd/programs/Planning/IWRS/Documents/2025%20IWRS_no%20appendices.pdf

54 Oregon Water Resources Department, "Groundwater Administrative Areas / Critical Groundwater Areas," accessed September 2026, https://www.oregon.gov/owrd/programs/gwwl/gw/pages/adminareasandcriticalgwareas.aspx

4.4. Data Limitations and Future Oregon Analysis

The principal obstacle to evaluating the water implications of data centers in Oregon is the lack of consistent facility-level information. Company-wide sustainability reports may provide average WUE or aggregate water consumption across multiple facilities, but these values do not necessarily describe conditions at a particular Oregon location. Even where facility-specific annual information is available, annual totals can conceal seasonal peaks and differences among watersheds. This information is particularly important in areas where water resources are already constrained or subject to additional management. A more complete disclosure framework for large data centers could include:

- The source of water, including whether it is potable, reclaimed, surface water, or groundwater supplied directly or through a utility.
- Monthly (or even weekly) water withdrawals, estimated consumption, wastewater discharge, and maximum daily demand.
- The type of cooling and heat-rejection system and any changes in operating mode during the year.
- Monthly PUE and WUE, together with information about facility occupancy or utilization needed to interpret those measures.
- Expected water use at different stages of facility buildout rather than only at initial operation, allowing the water utility to plan for potential increases in demand.
- Drought-management, curtailment, and emergency operating plans.
- The water and wastewater infrastructure investments required to serve the facility and how their costs will be allocated.
- The expected electricity source or utility portfolio needed to estimate indirect water consumption.

Monthly reporting would provide a baseline for identifying seasonality. Where water supplies are constrained or drought conditions are present, more frequent reporting during periods of high use may be appropriate. Commercially sensitive operational information could be protected while still providing aggregate measures sufficient for water-resource planning and community oversight.[55]

Future Oregon research should combine this information with local water-supply conditions. An appropriate assessment would identify the cooling technology and water source of each large facility, evaluate the capacity of the relevant municipal or other water provider, compare summer data center demand with other seasonal uses, and estimate the indirect water intensity of the electricity system serving each location. Because Oregon's hydrological, climatic, and infrastructure conditions vary substantially across the state, a statewide annual average would not adequately describe local impacts.

This section does not conclude that Oregon's data centers currently create a specific level of water stress. Instead, the analysis identifies the

55 Privette, A. P., Barros, A., and Cai, X. (2026). "Data Centers Water Footprint: The Need for More Transparency." AGU Advances, 7, e2025AV002140. https://doi.org/10.1029/2025AV002140

pathways through which impacts may occur and the information needed to evaluate them. The central planning question is not simply how much water data centers use annually, but where that water comes from, when it is consumed, what other users depend on the same source, and whether reductions in local water use increase electricity use and shift water impacts elsewhere. Addressing these questions through facility-level information and integrated water-energy analysis would allow future developments to be evaluated based on conditions of the communities and watersheds in which facilities are proposed.

SECTION 5

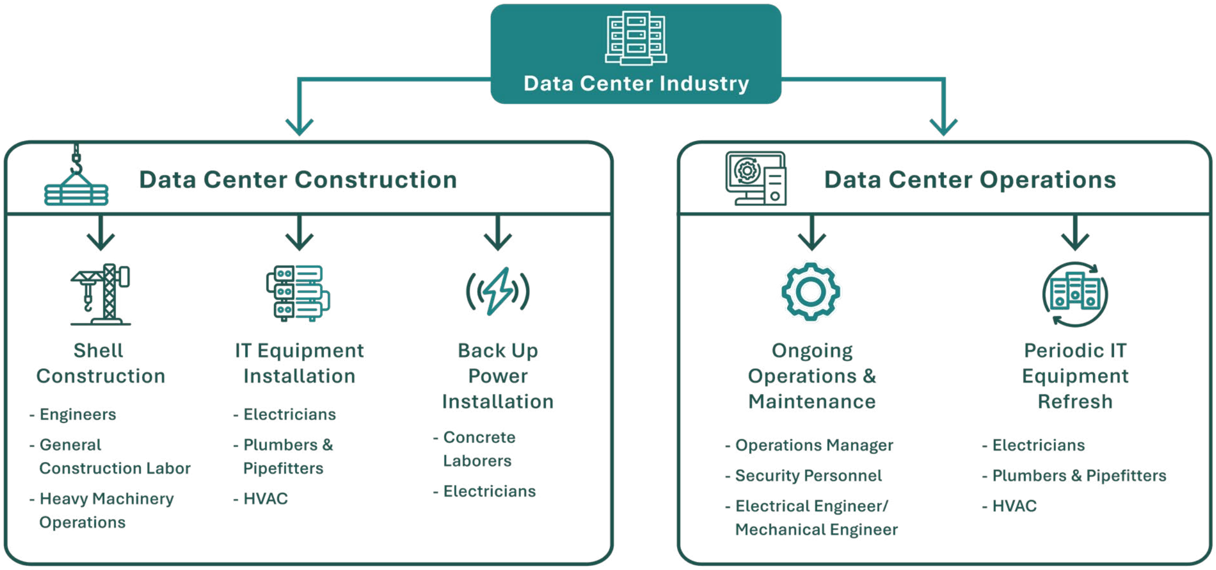
Operational Workforce

Source: Matthieu Beaumont/Unsplash

Data centers support several distinct types of employment over their life cycle. Initial development and construction require a relatively large but temporary workforce to build the facility and install its specialized electrical, mechanical, cooling, and other infrastructure. Once a facility begins operating, the construction workforce largely moves on to other projects and a smaller, long-term workforce operates and maintains the facility. Data centers also undergo expansions, equipment replacements, and infrastructure upgrades over their operating lives, creating recurring demand for construction trades and specialized technical workers.

These workforces differ in scale, duration, occupations, and economic function and therefore should not be combined when describing data center employment. Construction employment is tied to capital investment and is generally temporary at the individual project level, although successive projects can sustain construction activity across an industry or region. Operational employment represents the ongoing workforce required to operate and maintain existing facilities. Periodic upgrades and equipment refreshes create another source of recurring activity over a facility's life.

Exhibit 5.1. How Data Centers Support Employment Over their Life Cycles



Source: ECOnorthwest.

These workforces differ in scale, duration, occupations, and economic function and therefore should not be combined when describing data center employment. Construction employment is project-based and temporary at the individual facility level, although a continuing pipeline of projects can sustain substantial construction employment across an industry or region. Operational employment represents the ongoing workforce associated with operating existing facilities. Periodic expansions and equipment and infrastructure upgrades create additional construction and technical work over time.

The distinction is important because data centers generally require substantially more workers during construction than during ongoing operations. Virginia's Joint Legislative Audit and Review Commission (JLARC), for example, reports that a typical 250,000-square-foot data center may have approximately 50 full-time workers during operations. JLARC also found that approximately half of the workers associated with ongoing operations may be contractors rather than employees of the data center company or its tenants.[56]

Construction employment and its broader economic contribution are evaluated separately later in this report. This section focuses on a narrower question that appears straightforward but is surprisingly difficult to answer: How many people are employed operating Oregon's data centers?

This report therefore evaluates construction and operational employment separately. **This section focuses specifically on the workforce associated with the ongoing operation of Oregon's existing data centers.** Construction employment and its economic contributions are addressed separately in Section 6.

56 Joint Legislative Audit and Review Commission, *Data Centers in Virginia,* JLARC Report 598. Commonwealth of Virginia, December 2024., https://virginia.app.box.com/s/3urcj9bn8k26vz47if9wkcu7luipfykt

DEFINITION:

Operational Data Center Workforce

For purposes of this study, direct operational employment represents wage-and-salary employment associated with the on-site operation of verified Oregon data center facilities. The estimate includes employees of identified data center owners, operators, or tenants that can be linked to Oregon facilities.

It excludes temporary construction workers; workers employed by security, cleaning, maintenance, real estate, property management, and other supplier or service firms; off-site corporate employment; and sole proprietors and independent contractors not captured by the Quarterly Census of Employment and Wages (QCEW).

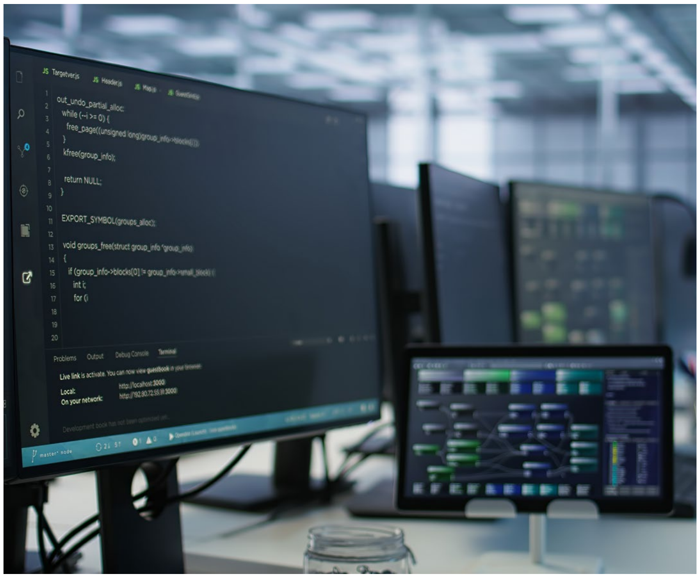
These exclusions do not imply that these workers are unrelated to data centers. Rather, supplier and contractor employment is accounted for separately through the economic contribution analysis to maintain a consistent distinction between direct and secondary employment and avoid double counting.

Operational Employment at Data Centers is Hard to Measure

Estimating the number of people employed operating Oregon's data centers is less straightforward than it may initially appear. There is no standard industry-wide dataset that reports operational employment at individual data center facilities. Moreover, different studies and data sources apply different definitions of data center employment—particularly in their treatment of contractors.

The lack of publicly available establishment-level employment data is not unique to data centers. Employment data reported through the Quarterly Census of Employment and Wages (QCEW) are subject to confidentiality protections designed to prevent disclosure of information about individual employers. Consequently, publicly available QCEW statistics generally report aggregated employment by industry and geography rather than employment at individual establishments.

For many industries, aggregated statistics provide a reasonable measure of industry employment. Data centers present an additional challenge, however: there is no single NAICS industry classification corresponding to physical data center operations.



Source: DC Studio/Shutterstock

Data Centers Do Not Have a Dedicated Industry Classification

Government employment statistics organize establishments using the North American Industry Classification System (NAICS). Businesses are generally classified according to the primary economic activity performed at an establishment. Industries such as semiconductor manufacturing have relatively specific NAICS classifications; data centers do not have an equivalent standalone classification.

The classification most closely associated with commercial data center operations is NAICS 518210, Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services. The category includes companies providing computing infrastructure, cloud hosting, web hosting, data processing, and related services. It therefore captures substantial activity unrelated to operating physical data center facilities in Oregon.

Known data center companies also appear in telecommunications and computer systems industries. ECOnorthwest therefore reviewed establishments in six primary six-digit NAICS industries:

Exhibit 5.2. Primary NAICS Industries Associated with Oregon's Data Center Employment

Employment is concentrated in three data center industries

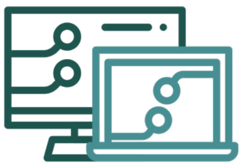
Data Processing Industry and Related Services

These businesses store, organize, and process data for customers. But do not necessarily own or operate data centers.

Industry Code:
518210

Estimated DC employees: 2,430

This represents over one-third of the statewide overall industry employment



Computer System Design

These businesses design software, manages computer connections to software and cloud systems.

Industry Code:
541511, 541512, 541512

Estimated DC employees: 130

This represents about 1% of the statewide overall industry employment

Telecommunications

These businesses provide phone, internet, and other communications services requiring data storage.

Industry Code:
517111. 517112

Estimated DC employees: 70

This represents about 2% of the statewide overall industry employment

Source: Oregon Employment Department, 2024; S&P 451 Data Center Database; ECOnorthwest analysis.

ECOnorthwest's establishment-level review also identified data center owners and operators classified in real estate and other industries. This reflects differences in business models: some companies primarily provide computing infrastructure, while others are organized around owning, leasing, managing, or operating facilities. For consistency with the economic contribution modeling framework, employment in supplier and service industries is generally treated as secondary rather than direct employment.

The Great Lakes research conducted by the University of Virginia's Weldon Cooper Center encountered a similar classification issue. That research examined data centers across eight Great Lakes states using facility-level information, regional energy analysis, and multiregional economic modeling. Approximately two-thirds of the data center establishments identified through the methodology were classified within data processing and hosting, while the remainder were distributed across telecommunications, computer systems design, real estate, and other industries. Oregon's establishment-level review showed a similarly dispersed pattern.[57]

Using Industry Totals Would Substantially Overstate Oregon Data Center Employment

The classification issue has important empirical consequences. Employment across the telecommunications, computing infrastructure, and computer systems industries reviewed for this analysis exceeded 24,000 workers statewide in 2024. Employment in NAICS 518210 alone was approximately 7,600 workers. By comparison, ECOnorthwest's establishment-level analysis identified approximately 2,629 workers meeting the definition used for direct operational data center employment.

Consequently, treating all employment in NAICS 518210 as data center employment would substantially overstate the number of workers associated with operating physical data center facilities in Oregon. Employment at Oregon data centers captured in other industries would also be underestimated.

For this reason, ECOnorthwest estimates Oregon data center employment from individual facilities and establishments rather than assigning an entire NAICS industry to data centers.

Operational Employment Definition

Industry classification is only one source of measurement uncertainty. A second issue is determining which workers should be considered part of the data center operational workforce.

57 Ferreira, J.-P., Shobe, W., Rephann, T., and Scheffel, M. Economic, Fiscal, and Energy-related Impacts of Data Centers in the Great Lakes Region. January 2026. Center for Economic and Policy Studies, Weldon Cooper Center for Public Service, University of Virginia.

Exhibit 5.3. Data Center Employment Measures are Not Interchangeable

Employment Measure	Workers Included	What the Measure Describes
Direct operational employment	Employees included within the industries defined as direct data center operations	Employees of data centers directly engaged with operations
On-site operational workforce	Direct employees plus some or all contractors regularly working at facilities	People physically supporting facility operations
Construction workforce	Workers constructing, refreshing, and/or expanding facilities	Temporary/project-based employment
Indirect employment	Employment at businesses supplying goods and services to data centers, including contract labor	Supply-chain employment
Induced employment	Employment supported by household spending from direct and indirect workers	Household-spending effects
Total supported employment	Direct + indirect + induced employment	Broad economic contribution

Workers regularly present at a data center can include facility managers, engineers, data and network technicians, electricians, mechanical technicians, security personnel, janitorial workers, and other occupations. Some are employed by the data center owner or operator. Others may perform work at the facility full time but be employed by third-party contractors.

Whether these contractors are described as "data center workers" depends on the question being asked. A security worker assigned full time to a data center is reasonably considered part of its on-site workforce. From an economic accounting perspective, however, that worker is employed by a security-services business supplying services to the data center and is therefore generally classified as part of the data center's indirect or supplier employment. The distinction is important because different studies report different employment concepts.

These distinctions help explain why employment estimates from different data center studies can appear inconsistent even when each estimate is reasonable within its own analytical framework.

For example, the U.S. Chamber of Commerce estimated that a "typical" 165,141-square-foot data center supports 157 local jobs annually, but that figure includes employment at the facility and along its supply chain rather than representing only workers employed directly by the operator.[58] It therefore should not be compared directly with an estimate of operator employment.

58 Day, Tim, and Nam D. Pham. Data Centers: *Jobs and Opportunities in Communities Nationwide*. Washington, DC: U.S. Chamber of Commerce Technology Engagement Center, May 2017. https://www.uschamber.com/assets/documents/ctec_datacenterrpt_lowres.pdf

Estimating Oregon's Operational Data Center Workforce

Because no publicly available dataset directly reports operational employment at Oregon data center facilities, ECOnorthwest developed an establishment-level methodology combining confidential Oregon QCEW records with a facility inventory and manual employer review.

Quarterly Census of Employment and Wages

The analysis begins with confidential establishment-level QCEW data obtained from the Oregon Employment Department. QCEW is an administrative dataset based on unemployment insurance reporting and contains information including employer name, establishment location, industry classification, employment, and wages for businesses covered by the unemployment insurance system. It generally excludes sole proprietors and some independent contractors, assigns workers to an employer's reported establishment address rather than necessarily the location where each employee performs work, and does not identify workers' occupations or specific duties.

The confidential point-level records provide more detail than publicly available QCEW statistics and allow individual establishments to be evaluated in relation to known data center facilities.

The operational workforce analysis uses 2024 QCEW data. Confidential establishment records are available with a longer lag because they require additional review and preparation. Publicly available employment in NAICS 518210 declined by approximately 2.8 percent between 2024 and 2025, from 7,870 to 7,644 workers, but this change cannot be interpreted as a decline in data center employment because the industry includes substantial non-data-center activity.

Facility-Level Matching

ECOnorthwest combined the QCEW records with the S&P Global 451 Research data center database, which provides facility-level information including location, ownership, operational status, facility type, square footage, and power characteristics. The same facility database is used elsewhere in this study to define Oregon's inventory of operational and planned data centers.

The analysis initially identified QCEW establishments located within 300 meters of each identified data center building. The buffer was applied to individual facilities rather than entire campuses and was used as a screening tool rather than as an automatic criterion for inclusion.

Every candidate establishment was then reviewed manually. The review first identified known cloud providers, data center owners and operators, telecommunications companies, and other businesses with a clear connection to specific facilities. Establishments in the six primary NAICS industries were evaluated to determine whether they appeared to be associated with the operation of a data center facility.

Some establishments in other industries were located at data center addresses, including businesses in construction, real estate and property management, specialized cleaning, security, backup power and generator maintenance, and electrical and mechanical contracting. These establishments and their associated employment are not captured in the direct data center employment estimate. Workers employed in security, cleaning, maintenance, repair, real estate, property management, energy services, construction, and similar supplier industries are excluded from the direct operational count. The resulting estimate is approximately 2,629 direct operational workers in 2024.

This treatment is important for avoiding double counting. The economic contribution model estimates employment supported in supplier industries through indirect effects. Counting these supplier employees as direct workers and then allowing the model to estimate supplier employment could count the same economic activity twice. The direct operational estimate is therefore intentionally narrower than the total number of people who may regularly work at or support Oregon data centers.

Additional sources used to validate establishment matches included property ownership and tax records, business registrations, company websites, facility information, and employment reported through Oregon property tax abatement and incentive programs. Employment reported in incentive agreements was used as a reasonableness check rather than automatically treated as observed employment because those figures can represent commitments, minimum thresholds, projections, or expected employment at full buildout.

Employers registered outside the initial 300-meter buffer were also investigated when other evidence indicated a connection to a data center. This approach accounts for cases in which employees may be registered at a campus entrance, nearby office, regional address, or another establishment location.

Comparison With Other Operational Workforce Estimates

Because QCEW was not designed specifically to measure data center employment and contracting arrangements vary among facilities, ECOnorthwest compared the Oregon estimate with staffing benchmarks reported in other studies. These comparisons are used as reasonableness checks, not alternative estimates of Oregon employment. Staffing intensity varies with facility type, size, technology, operating model, degree of automation, and whether contractors are included.

The Hamm Institute at Oklahoma State University reports substantial differences in operational staffing intensity by facility type. Its benchmark ranges indicate approximately 0.15 to 0.20 operational employees per MW for highly automated hyperscale facilities, approximately 0.24 to 0.28 per MW for standard or regional/colocation facilities, and approximately 0.30 to 0.35 per MW for smaller enterprise facilities.[59]

These differences are important for Oregon because the state's data center inventory includes a mix of facility types, with particularly large hyperscale campuses in Eastern Oregon. A single national employment-per-MW assumption applied uniformly to all facilities would not account for these differences in staffing intensity.

59 Ryu, Angela, and Shon R. Hiatt. Data Center *Employment Forecast Analysis*. Hamm Institute, Oklahoma State University, November 2025. https://hamminstitute.org/site-files/documents/data_center_workforce.pdf

JLARC provides another useful comparison. Its Virginia analysis identifies 4,400 direct employees and contract workers associated with data center operations and over 5,000 MW in operational data center power capacity, or roughly 0.87 workers per MW.[60]

The University of Virginia's Great Lakes research provides additional state-level benchmarks. That study combines facility-level information with multiregional economic modeling across Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin.[61] Illinois and Ohio provided the most reasonable benchmark state compared to Oregon due to the overall number and size of operational data.

ECOnorthwest converted these and other published estimates to common capacity- or facility-size-based metrics where sufficient information was available.

Exhibit 5.4. Selected Operational Workforce Benchmarks

Primary Source	Description of Estimate	Facility Type	Estimate Workers
Hamm Institute	Annual operational workers	Hyperscale (100MW+) to Enterprise (5-20MW)	0.15 to 0.34 per MW
Tek One Solutions	Annual operational workers	Hyperscale (20MW+) to Small Facilities (1-5 MW)	0.25 to 2.5 per MW
UVA JLARC	Annual operational workers - Virginia	Average Virginia data center. Direct operational jobs / current operational MWs	0.87 per MW
UVA Joyce Foundation	Annual operational workers - Ohio	Average Ohio data center. Direct operational jobs / current operational MWs	1.17 per MW
UVA Joyce Foundation	Annual operational workers - Illinois	Average Illinois data center. Direct operational jobs / current operational MWs	1.38 per MW
UVA JLARC	Annual operational workers - Virginia	Average Virginia data center. Direct operational jobs / current operational SF	0.000070 per SF
Mckinsey	Onsite jobs	Hyperscale 250,000 sf	0.00020 per SF
US Chamber of Commerce	Local operational jobs	"Typical" Large Data Center. 165,141 NRSF	0.00018 per SF
UVA Joyce Foundation	Annual operational workers - Ohio	Average Ohio data center. Direct operational jobs / current operational SF	0.00017 per SF
UVA Joyce Foundation	Annual operational workers - Illinois	Average IL data center. Direct operational jobs / current operational SF	0.00016 per SF

Note: Metrics marked with an asterisk are ECOnorthwest calculations using employment and operational capacity reported or assembled from the underlying studies and therefore may not be metrics reported directly by the authors.

Sources: Hamm Institute, 2025[62]; UVA Joyce Foundation, 2025[63]; U.S. Chamber of Commerce, 2017[64]; McKinsey, 2025[65]; UVA JLARC, 2024[66]; ECOnorthwest analysis.

60 Joint Legislative Audit and Review Commission, *Data Centers in Virginia*, JLARC Report 598. Commonwealth of Virginia, December 2024,, https://virginia.app.box.com/s/3urcj9bn8k26vz47if9wkcu7luipfykt

61 Ferreira, J.-P., Shobe, W., Rephann, T., and Scheffel, M. Economic, Fiscal, and Energy-related Impacts of Data Centers in the Great Lakes Region. January 2026. Center for Economic and Policy Studies, Weldon Cooper Center for Public Service, University of Virginia.

62 Ryu, Angela, and Shon R. Hiatt. *Data Center Employment Forecast Analysis*. Hamm Institute, Oklahoma State University, November 2025. https://hamminstitute.org/site-files/documents/data_center_workforce.pdf

63 Ferreira, J.-P., Shobe, W., Rephann, T., and Scheffel, M. Economic, Fiscal, and Energy-related Impacts of Data Centers in the Great Lakes Region. January 2026. Center for Economic and Policy Studies, Weldon Cooper Center for Public Service, University of Virginia.

64 Day, Tim, and Nam D. Pham. *Data Centers: Jobs and Opportunities in Communities Nationwide*. Washington, DC: U.S. Chamber of Commerce Technology Engagement Center, May 2017. https://www.uschamber.com/assets/documents/ctec_datacenterrpt_lowres.pdf

65 Barth, Adam et al. "The Data Center Balance: How US States Can Navigate the Opportunities and Challenges." McKinsey & Company, August 2025. https://www.mckinsey.com/industries/public-sector/our-insights/the-data-center-balance-how-us-states-can-navigate-the-opportunities-and-challenges

66 Joint Legislative Audit and Review Commission, *Data Centers in Virginia*, JLARC Report 598. Commonwealth of Virginia, December 2024,, https://virginia.app.box.com/s/3urcj9bn8k26vz47if9wkcu7luipfykt

The Oregon estimate corresponds to approximately 0.84 direct operational workers per MW of operational capacity statewide or 0.00012 workers per square foot. These comparisons should not be interpreted as evidence that Oregon facilities necessarily employ fewer workers for equivalent operations. Differences can reflect facility type and scale, contracting practices, definitions of direct employment, utilization of available power capacity, and methodological differences among the studies.

Applying the broader set of published operational staffing benchmarks assembled for this study to Oregon's operational facility inventory produces a particularly wide range of implied employment: approximately 500 to over 4,000 workers. ECOnorthwest's QCEW-based estimate of approximately 2,629 falls within that range.

The width of the range reinforces the limitations of estimating data center employment from generic staffing ratios alone. The QCEW-based estimate is therefore used as the primary Oregon estimate; the external studies provide validation and context rather than alternative estimates that are averaged together.

Oregon's Operational Data Center Workforce

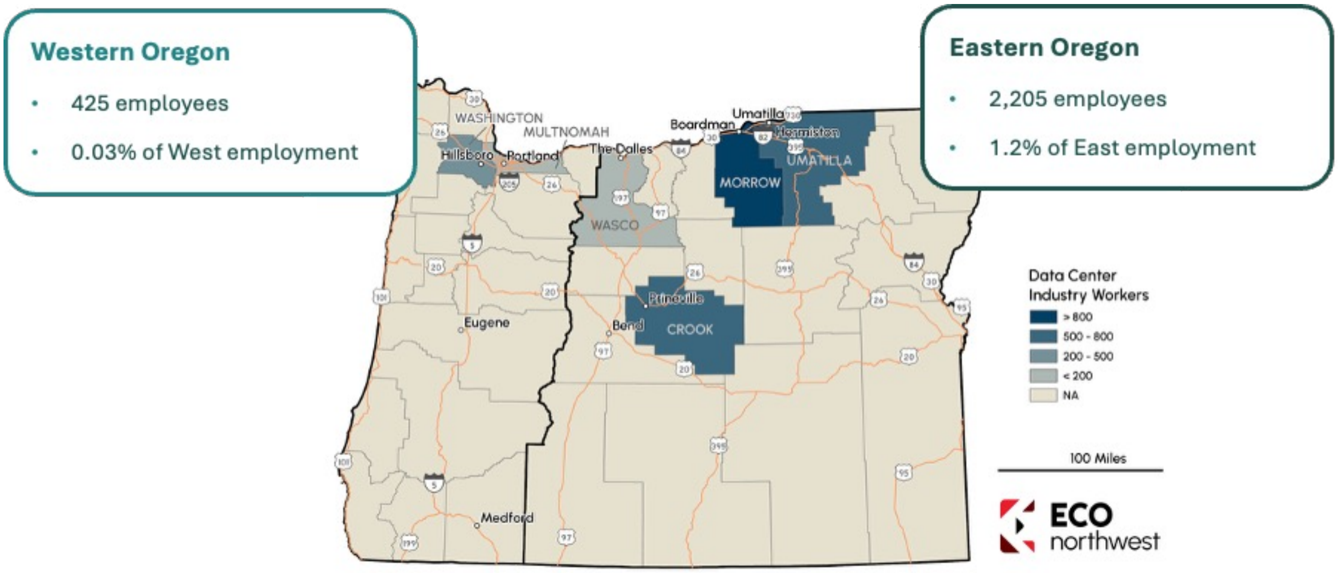
Based on the establishment-level methodology described above, ECOnorthwest estimates that Oregon data centers directly employed approximately 2,629 wage-and-salary workers in ongoing operations in 2024. Approximately 2,205 of these workers were associated with data centers in Eastern Oregon and 425 with facilities in Western Oregon.[67]

The geographic distribution is notable because the number of data center facilities alone does not describe the scale of the industry. Western Oregon contains a substantial number of facilities, particularly within the Portland metropolitan area, while Eastern Oregon contains several very large hyperscale campuses. Differences in facility size, type, operating model, and campus configuration therefore affect the relationship between facility counts, capacity, and employment.

Source: Juice Flair/Shutterstock

67 Employment estimates do not sum because they are rounded. QCEW reports monthly worker estimates that are then averaged to create the average annual 2024 estimate.

Exhibit 5.5. Data Center Industry Workers



Source: Oregon Employment Department, 2024; ECOnorthwest analysis.

The direct operational estimate should not be interpreted as the total number of workers supported by Oregon's data center industry. Contractors and service providers excluded from the direct estimate support additional employment associated with ongoing operations. Construction creates a separate and substantially larger workforce during periods of facility development and expansion. The economic contribution analysis presented in Section 6 estimates these broader effects separately.

Limitations and Interpretation

The methodology provides a more targeted estimate of Oregon data center employment than published industry totals alone can provide, but uncertainty remains.

- NAICS was not designed to identify data centers as a standalone industry. Operators appear across multiple industry classifications, while the industries most closely associated with data centers contain substantial employment unrelated to physical data center operations. This requires judgment in identifying establishments associated with individual facilities.
- QCEW records identify the employer and reported establishment rather than the precise work location or occupation of every employee. Employees may be registered at a headquarters, branch, payroll office, campus entrance, or other establishment address rather than the individual building where they perform their work. ECOnorthwest's manual review and use of supplementary information reduce but cannot eliminate this source of uncertainty.
- Contracting practices complicate comparisons among facilities and studies. A facility that directly employs electricians or maintenance technicians will report those workers differently from an otherwise similar facility that contracts for the same services. JLARC's Virginia analysis illustrates the potential scale of this issue: approximately half of the roughly 50 workers

associated with a representative facility may be contractors rather than employees of the operator or tenants.[68]

- Staffing intensity varies with facility size and operating model. Consequently, differences between Oregon and staffing ratios reported elsewhere cannot necessarily be attributed to measurement error; they may reflect genuine differences in the composition of the data center inventory.
- Different studies use different definitions of employment. Estimates of operator employees, workers physically present at facilities, direct economic-impact employment, construction workers, and total jobs supported throughout the economy answer different questions.

For these reasons, the approximately 2,629 direct operational workers should be interpreted as ECOnorthwest's best estimate of employment associated with operating Oregon data centers under the definition applied in this study, not as a precise count of everyone who works at a data center or whose employment is supported by one. The broader methodological lesson is equally important: there is no single standardized measure of "data center jobs." Understanding any reported employment figure requires knowing which facilities are included, which workers are counted, how contractors are treated, and whether the estimate describes ongoing operations, construction, or broader economic effects.

Source: Visitor7/Wikimedia Commons

68 Joint Legislative Audit and Review Commission, *Data Centers in Virginia*, JLARC Report 598. Commonwealth of Virginia, December 2024, https://virginia.app.box.com/s/3urcj9bn8k26vz47if9wkcu7luipfykt

SECTION 6

Economic Contributions

Source: Hrach Hovhannisyan/Shutterstock

Data centers contribute to Oregon's economy through both ongoing operations and the construction of new facilities. These activities have different economic profiles. Data center operations support permanent jobs and generate economic activity through employee compensation, purchases of electricity and other goods and services, and spending by workers. Construction can support a much larger workforce during development, but these jobs are temporary for any individual project.

This section estimates the economic contributions associated with both activities. It first examines the statewide contributions of existing data center operations and recent construction activity, then develops representative estimates for wholesale and hyperscale facilities to illustrate how economic contributions can vary by facility type and scale.

Modeling Framework

IMPLAN is a regional input-output (I/O) model commonly used to estimate how economic activity in one industry supports activity elsewhere in the economy. The model represents relationships among industries, households, and government, including purchases between businesses and household spending supported by worker income.

For this assessment, data center employment and expenditures are entered into IMPLAN to estimate the economic contributions associated with data center operations and construction. These contributions include the direct activity associated with data centers or their construction, as well as additional activity supported through purchases from Oregon businesses and household spending.

For this assessment, ECOnorthwest used the 2024 IMPLAN model year and modeled Eastern and Western Oregon separately using a multiregional input-output, or MRIO, framework. The MRIO approach allows economic activity generated in one part of Oregon to support businesses and workers in another part of the state. Results are reported in 2025 dollars.

This treatment is particularly important for data centers because facilities are geographically concentrated, while their suppliers and workers may be located elsewhere. A hyperscale facility in Eastern Oregon, for example, may purchase services from businesses located in the Portland metropolitan area. Modeling the two regions together captures these cross-regional linkages.

Contribution Types

Economic multipliers derived from the model are used to estimate total economic contributions. These contributions consist of three components: direct, indirect, and induced effects.

Direct contributions consist of activity associated specifically with the data center industry or its construction. For operations, direct effects include employees and economic activity associated with operating data center facilities. For construction, they include the workers, labor income, and construction expenditures modeled for recent data center development.

Indirect contributions represent expenditures on goods and services by suppliers that support data center construction and operations. Indirect effects are often described as supply-chain impacts because they involve transactions among businesses.

Induced contributions represent household spending supported by the income earned through direct and indirect activity. Data center workers, construction workers, and employees of supplier businesses use a portion of their earnings to purchase housing, groceries, health care, transportation, recreation, and other household goods and services. That spending supports additional economic activity elsewhere in Oregon.

Contribution Measures

Impacts are assessed using four measures reported by IMPLAN.

Jobs represent the average number of employees engaged in full- or part-time work. IMPLAN employment is a headcount measure rather than a full-time-equivalent measure.

Labor income is the sum of employee compensation and proprietor income. Employee compensation includes wages and salaries as well as employer-paid benefits and other compensation. Proprietor income represents income received by self-employed workers and business owners.

Value added represents the additional value generated by an industry after subtracting the cost of intermediate goods and services. It consists principally of labor income, taxes on production, and returns to capital. At an economy-wide level, value added is conceptually comparable to gross domestic product. Value added is the primary metric used in this report to measure and compare economic contributions.

Economic output represents the total value of production or sales generated by an industry. It includes intermediate purchases and therefore is larger than value added. Output is presented in the results tables for completeness, but this report focuses on value added as the primary measure of economic contribution.

Economic Contributions of Oregon Data Center Operations

Modeling Inputs and Assumptions

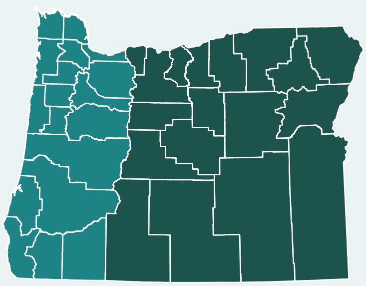
The primary inputs to the operational economic contribution model are the employment and wages identified in the Operational Workforce section. The model uses approximately 2,629 direct employees and $557.5 million in observed employee compensation associated with Oregon data center operations.[69] IMPLAN was allowed to estimate employer-paid benefits and commuting patterns, while proprietor employment was set to zero.

The model also modifies the default spending pattern for IMPLAN sector 418, Data Processing, Hosting, and Related Services, to better reflect the operating structure of a modern data center. Prior work for Virginia's JLARC found that the standard IMPLAN sector substantially understates electricity expenditures and overstates labor intensity.[70] In the default sector, less than 1 percent of gross output is allocated to electricity transmission and distribution, even though industry evidence and interviews with data center operators indicate that electricity accounts for roughly 40 percent of operating expenditures. The Virginia analysis therefore increased electricity expenditures to 40 percent of the operating spending pattern and reduced employee compensation to approximately 15 percent of output. The subsequent University of Virginia Great Lakes study retained this approach.[71] That study notes that the standard IMPLAN data-processing sector is not representative of data center operations because data centers rely much more heavily on electricity and much less heavily on labor than the generic sector assumes. We utilize these assumptions for the Oregon analysis.

Consistent with that prior work, this analysis reallocates 40 percent of the default spending pattern for IMPLAN sector 418 to electricity. In practical terms, this tells the model that a much larger share of a data center's operating budget flows to the electric utility sector than IMPLAN would otherwise assume. Because electricity production is relatively capital intensive and supports fewer jobs per dollar of spending than many other business services, this adjustment generally reduces the indirect employment multiplier and produces a more realistic estimate of the economic activity supported by data center operations.

69 Oregon Employment Department. 2024. Quarterly Census of Employment and Wages.
70 Joint Legislative Audit and Review Commission. December 2024. *Data Centers in Virginia*, Report 598. https://jlarc.virginia.gov/pdfs/reports/Rpt598.pdf
71 Ferreira, João-Pedro. January 13, 2026. *Economic, Fiscal and Energy-related Impacts of Data Centers in the Great Lakes Region*. Prepared for the Joyce Foundation. Center for Economic & Policy Studies, Weldon Cooper Center for Public Service, University of Virginia. https://virginia.app.box.com/s/8qq2ggbdgwhf4atrorghtrcqsq64wd74

In addition, the standard IMPLAN estimates of property taxes are then removed and replaced with approximately $60.2 million in Oregon-specific property taxes estimated separately in this study.



EASTERN OREGON RESULTS:
Economic activity occurring in Eastern Oregon that is supported by Oregon data centers, regardless of where the data center itself is located.

WESTERN OREGON RESULTS:
Economic activity occurring in Western Oregon that is supported by Oregon data centers.

Operational Economic Contributions

Current data center operations are associated with approximately 10,409 jobs statewide, including 2,629 direct jobs, 4,190 indirect jobs, and 3,590 induced jobs. Indirect jobs are assumed to cover the supply chain for data center operations, including employment associated with on-site contractors. Direct labor income is adjusted to $622.4 million to account for employee benefits and adjusted to 2025 dollars. Total annual labor income is approximately $1.2 billion, which translates to an average income per employee of $112,000.

Data center operations support approximately $3.5 billion in value added annually. Value added measures the economic value generated after subtracting the cost of intermediate goods and services and is conceptually comparable to GDP. For this analysis, value added provides the primary measure of the industry's contribution to Oregon's economy.

The total economic contributions of data center operations including direct, indirect, and induced effects account for approximately 0.4 percent of statewide employment, 0.6 percent of labor income, and 1.0 percent of value added.

Exhibit 6.1. Estimated Economic Contributions of Oregon Data Centers, Statewide, 2024

Impact Type	Employment	Labor Income	Value Added	Economic Output
Direct	2,629	$622,380,000	$2,397,010,000	$3,759,150,000
Indirect	4,187	$335,020,000	$687,140,000	$1,437,870,000
Induced	3,593	$216,300,000	$393,140,000	$640,090,000
Total	**10,409**	**$1,173,700,000**	**$3,477,300,000**	**$5,837,110,000**

Note: All monetary values are rounded and adjusted to 2025 dollars.
Source: Oregon Employment Department, 2024; IMPLAN, 2024; ECOnorthwest analysis.

In Eastern Oregon, most of the economic contribution comes from the direct operation of data center facilities themselves, which support approximately 2,205 jobs and account for an estimated $2.2 billion in value added. That activity also supports a substantial secondary contribution as data centers purchase goods and services from suppliers and as workers spend their earnings elsewhere in the economy. Those secondary effects support roughly 6,300 additional jobs and about $862.6 million in value added. In total, current data center operations are associated with approximately 8,484 jobs and $3.1 billion in value added in Eastern Oregon.

Exhibit 6.2. Estimated Economic Contributions of Oregon Data Centers, Eastern Oregon, 2024

Impact Type	Employment	Labor Income	Value Added	Economic Output
Direct	2,205	$565,720,000	$2,215,340,000	$3,404,990,000
Indirect	3,294	$258,810,000	$542,120,000	$1,148,150,000
Induced	2,985	$176,060,000	$320,460,000	$523,540,000
Total	**8,484**	**$1,000,590,000**	**$3,077,930,000**	**$5,076,680,000**

Note: All monetary values are rounded and adjusted to 2025 dollars.

Source: Oregon Employment Department, 2024; IMPLAN, 2024; ECOnorthwest analysis.

In Western Oregon, the direct operational footprint is smaller, but secondary effects make up a larger share of the total contribution. Data center operations directly support about 424 jobs and $181.7 million in value added, while supplier activity and household spending support roughly 1,500 additional jobs and about $217.7 million in value added. Altogether, current operations are associated with approximately 1,925 jobs and $399.4 million in value added in Western Oregon.

The analysis uses a multi-regional input-output (MRIO) framework to estimate how the statewide economic contributions of Oregon data centers are distributed between Eastern and Western Oregon. The analysis uses a multi-regional input-output (MRIO) framework to estimate how the statewide economic contributions of Oregon data centers are distributed between Eastern and Western Oregon. The model accounts for economic relationships between the two regions, including purchases between businesses and household spending. As a result, the regional estimates reflect where economic activity occurs, rather than the location of the data centers associated with that activity. Western Oregon captures a relatively large share of indirect and induced contributions because it contains much of the state's population and economic activity, including many of the businesses and workers that provide goods and services used directly or indirectly by the data center industry. This is true for the Eastern Oregon results as well, but to a lesser extent due to the economic concentration of industries in the metro areas.

Exhibit 6.3. Estimated Economic Contributions of Oregon Data Centers, Western Oregon, 2024

Impact Type	Employment	Labor Income	Value Added	Economic Output
Direct	424	$56,660,000	$181,670,000	$354,160,000
Indirect	893	$76,210,000	$145,020,000	$289,720,000
Induced	608	$40,240,000	$72,680,000	$116,550,000
Total	**1,925**	**$173,110,000**	**$399,370,000**	**$760,430,000**

Note: All monetary values are rounded and adjusted to 2025 dollars.
Source: Oregon Employment Department, 2024; IMPLAN, 2024; ECOnorthwest analysis.

Source: Around the World Photos/Shutterstock

Economic Contributions of Oregon Data Center Construction

Modeling Inputs and Assumptions

Unlike the operational analysis, the construction analysis is not based on primary project-level cost or workforce data. Detailed construction budgets, contractor payrolls, and procurement records for Oregon data center projects are generally proprietary and were not available for this assessment. The analysis therefore relies on publicly available industry research to develop assumptions about construction costs, labor requirements, and the share of total investment likely to generate economic activity within Oregon.

The analysis begins with S&P Global data on data center capacity added in 2023, 2024, and 2025. Approximately 1,434 MW of capacity was constructed over that three-year period, equivalent to an average of about 478 MW per year. Construction activity is annualized so that the resulting economic contribution can be compared with annual operating activity.

Published construction-cost estimates for data centers vary by market and facility design. Recent estimates generally place construction costs for large data centers in the Portland market at approximately $10.0 million to $12.9 million per MW, excluding servers and other IT equipment.[72] Based on this range, the analysis assumes an $11.0 million per MW "warm shell" construction cost for Oregon data centers.

The warm-shell estimate represents the physical facility and supporting infrastructure rather than the computing equipment housed inside it. Servers, networking hardware, and other IT equipment can represent a substantial share of total project investment.[73] Excluding these expenditures avoids attributing the production of servers and other specialized equipment supplied through national and global supply chains to the Oregon economy.

The analysis aims to capture data center construction costs that will ripple through the state economy through relying on Oregon construction workforce and suppliers. Based on published data center cost structures and project information reviewed for this assessment, approximately $4.4 million per MW is treated as construction-related activity associated with the physical facility. This excludes backup power and the specialized electrical systems required for the "warm-shell".

Land costs, development contingency, and financing are assumed to support no economic contributions within the input-output modeling framework. The economic contribution of construction is based on wages and benefits paid to workers and goods and services purchased within Oregon. Labor costs are assumed to account for 33 percent of the construction costs,

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72 Turner & Townsend, Data Centre Construction Cost Index 2025–2026 (2025), https://www.turnerandtownsend.com/insights/data-centre-construction-cost-index-2025-2026/; Brian Bradsher, "Data Center Construction Costs Explained: Where Your Budget Really Goes," *TrueLook*, December 2025, https://www.truelook.com/blog/data-center-construction-costs; Thunder Said Energy, "Data-Centers: The Economics?," updated August 2026, https://thundersaidenergy.com/downloads/data-centers-the-economics/; Didier Vila, "Deconstructing the Data Center: A Look at the Cost Structure Igniting the AI Boom!," *Alpha Matica*, November 2025, https://www.alpha-matica.com/post/deconstructing-the-data-center-a-look-at-the-cost-structure-1.

73 Thunder Said Energy, "Data-Centers: The Economics?," updated August 2026, https://thundersaidenergy.com/downloads/data-centers-the-economics/; Didier Vila, "Deconstructing the Data Center: A Look at the Cost Structure Igniting the AI Boom!," *Alpha Matica*, November 2025, https://www.alpha-matica.com/post/deconstructing-the-data-center-a-look-at-the-cost-structure-1.

Exhibit 6.4. Estimated Construction Costs of Data Centers Built between 2023-2025, Oregon

Estimate	West	East	Total
Capital Investment Costs (excluding Servers)	$3,976,775,000	$11,802,505,000	$15,779,280,000
Construction Costs	$1,590,710,000	$4,721,002,000	$6,311,712,000
Labor Cost	$588,570,000	$1,746,780,000	$2,335,350,000
Goods and Services Cost	$1,557,930,000	$524,940,000	$2,082,870,000
Modeled Construction Costs	$2,146,500,000	$2,271,720,000	$4,418,220,000
Annualized Modeled Construction Costs	$715,500,000	$757,240,000	$1,472,740,000

Note: All monetary values are rounded and adjusted to 2025 dollars.

Source: S&P 451 Data Center Database; Turner & Townsend, 2025; Cushman & Wakefield, 2025; Alpha Matica, 2025; ECOnorthwest analysis.

while materials, equipment, and services for construction are assumed to account for roughly 37 percent . These assumptions result in approximately $3.08 million per MW of expenditures modeled as construction activity within Oregon. Across the 2023 to 2025 buildout, the modeled construction base totals approximately $4.4 billion, or approximately $1.5 billion per year. Of that annual amount, approximately $778.5 million is modeled as labor cost.

Construction employment is entered into the model separately rather than allowing IMPLAN to infer the workforce entirely from construction spending. This is because the commercial construction sector used to model data center construction also includes many other types of industrial and commercial buildings. Data center construction differs from other types of commercial construction primarily because workers often earn higher wages and the specialized mechanical and electrical system result in higher costs for goods and services.[74] The analysis assumes two workers per MW annually over a 24-month construction period, equivalent to four job-years per MW. Published workforce research indicates that construction staffing varies substantially by facility size and type and that large data center projects are typically constructed over a period of approximately 18 to 36 months. Applied to the annualized construction pipeline, this assumption produces approximately 1,913 workers as the direct construction employment input. IMPLAN allocates the total labor cost, estimated at $778.5 million, to both workers and proprietors. The resulting total employment estimate, including both workers and proprietors, is approximately 3,492 direct construction jobs annually.

Exhibit 6.4 provides a benchmark for evaluating that estimate against a range of published studies. The values shown in the final column are estimates scaled to Oregon's data center buildout for this analysis, not employment totals reported directly by the cited sources. Each source's

74 Te-Ping Chen, "Data Centers Are a 'Gold Rush' for Construction Workers," The Wall Street Journal, November 29 2025, https://www.wsj.com/business/data-centers-are-a-gold-rush-for-construction-workers-6e3c5ce0; Lydia DePillis, "A.I. Companies Are Recruiting Electricians and Carpenters by the Thousands," The New York Times, July 29, 2026, https://www.nytimes.com/2026/07/29/business/economy/data-center-electricians-training.html

reported construction workforce relationship, either workers per MW or workers per square foot, was applied to Oregon's annualized recent data center construction activity. Capacity-based estimates were scaled to Oregon's annualized MW under construction, while square-footage-based estimates were scaled to Oregon's annualized square footage under construction. This creates a common basis for comparing studies that use different facility sizes, units, and estimation methods.

The resulting estimates range from roughly 600 to 17,000 workers. Much of that variation reflects differences in the underlying populations and definitions used by the source studies. Facility-specific studies may describe a particular hyperscale or "typical" large data center, while the state-based University of Virginia studies reflect the mix of data center types, sizes, and construction activity present in Virginia, Illinois, and Ohio. Those state-level averages therefore incorporate differences in each market's composition, including the relative presence of hyperscale, wholesale, colocation, and other facilities, as well as differences in average facility size and the pace and structure of development. The studies also differ in whether they report peak staffing, annualized employment, or broader construction-related activity.

The estimate used in this analysis is also narrower in scope than several of the comparison estimates. It includes construction of the physical facility and associated infrastructure but does not include jobs associated with installation of servers and other IT equipment. Several of the comparison sources include or are more likely to include this equipment-installation activity. Their implied Oregon workforce estimates are therefore not directly comparable to the narrower construction definition used here. The benchmarking exercise is still useful because it shows how strongly construction workforce estimates depend on the type of data center being built, the composition of the market being studied, the stage of construction measured, and the activities included in the employment definition. It also shows that the estimate used in this analysis falls within the broad range implied by other published research while maintaining a narrower scope focused on construction of the facility itself.

Exhibit 6.5. Construction Workforce Benchmarks

Primary Source	Description of Estimate	Facility Type	Estimate Workers For Scaling	Estimate of Workers Scaled to Oregon Data Center Buildout
Hamm Institute	Peak construction workforce	Hyperscale (100MW+) to Enterprise (5-20MW)	0.7 to 2.0 workers per MW	600
UVA Joyce Foundation	Construction jobs	Average Illinois data center. Direct construction jobs / annualized MWs constructed	11.4 workers per MW	5,600
UVA Joyce Foundation	Construction jobs	Average Ohio data center. Direct construction jobs / annualized MWs constructed	22.6 workers per MW	10,800
US Chamber of Commerce	Local construction jobs	"Typical" Large Data Center. 165,141 NRSF	0.00075 per SF	2,100

Exhibit 6.5. Construction Workforce Benchmarks *Continued*

Primary Source	Description of Estimate	Facility Type	Estimate Workers For Scaling	Estimate of Workers Scaled to Oregon Data Center Buildout
UVA Joyce Foundation	Construction jobs	Average Illinois data center. Direct construction jobs / annualized SF constructed	0.0010 per SF	3,000
UVA Joyce Foundation	Construction jobs	Average Ohio data center. Direct construction jobs / annualized SF constructed	0.0015 per SF	4,400
Mckinsey	Construction jobs	Hyperscale data center with 250,000 square feet	0.0060 per SF	17,000
UVA JLARC	Construction jobs	Average Virginia data center. Direct annualized construction jobs / annualized average SF	0.0060 per SF	17,000

Note: Metrics marked with an asterisk are

Sources: Hamm Institute, 2025[75]; UVA Joyce Foundation, 2025[76]; U.S. Chamber of Commerce, 2017[77]; Mckinsey, 2025[78]; UVA JLARC, 2024[79]; ECOnorthwest analysis.

Constraining employment separately from expenditures is important because the default IMPLAN relationship between construction spending and employment produced a substantially larger workforce than was consistent with the external benchmarks reviewed for this assessment. The final approach therefore establishes both spending and employment inputs before estimating indirect and induced effects. This reduces the risk of overstating economic activity in Oregon by treating all capital investment as locally sourced or by applying generic construction-sector relationships to a highly specialized type of development.

Annualized Construction Economic Contributions

Recent data center construction has supported substantial economic activity across Oregon. Statewide, the annualized construction activity modeled over the 2023-2025 period supports approximately 8,336 jobs. Of these, 3,492 jobs are direct construction jobs associated with the modeled projects. Estimated supplier purchases and household spending support an additional approximately 4,800 jobs.

75 Ryu, Angela, and Shon R. Hiatt. *Data Center Employment Forecast Analysis*. Hamm Institute, Oklahoma State University, November 2025. https://hamminstitute.org/site-files/documents/data_center_workforce.pdf
76 Ferreira, J.-P., Shobe, W., Rephann, T., and Scheffel, M. Economic, Fiscal, and Energy-related Impacts of Data Centers in the Great Lakes Region. January 2026. Center for Economic and Policy Studies, Weldon Cooper Center for Public Service, University of Virginia.
77 Day, Tim, and Nam D. Pham. *Data Centers: Jobs and Opportunities in Communities Nationwide*. Washington, DC: U.S. Chamber of Commerce Technology Engagement Center, May 2017. https://www.uschamber.com/assets/documents/ctec_datacenterrpt_lowres.pdf
78 Barth, Adam et al. "The Data Center Balance: How US States Can Navigate the Opportunities and Challenges." McKinsey & Company, August 2025. https://www.mckinsey.com/industries/public-sector/our-insights/the-data-center-balance-how-us-states-can-navigate-the-opportunities-and-challenges
79 Joint Legislative Audit and Review Commission, *Data Centers in Virginia*, JLARC Report 598. Commonwealth of Virginia, December 2024,. https://virginia.app.box.com/s/3urcj9bn8k26vz47if9wkcu7luipfykt

The statewide construction economic contribution results also illustrate that labor income and value added extend well beyond the construction workforce itself. Recent data center construction paid $778.5 million in labor income on an average annual basis and supported $852.9 million in direct GDP (value added). Indirect and induced effects together add approximately $325.5 million in labor income and $565.6 million in value added. This reflects the broader economic activity generated as construction firms purchase goods and services from Oregon suppliers and as workers spend their earnings throughout the state economy. The total value added supported by data center construction in Oregon was $1.4 billion.

Exhibit 6.6. Estimated Economic Contributions of Oregon Data Center Construction, Statewide, Average Annual 2023-2025

Impact Type	Employment	Labor Income	Value Added	Economic Output
Direct	3,492	$778,500,000	$852,900,000	$1,472,800,000
Indirect	1,416	$116,100,000	$185,200,000	$387,200,000
Induced	3,428	$209,400,000	$380,400,000	$617,900,000
Total	**8,336**	**$1,104,100,000**	**$1,418,500,000**	**$2,477,800,000**

Note: All monetary values are rounded and adjusted to 2025 dollars.
Source: IMPLAN, 2024; ECOnorthwest analysis.

Construction-related economic contributions are concentrated in Eastern Oregon, where most recent data center construction has occurred. Approximately 75 percent of the direct value added from construction is supported in Eastern Oregon, reflecting the concentration of project spending and construction employment on that side of the state. The regional distribution of secondary impacts is broader. Construction projects in Eastern Oregon purchase goods and services from suppliers located elsewhere in the state, including businesses in Oregon's major metropolitan areas, so a portion of the indirect contribution is supported in Western Oregon. Western Oregon also captures the direct and secondary effects associated with data center construction occurring locally. Because the analysis uses a multi-regional input-output framework, the results capture these connections between where data centers are built and where the businesses supplying those projects are located.

Exhibit 6.7. Estimated Economic Contributions of Oregon Data Center Construction, Eastern Oregon, Average Annual 2023-2025

Impact Type	Employment	Labor Income	Value Added	Economic Output
Direct	2,539	$582,300,000	$636,200,000	$1,101,600,000
Indirect	843	$63,400,000	$104,000,000	$218,900,000
Induced	2,373	$139,600,000	$254,300,000	$415,600,000
Total	**5,756**	**$785,300,000**	**$994,500,000**	**$1,736,100,000**

Note: All monetary values are rounded and adjusted to 2025 dollars.
Source: IMPLAN, 2024; ECOnorthwest analysis.

Exhibit 6.8. Estimated Economic Contributions of Oregon Data Center Construction, Western Oregon, Average Annual 2023-2025

Impact Type	Employment	Labor Income	Value Added	Economic Output
Direct	953	$196,200,000	$216,700,000	$371,200,000
Indirect	572	$52,700,000	$81,200,000	$168,300,000
Induced	1,055	$69,800,000	$126,100,000	$202,300,000
Total	**2,580**	**$318,800,000**	**$424,000,000**	**$741,700,000**

Note: All monetary values are rounded and adjusted to 2025 dollars.
Source: IMPLAN, 2024; ECOnorthwest analysis.

Economic Contributions of Different Facility Types

Future data center development, including the timing, size, and configuration of planned facilities, is inherently uncertain. As discussed in the Data Center Overview, S&P's identified development pipeline should not be interpreted as a forecast or a complete inventory of all data center development that could occur in Oregon.[80] Given this uncertainty, the analysis does not estimate the future economic contributions of the identified pipeline. Instead, it presents illustrative estimates for representative wholesale and hyperscale facilities to show how economic contributions may vary by facility type and scale.

These estimates represent a single data center facility, not an entire campus. Data center campuses often contain multiple buildings that share infrastructure and may be developed over several years. The estimates are based primarily on MW capacity because capacity provides a more consistent measure across facility types and is more readily available for planned projects than detailed building-level square footage. Construction estimates also exclude employment associated with the installation of servers and other IT equipment, consistent with the construction methodology used elsewhere in this analysis.

Modeling Inputs and Assumptions

OPERATIONS

Operational estimates use the workforce and wage relationships developed from the Oregon data center employment analysis. A representative hyperscale building is assumed to have 50 MW of capacity compared with 30 MW for a representative wholesale building. The representative hyperscale facility supports approximately 0.85 direct operational workers per MW, compared with approximately 0.47 workers per MW for the wholesale facility.

Applying these relationships results in approximately 43 direct operational employees and $9.8 million in wages for a representative hyperscale facility, compared with 14 employees and $1.7 million in wages for a representative wholesale facility. Property taxes and operational output are scaled using the same facility-type assumptions applied in the current operational model.

Exhibit 6.9. Facility Information and Assumed Per MW Input Assumptions

Assumed Facility Type	HYPERSCALE	WHOLESALE
Average Facility MWs	50	30
Average Facility SF	150,000	250,000
Per MW wages	$196,6000	$57,600
Per MW employment	0.85	0.47
Per MW Property Taxes	$14,600	$37,300

Source: S&P 451 Data Center Database; Oregon Employment Department, 2024; ECOnorthwest analysis.

80 S&P Global 451 Database. (2026). "Data Centers" Accessed online at https://www.spglobal.com/energy/en/products-solutions/451-research-datacenter-knowledgebase

Exhibit 6.10. Estimated Operational Model Inputs by Facility Type

Assumed Facility Type	HYPERSCALE	WHOLESALE
Operational Employment	43	14
Operational Wages	$9,830,000	$1,730,000
Property Taxes	$690,000	$1,150,000
Economic Output	$65,520,000	$11,520,000

Source: S&P 451 Data Center Database; Oregon Employment Department, 2024; ECOnorthwest analysis.

Exhibit 6.11. Estimated Construction Model Inputs by Facility Type

	Jobs	Labor Costs	Total Modeled Construction Cost
Per MW	4	$1,628,000	$3,080,000
Facility Construction Cost			
Hyperscale	190	$77,460,000	$146,550,000
Wholesale	124	$50,420,000	$95,400,000

Source: S&P 451 Data Center Database; Oregon Employment Department, 2024; ECOnorthwest analysis.

CONSTRUCTION

Construction estimates apply the same per-MW assumptions used in the statewide construction analysis. Construction is modeled using four wage-and-salary job-years per MW over the construction period, approximately $1.63 million in labor costs per MW, and approximately $3.08 million in modeled construction spending per MW. This produces approximately $146.6 million in modeled construction costs for a representative hyperscale building and $95.4 million for a representative wholesale building. The initial construction employment inputs are approximately 190 jobs for the hyperscale facility and 124 jobs for the wholesale facility. IMPLAN adds proprietor employment within the construction sector, resulting in the larger direct employment totals reported in the results.

Economic Contributions of a Wholesale Facility

OPERATIONS

A representative wholesale facility supports a relatively modest direct operational workforce. The facility is estimated to directly support 14 jobs and approximately $7.4 million in value added to the Oregon state economy. Purchases from suppliers and spending by workers support an additional 32 jobs through indirect and induced effects. In total, annual operations are associated with approximately 46 jobs, $4.3 million in labor income, $11.9 million in value added, and $21.2 million in economic output statewide.

Exhibit 6.12. Estimated Economic Contributions of Wholesale Facility Operation, Statewide

Impact Type	Employment	Labor Income	Value Added	Economic Output
Direct	14	$1,900,000	$7,400,000	$12,600,000
Indirect	18	$1,500,000	$2,900,000	$6,000,000
Induced	14	$900,000	$1,600,000	$2,600,000
Total	**46**	**$4,300,000**	**$11,900,000**	**$21,200,000**

Note: All monetary values are rounded and adjusted to 2025 dollars.
Source: Oregon Employment Department, 2024; IMPLAN, 2024; ECOnorthwest analysis.

CONSTRUCTION

Construction of a representative wholesale facility supports substantially more employment than its ongoing operations, although this employment is temporary and occurs only during the assumed 24-month construction period. The modeled construction activity directly supports approximately 241 jobs after proprietor employment is included. Indirect and induced effects support another 349 jobs, bringing the total contribution to approximately 590 jobs.

Construction of the representative wholesale building is associated with approximately $75.6 million in labor income and $99.0 million in value added in Oregon. These estimates reflect construction of the building and associated infrastructure and do not include the workforce associated with installing servers or other IT equipment.

Exhibit 6.13. Estimated Economic Contributions of Wholesale Facility Construction, Statewide

Impact Type	Employment	Labor Income	Value Added	Economic Output
Direct	241	$50,400,000	$55,600,000	$95,400,000
Indirect	104	$9,100,000	$14,500,000	$29,300,000
Induced	245	$16,100,000	$29,000,000	$46,600,000
Total	**590**	**$75,600,000**	**$99,000,000**	**$171,300,000**

Note: All monetary values are rounded and adjusted to 2025 dollars.
Source: Oregon Employment Department, 2024; IMPLAN, 2024; ECOnorthwest analysis.

Economic Contributions of a Hyperscale Facility

OPERATIONS

A representative hyperscale building supports a larger operational workforce and economic contribution than the representative wholesale facility. Direct operations support approximately 43 jobs and $36.2 million in value added. Supplier activity supports another 100 jobs, while household spending supports approximately 80 induced jobs.

In total, operation of a representative hyperscale building supports approximately 223 jobs statewide, $24.7 million in labor income, and $60.5 million in value added. The difference between the hyperscale and wholesale estimates reflects the higher assumed power capacity and the higher observed employment and wages per MW for hyperscale facilities in Oregon.

Exhibit 6.14. Estimated Economic Contributions of Hyperscale Facility Operation, Statewide

Impact Type	Employment	Labor Income	Value Added	Economic Output
Direct	43	$11,000,000	$36,200,000	$65,900,000
Indirect	100	$8,500,000	$15,700,000	$32,100,000
Induced	80	$5,300,000	$8,600,000	$13,800,000
Total	**223**	**$24,700,000**	**$60,500,000**	**$111,800,000**

Note: All monetary values are rounded and adjusted to 2025 dollars.
Source: Oregon Employment Department, 2024; IMPLAN, 2024; ECOnorthwest analysis.

CONSTRUCTION

Construction of a representative hyperscale building produces the largest per-facility contribution modeled in this analysis. After proprietor employment is included, direct construction activity supports approximately 370 jobs. Supplier purchases support another 160 jobs, and household spending associated with direct and indirect workers supports approximately 376 induced jobs in the overall statewide economy.

In total, construction of a representative hyperscale building is associated with approximately 906 jobs, $116.2 million in labor income, and $152.1 million in value added. As with the wholesale estimate, these impacts are temporary and correspond to the construction period. They also exclude employment associated with the installation of servers and other IT equipment.

Exhibit 6.15. Estimated Economic Contributions of Hyperscale Facility Construction, Statewide

Impact Type	Employment	Labor Income	Value Added	Economic Output
Direct	370	$77,500,000	$85,400,000	$146,600,000
Indirect	160	$14,000,000	$22,200,000	$45,000,000
Induced	376	$24,700,000	$44,500,000	$71,600,000
Total	**906**	**$116,200,000**	**$152,100,000**	**$263,100,000**

Note: All monetary values are rounded and adjusted to 2025 dollars.
Source: IMPLAN, 2024; ECOnorthwest analysis.

Source: Hrach Hovhannisyan/Shutterstock

SECTION 7

Data Center Fiscal Contributions Extend Beyond Property Taxes

Source: Hrach Hovhannisyan/Shutterstock

Fiscal Contributions and Property Tax Incentives

Most businesses operating in Oregon contribute to state and local revenues through multiple tax streams, including corporate income taxes, the Corporate Activity Tax, and property taxes. Oregon does not impose a general state sales tax, which is particularly relevant for capital-intensive industries such as data centers that make substantial purchases of servers, computing equipment, electrical infrastructure, and other equipment. Depending on the location and type of business, businesses may also make other state and local payments through fees and other mechanisms.

This section examines the fiscal contributions of operating data centers in Oregon, with a focus on property taxes, as well as the role of Oregon's property tax incentive programs in shaping those contributions. Property taxes provide an important source of revenue for local governments and service districts and can be estimated more consistently across operating data centers than other fiscal contributions. Available information on property taxes, exemptions, and other fiscal payments by individual data centers is fragmented across counties and incentive programs. Based on a property-level analysis conducted for this study, approximately $60.24 million in property taxes were imposed on operating data center properties in fiscal year 2025–26. Nearly two-thirds of these property taxes were generated in Washington and Morrow counties. These estimates do not include community service fees, school support fees, or other payments and investments that may be required or negotiated through individual economic development agreements.

Oregon's Property Tax Framework

Property taxes are an important source of revenue for local governments and public service districts in Oregon. County assessment and taxation offices generally assess and collect property taxes and distribute revenues among the taxing districts serving each property. Depending on location, these districts can include counties, cities, school districts, libraries, fire and emergency service districts, parks districts, and other local governments.[81]

Oregon's property tax system distinguishes between a property's real market value (RMV) and assessed value (AV). RMV represents the amount a property could reasonably be expected to sell for in the open market. AV, rather than RMV, generally provides the basis for calculating property taxes and is subject to constitutional limitations established primarily through Measures 5 and 50.[82] Measure 5, approved by Oregon voters in 1990, established constitutional limits on property taxes for education and general government. Measure 50, approved in 1997, established maximum assessed value and generally limits annual growth in that value to 3 percent, although exceptions apply for new construction and major improvements.[83] As a result, a property's assessed value can differ substantially from its real market value. As of fiscal year 2024–25, total assessed value across Oregon counties was, on average, approximately half of total real market value.[84]

For new construction and certain other property changes, taxable value can be added using a county-specific changed property ratio, which reflects the relationship between assessed and real market values for existing property within the county.[85] This feature is particularly relevant for data centers because new facilities can represent substantial additions of buildings and equipment to a local property tax base.

Property taxes are generally calculated by applying the combined levy rates of the taxing districts serving a property to its taxable assessed value, subject to Oregon's constitutional property tax limitations and other applicable adjustments.[86] Data center campuses can include both real and personal property. Real property generally includes land and buildings, while taxable business personal property can include machinery, equipment, and other movable business assets. Real property is generally taxed based on assessed value, while taxable personal property is generally assessed at real market value. This distinction is particularly relevant for data centers because a substantial portion of facility investment can be associated with equipment.

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81 Oregon Department of Revenue. 2026. "Property assessment and taxation." Accessed https://www.oregon.gov/dor/programs/property/pages/personal-property.aspx on June 22, 2026.
82 Oregon Department of Revenue. 2026. "Property assessment and taxation." Accessed https://www.oregon.gov/dor/programs/property/pages/personal-property.aspx on June 22, 2026..
83 Oregon Department of Revenue. 2026. "Property assessment and taxation." Accessed https://www.oregon.gov/dor/programs/property/pages/personal-property.aspx on June 22, 2026..
84 Oregon Department of Revenue. 2026. "Oregon Property Tax Statistics." Accessed https://www.oregon.gov/dor/gov-research/pages/property_tax_statistics.aspx on June 22, 2026.
85 Oregon Secretary of State. 2026. "Oregon Administrative Rules 150-308-0290: Effective Tax Rate". Accessed https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=18449 on June 22, 2026.
86 Oregon Department of Revenue. 2026. "Property assessment and taxation." Accessed https://www.oregon.gov/dor/programs/property/pages/personal-property.aspx on June 22, 2026.

Property Tax Incentives Affect the Timing and Amount of Data Center Property Taxes

Oregon offers several economic development programs that reduce property taxes on qualifying new investments. These programs are intended to encourage business investment and economic development, although this assessment does not estimate whether individual investments would have occurred in Oregon in the absence of an incentive.

Several operating and proposed data centers participate in, or have previously participated in, these programs. The two programs most relevant to large data center investments are the Strategic Investment Program (SIP) and Oregon's Enterprise Zone programs.[87,88]

Property tax exemptions do not necessarily mean that participating businesses make no fiscal contribution during the incentive period. Depending on the program and individual agreement, businesses may continue to pay property taxes on portions of their property and may also make community service fees, school support fees, or other required or negotiated payments.

This distinction is important when interpreting reported tax abatements. The amount of property tax exempted under an incentive program does not, by itself, represent either the total fiscal contribution associated with a participating business or the amount of revenue a jurisdiction would necessarily have received without the incentive. Estimating the latter would require assumptions about whether the investment would have occurred in the same location and at the same scale without the incentive.

Strategic Investment Program

The Strategic Investment Program provides a 15-year partial property tax exemption for qualifying large capital investments by traded-sector businesses in Oregon. Eligibility is based on traded-sector status, as defined by ORS 285B.280, and minimum capital investment requirements. A portion of the investment remains taxable during the exemption period, with the taxable amount increasing over time. For rural SIP projects with total project costs greater than $1 billion, the taxable portion begins at $150 million in the first year.[89]

Participating businesses are also required to pay an annual community service fee. The fee is generally equal to 25 percent of the property taxes that would otherwise be imposed on the exempt property, subject to an annual statutory cap. SIP agreements may also include additional payments or contributions negotiated with county, city, or port governments.[90]

87 Business Oregon. 2026. "Strategic Investment Program (SIP)." Accessed https://www.oregon.gov/biz/programs/sip/pages/default.aspx on June 22, 2026.
88 Business Oregon. 2026. "Enterprise Zones." Accessed https://www.oregon.gov/biz/programs/enterprisezones/pages/default.aspx on June 22, 2026.
89 Business Oregon. 2026. "Strategic Investment Program (SIP)." Accessed https://www.oregon.gov/biz/programs/sip/pages/default.aspx on June 22, 2026.
90 Business Oregon. 2026. "Strategic Investment Program (SIP)." Accessed https://www.oregon.gov/biz/programs/sip/pages/default.aspx on June 22, 2026.

Data on active and approved SIP projects are published under Oregon's transparency reporting requirements. Data centers represent a minority of Oregon's current and proposed SIP projects; other participating industries include semiconductor manufacturing, renewable energy, and biotechnology.[91]

Amazon Data Services–Vadata entered into a SIP agreement with Umatilla County in 2017 covering multiple data center campuses. In fiscal year 2023–24, approximately $46.1 million in property taxes were exempted under the agreement, while the participating properties were assessed approximately $514,000 in property taxes and $7.5 million in SIP-related fees, including the required community service fee and an annual improvement payment.[92]

Amazon Data Services also has a SIP project in Morrow County. A 2023 Business Oregon analysis estimated that over the 15-year agreement period the project could receive approximately $113 million in property tax exemptions while making approximately $82 million in property taxes and other payments. The latter included an estimated $31 million in property taxes, $33 million in community service fees, and $18 million in additional agreement requirements.[93]

Google and related entities have also entered into two SIP agreements with the City of The Dalles and Wasco County for data center investments with an estimated total investment value of approximately $1.2 billion. These agreements include the required community service fee as well as additional negotiated payments.[94]

These examples illustrate an important feature of SIP: the value of property tax exemptions does not provide a complete measure of the fiscal relationship between participating data centers and host jurisdictions because participating projects can simultaneously receive exemptions, pay property taxes on taxable property, and make other required or negotiated payments.

Enterprise Zones

Oregon's Enterprise Zone program provides temporary property tax exemptions for qualifying new business investments. Standard Enterprise Zones (SEZ) generally provide a three-year exemption, with qualifying projects eligible for four- or five-year exemptions through local agreements. Long-Term Rural Enterprise Zones (LRZ) provide exemptions lasting from seven to 15 years. Qualified new property is generally exempt from property taxes during the applicable exemption period and becomes subject to the regular property tax system after the exemption expires.[95]

House Bill 2009, passed in 2023, increased transparency requirements for Enterprise Zone agreements and established additional requirements for certain projects. Among other provisions, the legislation requires SEZ and LRZ agreements to be publicly posted before becoming

91 Business Oregon. May 20, 2026. Strategic Investment Program (SIP) Transparency Reporting. Accessed https://data.oregon.gov/Revenue-Expense/Strategic-Investment-Program-SIP-/tmti-aa3m/about_data on June 22, 2026

92 Business Oregon. May 20, 2026. Strategic Investment Program (SIP) Transparency Reporting. Accessed https://data.oregon.gov/Revenue-Expense/Strategic-Investment-Program-SIP-/tmti-aa3m/about_data on June 22, 2026

93 Fish, Art. June 2, 2023. "Determination of Strategic Investment Program (SIP) Eligibility for Amazon Data Center." Presented to Chair Gopalpur and members of the Oregon Business Development Commission (OBDC). Business Oregon. Accessed https://www.oregon.gov/biz/Publications/Boards/Business%20Oregon%20Commission/2023/AmazonSIPAgendaItem.pdf

94 Office of the City Manager. October 25, 2021. "Regular City Council Meeting: Agenda." City of the Dalles. Accessed https://ompnetwork.s3-us-west-2.amazonaws.com/sites/312/documents/cc_2021-10-25_council_agenda_packet.pdf?Sl8Y0H73gyzwzFq2csLDDtbkmUbmXyBz on June 22, 2026

95 Business Oregon. 2026. "Enterprise Zones." Accessed https://www.oregon.gov/biz/programs/enterprisezones/pages/default.aspx on June 22, 2026.

Source: Rigucci/Shutterstock

effective, requires zone sponsors to notify other local governments when projects may increase infrastructure use within their jurisdictions, and requires school support fees equal to 15 to 30 percent of the exemption for specified years of longer-duration agreements.[96,97,98]

In 2026, the Oregon Legislature enacted House Bill 4084, which made several changes to the Enterprise Zone program that affect data centers. The legislation temporarily prohibits new Enterprise Zone authorizations for data center projects until 90 days after adjournment of the 2027 regular legislative session. It also prohibits data centers from receiving extensions of the standard three-year Enterprise Zone property tax exemption available to other qualifying businesses under ORS 285C.160.[99]

DATA CENTERS ARE MAJOR USERS OF LONG-TERM RURAL ENTERPRISE ZONES

Data centers represent a substantial share of current and proposed Long-Term Rural Enterprise Zone projects. Of 30 current or proposed LRZ projects identified by Business Oregon as of April 2026, 22, or nearly three-quarters, were data centers. As of fiscal year 2023–24, 12of these data center projects had active tax exemptions, while another 10 were proposed but not yet operational. Reported property tax savings associated with data center LRZ projects totaled approximately $233 million in fiscal year 2023–24.[100]

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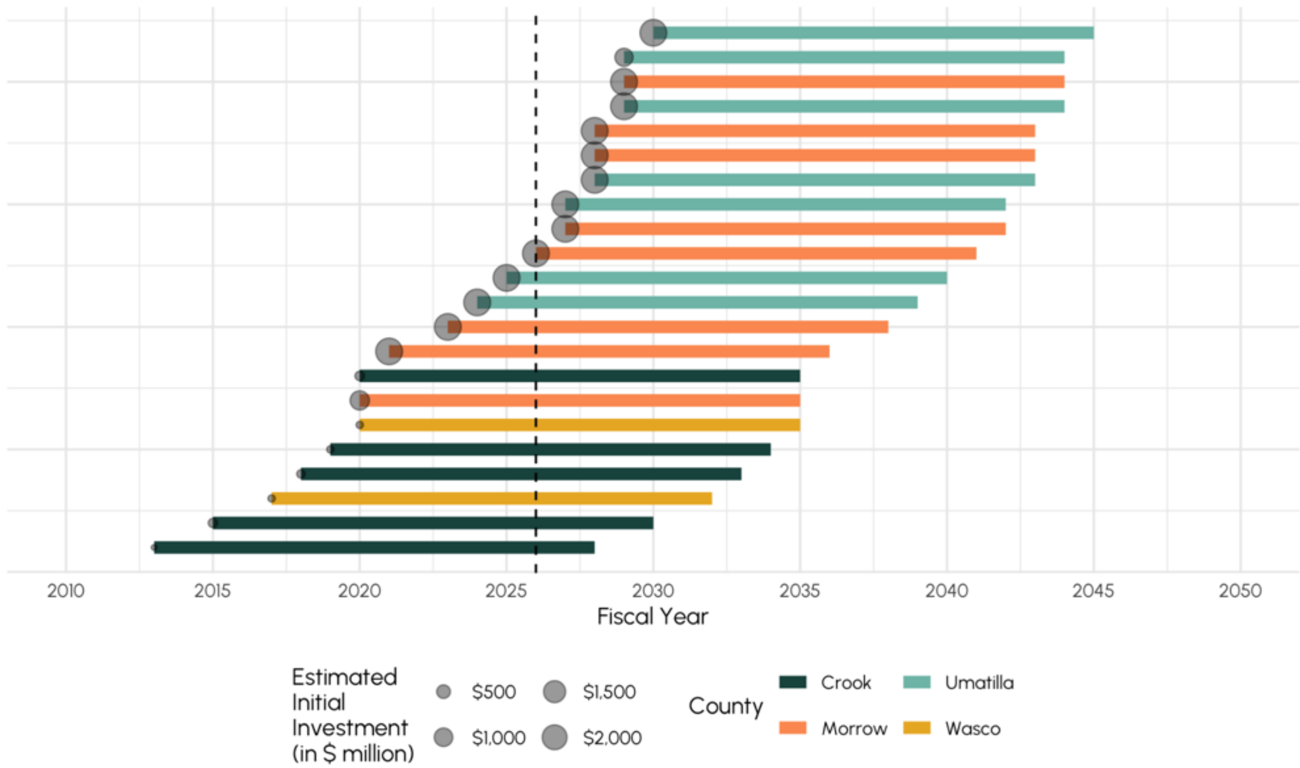
96 Business Oregon. 2026. "Enterprise Zones." Accessed https://www.oregon.gov/biz/programs/enterprisezones/pages/default.aspx on June 22, 2026.
97 Oregon State Legislature. 2023. "Oregon House Bill 2009." Accessed https://olis.oregonlegislature.gov/liz/2023r1/Measures/Overview/HB2009 on August 27, 2026
98 Business Oregon. September 2024. "Basic Facts and Figures about Oregon's Enterprise Zones." In Enterprise Zone Transparency Study. Accessed https://www.oregon.gov/biz/Publications/OR_EZ_Transparency_Study.pdf
99 Oregon State Legislature. 2026. "Oregon House Bill 4084." Accessed https://olis.oregonlegislature.gov/liz/2026R1/Measures/Overview/HB4084 on August 27, 2026
100 Business Oregon. April 23, 2026. "Current and Proposed Long-term Rural Enterprise Zone Facilities." Accessed https://data.oregon.gov/Administrative/Current-and-Proposed-Long-term-Rural-Enterprise-Zo/re77-krua/about_data

Exhibit 7.1. Existing and Proposed Data Center LRZ Exemptions Could Extend into the 2040s



Source: Business Oregon, 2026.

Other industries participating in the LRZ program include food and beverage manufacturing, wood products manufacturing, marine manufacturing, and other industrial activities.[101]

The property taxes and other payments made by individual LRZ projects are more difficult to determine. Agreement terms are negotiated between businesses and local zone sponsors, the agreements are not always readily accessible, and no centralized dataset compiles all agreement terms and associated payments. Unlike SIP transparency reporting, available LRZ reporting does not provide a comprehensive accounting of property taxes paid and other agreement payments by participating projects.[102]

Source: Bilanol/Shutterstock

101 Business Oregon. April 23, 2026. "Current and Proposed Long-term Rural Enterprise Zone Facilities." Accessed https://data.oregon.gov/Administrative/Current-and-Proposed-Long-term-Rural-Enterprise-Zo/re77-krua/about_data

102 Business Oregon. "Enterprise Zones." Accessed https://www.oregon.gov/biz/programs/enterprisezones/pages/default.aspx on June 22, 2026.

CASE STUDY

The Feedville Road Agreement Illustrates Why Tax Abatements Do Not Capture the Full Fiscal Relationship

The 2022 Long-Term Rural Enterprise Zone agreement for Amazon Data Services' proposed Feedville Road development in Umatilla County illustrates why the value of a property tax exemption alone does not provide a complete measure of the fiscal relationship between a data center and its host jurisdictions.

The agreement establishes several payment mechanisms in addition to the LRZ property tax treatment, including an Annual Improvement Payment (AIP), an Additional Annual Fee (AAF), a Public Safety Impact Fee (PSIF), a Student Success Fee (SSF), and a Community Development Contribution (CDC).[103]

Under the agreement, the Annual Improvement Payment is calculated at $5 per square foot, subject to a minimum payment of $1 million. The agreement also establishes a taxable value base used to calculate property taxes during the exemption period. In the first year of operations, this base is expected to be approximately $27.3 million. The Public Safety Impact Fee and Student Success Fee are annual payments that increase over the 15-year exemption period; each is expected to be approximately $54,636 in the first year. The Community Development Contribution requires a one-time $5 million payment to the zone sponsors after construction begins.[104]

Exhibit 7.2. Feedville Road LRZ Agreement Payment Mechanisms

Mechanism	Description	Contribution Amount	One-Time or Recurring
Application Processing Fee	Fee for processing the Company's enterprise zone certificate application	$120,000	One-time — due within 14 days after application approval
Annual Improvement Payment (AIP)	Paid for each "qualifying data center": building within the Facility that has received and maintains an occupancy permit.	Minimum $1 million for each of the first 4 Qualifying DCs, and Minimum total of $2,000,000/year across all Qualifying DCs, or $5/sq ft per qualifying DC	Recurring — each year of the 15-year Exemption Period
Additional Annual Fee (AAF)	Tax code area's ad valorem property tax rate applied to a fixed "AAF Base Amount" set (escalates from taxable value of $27.3M in 2023 to $74.6M in 2057)	Variable (tax rate × Base Amount)	Recurring — each year of the Exemption Period

103 Umatilla County Board of Commissioners. October 5, 2022. "Order No. BCC2022-053." Accessed https://umatillacounty.net/fileadmin/user_upload/BCC/Archived_Agendas/Item21005.pdf on June 22, 2026.

104 Umatilla County Board of Commissioners. October 5, 2022. "Order No. BCC2022-053." Accessed https://umatillacounty.net/fileadmin/user_upload/BCC/Archived_Agendas/Item21005.pdf on June 22, 2026.

Exhibit 7.2. Feedville Road LRZ Agreement Payment Mechanisms *Continued*

Mechanism	Description	Contribution Amount	One-Time or Recurring
Public Safety Impact Fee (PSIF)	Fee supporting public safety services, set on a fixed schedule	$54,636 (2023) rising to $149,261 (2057)	Recurring — each year of the Exemption Period
Student Success Fee (SSF)	Fee supporting local schools/ education, set on a fixed schedule in (mirrors PSIF amounts)	$54,636 (2023) rising to $149,261 (2057)	Recurring — each year of the Exemption Period
Community Development Contribution (CDC)	Payment directly to Zone Sponsors to funds capital improvement projects (potentially including debt service/bond redemption)	$5,000,000	One-time — due within 60 days after construction begins on the first new qualifying DC
Bond Contribution	Contribution toward debt service on future voter-approved "Qualifying Bonds" (for public utilities, education, fire, or public safety services approved on/after Sept. 1, 2022)	Equal to 100% of what the Company would have been assessed on such bonds absent the exemption	Recurring, but variable/ contingent — applies each year of the Exemption Period only if/when a Qualifying Bond is approved
Permit Fees	Standard building and other permit fees related to the Facility, paid like any other industrial development	Standard local permit fee schedule	Recurring/as-incurred — paid as permits are needed throughout construction/operation
Charitable Payment (credit, not a fee)	Not a payment owed to Sponsors — rather, a voluntary payment to approved local charities/nonprofits that the Company may use to offset its AIP/AAF/PSIF/SSF/CDC obligations dollar-for-dollar	Reduces other payments by up to $150,000/year (not an additional cost)	Recurring option — available each year, at Company's discretion
Permit Fees	Standard building and other permit fees related to the Facility, paid like any other industrial development	Standard local permit fee schedule	Recurring/as-incurred — paid as permits are needed throughout construction/operation
Charitable Payment (credit, not a fee)	Not a payment owed to Sponsors — rather, a voluntary payment to approved local charities/nonprofits that the Company may use to offset its AIP/AAF/PSIF/SSF/CDC obligations dollar-for-dollar	Reduces other payments by up to $150,000/year (not an additional cost)	Recurring option — available each year, at Company's discretion

Source: Amazon Data Services Feedville Road LRZ Agreement, 2022

The Feedville Road agreement demonstrates why reported property tax abatements alone do not provide a complete measure of a project's fiscal relationship with host jurisdictions. A more complete accounting requires consideration of three components:

1. Property taxes exempted through the incentive program.
2. Property taxes imposed on property that remains taxable.
3. Other required or negotiated payments and investments.

Together, these components provide a more complete picture of the fiscal contributions associated with the Feedville Road development.

Standard Enterprise Zones

Available transparency reporting for Standard Enterprise Zones provides additional information on the value of property tax exemptions but presents similar challenges in identifying the complete fiscal contributions associated with individual data center projects.

Business Oregon publishes annual information on current and proposed Enterprise Zone projects. However, these data do not consistently identify the type of facility associated with each business, making it difficult to determine whether some projects are data centers or other types of business investments. The reporting identifies property taxes exempted but does not consistently include taxes paid on nonexempt property or other negotiated contributions.[105]

Available reporting also does not provide a complete historical record of data center participation in Standard Enterprise Zones. Some data centers have completed their exemption periods and are now fully subject to property taxation, meaning current Enterprise Zone reporting understates the total number of data centers that have participated in the program over time.[106]

Analysis presented by Business Oregon to the Oregon Data Center Advisory Committee in June 2026 estimated that 20 data center projects participating in Standard Enterprise Zone agreements received approximately $39.1 million in property tax exemptions in fiscal year 2024–25. This estimate reflects property taxes exempted through the program and does not include property taxes imposed on other taxable property or other required or negotiated payments associated with these projects.[107]

Source: Hrach Hovhannisyan/Shutterstock

105 Business Oregon. October 30, 2025. "Enterprise Zone Business Report - Part A, B, C & D." Accessed https://data.oregon.gov/Administrative/Current-and-Proposed-Long-term-Rural-Enterprise-Zo/re77-krua/about_data on June 22, 2026.

106 See examples presented in: Gorman, Mike. January 2023. "2022-23 Property Tax: Morrow County Health District." Morrow County Assessor. Accessed https://www.morrowcountyhealthdistrict.org/2023-01-30-board-of-directors-meeting#docaccess-a5cd6dfde1df972185d4eebcb0bd603c3b8b4cb4d1034686747748a6d36fae3d on August 22, 2026

107 Albertine, Alex and Held, Micheal. June 26, 2026. "Governor's Data Center Advisory Committee: State and Local Incentives." Business Oregon. Accessed https://www.oregon.gov/energy/get-involved/Documents/08-Alex-Albertine-Michael-Held-DCAC.pdf on August 27, 2026.

Public Data Do Not Provide a Complete Accounting of Data Center Fiscal Contributions

No single public data source provides a complete accounting of property taxes, property tax exemptions, required fees, and negotiated payments associated with Oregon data centers. This limitation is not unique to data centers; Oregon's incentive reporting generally tracks specific components of participating businesses' tax treatment rather than providing a comprehensive accounting of all taxes and other payments associated with each business.

Business Oregon reporting provides information on property tax exemptions under certain incentive programs, while county assessment and taxation records provide information on taxes imposed on individual properties. Strategic Investment Program reporting also includes certain fees and other payments required under SIP agreements.[108] However, these sources cannot be consistently linked across every data center, and comparable information on community service fees, school support payments, negotiated payments, and other fiscal contributions is not uniformly available across programs and projects.

The available data therefore measure different components of the fiscal relationship. Property tax records provide information on current tax liability. Incentive program reporting provides information on the value of qualifying property tax exemptions and, in some cases, other required payments. Individual agreements can provide additional detail on negotiated payments and investments, but the agreements and associated payment terms are not compiled consistently statewide.

As a result, neither property taxes imposed nor reported property tax exemptions alone provide a comprehensive measure of the fiscal relationship between Oregon data centers and state and local governments. A more complete accounting would consider three components together: (1) property taxes exempted through incentive programs, (2) property taxes imposed on property that remains taxable, and (3) other required or negotiated payments and investments. Available statewide data do not consistently provide all three components for individual data centers.

A more complete accounting would consider three components together:

(1) Property taxes exempted through incentive programs.

(2) Property taxes imposed on property that remains taxable.

(3) Other required or negotiated payments and investments.

Available statewide data do not consistently provide all three components for individual data centers.

108 Business Oregon. May 20, 2026. Strategic Investment Program (SIP) Transparency Reporting. Accessed https://data.oregon.gov/Revenue-Expense/Strategic-Investment-Program-SIP-/tmti-aa3m/about_data on June 22, 2026

Estimating Property Taxes Imposed on Operating Data Centers

Property taxes associated with operating data centers were estimated using property-level records from county assessment and taxation offices.

The analysis began with operational facilities identified in the S&P data center inventory described earlier in this report as its starting point. For each county with an operating data center, county parcel viewers were used to identify the tax lots associated with individual facilities. County property tax databases were then searched using tax lot identifiers, site addresses, and other available information to identify relevant tax accounts. Real market value, assessed value, and total taxes imposed for fiscal year 2025–26 were compiled for each relevant account.

Tax accounts determined to be unrelated to data center operations were excluded based on available ownership and property information. The resulting dataset contains 166 tax accounts associated with operating data centers across 10 Oregon counties.

Source: Ian Dewer Photography/Shutterstock

Methodological Limitations

The level of detail available in property tax records varies substantially across counties, making it difficult in some cases to determine whether individual tax accounts are associated with a data center. This is particularly challenging for colocation facilities located within larger commercial buildings and for data center operators that use subsidiaries or registered business names that differ from the commonly recognized operator name.

Tax lots containing multiple real property accounts present another challenge. Vacant tax lots were excluded where they appeared to represent potential future data center development rather than operating data centers. For parcels containing operating facilities, the analysis included identifiable land and improvement values associated with the facility.

Personal property accounts also vary across and within counties. Morrow County, for example, has identifiable personal property accounts associated with data center campuses, while comparable accounts are not consistently identifiable for all data center properties in Washington County. Some counties also identify personal property by site address without linking the account to a tax lot. To address these differences, both site addresses and tax lot identifiers were searched independently where possible.

The analysis reports total taxes imposed rather than taxes actually paid. Oregon property owners can receive a 3 percent discount when property taxes are paid in full by November 15 and a 2 percent discount when two-thirds are paid by that date. Because use of these discounts varies, taxes imposed provide a more consistent measure of property tax liability across facilities.[109]

The fiscal year 2025–26 estimates should also be interpreted as a point-in-time snapshot. Data centers are at different stages of their incentive agreements, and property tax liability can change substantially as exemptions begin or expire and as facilities expand. Consequently, statewide data center property tax contributions are likely to change over time.

The analysis does not include fiscal contributions made outside the property tax system because information on these payments is not consistently available to the public. The Feedville Road case study illustrates that these additional payments can be material for individual projects.

Source: Hrach Hovhannisyan/Shutterstock

Oregon Data Centers Were Assessed Approximately $60.24 Million in Property Taxes in FY 2025–26

Approximately $60.24 million in property taxes were imposed on operating data center properties across Oregon in fiscal year 2025–26. Approximately 62 percent of these taxes were imposed in Eastern Oregon, with the remaining 38 percent imposed in Western Oregon.

Morrow County accounted for the largest amount, approximately $22.9 million, followed by Washington County at approximately $20.5 million. Together, the two counties accounted for nearly three-quarters of statewide property taxes imposed on identified operating data center properties. Umatilla County had the third-largest amount at approximately $9.3 million.

109 Oregon Legislature. 2025. "Oregon Revised Statutes 311.505: Due dates". Accessed https://www.oregonlegislature.gov/bills_laws/ors/ors311.html on June 22, 2026.

Exhibit 7.3. Property Taxes Imposed on Data Centers in Oregon by County, FY 2025–26

County	Tax Levied	Tax Accounts	Total Property Tax Collected in County	DC Tax as Share of County Total
Crook	$211,281	30	$48,001,974	0.4%
Deschutes	$233,260	7	$598,761,967	0.0%
Jackson	$5,419	3	$398,323,087	0.0%
Morrow	$22,968,367	18	$71,990,848	31.9%
Multnomah	$2,028,110	29	$2,498,428,332	0.1%
Umatilla	$9,351,701	15	$140,080,906	6.7%
Wasco	$4,860,552	1	$54,810,250	8.9%
Washington	$20,588,084	51	$1,742,567,683	1.2%
East	**$37,625,161.18**			
West	**$22,621,613.04**			
TOTAL	**$60,246,774.22**	**166**		

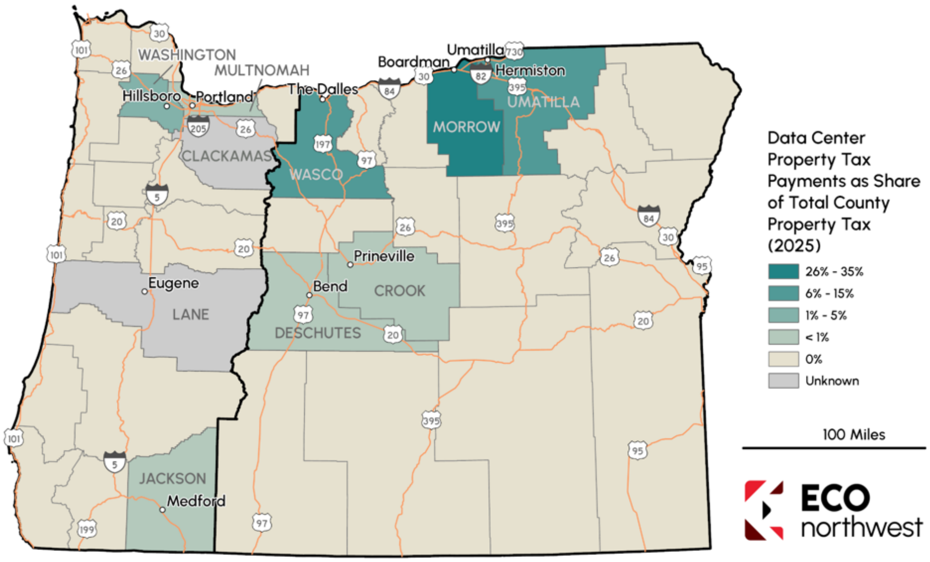
Note: The tax estimate likely understates property taxes imposed on data centers in Oregon. Tax accounts related to data centers were identified by cross-referencing S&P Global 451 Research data to county assessment and taxation records using tax lot boundaries, owner names and site addresses. No tax accounts were identified for4data center locations: 2 in Lane County, 1 in Clackamas County, and 1 in Washington.

Source: U.S. Census Bureau, ACS 2020-2024, 5-year estimates.

Data Centers Represent a Larger Share of the Property Tax Base in Some Eastern Oregon Counties

The relative importance of data center property tax payments differs substantially across host counties. In Morrow County, property taxes imposed on identified data center properties were equivalent to nearly 32 percent of all property taxes levied countywide in fiscal year 2025–26. Washington County had a broadly similar amount of data center property taxes, but data centers represented approximately 1.2 percent of total property taxes levied in the county.

Exhibit 7.4. Data Center Property Taxes as a Share of Total County Property Taxes, FY 2025–26



ECO northwest

Note: Corresponding tax accounts could not be identified for 4 operational data center facilities: 2 in Lane County, 1 in Clackamas County, and 1 in Washington County. As a result, the property tax estimates presented here are likely to understate total property taxes imposed on Oregon data centers.

Source: ECOnorthwest analysis of county assessment and taxation records, 2026.

This difference reflects the much larger overall property tax base in Washington County and reinforces a broader finding of this assessment: the fiscal significance of data centers can differ substantially across Oregon. Data centers represent a considerably larger share of the local property tax base in some Eastern Oregon host counties than in the larger and more diversified economies of Western Oregon.

Interpretation

Operating data centers generate substantial property tax revenues in Oregon, although the fiscal significance of those revenues varies considerably across host communities. Property tax contributions are particularly important in some Eastern Oregon counties, where data centers represent a much larger share of the local property tax base than in Western Oregon.

Property taxes alone, however, do not provide a complete measure of the industry's fiscal relationship with state and local governments. Some data centers receive temporary exemptions on qualifying investments through SIP or Enterprise Zone agreements while continuing to pay taxes on nonexempt property and make required or negotiated payments. The Feedville Road agreement illustrates how a single incentive agreement can combine a property tax exemption with multiple other payment mechanisms.

Oregon's lack of a general sales tax provides another important piece of fiscal context. Large purchases of servers and other data center equipment do not generate the state and local sales tax revenues that would apply in many other states, although some peer states provide data center-specific sales tax exemptions that reduce or eliminate these tax liabilities (see Section 9 Oregon's Competitive Position and Peer Markets).

Available public records do not allow these different revenues, exemptions, and payments to be consistently reconciled at the facility level. The estimates presented here therefore provide a statewide snapshot of property taxes imposed on identifiable operating data center properties rather than a comprehensive accounting of all public revenues generated by the industry or an estimate of the net fiscal effects of Oregon's incentive programs..

SECTION 8

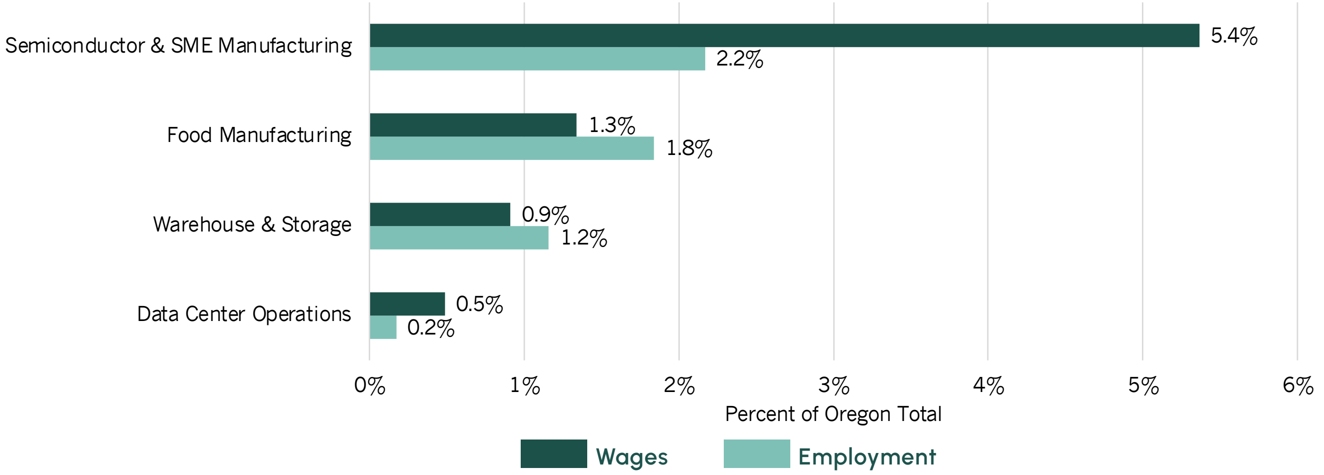
Oregon Data Centers in Economic Context

Source: Hrach Hovhannisyan/Shutterstock

Data centers have a different economic profile than many of Oregon's more established industrial sectors. To provide context for the industry's economic contribution, data center operations can be compared with several industries that are important components of Oregon's industrial economy, including semiconductor and related manufacturing, food manufacturing, and warehousing and storage. These industries were selected because they are established in Oregon, significant users of industrial land, and/or have traditionally benefited from Oregon's property tax incentive programs. These comparisons are not intended to identify alternative uses for individual sites or estimate the economic activity that would occur in the absence of data center development. Rather, they provide context for understanding the relative scale and characteristics of the industry's economic contribution.

At the statewide level, data centers represent a relatively small share of Oregon's employment and wages compared with the other industries examined. Data center operations account for approximately 0.2 percent of statewide employment and 0.5 percent of statewide wages. By comparison, semiconductor and associated manufacturing accounts for 2.2 percent of statewide employment and 5.4 percent of statewide wages. Food manufacturing accounts for 1.8 percent of employment and 1.3 percent of wages, while warehousing accounts for 1.2 percent of employment and 0.9 percent of wages. These comparisons illustrate the relatively small operational workforce associated with data centers at the statewide level. This reflects an important characteristic of data center operations: facilities require substantial capital investment but relatively small permanent workforces. As a result, employment alone provides an incomplete measure of the industry's economic significance.

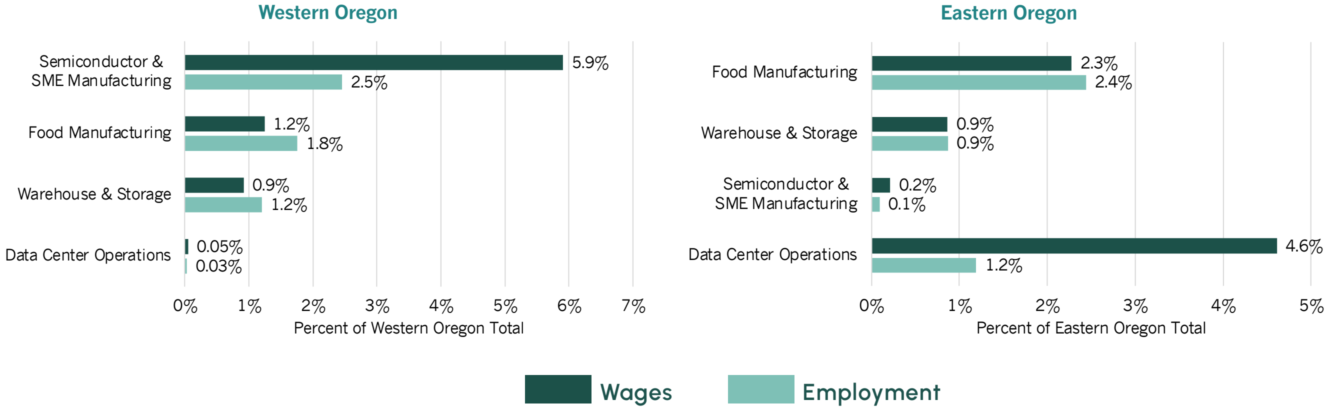
Exhibit 8.1. Data Centers Account for a Relatively Small Share of Statewide Employment and Wages



Source: Oregon Department of Employment, 2024; ECOnorthwest analysis.

The relative importance of data centers changes considerably when viewed at the regional level. In Western Oregon, data centers account for approximately 0.03 percent of regional employment and 0.05 percent of wages, substantially smaller shares than each of the comparison industries. In Eastern Oregon, however, data centers account for approximately 1.2 percent of employment and 4.6 percent of wages. Data center operations account for a larger share of Eastern Oregon wages than semiconductor and related manufacturing, food manufacturing, and warehousing and storage combined. These comparisons illustrate the considerably larger role of data centers in the Eastern Oregon economy, particularly in terms of total wages.

Exhibit 8.2. Data Centers Account for a Larger Share of Regional Wages and Employment in Eastern Oregon



Source: Oregon Department of Employment, 2024; ECOnorthwest analysis.

These differences illustrate how statewide comparisons can obscure the economic significance of an industry that is highly geographically concentrated: data center operations represent a small share of Oregon's overall employment and wages but a substantially larger share of economic activity in the parts of Eastern Oregon where data center development is concentrated.

Employment and wages provide important measures of an industry's economic footprint, but they do not capture the full value of the economic activity generated by an industry.

At the statewide level, data center operations account for 2,630 direct operational employees, $622 million in labor income, and $2.4 billion in value added. This translates to approximately 0.7 percent of Oregon's total value added, compared with 3.2 percent for semiconductor and related manufacturing (which is among Oregon's five largest industries by value added), 1.0 percent for food manufacturing, and 0.4 percent for warehousing and storage. Relative to their share of statewide employment (0.1% when including proprietors), data centers account for a larger share of value added, reflecting the industry's relatively high level of economic activity per worker.

Exhibit 8.3. Data Center Operations Account for a Larger Share of Statewide Value Added Per Employee than Comparable Industries

	Semiconductor & SME Manufacturing	Food Manufacturing	Warehouse & Storage	Data Center Operations
Employment	1.0%	1.2%	0.7%	0.1%
Labor Income	2.9%	1.0%	0.6%	0.3%
Value Added	3.2%	1.0%	0.4%	0.7%

Source: IMPLAN, 2024; ECOnorthwest Analysis

Data centers support a smaller operational workforce than the comparison industries statewide, but their share of wages and value added is larger relative to their employment footprint. This reflects the capital-intensive nature of data center operations: economic activity is generated through a combination of labor and substantial investments in facilities, equipment, and other capital rather than through a large operational workforce alone.

These comparisons illustrate the economic profile of data centers relative to other established Oregon industries. Statewide, data centers account for a relatively small share of employment and wages but a comparatively larger share of value added. Their significance also varies substantially by geography, with data centers accounting for a considerably larger share of employment and wages in Eastern Oregon than in Western Oregon. These differences highlight the importance of considering multiple measures of economic contribution and regional context when evaluating the role of data centers in Oregon's economy.

SECTION 9

Oregon's Competitive Position and Peer Markets

Source: aminphotoz/Shutterstock

Oregon Competes for Data Center Investment Based on a Combination of Infrastructure, Operating Costs, and Tax Treatment

Data centers can theoretically locate in many regions, but large-scale facilities have specific infrastructure and operating requirements that substantially narrow the set of competitive locations. Research on data center siting consistently identifies electricity cost and availability, telecommunications infrastructure, land availability and cost, cooling conditions, water availability, and tax and regulatory conditions as factors that influence where facilities locate.[110] The relative importance of these factors varies by facility type. Colocation facilities tend to place greater value on proximity to customers and major network hubs, while hyperscale facilities have greater flexibility to locate farther from major population centers in exchange for lower electricity and land costs and greater opportunities for expansion.[111]

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110 Choi, S. J., Seong, K., & Jiao, J. (2025). *Unveiling the secret: Investigating data center siting by major ICT companies in the U.S.* [Unpublished manuscript]. Department of Geography, Planning, and Recreation, Northern Arizona University & School of Architecture, The University of Texas at Austin.; Fang, T. P., & Greenstein, S. (2025). *Where the cloud rests: The economic geography of data centers* (Working Paper No. 21-042). Harvard Business School,. Goiri, Í., Le, K., Guitart, J., Torres, J., & Bianchini, R. (2011). Intelligent placement of datacenters for Internet services. In *2011 31st International Conference on Distributed Computing Systems* (pp. 131–142). IEEE. https://doi.org/10.1109/ICDCS.2011.19,.

111 Fang and Greenstein, 2025

This distinction is particularly relevant in Oregon. Hillsboro functions as an established data center market with access to the Portland metropolitan area, major fiber infrastructure, and trans-Pacific network connections. Eastern Oregon, by comparison, more closely reflects the siting model of large hyperscale campuses: relatively inexpensive and available land, access to electricity historically associated with the Columbia River hydropower system, a cool climate, fiber connectivity, and state and local tax incentives. Oregon's lack of a general sales tax provides an additional cost advantage for capital-intensive facilities that purchase large quantities of equipment.

These characteristics do not make Oregon unique. Other major and emerging data center markets offer different combinations of the same underlying advantages. To provide context for Oregon's competitive position, this assessment considers three comparable peer markets: Quincy, Washington; Central Ohio; and the Minnesota (Twin Cities area) market. These markets are not intended to represent all locations competing with Oregon for data center investment or to identify Oregon's closest competitors. Rather, they were selected to illustrate different combinations of energy, land, climate, infrastructure, water, and tax conditions that have supported significant data center development. Quincy provides a particularly relevant comparison for Eastern Oregon, while Central Ohio and Minnesota illustrate alternative models for large-scale data center development in other regions of the country.

Quincy Provides the Closest Comparison to Eastern Oregon

Quincy and the broader central Washington market provide perhaps the most direct comparison with Eastern Oregon. Like Boardman and Umatilla, Quincy is a relatively small community that developed into a major hyperscale data center location despite its distance from a major metropolitan technology center. Its competitive advantages include large parcels of developable land, extensive fiber infrastructure, a cool and relatively dry climate, and access to low-cost hydroelectric power through the local public utility district.[112]

Washington also provides tax treatment specifically designed for data centers. Qualifying facilities can receive sales and use tax exemptions for eligible server equipment, power infrastructure, and installation labor. The program was modified in 2026, including changes affecting replacement and refurbishment equipment, but remains an important element of Washington's data center tax structure.[113]

The comparison with Quincy is useful because many of the underlying economic fundamentals are similar on both sides of the Columbia Basin. Both markets demonstrate that rural locations can compete successfully for hyperscale facilities when inexpensive electricity, sufficient infrastructure, land, fiber connectivity, and favorable tax treatment occur together.

112 Donofrio, Joel. "Future Harvests: How Quincy Became a Data Center Boomtown." Yakima Herald-Republic, May 30, 2026. https://www.yakimaherald.com/news/topics/future_harvests/future-harvests-how-quincy-became-a-data-center-boomtown/article_9306f58b-5d0c-4ff0-9025-b17d923867a0.html.

113 Washington State Department of Revenue. "Modification to Sales and Use Tax Exemption for Rural Data Centers." Issued June 3, 2026. https://dor.wa.gov/forms-publications/publications-subject/special-notices/modification-sales-and-use-tax-exemption-rural-data-centers.

Central Ohio Illustrates a Different Hyperscale Model

Central Ohio has emerged as a major hyperscale market under a different set of conditions. Rather than relying on Columbia Basin hydropower, the region benefits from its location within the large PJM electricity market, extensive fiber infrastructure, available land, proximity to major Midwestern population centers, and state tax incentives.[114] Ohio has provided qualifying computer data centers with sales and use tax exemptions for eligible equipment, including installation and repair costs, although consideration of new exemption requests was paused in May 2026 while state policymakers reviewed the program.[115]

Ohio is therefore a useful comparison because it demonstrates that there is no single formula for a successful data center market. Oregon's relatively cool climate and historically inexpensive hydropower are advantages, but other regions can compensate with access to large power markets, central geography, extensive telecommunications infrastructure, and competitive tax treatment.

Minnesota Combines a Cool Climate with a Different Resource and Policy Environment

Minnesota provides another useful comparison because it shares several physical advantages with Oregon while differing in its energy, water, and tax environment. The Minneapolis market offers a cool climate, established fiber infrastructure, a substantial technology workforce, and relatively abundant freshwater resources. Minnesota has also provided a long-duration sales tax exemption for qualifying data center equipment and software, although electricity purchases no longer qualified for the exemption beginning in July 2025.[116]

Minnesota has simultaneously moved toward greater environmental and energy oversight of data center development, including additional requirements for high-water-use projects. Its experience illustrates how the competitiveness of a data center market reflects both resource availability and the evolving policies governing access to those resources.

114 Lade, Gabriel E. "Ohio's AI Boom: An Economist's Perspective on Data Centers." Ohio's Country Journal, May 26, 2026. https://ocj.com/2026/05/ohios-ai-boom-an-economists-perspective-on-data-centers/.

115 Ohio Laws. "Section 122.175 | Tax Exemption for Sale, Storage, Use, or Other Consumption of Computer Data Center Equipment." Ohio Revised Code, effective September 30, 2025. https://codes.ohio.gov/ohio-revised-code/section-122.175.; DeWine, Mike. "Governor DeWine Announces Pause of Data Center Tax Exemption." Office of the Governor, State of Ohio, May 27, 2026. https://governor.ohio.gov/media/news-and-media/governor-dewine-announces-pause-of-data-center-tax-exemption.

116 Minnesota Department of Employment and Economic Development. "Data Center Sales Tax Exemptions." Accessed June 22, 2026. https://mn.gov/deed/business/financing-business/tax-credits/data-center-credit/.

Oregon's Competitive Position Reflects the Combined Cost of Operating and Investing

The peer comparison suggests that tax incentives are one component of data center siting economics rather than an isolated explanation for development. Large data centers face substantial upfront costs for land, buildings, electrical infrastructure, cooling systems, and computing equipment, as well as ongoing expenditures for electricity, cooling, maintenance, connectivity, and labor. Electricity is particularly important because facilities operate continuously and large hyperscale campuses can represent hundreds of megawatts of demand. Research therefore consistently identifies electricity prices and reliable access to sufficient power as major determinants of data center location.[117]

Land economics can also matter substantially for hyperscale development. Large campuses require enough land for multiple buildings, substations, cooling equipment, backup systems, and future expansion. This favors locations where large industrial parcels can be assembled at relatively low cost. Choi et al. (2025), for example, find substantially lower land values among the more peripheral data center locations in their national analysis.

Climate and water interact with these operating costs. Cooler ambient temperatures can reduce cooling requirements and increase the number of hours during which facilities can use outside air or other lower-energy cooling approaches. Water availability can also influence siting for facilities using evaporative cooling, although water requirements vary substantially by cooling technology and facility design.[118]

Tax structures affect another component of the cost equation. Oregon's absence of a general sales tax is potentially significant for an industry that makes unusually large purchases of servers and other equipment. Washington, Minnesota, and Ohio impose sales taxes but have created exemptions for qualifying data center investments. Oregon has instead historically supplemented its underlying no-sales-tax environment with property tax incentives through Enterprise Zones and the Strategic Investment Program.

These differences make comparisons based only on the nominal value of a particular tax exemption potentially misleading. A jurisdiction offering a large sales tax exemption may simply be reducing a tax liability that would not exist in Oregon, while property tax treatment can differ substantially across locations and over the life of a facility. A more complete comparison therefore considers the combined tax structure alongside the underlying costs of electricity, land, cooling, infrastructure, and other inputs.

117 Goiri et al., 2011; Fang and Greenstein, 2025

118 Choi et al., 2025; Goiri et al., 2011; Lei, N., Lu, J., Cheng, Z., Cao, Z., Shehabi, A., & Masanet, E. (2023). Geospatial assessment of water footprints for hyperscale data centers in the United States. Journal of Physics: Conference Series, 2600(17), 172003. https://doi.org/10.1088/1742-6596/2600/17/172003

Peer Markets Suggest There Is No Single Siting Advantage

The available research does not establish how much weight individual companies assign to each siting factor, and detailed corporate site-selection models and cost structures are generally proprietary. The existing literature also provides limited evidence isolating the causal effect of tax incentives from other characteristics that make a location attractive. For example, jurisdictions offering favorable tax treatment may simultaneously have inexpensive electricity, available industrial land, established data center clusters, or infrastructure specifically developed to accommodate large loads.

Exhibit 9.1 compares publicly available indicators across five representative geographies for several factors commonly considered in data center siting, including electricity costs, climate, tax treatment, existing data center activity, and water conditions. The metrics are intended to provide a high-level comparison of the broader operating and investment environment in each market rather than to estimate the actual costs faced by a particular facility. In practice, large data center projects may receive negotiated electricity rates, tax agreements, infrastructure commitments, or other project-specific terms that are not publicly available and are therefore not reflected in the exhibit. Because comparable measures of local water-system capacity are not available across peer markets, WRI Aqueduct baseline water stress is used as a standardized screening indicator of potential water-resource constraints and is supplemented with market-specific information on water supply and infrastructure.

Exhibit 9.1. Data Center Competitiveness Reflects Multiple Siting Factors

Siting Factor	Eastern Oregon (Columbia River)	Hillsboro	Quincy, Washington	Central Ohio	Minnesota (Twin Cities area)	Data Description
Estimated number of facilities (10-mile radius)[1]	25	44	27	52	20	Number of datacenters within a 10-mile radius of market center (as reported by datacenters.com directory).
Industrial Electricity cost ($/kWh)	$0.0597	$0.0885	$0.0398	$0.1177	$0.0974	Industrial electricity prices by ZIP code. Data represent utility-wide averages, not negotiated large-load rates. Prices do not reflect the availability of capacity to serve new large loads, which can also be an important siting consideration.
Cooling Degree Days (base 65F)	676	508	725	1068	830	Higher value indicates warmer conditions (less favorable for DC development). Annual CDD, base 65F (NOAA 1991-2020 normals). Eastern Oregon and Quincy figures are proxy-station estimates. See notes for stations.

Exhibit 9.1. Data Center Competitiveness Reflects Multiple Siting Factors *Continued*

Siting Factor	Eastern Oregon (Columbia River)	Hillsboro	Quincy, Washington	Central Ohio	Minnesota (Twin Cities area)	Data Description
Sales tax rate (combined state + local)	0.0%	0.0%	8.2%	8.0%	8.125%	Combined general retail sales-tax rate at representative location; actual tax treatment of data-center equipment shown separately below.
DC Equipment sales-tax treatment[2]	No state/local sales tax	No state/local sales tax	**Yes** – under Washington's rural data center program; eligible new construction continues to receive exemptions for qualifying server equipment and power infrastructure. Effective July 1, 2026, refurbishment no longer qualifies and replacement server equipment is no longer eligible. RCW 82.08.986 / 82.12.986.	**Yes** - complete or partial sales and use tax exemptions may be provided through agreements approved under ORC 122.175. In May 2026, Governor DeWine directed the Ohio Tax Credit Authority to pause consideration of new data center exemption requests while the state reviews the program.	**Yes** – Yes — qualified data centers, including a new qualified large-scale data center category, may receive sales tax exemptions on qualifying equipment and software for up to 35 years. Electricity ceased qualifying for the exemption July 1, 2025. Minn. Stat. § 297A.68, subd. 42.	See footnote for sources reviewed
Property tax incentives[3]	**Yes** - projects have used the LTREZ and SIP. The 2026 temporary restriction on new data center Enterprise Zone authorizations does not apply to LTREZ or SIP.	**Yes** - projects have historically used the SEZ and SIP. New SEZ authorizations for data centers are temporarily prohibited under HB 4084 (2026); Hillsboro separately paused consideration of new SIP agreements for data centers for 180 days beginning in July 2026.	No broad data-center-specific property-tax exemption identified; data-center real and personal property generally remains taxable. Data centers account for approximately 57% of Quincy's property-tax base, per reporting.	**Yes** - Community Reinvestment Area, up to 100% for 15 yrs (30 for megaprojects).	**Yes**, city-level – Rosemount entered a 20-year tax-abatement agreement with Meta under which the City retains the first $1 million in annual property-tax revenue and may rebate amounts above that threshold.	See footnote for sources reviewed
WRI aqueduct baseline water stress (score 0=Low to 5=Extremely High)	**Low** (score 0.0/5)	**Low** (score 0.0/5)	**Extremely High** (score 5.0/5); see "water supply considerations"	**Medium - High** (score 2.8/5)	**Low** (score 0.4/5)	WRI Aqueduct 4.0 baseline water stress category (score 0=Low to 5=Extremely High). This basin-scale screening metric compares water withdrawals with available renewable water supply and provides a standardized indication of where competition for water resources may be greater. It does not measure site-specific water availability, groundwater conditions, water rights, or water-system capacity and reliability.

Exhibit 9.1. Data Center Competitiveness Reflects Multiple Siting Factors *Continued*

Siting Factor	Eastern Oregon (Columbia River)	Hillsboro	Quincy, Washington	Central Ohio	Minnesota (Twin Cities area)	Data Description
Water supply considerations[4]	Amazon agreed to pay $20.5M (Mar 2026), without admitting liability, to settle claims tied to Port of Morrow wastewater reused for data-center cooling.	Single-source supply via the Joint Water Commission (no backup source if disrupted); data centers were about 1.76% of Hillsboro's total 2025 water demand.	Despite high basin-scale Aqueduct stress, Quincy's local supply system is more nuanced. The city historically relies on groundwater and has developed a water-reuse system for data-center cooling. The Quincy Water Reuse Utility recycles Microsoft cooling water and uses Columbia Basin Project irrigation water as makeup supply.	MORPC Central Ohio Regional Water Study projects substantial growth in industrial water demand region-wide (2021-2050), explicitly citing data-center growth as a driver.	Growing concern around water availability in the region. Meta's Rosemount facility is estimated to draw ~100,000 gal/day at peak usage from city groundwater (closed-loop cooling).	See footnote for sources reviewed

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2: Oregon Department of Revenue. "Sales Tax." Accessed 2026. https://www.oregon.gov/dor/programs/businesses/pages/sales-tax.aspx; Washington State Legislature. "RCW 82.08.986 - Exemptions - Sales of Eligible Data Center Equipment." https://app.leg.wa.gov/rcw/default.aspx?cite=82.08.986; Washington State Legislature. "RCW 82.12.986 - Exemptions - Use of Eligible Data Center Equipment." https://app.leg.wa.gov/rcw/default.aspx?cite=82.12.986; Washington State Legislature. "Engrossed Substitute Senate Bill 6231, 2026 Session." https://app.leg.wa.gov/BillSummary/?BillNumber=6231&Year=2025&Initiative=false; Ohio Revised Code. "Section 122.175 - Tax Incentives for Data Center Businesses." https://codes.ohio.gov/ohio-revised-code/section-122.175; Ohio Department of Development, Tax Credit Authority. Meeting Minutes, October 28, 2024. https://dam.assets.ohio.gov/image/upload/development.ohio.gov/about/taxcreditminutes/Meeting_Minutes_10.28.24.pdf; Minnesota Statutes. "Section 297A.68, Subdivision 42 - Qualified Data Centers." https://www.revisor.mn.gov/statutes/cite/297A.68; Minnesota Department of Revenue. "Qualified Data Centers." Accessed 2026. https://www.revenue.state.mn.us/qualified-data-centers

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Note: See Section 7 for details on Oregon property tax programs. Tax policies and incentive programs affecting data centers are evolving rapidly. Tax treatment shown reflects policies and actions identified as of August 2026 and may change as temporary moratoria, legislative reviews, and other policy processes proceed. The exhibit is not intended to provide an exhaustive assessment of data center siting conditions. Other factors, including available electricity and transmission capacity, land availability and cost, fiber connectivity, workforce conditions, permitting requirements, and project-specific infrastructure needs, may also influence siting decisions but cannot be consistently quantified across peer markets.

Sources: Huggins, Jay. "U.S. Electric Utility Companies and Rates: Look-up by Zip Code (2024)." National Renewable Energy Laboratory, Open Energy Data Initiative, November 10, 2025 (utility rates as reported to the U.S. Energy Information Administration, EIA-861). https://data.openei.org/submissions/8563; National Centers for Environmental Information. "U.S. Climate Normals 1991-2020." National Oceanic and Atmospheric Administration. https://www.ncei.noaa.gov/access/services/data/v1?dataset=normals-monthly-1991-2020; Climate-Charts.com. "NOAA Monthly Climate Normals by Station." Accessed August 2026. https://climate-charts.com; Oregon Department of Revenue. "Sales Tax." Accessed 2026. https://www.oregon.gov/dor; Washington State Department of Revenue. "Local Sales & Use Tax Rate Flyer, Q1 2026." https://dor.wa.gov/sites/default/files/2025-11/Q126_LSU_flyer.pdf; Ohio Department of Taxation. "Sales and Use Tax Rate Exhibits." Accessed 2026. https://tax.ohio.gov/business/sales-and-use-tax/rate-tables; Minnesota Department of Revenue. "Local Sales and Use Tax Rate Guide, 2026 Q3." https://www.revenue.state.mn.us/sites/default/files/2026-05/local-sales-and-use-tax-rate-guide-2026-q3.pdf; Kuzma, S., et al. "Aqueduct 4.0: Updated Decision-Relevant Global Water Risk Indicators." World Resources Institute, 2023. https://www.wri.org/data/aqueduct-global-maps-40-data.

Tax treatment across peer markets is also changing rapidly. Since 2025, Washington and Minnesota have modified the scope of data center sales tax exemptions, Ohio has paused consideration of new data center sales tax exemption requests, and Oregon has temporarily restricted new Standard Enterprise Zone authorizations for data centers. These changes reinforce that Oregon's competitive position is shaped by an evolving combination of tax policy, electricity availability and cost, infrastructure, and resource conditions rather than a fixed set of incentives.

Electricity availability is likely to remain an important factor in data center siting as large-load growth places increasing demands on generation and transmission systems. Oregon's competitive position therefore depends not only on electricity prices but also on whether utilities can provide large blocks of power and supporting infrastructure on timelines that align with project development. These challenges are not unique to Oregon; major data center markets across the country are confronting similar constraints as electricity demand grows.

The peer comparison nevertheless illustrates an important point: large data center markets generally offer several complementary advantages rather than a single dominant factor. Eastern Oregon and Quincy combine low-cost power, land availability, cool climates, fiber connectivity , and favorable tax treatment. Hillsboro combines network connectivity and access to a major metropolitan technology ecosystem with Oregon's tax environment. Central Ohio combines extensive power and telecommunications infrastructure with available land and targeted tax incentives. Minnesota combines a cool climate, relatively low basin-scale water stress, infrastructure, workforce access, and data center-specific tax treatment.

The peer markets therefore suggests that there is no single formula for attracting data center investment. Oregon and competing markets offer different combinations of electricity costs, infrastructure, land, climate, water conditions, and tax treatment. As data center electricity demand grows, the ability to provide sufficient electricity and supporting infrastructure at a competitive cost and within a competitive timeline may become increasingly important to Oregon's position relative to other data center markets.

For Oregon, this means that changes in any single factor, including tax policy, occur within a broader competitive environment. Oregon's historical advantages have included relatively low-cost electricity, a cool climate, available land in some markets, strong fiber connectivity, no general sales tax, and property tax incentive programs. However, both the infrastructure and tax-policy conditions affecting future development are evolving. Increasing demands on electricity supply and infrastructure capacity could affect the state's relative competitiveness, while recent state and local actions have temporarily restricted or paused access to some property tax incentive programs for new data center development. The importance of any tax incentive therefore depends in part on both the policies available at a given point in time. It also depends on how Oregon compares with alternative locations across the full set of costs and infrastructure requirements facing a prospective data center.

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SECTION 10

Synthesis and Considerations for Oregon Policy

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Data centers combine relatively limited direct operational employment with substantial capital investment, economic activity, electricity demand, and infrastructure requirements. The significance of these benefits and demands varies substantially by location, facility characteristics, and the geographic scale at which they are evaluated. The findings below synthesize the implications of these characteristics for Oregon.

What the Findings Mean for Oregon

The significance of data center development in Oregon is highly dependent on location.

Statewide measures can obscure the significance of data center development to the regions and communities where facilities are concentrated. Oregon's data centers account for approximately 0.2 percent of statewide employment and 0.5 percent of statewide wages. In Western Oregon, the shares are even smaller, at approximately 0.03 percent of employment and 0.05 percent of wages. In Eastern Oregon, however, data centers account for approximately 1.2 percent of employment and 4.6 percent of wages, reflecting the concentration of large facilities in that region.

The same pattern is evident in the industry's physical and fiscal footprint. Eastern Oregon accounts for approximately 84 percent of the land area associated with the operational and decommissioned data centers evaluated in this study. Property tax contributions also vary substantially in their local significance: approximately $23 million in property taxes were imposed on data centers in Morrow County in fiscal year 2025–26, equivalent to nearly 32 percent of all property taxes imposed countywide. Washington County received a similar amount, approximately $20.5 million, but data centers accounted for only about 1.2 percent of the countywide total.

These differences demonstrate why the significance of data center development cannot be fully understood from statewide totals alone. The same amount of investment, employment, or tax revenue can have very different implications depending on the size and characteristics of the host economy, while land, infrastructure, and resource considerations similarly depend on local conditions. Regional and local context is therefore important for interpreting both the benefits and demands associated with data center development. Those benefits and demands may also occur at different geographic scales. Property taxes and certain community payments accrue to specific jurisdictions, while construction activity, supplier purchases, and household spending can extend across a broader region. Similarly, land and some public service impacts are highly localized, while electricity demand can require infrastructure and resources extending beyond the jurisdiction hosting a facility.

The economic significance of data centers extends beyond job creation.

Data centers support relatively few permanent jobs compared with the scale of their capital investment and infrastructure requirements, but employment alone does not capture their economic contribution. Oregon's data centers directly employ approximately 2,630 operational workers and account for a relatively small share of statewide employment. At the same time, those operations pay an estimated $622 million in direct labor income and $2.4 billion in direct value added. When supplier and household-spending effects are included, existing operations support an estimated 10,400 jobs, $1.17 billion in labor income, and approximately $3.5 billion in value added statewide.

Construction adds a second, substantial source of economic activity. Based on data center capacity added between 2023 and 2025, recent construction supports an estimated 3,500 direct jobs annually and approximately 8,300 jobs statewide after supplier and household-spending effects are included. It also generates about $1.1 billion in labor income and $1.4 billion in value added each year. Although construction employment is temporary for any individual project, the scale and overlap of recent development have made construction activity more sustained, with new facilities and phases beginning as others are completed. As long as the development pipeline remains active, construction can therefore function as an ongoing source of employment and economic activity.

These findings demonstrate that employment is only one measure of the industry's economic significance. Data centers generate economic contributions through wages and household spending, purchases from Oregon businesses, and fiscal contributions, while also requiring substantial electricity and other infrastructure. Jobs, investment, and value added each capture a different dimension of the industry, and no single measure fully reflects its economic contributions and associated demands.

Data center development is best evaluated using multiple measures, including operational and construction employment, wages, value added, capital investment, fiscal contributions, and infrastructure and resource requirements. The relative importance of those measures will also differ depending on whether the question being considered is statewide economic development, local fiscal benefit, workforce development, infrastructure planning, or community impact.

The fiscal relationship between data centers and host communities extends beyond property taxes and tax abatements.

Public discussion of data center fiscal impacts often focuses on either the property taxes paid by facilities or the value of property taxes exempted through incentive programs. Neither measure alone captures the complete fiscal relationship between data centers and host communities. This analysis identified approximately $60.2 million in property taxes imposed on data center properties in FY 2025–26, while Business Oregon reports approximately $233 million in property taxes exempted for data center projects participating in LREZ agreements in FY 2023–24 and the Oregonian estimates that data centers will receive more than $450 million in property tax exemptions across all property tax incentive programs statewide in 2026. These measures are not directly comparable and do not represent the full fiscal picture. Nor can it be assumed that property tax abatements represent foregone public revenue, because doing so assumes that the same investments would have occurred in the same locations and at the same scale without the incentives. Data centers receiving incentives may also make community service fee payments, school support fee payments, negotiated annual payments, infrastructure investments, or other community contributions.

The Feedville Road Long-Term Rural Enterprise Zone agreement shows the different ways a data center can affect local revenues. During the incentive period, the project receives a property tax exemption on qualifying property and makes other required and negotiated payments, including annual improvement payments, public safety and school support fees, and community development contributions. After the exemption ends, previously exempt property may also generate property tax revenues.

Evaluating the fiscal effects of the investment therefore requires accounting for property taxes imposed during and after the exemption period, and other required or negotiated payments and investments. Considering these components together provides a more complete measure of the fiscal effects of the investment.


Public discussion of data center fiscal impacts often focuses on either the property taxes paid by facilities or the value of property taxes exempted through incentive programs.

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Oregon's data center competitiveness depends on multiple factors, several of which are currently evolving.

Oregon has historically attracted data center investment through a combination of relatively low-cost electricity, a cool climate, available land in some markets, strong fiber connectivity, no general sales tax, and property tax incentive programs. Peer markets demonstrate that there is no single formula for attracting data center investment; competing markets offer different combinations of electricity costs and availability, infrastructure, land, water conditions, climate, and tax treatment.

Several of the conditions affecting Oregon's competitive position are now evolving. Data center electricity demand is increasing substantially, and regional planning indicates that accommodating large-load growth will require new electricity resources, additional transmission capacity, and coordinated infrastructure planning. At the same time, Oregon's tax-policy environment is changing, with recent state and local actions temporarily restricting or pausing access to some property tax incentive programs for new data center development.

These changes are reshaping the factors that influence Oregon's competitiveness for data center investment. The value of any individual tax incentive depends on the other costs and conditions facing a project and how Oregon compares with competing markets when investment decisions are made. As electricity demand grows, access to sufficient electricity and supporting infrastructure at a competitive cost and on a competitive timeline could play a larger role in Oregon's competitiveness alongside tax and operating-cost conditions.

Available data limit Oregon's ability to consistently evaluate data center development.

A recurring finding across this assessment is that available public datasets were not designed to identify or evaluate data centers as a distinct industry. There is no dedicated NAICS classification for physical data center operations, and using the industry category most commonly associated with data centers would substantially overstate operational employment. ECOnorthwest therefore combined confidential establishment-level employment records with facility locations and manual employer review to estimate approximately 2,630 direct operational workers.

Similar limitations arise in other areas of the analysis. Facility-level water withdrawals, consumption, water sources, and cooling technologies are not consistently reported. Fiscal information is distributed across county tax records, state incentive-program information, and individual agreements, while payments made outside the property tax system are not consistently available statewide. Even basic measures of industry scale require care because facility counts alone do not capture substantial differences in building size, electricity capacity, facility type, or stage of development.

These information gaps are not unique to Oregon or necessarily unusual relative to other industries. Comparable facility-level information is not consistently reported for data centers in other states, nor are all Oregon industries subject to comprehensive reporting across employment, resource use, fiscal contributions, and other operating characteristics. However, data centers are currently the subject of significant policy deliberation in Oregon, including questions about electricity demand and infrastructure, tax incentives, water and land use, employment, and community benefits. The ability to evaluate those questions consistently is constrained when the underlying information is unavailable or reported differently across facilities and jurisdictions.

As Oregon continues to evaluate policies affecting data center development, identifying the information necessary to answer specific policy questions and the areas where existing data are insufficient could improve the state's ability to assess the industry's economic, fiscal, infrastructure, and resource implications over time.

Considerations for Oregon Policy

1. Evaluate data center development in its local and regional context.

Statewide measures can obscure much larger effects in the regions and communities where facilities are concentrated, while individual benefits and demands including employment, fiscal contributions, land conversion, water use, and electricity requirements, occur at different geographic scales.

Statewide policies could account for these geographic differences and recognize that data center development does not have uniform implications across Oregon. Evaluations of proposed development, incentive programs, or other policies could consider both statewide outcomes and conditions in host regions and communities, including the relative scale of economic and fiscal benefits and locally relevant resource considerations.

2. Coordinate economic development with electricity and infrastructure planning.

Data center development increasingly links economic development and electricity planning because large facilities can add substantial new loads over relatively short periods. Regional planning indicates that accommodating forecast large-load growth will require new electricity resources, additional transmission capacity, and coordinated planning, while Oregon's POWER Act is changing how the costs and risks associated with serving large energy-use facilities are allocated.

Economic development policies affecting data centers could therefore be considered alongside electricity resource and infrastructure planning rather than as separate policy questions. This could include continued attention to the timing and location of anticipated large loads, the resources and infrastructure needed to serve them, the allocation of associated costs and risks, and the ability to provide the necessary electricity and infrastructure within timelines consistent with anticipated development.

3. Evaluate tax incentives within the broader competitive and fiscal context.

Evaluate tax incentives within Oregon's broader economic development strategy. Three important questions remain difficult to answer with available information. First, the full fiscal relationship between data centers and host communities is not known because property taxes imposed, property taxes exempted, and other required or negotiated payments and investments are not consistently reported together. Second, the amount of data center development that would occur in Oregon without existing tax incentives is unknown, making it difficult to determine how much investment can be attributed to those incentives. Third, it is not known what other development might occur, or what economic and fiscal outcomes it might generate, if land, electricity, infrastructure capacity, and other resources were not used for data center development. These uncertainties are important when evaluating both the fiscal implications of incentives and the role of data centers within Oregon's broader economic development strategy.

4. Match policy approaches to the scale and characteristics of development.

Oregon's data center industry includes facilities that differ substantially in physical size, electricity demand, facility type, investment, employment, and development stage. These differences are becoming increasingly relevant as the composition and geography of the industry evolve, with wholesale facilities accounting for much of the identified future pipeline and development becoming increasingly concentrated in Western Oregon. Facility counts alone therefore provide a limited measure of the scale or potential implications of development.

Policies affecting data centers could distinguish among facilities based on characteristics relevant to the policy question rather than treating all data centers as equivalent. Depending on the issue, relevant measures could include electrical capacity, capital investment, physical footprint, water requirements, employment, facility type, or development scale. Thresholds or requirements based on these characteristics could allow policy approaches to better reflect the substantially different economic, fiscal, infrastructure, and resource implications of different types and scales of development.

5. Improve access to consistent information needed to evaluate data center development

Oregon could improve its ability to evaluate data center development by identifying a defined set of information needed to answer key policy questions and making that information available at a consistent scale and across comparable reporting periods. Some relevant information is already collected by utilities, local governments, county assessors, and state agencies or reported through individual incentive agreements, but it is not necessarily compiled in a way that allows information to be linked and compared across facilities. Where information is already collected, improving consistency, accessibility, and the ability to link information at the facility level may be more appropriate than establishing new reporting requirements. Where important information is not currently available, additional reporting could be considered, with requirements scaled as appropriate to facility size and structured to protect commercially sensitive information.

The following information could support more consistent evaluation of data center development. To allow information to be compared and linked across policy areas, it would ideally be available at the facility level, or another consistently defined scale, and for comparable reporting periods.

Facility characteristics. Consistent information on facility location, operational status, operational and expected peak loads, facility type, building square footage, site acreage, and development phase would provide a clearer picture of the scale and composition of Oregon's data center industry.

Policy purpose: Maintain a consistent statewide inventory of data center development and distinguish among facilities that differ substantially in type, scale, and stage of development.

Electricity use and capacity. Information on contracted or allocated electrical capacity, operational and expected peak loads, annual electricity consumption, serving utility, and anticipated energization and buildout schedules would provide a more complete picture of current and anticipated electricity demand.

Policy purpose: Support resource and infrastructure planning and provide a consistent basis for understanding the scale, location, and timing of data center electricity demand.

Water use and supply. Consistent information on water providers and underlying water sources; cooling technologies; annual water withdrawals and consumption; peak or seasonal use; use of potable, reclaimed, or other water supplies; and water discharged, returned to the system, or recycled for reuse would improve understanding of facility-level water requirements.

Policy purpose: Evaluate potential effects on local water systems and water resources, including how impacts vary by location, cooling technology, water source, and season.

Employment. Consistent reporting of peak and average construction employment, operational employees, contract workers supporting facility operations, worker residence or another consistent measure of

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local and regional workforce participation, and occupational composition where available would improve the ability to compare workforce requirements and employment benefits across facilities.

Policy purpose: Provide a more complete measure of the workforce supported by data center development, including both employees and contractors who work at or directly support facilities. Consistent information would allow Oregon to evaluate the scale, duration, occupations, skill requirements, and local or regional participation associated with construction and operational employment; distinguish temporary construction activity from long-term employment; and identify potential workforce development and training needs.

Capital investment. Information on total anticipated project investment, major categories of construction and equipment investment, and the timing or phasing of investment would provide a consistent measure of the scale of private investment associated with data center development.

Policy purpose: Support evaluation of economic development outcomes and provide context for comparing private investment with public incentives and infrastructure requirements.

Property taxes and incentives. Consistent information on property taxes imposed, exempt property value and estimated taxes exempted, applicable incentive programs, and the duration of exemptions would allow a more complete assessment of data center property taxation.

Policy purpose: Allow policymakers to evaluate property tax contributions and incentive use consistently across facilities, jurisdictions, and incentive programs.

Other public and community payments. Information on community service fees, school support fees, negotiated annual payments, public safety payments, community benefit payments, and infrastructure contributions would capture benefits that are not reflected in property tax records alone.

Policy purpose: Provide a more complete picture of the fiscal and community benefits associated with data center development and how those benefits are distributed among host communities and jurisdictions.

Implementing a more consistent information framework would not necessarily require creating a new reporting system for every measure identified above. A first step could be to identify which information is already collected, where it is maintained, the geographic scale and reporting period for which it is available, and whether records can be consistently linked to individual facilities. This process could identify where existing information can be compiled or standardized and where important data gaps remain.

Where additional reporting is warranted, requirements could focus on information needed to answer specific policy questions and be scaled appropriately to facility size. Consistent facility identifiers, geographic definitions, and reporting periods could also help link and compare information collected by different agencies, utilities, and jurisdictions, while maintaining appropriate protections for commercially sensitive information.

Oregon's data center industry is likely to remain an important subject of economic, infrastructure, and resource policy as existing facilities expand and new development is considered. This assessment demonstrates that the implications of that development cannot be captured through any single measure of jobs, investment, tax incentives, electricity demand, water use, or land use. The significance of these benefits and demands depends on the scale and characteristics of individual facilities, the communities and regions in which they are located, and the infrastructure and resources required to support them. Continued evaluation of data center development using consistent information and multiple measures can provide Oregon policymakers and communities with a stronger factual basis for weighing these considerations as the industry and related policies continue to evolve.

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