Water Policy and Innovation Service

Data Centers and Water

[DIALOGUE DRAFT VERSION 2.0]

An aerial view of Prineville, Oregon

Last updated June 7, 2026

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Data Centers and Water

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Acknowledgements
The assessment team wishes to thank the people who provided feedback for this report (See Appendix A). All of these participants care deeply about the history and the future of Oregon's water. This report reflects their wisdom and commitment.

About the Water Policy and Innovation Service
The Water Policy and Innovation Service is a joint project of Portland State University, Oregon State University, Eastern Oregon University, and Southern Oregon University. The Service pulls expertise in water and policy to meet the needs of particular projects. The Service's goal is to provide objective, third party analysis of options and considerations to the collaboratives and decisionmakers wrestling with some of Oregon's toughest water policy challenges.

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i. Executive Summary

Depending on the source, there are anywhere from 123 to 136 data centers currently operational in Oregon, and those data centers can be large, industrial water users. There has also been significant growth in data centers over the last five years. Data centers can vary greatly in the number of servers (from small to hyperscale), the cooling technology used, their source of energy, and other factors that determine different water use requirements. Lastly, their location in regions with more or less existing water stress matters (see Table i.1).

Table i.1 Not All Data Centers Are the Same

Facility (location)	Size (sq feet)	Electricity use	Cooling technology	Direct water use (gal/year 2024) (water use equivalents)
Meta (Prineville)	4.6M	1,728 GWh/yr	Air + Evaporative	70M[1,2] (64 acres alfalfa[3] | 420 houses[4])
Google (The Dalles)	1.0M	??	Evaporative	361M[5,6] (388 acres cherries[7] | 3700 houses[8])

Data centers can provide significant economic benefits to the cities that house them, including investment in municipal water infrastructure (see Section 4.7 below), but also pose risks to long-term water availability or infrastructure if there is not adequate water or wastewater capacity (see Sections 4.1 and 4.5). The Oregon Water Policy and Innovation Service was asked by the Statewide Data Center Advisory Committee (representing conservation, energy and climate, local government, and academic perspectives) to research policy options gathered from how other states and cities are proposing to manage water for data centers and other large-scale industrial users.

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[1] Meta. (2025). Environmental Data Index. Accessed at https://sustainability.atmeta.com/wp-content/uploads/2025/10/Meta_2025-Environmental-Data-Index.pdf.

[2] This estimate assumes 80% of water withdrawn is consumed via evaporative cooling. From Li, P., Yang, J., Islam, M. A., & Ren, S. (2023). *Making AI Less "Thirsty": Uncovering and Addressing the Secret Water Footprint of AI Models*. Accessed at https://doi.org/10.48550/arxiv.2304.03271.

[3] Open ET. (2025). Filling the Biggest Data Gap in Water Management. Accessed at https://etdata.org/.

[4] City of Prineville. (2023). City of Prineville, Oregon Water System Master Plan. Accessed at https://cityofprineville.com/sites/default/files/fileattachments/city_council/page/18554/2023_water_master_plan_-_volume_1_reduced.pdf.

[5] Meta. (2025). Environmental Data Index. Accessed at https://sustainability.atmeta.com/wp-content/uploads/2025/10/Meta_2025-Environmental-Data-Index.pdf.

[6] Li *et. al.*, 2023. See note 2.

[7] Open ET. (2025). Filling the Biggest Data Gap in Water Management. Accessed at https://etdata.org/.

[8] City of The Dalles. (2024). Water System Master Plan Update. Accessed at https://www.google.com/url?q=https://cityofprineville.com/sites/default/files/fileattachments/city_council/page/18554/2023_water_master_plan_-_volume_1_reduced.pdf.

Table i.2 Oregon Water and Innovation Service
The Water Policy and Innovation Service (Service)[9] is an offering of Portland State University's National Policy Consensus Center (NPCC), Oregon State University's Institute for Natural Resources (INR), Eastern Oregon University (EOU), and Southern Oregon University (SOU). The Service completes analysis, designed to be third-party, objective, and useful, at the request of at least two parties with different perspectives of a statewide water policy issue that's of interest to both the state and Oregon communities.

Findings

Information on the potential impacts and benefits of data centers is evolving rapidly, and Oregon will need an adaptable approach, whichever policy options the state chooses. Data centers can require significant water supplies, and there are few regions in Oregon with plentiful water now. Climate change will exacerbate stress on water supplies. If data centers are located where there is less water stress now and in the future, many of the existing Oregon water quantity and quality policies may be adequate to address potential risks. Data centers provide local tax revenue, high-wage job creation, and infrastructure modernization in Oregon cities that house them. There are ways to ensure cities have the information and capacity to negotiate community benefits with companies in a consistent, fair manner. Data centers are an attractive economic opportunity because they require relatively few municipal services relative to local tax revenue generated.

Data centers present the most risk where there is rapid, large water-using data center growth in water basins where A) water is already overallocated or water quality concerns exist, B) water availability information is missing or outdated, C) there are not adequate protections for instream, agriculture, and other water uses, and D) the municipality or local water utility does not have adequate long-range plans or capacity to best expand water and wastewater service to meet data center and other demands. Some of the options for Oregon to consider include:

- Encourage siting data centers where new water uses can be fully mitigated with water savings nearby, and where there is less water stress now and expected into the future.
- Generate and regularly update good information on current and long-range water and municipal revenue needs to meet water and infrastructure demands.
- Provide municipalities with information on the effect any large incremental increases in water demand or wastewater discharge may have on the capacity of public water and wastewater systems.
- Encourage the most efficient water use at data centers.
- Ensure community benefits for the cities that house data centers.
- Encourage full mitigation for new data center water use with water savings in the watersheds that house data centers.

[9] Water Policy and Innovation Service. (2026). Accessed at https://www.pdx.edu/policy-consensus-center/water-policy-and-innovation-service.

I. Context and Problem Definition

Table 1.0 Problem definition
"Oregon is experiencing unprecedented demand from large-scale energy users including data centers and artificial intelligence, creating a need to establish clear siting criteria and assessment protocols before further development occurs across our state's landscape. Proactive planning in partnership with local governments is essential to protect Oregon's iconic forests and farmlands, sustain thriving local economies, and preserve affordability for all Oregonians." Oregon Statewide Data Center Advisory Committee[10]   In Oregon, "[a]ll water within the state from all sources of water supply belongs to the public" [11] and is to be managed for beneficial use (i.e., reasonably efficient use of water without waste for the best interests of the people of the state).[12] Those beneficial uses, from a water quality perspective, include fish and aquatic life, water contact recreation, fishing, domestic water supply, industrial water supply, boating, irrigation, livestock watering, aesthetic quality, wildlife and hunting, hydropower, and commercial navigation and transportation.[13] The challenge is how to balance these uses as they grow and change.

Governor Kotek formed the Data Center Advisory Committee in early 2026 to make recommendations on a regulatory framework for data centers and other large-scale energy users that balance economic development with other resource demands, including water. The co-chairs of the Advisory Committee, who have experience in rural development, energy, and conservation, requested that the Water Policy Service explore:

- A conceptual framework for the water inputs to data centers (both directly for cooling, and indirectly via their sources of energy), water outputs (via industrial wastewater), and community water-use related benefits (via investments in water supplies, infrastructure, and other actions that benefit the communities where data centers are located more broadly); and
- Policy options for managing data center water gathered from similar state and local policies used for data centers and other large-scale industrial users.

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[10] Oregon Statewide Data Center Advisory Committee. (2026). Charge. Accessed at https://www.oregon.gov/energy/Get-Involved/Documents/Data-Center-Advisory-Committee-Charge.pdf.
[11] Oregon Revised Statutes § 537.110. (2026). Accessed at https://oregon.public.law/statutes/ors_537.110.
[12] Oregon Administrative Rules § 690-300-0010. (2026). Accessed at https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=332992.
[13] Oregon Department of Environmental Quality. (2026). Beneficial Uses of Oregon Waters. Accessed at https://www.oregon.gov/deq/wq/pages/wq-standards-uses.aspx.

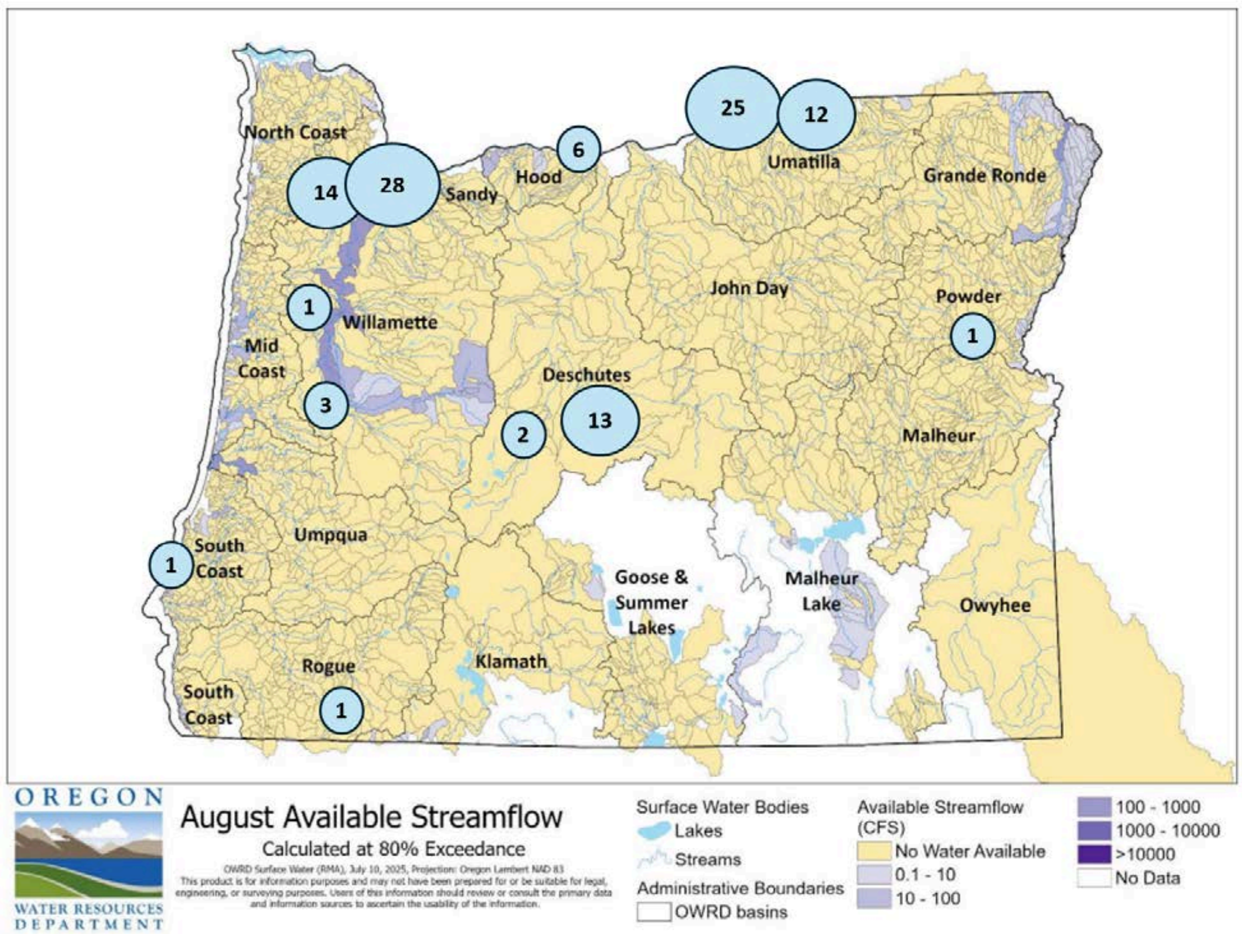
The results presented in this report aim to provide policymakers with a “more complete deck” of options, and potential considerations, to inform dialogue and their actions on possible solutions for Oregon communities considering data centers.

The Water Policy Service does not recommend particular courses of action, nor does it make an assessment on the viability of these actions politically, or otherwise. The service has made this assessment to include policy options that *could* be viable and come from examples that are *comparable enough* to be worth presenting to Oregon policymakers.

There are anywhere from 123 to 136 data centers currently operational in Oregon depending on the source. There is currently no statewide source for information on data centers, so estimates can vary. Those centers have 37 different operators, and Amazon Web Services (AWS) operates 47 facilities. The Google facility in the Dalles is the largest at 1.0 million square feet.[14] Most of the data center facilities are located in the Portland metro area with other concentrations in the Boardman/Umatilla and Prineville areas (see Figure 1.0).

[14] Baxtel. (2026). Oregon Data Center Market. Accessed at https://baxtel.com/data-center/oregon.

Figure 1.0 Current Oregon data centers (https://www.datacentermap.com/usa/oregon/) and Available Streamflow in August[15]



Across Oregon, public (municipal, commercial, and industrial) supply uses 9% of the total surface and groundwater use. Current data center use falls within that 9%. Irrigated agriculture uses 78%, aquaculture and hatcheries use 10%, domestic self supply uses 1%, and other uses comprise 2% of the total water use.[16]

II. Policy Research Methods and Approach

The findings in this report followed a series of process steps to define A) the policy problem/issue to be resolved, B) the kinds of options and considerations that would be useful to explore, and C) the format for delivering those findings. We explored potential case studies,

[15] Oregon Water Resources Department. (2025). Oregon's 2025 Integrated Water Resources Strategy. https://www.oregon.gov/owrd/programs/planning/iwrs/pages/default.aspx.

[16] Oregon Department of Water Resources. (2025). Oregon's 2025 Integrated Water Resources Strategy. Accessed at https://www.oregon.gov/owrd/programs/Planning/IWRS/Documents/2025%20IWRS_w%20appendices.pdf.

relevant literature, and other published information. An initial conceptual framework for data center water inputs and outputs, and initial policy options, were reviewed by the Data Center Advisory Committee. Initial feedback from the Advisory Committee led to follow-up interviews and revisions to this Dialogue Draft. The policy options were gathered from other states and local governments who have passed or are actively considering:

- Policies specific to data centers; and/or
- Policies to manage other large-scale industrial water users in rapidly growing industrial sectors (e.g., microchip and battery manufacturing; auto manufacturing; hydraulic fracking; and new power plant construction).

III. Data Center Water Use and Community Water Benefits

3.1. Data center water use and wastewater

Data centers largely use potable, municipal water to cool the servers within their facilities. Some data centers in other states are recycling wastewater from nearby wastewater treatment plants. Data centers can use an air-cooled chiller system (which uses less water, but is more energy intensive) and/or water-cooled chillers with evaporative cooling (which use more water, but are more energy efficient). There are some data centers in Oregon using groundwater, but very few relative to those tied into Public Water Systems.[17] Future technology may change how data centers use cooling water. Data center water use varies based on the number of servers from small to hyperscale, cooling technology used, source of energy, and other factors that determine different water use requirements. Their location in regions with more or less existing water stress matters.

For example, the 4.6 million square foot Meta data center campus in Prineville is primarily cooled using outside air cooling with supplemental evaporative cooling. The campus consumed about 1,728 GWh/year of electricity and 70 million gallons of water in 2024.[18,19] This is close to the 50 million gallons that the Intel Aloha manufacturing campuses used in 2023,[20] equivalent to about 64 acres of alfalfa grown in Central Oregon in the same year,[21] or about as much water as 420 Prineville households in 2021.[22]

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[17] Oregon Administrative Rule § 333-061-0020. (2026). Accessed at https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/DRINKINGWATER/RULES/Documents/pwsrules.pdf.
[18] Meta. (2025). Environmental Data Index. Accessed at https://sustainability.atmeta.com/wp-content/uploads/2025/10/Meta_2025-Environmental-Data-Index.pdf.
[19] Li *et. al.*, 2023. See note 2.
[20] Intel. (2024). 2023-24 Corporate Responsibility Report. Accessed at https://csrreportbuilder.intel.com/pdfbuilder/pdfs/CSR-2023-24-Full-Report.pdf.
[21] Open ET. (2025). Filling the Biggest Data Gap in Water Management. Accessed at https://etdata.org.
[22] City of Prineville, 2023. See note 4.

In another example, the 1 million square foot Google data center campus in The Dalles is primarily cooled using evaporative cooling. The campus consumed an unknown amount of electricity and 361 million gallons of water in 2024.[23,24] This is equivalent to about 388 acres of cherries growing in the Columbia Gorge in the same year,[25] or about as much water as 3,700 households in The Dalles in 2021.[26]

Throughout this analysis, we pay attention to both the *total quantity* of a data center's water use, the *incremental addition* of water use from one more data center, and the potential *cumulative addition* of water use from multiple data centers. A data center's water use is often reported as an average quantity per day or per year. However, the amount of water a data center demands can vary drastically throughout the year. Therefore, policy makers should be aware that average water use values can obscure seasonal impacts and do not reflect peak demand values.

Table 3.1.a Sources of water for data centers

Isn't a drop of water a drop of water? Different sources of water are governed by different policies, and have different considerations. In Oregon, most data centers are drawing their water from municipal drinking water sources. The quality of that water is closely regulated to protect human health by the Oregon Health Authority using the Safe Drinking Water Act and state rules.[27] The right for a municipality to use a given quantity of water is regulated by the Oregon Water Resources Department and permits may differ based on the mix of rivers and lakes, shallow groundwater that is recharged each year by rain and snow melt, and deep groundwater which often recharges more slowly. See Section 5 for more.

Cooling water is eventually discharged, usually to municipal wastewater treatment plants. The volume of that wastewater discharge could be a small percentage of the total (e.g., to a Clean Water Services in Hillsboro) or a large percentage (e.g., to The Dalles).

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[23] Meta. (2025). Environmental Data Index. Accessed at https://sustainability.atmeta.com/wp-content/uploads/2025/10/Meta_2025-Environmental-Data-Index.pdf.
[24] Li *et. al.*, 2023. See note 2.
[25] Open ET, 2025. See note 21.
[26] City of The Dalles, 2024. See note 8.
[27] Oregon Health Authority. (2026). Oregon Drinking Water Services. Accessed at https://www.oregon.gov/oha/ph/healthyenvironments/drinkingwater/pages/index.aspx.

Table 3.1.b Potential contaminants currently regulated or not currently regulated

The federal Clean Water Act, and Oregon's associated rules for implementing the Clean Water Act, regulate wastewater discharge. Any potential contaminant can be regulated when there is an impact to a beneficial use of a waterway (e.g., fishing, swimming, drinking water, wildlife habitat). An applicant for a Clean Water Act permit from Oregon Department of Environmental Quality (DEQ) needs to report the chemical contents of its wastewater. But most data centers will have their wastewater reported as part of an aggregated report from the municipal wastewater plants they discharge to. Based on feedback from DEQ, some of the chemicals that water quality staff were interested in knowing more about are listed below.

- Anti-scalants, anti-foulants, and additives to keep the pipes clear of foulants
- Chlorinated type products, de-chlorination chemicals, potassium hydroxide, and potash that create high pH and that could strip metals off the equipment
- Citric acid, sodium hydroxide, sodium chloride, sodium hypochloride
- Any chemical reactions in water tied to proprietary products and how that water is managed
- Reverse osmosis cleaners, ultrafiltration backwash, other chemicals to clean filters or membranes

Many of these may not be problematic for human health or wildlife, but instead could disrupt operations of the "good bacteria" used in municipal plants to remove pollutants. According to a conversation with a former EPA and Indian Health Services engineer, water that is "too clean" with too few bacteria, nutrients, or with too high a pH is a concern for smaller wastewater plants using biological wastewater treatment. When a wastewater plant's good bacteria get washed out or die off, this is called a "plant upset" and can take several weeks to correct.

Processes that increase water temperature (e.g., cooling warm servers) may impact fish habitat and water quality. Processes that concentrate pollutants in sourcewater (e.g., concentrating nitrates via evaporative cooling) are a concern.[28]

According to a conversation with DEQ, temperature and trace amounts of metal are the most important to watch for fish and human health. These are currently regulated in Clean Water Act permits, and reducing stream temperature has been a significant Oregon focus to protect conditions critical for salmon and other native fish.

[28] Baumhardt, A. (March 31, 2026). Amazon to pay $20.5 million settlement over northeast Oregon nitrate pollution. Oregon Capital Chronicle. Accessed at https://oregoncapitalchronicle.com/2026/03/31/amazon-to-pay-20-5-million-settlement-over-northeast-oregon-nitrate-pollution/.

The cooling water may not be chemically very different from the incoming potable water, except for some amount of residue from anti-corrosion chemicals, metals, or other elements picked up from the cooling infrastructure. Evaporative cooling can concentrate existing pollutants in the sourcewater for data centers. Our research did not find much specific information on the water quality (pollutant type, expected concentrations, or mass pollutant loads) from data center discharges (see Section 4.2. on reporting). These are the direct water inputs and outputs.

Today, the most significant water footprint from data centers is tied to their sources of energy. Energy generated from thermoelectric generation (e.g., coal and gas-fired power plants) consumes water for cooling. Hydropower generation consumes water due to evaporation from storage reservoirs,[29] but also has other important impacts to aquatic ecosystems. More renewable energy that requires less cooling (e.g., wind or solar) has less of a water footprint. For example, Meta's Prineville campus consumed 70 *million* gallons directly for cooling in 2024, but the embedded water from electricity was 19 *billion* gallons in 2024.[30]

[29] Mekonnen, M.M. and Hoekstra, A.Y. (2011). The water footprint of electricity from hydropower, Value of Water Research Report Series No. 51, UNESCO-IHE, Delft, the Netherlands. Accessed at https://www.waterfootprint.org/resources/Report51-WaterFootprintHydropower.pdf.
[30] Meta, 2025. See note 1.

Table 3.1.c Ways to understand the energy mix for an industrial facility and associated grid-average water withdrawal and consumption resulting from a unit of electricity consumption

Industrial facilities can estimate their average energy mix and associated sources using utility resource disclosures or EPA eGRID subregional generation data.[31] Methodologies have been developed to estimate the indirect emissions footprints for facilities based on the electricity mixes they pull from regional Balancing Authorities (e.g., Bonneville Power Administration, Portland General Electric, Avangrid Renewables, or Idaho Power).[32] Electricity generation's operational water withdrawal and consumption rates vary by fuel type, cooling system, and geographic location.[33] Such generation technology factors, plant-level water source, and cooling system characterizations are examples of how energy generation facilities are estimating their water footprints.[34] Energy generation that requires cooling (e.g., natural gas and coal thermoelectric plants) consumes the most water. For example, if data centers used 14-25 gigawatts of new natural gas-generated electricity,[35] then associated indirect water consumption would increase. If data centers draw from solar or wind power, the water use from electricity generation is zero.

Estimating embedded water use in a company's electricity mix

Embedded water use includes water use (water withdrawals or consumption) during the generation of purchased or acquired electricity consumed by an organization and generated at discrete sources owned and operated by entities that generate power.[36] It does not include

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[31] US Environmental Protection Agency. (2026). eGRID Data Explorer. Accessed at https://www.epa.gov/egrid/data-explorer.

[32] Siler-Evans, K., Azevedo, I. L., & Morgan, M. G. (2012). Marginal emissions factors for the U.S. electricity system. Environmental Science & Technology, 46(9), 4742–4748. Accessed at https://doi.org/10.1021/es300145v; de Chalendar, J. A., Taggart, J., & Benson, S. M. (2019). Tracking emissions in the US electricity system. Proceedings of the National Academy of Sciences, 116(51), 25497–25502. Accessed at https://doi.org/10.1073/pnas.1912950116; Hawkes, A. D. (2010). Estimating marginal CO2 emissions rates for national electricity systems. Energy Policy, 38(10), 5977–5987. Accessed at https://doi.org/10.1016/j.enpol.2010.05.053.

[33] Macknick, J., Newmark, R., Heath, G., & Hallett, K. C. (2012). Operational Water Consumption and Withdrawal Factors for Electricity Generating Technologies: A Review of Existing Literature. Environmental Research Letters, 7(4), 045802. Accessed at https://doi.org/10.1088/1748-9326/7/4/045802.

[34] A M Peer, R., & T Sanders, K. (2016). Characterizing cooling water source and usage patterns across US thermoelectric power plants: A comprehensive assessment of self-reported cooling water data. Environmental Research Letters, 11(12), 124030. Accessed at https://doi.org/10.1088/1748-9326/aa51d8.

[35] Olson, A., Burdick, A., Li, C., Zohrabian, A., Wheatle, B., de Vasconcellos Oporto, P., Somerset, H., and Jacobson, A. (2026). Resource Adequacy and the Energy Transition in the Pacific Northwest. Energy and Environmental Economics. Accessed at https://www.ethree.com/wp-content/uploads/2026/04/E3-NW-RA-Final-Report_040826.pdf.

[36] Reig, P., T. Luo, Christensen, E., and Sinistore, J. (2020). Guidance for Calculating Water Use Embedded in Purchased Electricity." Working Paper. Washington, DC: World Resources Institute. Accessed at www.wri.org/publication/calculating-water-use.

water consumed during the extraction of fuels or distribution of electricity. There are accounting standards for these kinds of "Scope 2" upstream activities.[37] Data to calculate embedded water use may not always be available, but there are defined steps:

- Collect facility electricity activity (i.e., in MWh or kWh) by location;
- Determine water use factors using regional grid average factors (e.g., the Northwest Power Pool-Northwest eGRID region 2020 water use factors were 474 gal/kWh for water withdrawal and 2.51 gal/kWh for water consumption); and
- Calculate water withdrawals and water consumption by multiplying electricity activity by water use factors.

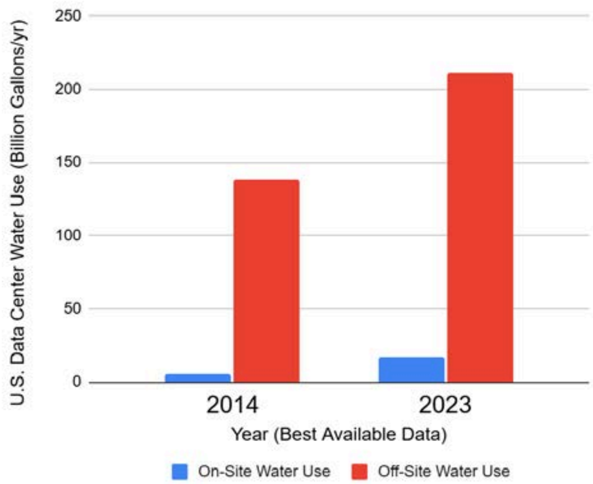
Some example disclosures recommended by World Resources Institute include: Total annual embedded water withdrawals and consumption; Total annual embedded water withdrawals and consumption from areas with high water stress; Avoided water withdrawals and consumption estimation; and Embedded water use calculated by other methods.

In 2023, it is estimated that power generation for data center electricity demand consumed 211 billion gallons (647,500 acre-feet) of water nationwide based on regional energy mixes. Alternatively, direct on-site water consumption for cooling in 2023 is estimated to be 17 billion gallons (52,000 acre-feet), or only 8% of the total indirect and direct water consumption footprint (See Figure 3.1.a).[38]

[37] World Resources Institute and World Business Council for Sustainable Development. (2014). Greenhouse Gas Protocol: The global standard for companies and organizations to measure and manage their GHG emissions and become more efficient, resilient and prosperous. Accessed at https://www.wri.org/initiatives/greenhouse-gas-protocol.

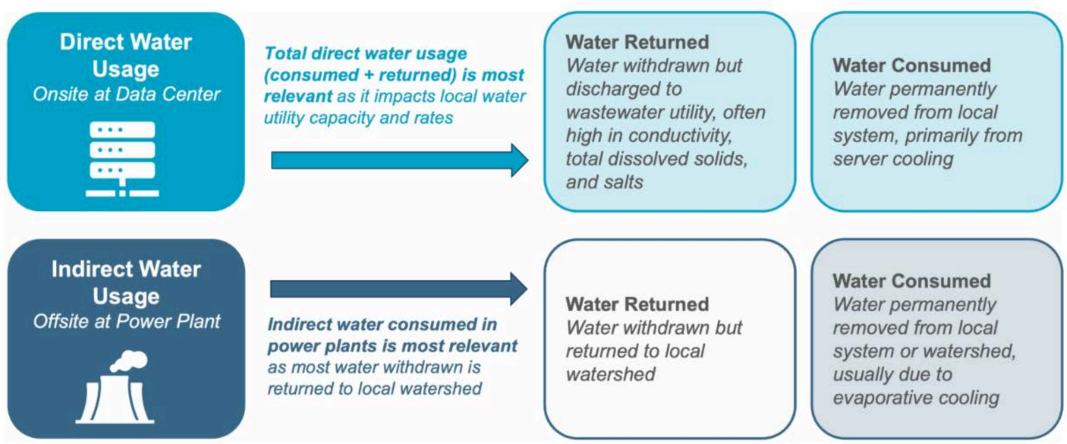
[38]Arman Shehabi, A., Smith, S.J., Hubbard, A., Newkirk, A., Lei, N., Siddik, M.A.B., Holecek, B., Koomey, J., Masanet, E., and Sartor, D. (2024). 2024 United States Data Center Energy Usage Report. Energy Analysis and Environmental Impacts Division, Lawrence Berkeley National Laboratory. Accessed at https://eta-publications.lbl.gov/sites/default/files/2024-12/lbnl-2024-united-states-data-center-energy-usage-report_1.pdf.

Figure 3.1.a. U.S. data center usage: On-site vs off-site



Water-cooled chillers can evaporate up to 80% of the water withdrawn. The water that recirculates can be reused 3-10 times.[17] See Figure 3.1.b for a diagram visualizing a data center's direct and indirect water footprint.

Figure 3.1.b Data center water footprint **(from Edwards, 2025[39])**



[39] Edwards, E. (November 18, 2025). Data Center Water Secrecy Hurts Communities (and the Industry Itself). Bluefield Research. Accessed at https://www.bluefieldresearch.com/data-center-water-secrecy-hurts-communities-and-the-industry-itself/.

3.2. Data center typology

Data centers are not all the same, and some key differences affect their water footprint:

- Size (i.e., number of servers and energy demand);
- Energy sources and the associated water footprint of those sources;
- Water sources and associated requirements;
- Server efficiency (amount of work or computation per unit heat);
- Utilization (i.e., the timing and duration of use based on roles for training AI models, storing data, etc.); and
- Cooling technology used (i.e., ambient air-cooled vs water-cooled, and using recycled or potable input water).

Several proposed policies from other states, referred to below, use data center size or water use thresholds (e.g., a “large” data center means consumptive use exceeds 100 million gallons/year (307 acre-feet/year)). These thresholds are not standardized and are place-dependent. We were asked to differentiate policy options by different types of data centers, but we had trouble finding enough information to delineate clear types for different policy approaches.

The Oregon Public Utility Commission has started adopting orders[40] for large load data centers that create a new customer class for facilities that use more than 100 MW of electricity in compliance with Oregon’s POWER Act.[41] The orders require annual electricity reporting, and implement a one cent per kilowatt-hour surcharge for large load data centers, and that revenue will be used to offset energy costs for low income households. The orders also require 10 to 30-year electricity contracts, and for those large load data centers to pay for infrastructure if they close with remaining infrastructure and energy costs.

IV. Options and Considerations for Oregon

For all of the options below, Oregon might consider treating data centers as a customer class with other large water and energy industrial users. It may make more sense to create policy across similar industrial users with similar water and energy footprints. In addition, the technology that data centers use is likely to change, and any state or local policy will likely need to adapt as these technologies change quickly. Any time water use is discussed, it is important to pay attention to a data center’s direct and indirect water use, the total quantity of a data center’s water use, the incremental addition of water use from one more data center, the potential cumulative addition of water use from multiple data centers, and the associated wastewater discharge linked to that water use. Any time beneficial uses are discussed, it is

[40] Oregon Public Utilities Commission 2026, Order No. 26-154, Investigation into Marginal Cost Study Treatment of Costs for Large Customers and Further Modifications to Portland General Electric Company's Rule C and Rule I. Accessed at https://apps.puc.state.or.us/orders/2026ords/26-154.pdf.

[41] Oregon State Legislature 2025 Regular Session, H.B. 3546 (signed into law), POWER Act. Accessed at https://olis.oregonlegislature.gov/liz/2025r1/Measures/Overview/HB3546.

important to pay attention both instream (e.g., for fish and wildlife) and out of stream uses (e.g., for drinking water and agriculture).

As this report is being written, many states are exploring data center policies. New information and toolkits will emerge quickly (e.g., Climate Exchange's Resources for Regulating Data Centers[42]).

4.1. Siting where there is enough water

In areas of available clean water at the right times of the year, there may be few concerns about siting new data centers as long as existing supply infrastructure and wastewater treatment capacity is adequate or could be expanded to handle the new demands. The challenge in Oregon is that there are few areas where allocated water meets all the needs of existing and forecasted users, especially in summer when cooling demands may be highest for data centers (see Figure 1.0 above).

Table 4.1 Water available on a water right is not the same as the amount of water available in the stream or ground

The Oregon Water Resources Department has issued water rights— the ability to use surface or groundwater— since passage of the 1909 water law. Many municipalities have older water rights. When municipalities begin to use the portion of those older, more senior, rights that were "undeveloped" to meet expanding municipal and industrial needs, there can be impacts on newer, more junior water users.[43] For example, if a city with more senior rights uses one amount of water for decades, then increases that use significantly in five years, there may be less water available for newer farmers or other users. Importantly, many of the instream water rights issued to protect fish and ecosystems are often more junior water rights.

In some areas, water rights may have been issued prior to fully understanding A) how much water was available, or B) how much water was needed to support instream uses for fish and wildlife. As climate changes, water availability during different times of year may also be changing. Thus, making decisions solely on the "paper water" described in water rights, may not be as accurate as also paying attention to the actual, "wet water" physical volume of water available in streams and aquifers.

For instance, some of Oregon's current data center site clusters are located within or near Groundwater Restricted Areas (e.g., the Deschutes Groundwater Mitigation Program, Lower Umatilla Basin Groundwater Management Area, and The Dalles Critical Groundwater Area). Some states, such as Minnesota, require inter-agency coordination on large data center permits

[42] Climate Exchange. (2026). Resources for Regulating Data Centers. Accessed at https://climate-xchange.org/resources-for-regulating-data-centers/.
[43] Dan Tarlock, A., and Van de Wetering, S. B. (2007). Water and Western Growth. *Planning & Environmental Law*, *59*(5), 3–13. Accessed at https://doi.org/10.1080/15480755.2007.10394442.

(e.g., where consumptive water use exceeds 100 million gallons/year or about 307 acre feet/year). For Minnesota, the Business First Stop is the coordinating agency among water quantity and quality agencies.[44] Given this challenge, there are several aspects of siting to consider:

- Has the State of Oregon or municipality appropriately planned for the cumulative development of new industrial or large commercial water users?
- Does the municipality have adequate water rights to grow into as data centers, housing, and other development increases demand (see Section 4.5 for more on planning for the infrastructure capacity to accommodate growth)?
- Does the basin itself have adequate water supply to allow a municipality to develop its full water rights and still ensure enough water for agriculture, Tribes, the environment, and other water users?
- If a city wishes to pursue new water rights or permitted uses, what options and restrictions must it consider (i.e., water right transfers, aquifer storage and recovery, mitigation credits etc.)?
- What priority provisions during a drought exist and how does that affect non-municipal uses?
- Are there existing water quality issues in the source water that could be concentrated by data center cooling processes?
- Are there important fish and wildlife resources or first foods that could be directly impacted?

4.2. Mandatory reporting and transparency of water use and water quality

Precise information on data center water use is hard to come by. Facility-level industrial use (for data centers, breweries, metal fabrication, etc.) may be considered business information, and is usually rolled into a city's overall water consumption or wastewater discharge reporting. Some Oregon cities protect data center water use as confidential during real estate negotiations, but then treat water use as public information after that time. On the other hand, the City of The Dalles had claimed data center water use was a trade secret in response to a District Attorney's

[44] Minnesota 94th Legislative Session 2025-2026, H.F. 16, Data center regulatory bill. (signed into law). Accessed at https://www.revisor.mn.gov/bills/94/2025/1/HF/16/versions/0/.

request to release the water use data. The Dalles later settled and began releasing water use data.[45]

Data center water use reporting is currently driven by an individual corporation's own sustainability or environmental stewardship policy. The information used for corporate sustainability is different from information needed to manage public water for beneficial use (e.g., public drinking water infrastructure and water quality for fish and wildlife). The reports that are made available vary in how metrics are reported. Indirect embedded water use is usually unavailable.

Municipalities that have not fully developed their water rights are required to report their water use by customer class to the Oregon Water Resources Department in their Municipal Water Management and Conservation Plan. Those reports must include a comparison of the quantities of water used in each sector with the quantities reported in the water supplier's previously submitted water management and conservation plan and progress reports.[46] The reports are not required to publish the names of the largest water users.

There is also little information on the water quality of data center wastewater discharge, and whether that water quality changes over time or season if data centers use water differently. Most data centers discharge to publicly operated treatment works, which have extensive Clean Water Act reporting requirements. Yet, interviews for this report suggested an interest in knowing more about A) whether the discharge has too few nutrients and could disrupt a smaller wastewater plant's biological systems, or B) what products, chemicals, or additives are used, to help identify emerging contaminants of concern. Both of these questions could be answered with national research or some monitoring study, or longer-term reporting requirements.

There is a growing policy interest to increase reporting on consumptive water use, but how would Oregon, or local cities, use that new information to inform decisions (e.g., permitting, allocation of tax incentives, or for long-range planning)? If Oregon is interested in more information on data center water use, it may also need to investigate how best to measure and report on water use to get the information it needs (See Table 4.2).

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[45] Harris, E., and White, N. (March 23, 2026). Trust issues rise to the surface in The Dalles water dispute. Uplift Local: The Gorge. Accessed at https://upliftlocal.news/trust-issues-rise-to-the-surface-in-the-dalles-water-dispute/.
[46] Oregon Administrative Rules § 690-086-0140. (2026). OAR Chapter 690, Division 086. Accessed at https://oregon.public.law/rules/oar_690-086-0140.

Table 4.2 Water-related reporting metrics

Metric	What to Know	Potential Use Case
Water Usage Efficiency (WUE): The amount of water consumed due to the on-site cooling process (liters) divided by IT equipment energy (kWh).	WUE is a common reporting metric that is useful to understand on-site water efficiency. However, WUE cannot be used to compare two or more facilities as it does not account for server efficiency, utilization, total water consumption, or off-site water use.	How does a single facility's water use fluctuate throughout a day or over a year? When is the peak demand for water?
Energy Source: Hydropower, coal, natural gas, etc.	Recent studies show a data center's energy source is one of the key determinants of its total water footprint.	When is a data center drawing power from a water intensive energy source, and does this coincide with peak demand?
Total Withdrawal or Consumptive Use: Withdrawal is the volume of water piped into a data center. Consumptive use is water evaporated away or otherwise made unavailable for discharge.	Total consumptive use may be the most useful for municipal-scale planning. It may be important to pair consumptive use information with water quality and other data to understand potential impacts at the point of diversion and the point of wastewater discharge.	How will large increases in new consumptive water uses impact the environment or the ability of a city to provide reliable water services?
Water Use per Workload:[47] The total amount of on-site and off-site water consumed per query.	This metric is a step closer to standardizing water use across different data center types and sizes, but it may be difficult to implement and does not capture total water consumption by a facility.	How do servers of one data center use water compared to another data center of a different size and location?

[47] Lei, N., Lu, J., Shehabi, A., & Masanet, E. (2025). The water use of data center workloads: A review and assessment of key determinants. *Resources, Conservation and Recycling*, *219*, Article 108310. Accessed at https://doi.org/10.1016/j.resconrec.2025.108310.

Water Usage Efficiency plus (WUE+): The amount of water consumed due to the on-site cooling process (liters) and off-site energy generation divided by IT equipment energy (kWh). WUE+ also includes multipliers for water reuse efficiency (recycling) and regional water stress.	WUE+ may be an improvement on the traditional WUE metric. WUE+ includes off-site water use from energy supply and it captures the effect a data center has on local water availability. WUE+ was recently introduced at Open Compute Project's Global Summit (2025),[48] but has not been widely adopted by industry.	How does the water use of two data centers of similar *size* located in different *geographies* compare? Size: On-site water consumption and IT energy capacity. Geography: Energy supply and local water stress.
Water Use Factor for electricity consumed: The gallons/kWh of water withdrawn or consumed as an average of the sources of electricity in a region.	There are published water use factors for every eGrid power region in the US and electricity generation technologies.[49]	Can be used to disclose the indirect water used by a data center based on the source and consumption of electricity.

Given the variety of available metrics, Oregon needs to consider A) which measures are important prior to data center construction to support planning decisions, B) how reported measures would be used and why the State needs to know, C) which information is important during operations, D) how they allow for comparisons, and E) how measures inform tradeoffs or other important decisions. Oregon's Integrated Water Resources Strategy includes several actions to improve collection and accessibility of water measures that, if more fully implemented, would better address the need for the data needed to support decisions on data centers.[50]

Data center water use reporting has emerged as a multistate legislative priority, with active measures pending in at least five states in 2026 and one administrative requirement taking effect in Texas:

[48] Open Compute Project. (2025). Water Energy Nexus in Data Center Design. Accessed at https://www.youtube.com/watch?v=Qvw0OF_GCe0.

[49] Reig et. al., 2020. See note 36.

[50] Oregon Department of Water Resources . (2025). Oregon's 2025 Integrated Water Resources Strategy. Accessed at https://www.oregon.gov/owrd/programs/Planning/IWRS/Documents/2025%20IWRS_w%20appendices.pdf.

- Oregon House Bill 3698 (2025) (not enacted)[51] would have required quarterly reporting of data center water and electricity use.
- California Assembly Bill 1577 (2026)[52] would require data center owners to submit monthly reports to the State Energy Commission on water use effectiveness (WUE), total water consumption.
- California Assembly Bill 93 (2025)(not enacted)[53] would have required proposed data centers to provide an estimated water use to its water provider when applying for a city and county business license.
- Pennsylvania House Bill 2246 (2026)[54] would require data centers projected to use more than 100,000 gallons/day (0.31 acre-feet/day) to report maximum anticipated water use, water source, and water temperature discharged to the State Department of Environmental Protection prior to construction.
- Iowa House Bill 2447 (2026)[55] would require quarterly reports to the Iowa Department of Natural Resources that include total water withdrawal categorized by specific need, water source, and water use effectiveness.
- Michigan Senate Bill 762 (2026)[56] would require the state Public Service Commission to report the annual water consumption of data centers in a public water supply service area.
- Georgia Senate Bill 421 (2026)[57] would bar local governments from entering into non-disclosure agreements with data center operators that prohibit disclosure of water and energy use.
- The Public Utility Commission of Texas in 2026 will require data centers to report direct water use, cooling technology, and energy sources. The Texas Legislature returns to session in 2027.[58]

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[51] Oregon Regular Session 2025, H.B. 3698, Relating to data centers. (did not pass). Accessed at https://olis.oregonlegislature.gov/liz/2025R1/Measures/Overview/HB3698.

[52] California General Assembly 2025-2026, A.B. 1577, Data centers: monthly reporting. (in progress). Accessed at https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202520260AB1577.

[53] California General Assembly 2025-2026, A.B. 93, Water resources: Data centers. (vetoed). Accessed at https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202520260AB93.

[54] Pennsylvania General Assembly 2025-2026, H.B. 2246, Water Usage Reporting Requirements for Data Centers. (in progress). Accessed at https://www.palegis.us/legislation/bills/2025/hb2246.

[55] Iowa House General Session 2025-2026, H.B. 2447, Water and energy use for data centers. (in progress). Accessed at https://www.legis.iowa.gov/legislation/BillBook?ga=91&ba=HF%202690.

[56] Michigan Legislature 2025-2026, S.B. 762, Energy and water usage report requirements for data centers. (in progress). Accessed at https://www.legislature.mi.gov/Bills/Bill?ObjectName=2025-SB-0762.

[57] George General Assembly 2025-2026, S.B. 421, The Data Center Transparency Act. (in progress). Accessed at https://www.legis.ga.gov/legislation/72340.

[58] National Ground Water Association. (2026). Texas regulators will require data centers to report water usage this spring. Accessed at https://www.ngwa.org/detail/news/2026/02/18/texas-regulators-will-require-data-centers-to-report-water-usage-this-spring.

4.3. Maximum extent practicable technology requirements

For some time, federal environmental laws have used a standard of “maximum extent practicable” (MEP) to require technology and best practices for pollution prevention. The MEP standard considers technology cost, safety, and effort, as different from “best available technology” which is just the most effective technology currently available. Some states are requiring technology choices for data centers (i.e., restricting the use of evaporative cooling to limit local water consumption):

- Kansas Senate Bill 400 (2025) (not enacted) introduces legislation barring large load data centers (20MW+) from evaporative cooling systems.[59]
- South Carolina House Bill 4583 (2025) (in committee) would bar evaporative cooling systems and prohibit data centers from extracting groundwater or municipal water.[60]
- The Southern Nevada Water Authority adopted a moratorium on new evaporative cooling systems in commercial and industrial buildings.[61]

Oregon also participates in the National Pretreatment Program which allows the Oregon Department of Environmental Quality to approve local pretreatment programs with the legal authority to issue industrial user permits, conduct inspections of industrial and commercial sources, sample industrial discharges and enforce regulations.[62] As of 2022, Oregon had 27 approved pretreatment programs.[63] Some of the data center pollutants of concern (see Table 3.1.b.) are addressed in these kinds of pretreatment programs.

Technology is evolving rapidly, and some of the best ways (beyond siting in the right locations) to reduce data center water footprints might be to A) require the use of clean energy with zero embedded water (e.g., wind and solar), and B) use advanced cooling technology. One study found that a combination of siting, energy mix, and cooling strategies could reduce emissions and water footprints by 73% to 86%.[64]

4.4. Incentivizing energy and water use efficiency

Requiring particular technologies can be inefficient. For example, lack of flexibility may preclude superior technologies or practices. This may be important given the variety of site conditions

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[59] Kansas General Session 2025-2026, S.B. 400, Requiring data centers to use closed-loop cooling systems to mitigate water consumption. (in progress). Accessed at https://www.kslegislature.gov/bills/SB400/.

[60] South Carolina General Assembly 126th Session 2025-2026, H. 4583, The South Carolina Data Center Responsibility Act. (in progress). Accessed at https://www.scstatehouse.gov/sess126_2025-2026/bills/4583.htm.

[61] Southern Nevada Water Authority. (2025). Understand Laws and Ordinances. Accessed at https://www.snwa.com/conservation/understand-laws-ordinances/index.html.

[62] Oregon Department of Environmental Quality. (2026). Industrial Pretreatment. Accessed at https://www.oregon.gov/deq/wq/programs/pages/industrial-pretreatment.aspx.

[63] Oregon Department of Environmental Quality. (2026). Oregon Approved Industrial Pretreatment Programs. Accessed at https://www.oregon.gov/deq/FilterDocs/ODEQPARData.pdf.

[64] Xiao, T., Nerini, F.F., Matthews, H.D., Tavoni, M., and You, F. (2025). Environmental impact and net-zero pathways for sustainable artificial intelligence servers in the USA. Nat Sustain 8, 1541–1553. Accessed at https://www.nature.com/articles/s41893-025-01681-y.

present and developing nature of this industry. Technology requirements can also become outdated as technology advances. Policies can set outcome expectations, but provide flexibility and/or incentives for data centers to innovate around technology choice (e.g., utilize direct-to-chip cooling to limit water consumption) or operational choices (e.g., flex time of use, ramping up and ramping down utilization, etc.). Some examples include:

- Virginia Senate Bill 417 (2026) (continued to 2027) introduces a provision that data centers can receive funds from grant programs only if cooling systems use treated wastewater. To be considered in 2027.[65]
- Colorado Senate Bill 25-280 (2025) (not enacted). The Colorado Data Center Development and Grid Modernization Act, which died in chamber, would have established an incentive program with strong emphasis on environmental stewardship: tax incentives only available to developers who follow water stewardship strategies and conduct detailed infrastructure assessments addressing availability.[66]
- Minnesota House Bill 16 (2026) requires consideration of water conservation technology, "...including but not limited to using water efficient fixtures and practices, recycling water before discharging, partnering with local water utilities to use discharged water from the data center, using reclaimed water, installing closed-loop systems, and supporting water restoration and replenishment in local watersheds."[67] Minnesota also requires large data centers to achieve certification from one of a list of green building standards.

4.5. Accurate forecasting and revenue for municipalities to meet water and infrastructure demands

Water affordability, and utility rate affordability generally, are important issues in Oregon and across the country. Data centers, especially if their water and wastewater use is a large percentage of a city's total use, could be both an opportunity or a challenge to water affordability. The question is whether cities get enough advanced notice and/or support to accurately incorporate data center needs into their long-range water forecasts. The requirements for how communities design for new water users can depend on the state. For example, Washington requires physical capacity analyses for any installation, extension, or improvement of a new or existing water system.[68] These analyses convert all water users to a standardized metric: Equivalent Residential Units (ERUs). New water users are evaluated based on the available ERUs a community's water system can support.[69] Updating physical capacity

[65] Virginia Legislature 2026 Regular Session, S.B. 417, Cloud Computing Cluster Infrastructure Grant Fund; reclaimed water usage. (in progress). Accessed at https://lis.virginia.gov/bill-details/20261/SB417.
[66] Colorado 75th General Assembly 2025, S.B. 25-280, Data Center Development & Grid Modernization Act (did not pass). Accessed at https://leg.colorado.gov/bills/sb25-280.
[67] Minnesota H.F. 16, 2026. See note 44.
[68] Washington Administrative Code § 246-290-110. (2026). Accessed at https://app.leg.wa.gov/wac/default.aspx?cite=246-290-110.
[69] Washington Administrative Code § 246-290-222. (2026). Accessed at https://app.leg.wa.gov/wac/default.aspx?cite=246-290-222.

analyses provides municipal leaders with an unambiguous understanding of the effect of large incremental increases in demand, and allows cities to evaluate how they can serve new water users and generate the revenue they need to cover the cost of those services without additional burden on existing residents and businesses. Some of the information that could help municipalities with their physical capacity and critical component analyses for water infrastructure might include:

- Anticipated large changes in volumetric water demand or discharge that could trigger needs to expand water conveyance, storage, or treatment infrastructure capacity;
- The minimum and maximum water demands to understand what water delivery capacity is needed (e.g., peak instantaneous need, intra-day variation, seasonal variation, and gross volumetric demand); and
- Volume, timing, and chemical composition of wastewater discharge.

Municipalities may also want to break industrial and commercial water users into different rate categories. For example, the City of Hillsboro conducts a cost-of-use study every five years so each customer category can be charged based on how they use the water system.[70] Similarly, those studies can demonstrate whether one customer category is subsidizing the use of another customer category.

Some examples of what other states are doing include:

- Virginia introduced Senate Bill 1449 (2025), which would allow a locality to require developers of high energy use facilities to complete site assessments on ground and surface water impacts before rezoning applications or obtaining special use permits; this bill was vetoed.[71]
- Similar to Oregon's consideration of different fee structures for data center electricity use, Iowa House Bill 2261 (2025) would create a new customer class for water utilities supplying facilities requiring at least 20MW of power with separate rates, charges, and schedules.[72]

States and local governments have also looked ahead toward decommissioning. Water infrastructure may be built imagining a 50 to 60-year life, but data centers may only be planned for a 15-20-year life.[73] Oregon's POWER Act requires large load data centers to commit to 10 to 30-year contracts, and pay remaining infrastructure and electricity costs if they close.[74] Several

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[70] HDR. (2024). City of Hillsboro Water Rate Study. Accessed at https://hillsboro-oregon.civicweb.net/document/241007/.

[71] Virginia General Assembly 2025, S.B. 1449, Data centers; site assessment for high energy use facility. Accessed at https://lis.virginia.gov/bill-details/20251/SB1449.

[72] Iowa 91st General Assembly, H.F. 2261, Customer classes for large energy use facilities. Accessed at https://www.legis.iowa.gov/legislation/BillBook?ba=HF%202261&ga=91.

[73] Willson, M. (April 15, 2026). Thirsty data centers fuel local angst over water infrastructure. E & E News by Politico. Accessed at https://www.eenews.net/articles/thirsty-data-centers-fuel-local-angst-over-water-infrastructure/.

[74] Oregon H.B. 3546, 2025. See note 41.

states have decommissioning requirements for energy generation facilities (oil, gas, wind, and solar). Payne County, Oklahoma passed a resolution encouraging the state legislature to require performance bonds equal to the cost of construction to cover decommissioning costs if needed.[75] Similar to decommissioning, data centers may switch technologies (e.g., from evaporative to closed loop cooling) that could create large, incremental decreases in water demand and wastewater discharges. Those decreases could create a rate burden on remaining water users if the municipality has not planned to decrease infrastructure capacity.

4.6. Mitigation and "water positive" pledges

Several major companies operating data centers (e.g., AWS, Microsoft, and Meta) have voluntarily committed to be water positive across their value chains by 2030.[76] This means that companies are promising to replenish more water than they consume. This might include watershed restoration to get more water instream, or other actions to contribute more water. It is less clear on how localized those efforts might be. In Hermiston, AWS funded an $18 million aquifer storage and recovery project that meets the needs of AWS, but also will store an additional three billion gallons (9,200 acre-feet) of winter and springtime Columbia River water over 25 years that can be used by residents, farmers, and to benefit fish in summer months.[77] There have been some critiques that the water positive pledges do not account for the indirect water usage tied to energy use.[78] These investments are not guided directly by any state or local policy.

Oregon has experience with water quantity mitigation programs. The Deschutes Basin Groundwater Mitigation Program requires new groundwater users to provide additional instream water prior to getting permission to pump water.[79] The City of Prineville used that Mitigation Program to expand its aquifer storage and recovery capacity by acquiring a water right for the release of up to 5,100 acre-feet (AF) of stored water from Prineville Reservoir for downstream fish and wildlife use. These mitigation credits are part of the federal Crooked River Collaborative Water Security and Jobs Act of 2014.[80] The Deschutes Program recognizes that

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[75] Peters, C. (January 30, 2026). Payne County passes resolution urging decommissioning bonds for wind, solar, data centers. The Stillwegian. Accessed at https://www.thestillwegian.news/payne-county-passes-resolution-urging-decommissioning-bonds-for-wind-solar-data-centers/.

[76] Satariano, A., Mozur, P., and Weise, K. (February 1, 2026). Microsoft Pledged to Save Water. In the A.I. Era, It Expects Water Use to Soar. New York Times. Accessed at https://www.nytimes.com/2026/01/27/technology/microsoft-water-ai-data-centers.html.

[77] Kane, M. (October 10, 2025). Hermiston water project to benefit Amazon, community. Hermiston Herald. Accessed at https://hermistonherald.com/2025/10/10/hermiston-water-project-to-benefit-amazon-community/.

[78] Brightmore, D. (September 4, 2024). AWS data centres' "water positive" pledge isn't greenwashing, but it is misleading. Interface Media. Accessed at https://interface.media/blog/2024/09/02/aws-data-centres-water-positive-pledge-isnt-greenwashing-but-it-is-misleading/.

[79] Oregon Water Resources Department. (2026). Deschutes Groundwater Mitigation Program. Accessed at https://www.oregon.gov/owrd/programs/waterrights/permits/deschutesgroundwatermitigation/pages/default.aspx.

[80] City of Prineville, 2023. See note 4.

there may be localized or temporal impacts by allowing groundwater withdrawals to be mitigated with surface water use reductions during the irrigation season.[81] Similarly, East Bay Municipal Water District in California requires new planned communities to fully offset projected water demands through on-site and off-site conservation.[82] Any mitigation program may need to consider:

- Whether to offset both direct and indirect water withdrawals and/or consumption; and
- Protections for local water resources at important times of year.

4.7. Ensuring community water benefits

Data centers are often described as the "invisible backbone" of the digital economy. While they have a small physical footprint in terms of personnel relative to their size in square footage, their economic and community impact is documented across several key areas: tax revenue, high-wage job creation, and infrastructure modernization. Each one of us uses data centers each and every day, whether we realize it or not. Data centers have a relatively high service to revenue ratio. For example, in Loudoun County, Virginia, for every $1 in public services provided to data centers, the county receives approximately $26 in tax revenue.[83]

Traditionally, municipalities have incorporated new water users into their water, sewer, and stormwater services by charging system development charges.[84] Some states are defining large data centers as "large load users" and creating different fee structures, conditioned tax incentives, etc., since existing system development charges may not fully account for the infrastructure costs of large data centers. In Oregon, some municipalities negotiate supply agreements with large industrial water users outside of the normal system development charges to ensure those new users cover the full cost of the infrastructure (see examples below).

How can communities that house data centers ensure their communities benefit?[85] There are multiple community benefit possibilities, which might include consideration of:

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[81] Oregon Water Resources Department. (2021). 2021 Review of the Deschutes Basin Groundwater Mitigation Program. Accessed at https://www.oregon.gov/owrd/WRDReports/5YearDeschutesGWMitigationProgramReport.pdf.

[82] Christiansen, B. (2015). Water Offset Policies for Water-Neutral Community Growth. Alliance for Water Efficiency. Accessed at https://allianceforwaterefficiency.org/wp-content/uploads/2019/06/Water-Offset-Policies-for-WaterNeutral-Community-Growth150126.pdf.

[83] Northern Virginia Technology Council. (2024). Virginia Data Centers Supported 78,140 Jobs and $31.4 Billion in Economic Output in 2023. Accessed at https://www.nvtc.org/press-releases/virginia-data-centers-supported-78140-jobs-and-31-4-billion-in-economic-output-in-2023.

[84] League of Oregon Cities. (2020). System Development Charges. Accessed at https://www.orcities.org/resources/reference/topics-z/details/system-development-charges.

[85] Turner Lee, N. and West, D.M. (January 29, 2026). Why community benefit agreements are necessary for data centers. Brookings Institution. Accessed at https://www.brookings.edu/articles/why-community-benefit-agreements-are-necessary-for-data-centers/.

- Direct payments or community funds;
- Tax and other revenues;
- Infrastructure improvements (e.g., Upgrades to current water, wastewater, and stormwater infrastructure that benefits both data centers and the broader community);
- Construction and operating jobs;
- Electricity rate coverage;
- Reducing noise levels and light pollution;
- Environmental hazard monitoring;
- Workforce training;
- Health and well-being services;
- Digital access for the underserved;
- Public dashboard tracking metrics;
- Agreements that generate investment in river, riparian, or other aquatic habitat;
- Agreements that generate additional water availability for the environment, agriculture, and other water users; and
- Agreements to redevelop or return former data center land and associated infrastructure to another use or natural area if the data center closes.

Example community water benefits

- Microsoft's Community-First AI Infrastructure commitment lays out a 5-point framework for its U.S. sites to minimize data center water use, invest in community water infrastructure, and advocate for public policy that helps minimize water use.[86]
- Companies funded Prineville's Aquifer Storage and Recovery (ASR) system,[87] which helps manage the local water supply during droughts.[88]
- Google invested $28 million to build a municipal water treatment and storage system. Upon completion, Google transferred ownership of the system and its associated water rights to the City of The Dalles, providing the community with 100 million additional gallons (307 acre-feet) of water capacity annually.[89] [90]

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[86] Smith, B. (January 13, 2026). Building Community-First AI Infrastructure. Accessed at https://blogs.microsoft.com/on-the-issues/2026/01/13/community-first-ai-infrastructure/.

[87] Meta. (2022) Volumetric Water Benefits 2021. Accessed at https://sustainability.fb.com/wp-content/uploads/2022/08/Meta_2021_Volumetric_Water_Benefit_Report.pdf. Page 6.

[88] Cascade Business News. (2024) "We're All Pulling the Chain in the Same Direction,' Praises Prineville's Planning Director" Accessed at https://cascadebusnews.com/were-all-pulling-the-chain-in-the-same-direction-praises-prinevilles-planning-director/

[89] City of The Dalles, Oregon. (2026) Google's Contributions to the City Water System. Accessed at https://www.thedalles.org/news_detail_T4_R195.php.

[90] Oregon Business. (2025). Google Advances Commitment to The Dalles, Launching Sustainable Water Storage System. Accessed at https://oregonbusiness.com/google-advances-commitment-to-the-dalles-launching-sustainable-water-storage-system/.

- AWS funded a specialized Data Center Technician Training Program at Blue Mountain Community College, including $100,000 in annual scholarships.[91]
- In Morrow and Umatilla counties, AWS discharges cooling water—treated and cooled—to the Port of Morrow's wastewater facility, which in turn land-applies treated wastewater on local farms consistent with the Port's DEQ-issued permit. The treated wastewater comes from multiple industrial sources, and AWS' water is about 8% of the total. However, AWS's evaporative cooling was the subject of a lawsuit claiming nitrate pollution from the farm reuse of its cooling water, and subsequent $20.5M settlement. The settlement funds will be used to address nitrate pollution.[92]

Example other community benefits

- Prineville implemented a five percent "franchise fee" on electricity usage.[93] Because data centers consume a lot of power, this generated $8.19 million in 2024 alone, accounting for 63% of the city's entire tax base.[94]
- Meta has invested over $2 million directly into the Crook County School District for STEM and technology.[95]
- Under a 2021 Strategic Investment Program (Business Oregon) agreement, Google committed to a "Total Annual Payment Amount" which is the greater of 50% of what property taxes would have been or a minimum of $3 million per year. [96] By the end of current abatement periods, the community is projected to have received over $45 million in direct payments.[97] In 2025, Google's newest data center generated $9.8 million in taxes and fees, which far exceeded expectations for its first year of operations.[98]

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[91] Association of Oregon Counties. (2023) Amazon Working with Local Utility in Oregon to Power AWS Data Centers with Clean Energy. Accessed at https://oregoncounties.org/amazon-working-with-local-utility-in-oregon-to-power-aws-data-centers-with-clean-energy/#:~:text=In%20addition%20to%20AWS%20investing,power%20AWS%20operations%20in%20Oregon.

[92] Baumhardt, 2026. See note 28.

[93] City of Prineville, Oregon. (2021). Ordinance No 1268 - Granting an Electric Utility Franchise and General Utility Easement. Accessed at https://www.cityofprineville.com/ordinances/ord-no-1268-granting-electric-utility-franchise-and-general-utility-easement.

[94] City of Prineville, Oregon. (2024). Annual Comprehensive Financial Report Year Ending July 30, 2024. Accessed at https://cityofprineville.com/sites/default/files/fileattachments/finance/page/92/city_of_prineville_acfr_fy_2024_final_linked.pdf. Page 33.

[95] Crook County School District. (2026). Crook County School District. Accessed at https://www.crookcountyschools.org/school-board/.

[96] Columbia Community Connection News. (2021). TD City, County to take Testimony on Google Investment. Accessed at https://columbiacommunityconnection.com/the-dalles/td-city-county-to-take-testimony-on-google-deal.

[97] City of The Dalles, Oregon. (2026). Enterprise Zone & Strategic Investment Program Agreements with Google. Accessed at https://www.thedalles.org/business/google_data_centers/ezandsipagreements.php.

[98] Columbia Community Connections News. (2026). Critics Question Google Tax Breaks as New Data Center Delivers $9.8M Locally. Accessed at https://columbiacommunityconnection.com/the-dalles/critics-question-google-tax-breaks-as-new-data-center-delivers-98m-locally.

- In Hillsboro, companies have agreed to purchase at least 10% of their services from local vendors.[99]

The Alliance for the Great Lakes produced a guide that includes some options for community benefit agreements with data centers, and case studies from Lancaster, Pennsylvania; Detroit and southeast Michigan; Chicago Metropolitan Region, Illinois; Ohio and Wisconsin urban area.[100]

Oregon might consider some guidelines for community benefits, getting information municipalities need to understand the cost of large, incremental increases in water use, and what happens when data centers reduce their water use or close down. Some states are conditioning tax breaks (e.g., via Enterprise Zones). For example, Virginia found that tax breaks are normally connected to job and investment thresholds, but not minimizing impacts or demonstrating community benefit.[101] Negotiating community benefits agreements on a case by case basis takes capacity that some communities may not have. Oregon might consider providing capacity, technical assistance, or guidelines to help communities negotiate strong community benefit agreements.

4.8. A role for recycled water

Currently, few data centers use recycled wastewater as the sourcewater for cooling. There are also few data centers that land-apply their discharge water, or make it available for irrigation. However, there is interest in both of these options. In Virginia, Senate Bill 417 (2026) (continued to 2027) proposes to condition state data center grants on using recycled water.[102] There are different pros and cons for using recycled water whether A) data centers are using reclaimed wastewater from municipal or other industrial discharges, or B) agriculture or other industries are using data center wastewater.

Data centers using recycled water

Using recycled water can sometimes reduce the volume of water diverted into Public Water Systems and then delivered to data centers. Using recycled water likely requires additional delivery infrastructure to move wastewater to the data center for use. The cooling process could concentrate whatever pollutants are in the source water, and add additional thermal load warming the water. Sometimes, wastewater discharges are important sources of summertime

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[99] City of Hillsboro, Oregon. (2026). Enterprise Zone Program webpage. Accessed at https://www.hillsboro-oregon.gov/our-city/departments/economic-development/choose-hillsboro/enterprise-zone-program.

[100] Volzer, H., and Iturbide-Chang, M. (2026). A regional playbook for managing data center impacts in the Great Lakes: Education, tools, policies, and community actions. Alliance for the Great Lakes. Chicago, IL. Accessed at https://greatlakes.org/wp-content/uploads/2026/03/AGL_DataCenter_Playbook_2026_Final.pdf.

[101] Joint Legislative Audit and Review Commission. (2024). Data centers in Virginia. Commonwealth of Virginia. https://jlarc.virginia.gov/landing-2024-data-centers-in-virginia.asp; Joint Legislative Audit and Review Commission. (2025). Annual report on economic development incentive programs. Commonwealth of Virginia. Accessed at https://jlarc.virginia.gov/pdfs/reports/Rpt574.pdf.

[102] Virginia SB 417, 2026. See note 65.

flows for streams, and diverting that water for recycled uses might limit water availability for downstream uses.

Using data center wastewater for other uses
Data center wastewater could be used to supplement water for agriculture, or could be used again for compatible industrial uses. That wastewater could also be injected into aquifer storage and recovery systems to be used later. Current Oregon rules govern all these possible uses, and there are pros and cons. Applying data center wastewater for agriculture or to other land uses does not necessarily reduce the impact of diverting that water from streams in the first place. Data centers might need to treat their wastewater before any application. For example, injecting wastewater into groundwater requires that water meet drinking water standards. Another consideration is that wastewater application to farm fields or infiltration basins could exacerbate existing issues (e.g., nitrate pollution in groundwater) if not treated to appropriate standards. Land application might also have a connection between shallow groundwater and nearby surface waters that creates a "functional equivalent" to direct discharge to surface water that requires additional review under the Clean Water Act.[103]

4.9. Moratoriums on new data center construction

There have been calls for moratoriums on new data center construction in some places until more information can be gathered.[104] Georgia (introduced)[105], Maine (vetoed)[106], Maryland (introduced)[107], Michigan (introduced)[108], Minnesota (introduced)[109], New Hampshire (did not

[103] County of Maui, Hawaii vs. Hawaii Wildlife Fund et. al., 140 S. Ct. 1462. (2020). Accessed at https://www.supremecourt.gov/opinions/19pdf/18-260_jifl.pdf.
[104] National Conference on State Legislatures. (2026). Which States Are Banning Data Centers? Accessed at https://www.ncsl.org/fiscal/which-states-are-banning-data-centers.
[105] Georgia General Assembly 2025-2026 Regular Session, H.B. 1012, Local government; construction or development of new data centers for a specified time; prohibit. Accessed at https://www.legis.ga.gov/legislation/72319.
[106] Maine Legislature, Second Regular Session 2026, L.D. 307. An Act to Establish the Maine Data Center Coordination Council and Place a Temporary Limitation on Certain Data Centers. Accessed at https://legislature.maine.gov/legis/bills/display_ps.asp?LD=307&snum=132.
[107] Maryland Legislature 2025-2026 Regular Session, H.B. 120, Moratorium on Construction of New Data Centers - Co-Location and Generation Contingency. Accessed at https://mgaleg.maryland.gov/mgawebsite/Legislation/Details/hb0120?ys=2026RS.
[108] Michigan Legislature 2025-2026 Regular Session, H.R. 0240, A resolution to urge a temporary pause on discretionary state-level incentives for data center construction. Accessed at https://legislature.mi.gov/Bills/Bill?ObjectName=2026-HR-0240.
[109] Minnesota Legislature 2025-2026 Regular Session, S.F. 4298, New data center moratorium established, and Public Utility Commission required to submit a report. Accessed at https://www.revisor.mn.gov/bills/94/2026/0/SF/4298/.

pass)[110], New York (introduced)[111], Oklahoma (introduced)[112], Pennsylvania (introduced)[113], South Carolina (introduced)[114], South Dakota (introduced)[115], Vermont (introduced)[116], and Virginia (continued)[117] have all considered legislation with some forms of temporary moratoriums.[118] These moratoriums are often for a short period of time, designed to give legislatures time to consider new policy. Some moratoriums are also put in place until certain conditions or state and local oversight capacities are in place.

In Oregon, municipalities can adopt moratoriums on construction or land development under certain conditions (e.g., shortage of public facilities and/or housing and economic needs have been met).[119] There may be legal limits to applying moratoriums on specific types of businesses.

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110 New Hampshire General Court 2025, H.B. 1265, Prohibiting the construction of data centers in the state and establishing a committee to study the environmental impact of data centers. Accessed at https://gc.nh.gov/bill_status/results.aspx?adv=2&txtbillno=hb1265.

111 New York Legislature 2025-2026 Legislative Session, S.9144, Imposes a moratorium on data center permit issuance; and relates to data center rate impacts. Accessed at https://www.nysenate.gov/legislation/bills/2025/S9144/amendment/A.

112 Oklahoma State Legislature 2026 Regular Session, S.B. 1488, Corporation Commission; establishing moratorium; requiring certain study. Accessed at https://www.oklegislature.gov/BillInfo.aspx?Bill=SB1488&Session=2600.

113 Pennsylvania General Assembly 2025-2026 Regular Session, H.B. 2533, Empowering Municipalities to Place a Moratorium on Data Center Development. Accessed at https://www.palegis.us/legislation/bills/2025/hb2533.

114 South Carolina Legislature 2025-2026 Session, H. 5286, A joint resolution to prohibit governmental entities of this state, counties, municipalities or political subdivisions from granting final approval for applications or permits for, or incentives or other requests related to, new data centers until January 1, 2028, and to define “data center”. Accessed at https://www.scstatehouse.gov/query.php?category=LEGISLATION&conid=76577010&keyval=1265286&numrows=10&result_pos=0&search=DOC&searchtext=data+center&session=126.

115 South Dakota Legislature 2026 Session, S.B. 232, An Act to impose a one-year moratorium on the construction or expansion of hyperscale data centers. Accessed at https://sdlegislature.gov/Session/Bill/27269.

116 Vermont Legislature 2026 Session, S. 205, Utilities; AI data centers; moratorium; study. Accessed at https://legislature.vermont.gov/Documents/2026/Docs/BILLS/S-0205/S-0205%20As%20Introduced.pdf.

117 Virginia General Assembly 2026 Regular Session, H.B. 1515, Relating to local approval of data centers; temporary moratorium. Accessed at https://lis.virginia.gov/bill-details/20261/HB1515/text/HB1515.

118 National Conference of State Legislatures. (April 27, 2026). Which States Are Banning Data Centers? Accessed at https://www.ncsl.org/fiscal/which-states-are-banning-data-centers.

119 Oregon Revised Statutes § 197-520. (2026). Accessed at https://oregon.public.law/statutes/ors_197.520.

V. Oregon Policies that Apply to Data Centers Now

Oregon has land use, water quantity, and water quality policies and programs that may be able to manage much of the increased demand presented by data centers—if those policies are used and agencies overseeing them have needed capacity. Section V describes existing Oregon policy where Section IV describes options Oregon might consider drawn from Oregon and other states. Some of the existing Oregon programs are summarized below.

Forecasting long-range municipal and industrial water needs
Oregon's statewide land use planning system, overseen by the Department of Land Conservation and Development, guides long-range planning and includes:

- Goal 9 and Economic Opportunity Analyses (EOA) to ensure appropriate zoning for planned economic growth. This includes identifying "target industries" that will require the service of public facilities.[120]
- Goal 11 and public facilities plans to ensure 20 years of service for residential growth and target industries.[121]

The Oregon Water Resources Department requires cities to create a Water Management and Conservation Plan that ensures existing water rights can support the Goal 11 public facilities plan as a part of the municipal water permit extension process. In practice, the requirements for water availability, serviceability, and allocation from these planning documents are combined into a single Master Water Plan that also includes requirements from the Oregon Health Authority for safe drinking water. The interplay between these planning efforts is designed to ensure cities have a well-informed 20 year plan, with periodic review, to meet forecasted residential and industrial growth. Yet, some cities and counties have limited planning capacity to keep these plans current. The Portland State Population Research Center provides regular population forecasts,[122] but industrial growth forecasts are harder to predict. Industrial growth forecasts are based on current zoning, project proposals from developers, and preferences of city leaders. Additionally, the kinds of cumulative impacts from changes in water use across a region may be better addressed by Oregon's place-based planning or other statewide programs.

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[120] Department of Land Conservation and Development. (2026). Goal 9: Economic Development. Accessed at https://www.oregon.gov/lcd/OP/Pages/Goal-9.aspx.
[121] Department of Land Conservation and Development. (2026). Goal 11: Public Facilities and Services. Accessed at https://www.oregon.gov/lcd/OP/Pages/Goal-11.aspx.
[122] Portland State University Population Research Center. (2026). Population Forecasts. Accessed at https://www.pdx.edu/population-research/population-forecasts.

Providing information on water availability and access to water rights

Oregon Water Resources Department maintains the Water Availability Reporting System[123] for new water right applications for most surface water. This system is based on outdated streamflow data and is in the process of modernization. Other information on groundwater basin volumes or in-stream water needs may be incomplete or outdated. The Oregon Water Data Portal is also a new platform designed to make statewide water data more accessible.

In droughts, there may need to be conversations about who has access to which water. With scarce water, Oregon's system of prior appropriation ensures older/more senior water right holders get their water before more recent/junior water right holders. If a city does not have enough water rights to support industrial growth, they can acquire additional water using tools such as water right transfers, aquifer storage and recovery, and mitigation credits.

Protecting water quality

The Oregon Health Authority implements the federal Safe Drinking Water Act to protect the quality and safety of drinking water—especially water provided by public water systems.[124] The Oregon Department of Environmental Quality (DEQ) issues water quality permits for activities such as industrial and construction stormwater management, pretreatment of industrial wastewater discharged to publicly operated treatment works, and the discharge from those public wastewater plants.[125]

For any regulated contaminant, DEQ has determined there is treatment technology, which is how DEQ sets technology-based effluent limits. National Pollution Discharge Elimination System (NPDES) discharge permits require whole effluent toxicity monitoring, which can address many of the additives listed in Table 3.1.b. above, according to an interview with DEQ staff. Water Pollution Control Facility (WPCF) permits for industries with discharge directly to surface waters do not have this requirement.

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[123] Oregon Water Resources Department. (2026). Surface Water Availability Reporting System. Accessed at https://www.oregon.gov/owrd/programs/streamslakessanddams/surfacewater/pages/surface-water-availability.aspx.

[124] Oregon Health Authority. (2026). Oregon Drinking Water Services. Accessed at https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/DRINKINGWATER/Pages/index.aspx.

[125] Oregon Department of Environmental Quality. (2026). Water Quality Permits. Accessed at https://www.oregon.gov/deq/wq/wqpermits/pages/default.aspx.

VI. Next Steps and Conclusion

Oregon experienced a wave of data center development before fully knowing what the future of AI and hyperscale data centers might demand from Oregon electricity, water, and other resources. Those data centers provide important community and economic benefits. This report attempts to provide more precision on how data centers use water, data water center use in the context of other water uses, and options from other states on how Oregon might use or update existing policies to best balance the opportunities and challenges provided by future data center development.

Information on data center impacts and benefits across the country is emerging quickly, and so are strategies states are using to consider data center development. Oregon may want to consider how best to stay current on that information. We consider this document information that can support further conversation.

Appendix A. List of Initial Feedback

An initial version of this Dialogue Draft was presented to the Data Center Advisory Committee meeting on water on March 27, 2026 with an invitation for early feedback from Advisory Committee members and others presenters (listed on the Committee website at https://www.oregon.gov/energy/Get-Involved/Pages/Oregon-Data-Center-Advisory-Committee.aspx). Several others reached out to provide resources. Version 1.0 of the Dialogue Draft was shared more widely for feedback on May 1, 2026. Thank you to the following people for feedback on Version 1.0 of the Dialogue Draft:

- Data Center Advisory Committee Members
- Ivan Gall and the Oregon Water Resources Department
- Mike Kucinski and the Oregon Department of Environmental Quality
- Julie Carter and Elijah Cetas - Columbia River Inter-Tribal Fish Commission
- Niki Iverson and the City of Hillsboro
- Rose Poton - Verde
- Mark Morgan - City of Hermiston
- Rachel O'Connor - Environmental Defense Fund
- Mat Martinson - Martinson Infrastructure Consulting and former EPA and IHS official
- John Devoe - Water Watch of Oregon
- Kelly Campbell - Columbia Riverkeeper
- Carrie Thomas - Board Member, Thrive Hood River
- Kristin Anderson Ostrom - Oregon Rural Action, Inc.
- Michael Martin - League of Oregon Cities
- Alida Cantor - Portland State University
- James Fraser - Trout Unlimited
- Paul Demaggio - Jackson County Soil and Water Conservation District
- David Nelson - retired Oregon State Senator, District 29
- Charlotte (Charlie) Roscoe - Oregon Health Sciences University