

WATER-RATE EQUITY IN DATA CENTER ALLEY

An Analysis of Large-Volume Data Center Water Pricing in Data Center Alley

Data Center Water Leaks

www.datacenterwaterleaks.com

Statutory context: Va. Code § 15.2-5136

July 6, 2026



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1. Executive Summary

Loudoun Water's current rate structure prices water in a manner that runs contrary to conservation logic and, during the present declared drought, to sound water-supply management. The marginal gallon is priced highest for residential households and lowest for the largest industrial users, principally data centers, which derive by far the greatest economic value from each gallon consumed. This report examines that structure against the fair-and-reasonable standard imposed by Virginia Code § 15.2-5136(D) and concludes that formal, public review is warranted.

Four findings anchor the analysis. **First**, a residential household reaches the system's maximum conservation rate of \$12.52 per thousand gallons after roughly 550 gallons per day, while a single data center drawing 1 MGD consumes more than 1,800 times that volume with no escalating volumetric rate of any kind. **Second**, reclaimed water, the class serving the largest cooling loads, is priced at \$2.07 per thousand gallons, roughly one-sixth of the residential Tier 3 rate and below cost by the finding of the Authority's own 2024 rate consultant; the same reclaimed customers also avoid potable connection fees on the order of \$15 million per MGD of connected capacity, a benefit aggregating to hundreds of millions of dollars across a base of more than 40 data centers. **Third**, the diversion of 2 to 2.5 MGD of treated effluent to evaporative cooling removes return flow from the Potomac during record low-flow conditions, injuring downstream utilities and their ratepayers without compensation. **Fourth**, that same diversion is credited as a water-positive benefit in corporate ESG accounting and used to market the sustainability of the cloud and AI services the data centers host, even though, measured at the basin scale, reuse that displaces return flow rather than disposal increases consumptive use rather than adding water to the basin. The correct unit of accounting is the basin, not the corporation.

These features are examined below considering the Virginia State Corporation Commission's November 2025 creation of a GS-5 large-user rate class for the analogous electric sector, and the March 2026 federal Ratepayer Protection Pledge, under which the principal data center operators themselves accepted the cost-causation principle for energy infrastructure. The same principle applies with equal or greater force to water. The report closes with five recommended actions the Board can take under its continuing statutory duty of rate review.

2. Introduction

This report evaluates the downstream hydrologic and economic effects of reclaimed-water diversions from Loudoun Water's Broad Run Water Reclamation Facility. Treated effluent from Broad Run would otherwise return to the Potomac River upstream of downstream drinking-water intakes, including those serving Fairfax Water customers. When that effluent is diverted to data center evaporative cooling (approximately 2–2.5 MGD at present), a significant portion is consumptively lost to evaporation and does not return to the river. During low-flow conditions, every gallon diverted reduces downstream water availability.

The impacts are also economic. Potomac River flows are managed cooperatively through the Interstate Commission on the Potomac River Basin (ICPRB), with drought releases from Jennings Randolph and Little Seneca reservoirs funded by participating utilities and their ratepayers. Increased upstream consumptive losses can accelerate the need for these releases. The regional systems are interconnected: Loudoun Water purchases approximately 18 MGD of drinking water from Fairfax Water while supplying reclaimed water to large commercial users. Where reclaimed water is priced below the cost of service, a portion of the resulting burden may be shifted across the interconnected regional system. This analysis is based on publicly available records, including FOIA-derived water-use data, and evaluates the basin-scale effects of reclaimed-water use within the Potomac River watershed.

3. Statutory and Policy Framework

3.1 The Fair-and-Reasonable Standard

Loudoun Water is a public service authority organized under the Virginia Water and Waste Authorities Act, *Va. Code §§ 15.2-5100 et seq.* Under § 15.2-5136(D), water and sewer rates “shall be fair and reasonable,” “shall be reviewed by the authority periodically,” and “shall be adjusted, if necessary, to assure that they continue to be fair and reasonable.” Under § 15.2-5136(G), no rates may be fixed until after a public hearing, and rates fixed for any class of users must be extended uniformly to all properties within the same class. This report contends that the current structure, in its treatment of large-volume data center use, is difficult to reconcile with that standard. The report also shows that the current rate structure is neither fair nor reasonable for Loudoun and Fairfax County rate payers who bear the cost of a water system that is being custom built for the data center industry particularly the recycled water system.

3.2 The GS-5 precedent from the utility regulator

On November 25, 2025, the Virginia State Corporation Commission, in its final order in Dominion Energy's biennial review (Case No. PUR-2025-00058), created a new GS-5 rate class for customers demanding 25 megawatts or more, principally data centers, and required minimum payments of 85 percent of contracted distribution and transmission demand and 60 percent of generation demand, expressly to insulate other ratepayers from the costs of infrastructure build-out. While the Commission does not regulate this Authority's rates, its order reflects the Commonwealth utility regulator's considered judgment that very large users constitute a distinct cost-causation class warranting separate rate treatment. The same logic applies with equal or greater force to water infrastructure.¹

¹ Virginia State Corporation Commission, Final Order, Case No. PUR-2025-00058 (November 25, 2025).

3.3 The Federal Ratepayer Protection Pledge

On March 4, 2026, the White House announced the Ratepayer Protection Pledge, under which seven leading hyperscaler's (Amazon, Google, Meta, Microsoft, OpenAI, Oracle, and xAI) committed to ensure that the costs of serving new data center demand are not shifted to residential and small-business customers. The signatories confirmed that they will build, bring, or buy the energy required, pay for all new infrastructure upgrades, negotiate separate rate structures, and pay for reserved capacity whether they use it or not. Although the pledge addresses electric infrastructure, it reflects the same cost-causation principle, accepted by the operators themselves, that utilities should recover the costs of serving hyperscale data centers from the customers creating those costs. The signatories include the principal operators of data centers in Loudoun County.²

4. Findings

4.1 The rate structure inverts conservation pricing

The Authority's published Schedule of Rates effective January 1, 2026, imposes steeply escalating quarterly volume charges on residential customers, while the Multifamily & Commercial class, in which data centers take potable service, has only two tiers and no escalating conservation structure. Reclaimed water, the class through which the largest industrial cooling loads are served, is priced below every other rate in the system:³

A residential household reaches the maximum conservation rate of \$12.52 per thousand gallons upon exceeding 50,000 gallons in a quarter. A single data center connection drawing 1 MGD can consume roughly 91 million gallons per quarter: more than 1,800 times the volume that triggers maximum conservation pricing for a household yet facing no escalating volumetric rate of any kind. The marginal gallon consumed by a household above the Tier 3 threshold is priced about 65 percent higher than the marginal gallon consumed by the largest potable industrial users, and roughly six times higher than the reclaimed rate paid by the largest cooling loads.

Customer class and tier	Rate per 1,000 gal.	Basis
Residential Tier 1 (0–25,000 gal./qtr)	\$3.37	Sched. of Rates, eff. 1/1/2026
Residential Tier 2 (25,001–50,000 gal./qtr)	\$9.34	Sched. of Rates, eff. 1/1/2026
Residential Tier 3 (over 50,000 gal./qtr)	\$12.52	Sched. of Rates, eff. 1/1/2026
Multifamily & Commercial Tier 1	\$4.42	Sched. of Rates, eff. 1/1/2026
Multifamily & Commercial Tier 2 (highest)	\$7.59	Sched. of Rates, eff. 1/1/2026
All Other Uses (Non-potable / Irrigation)	\$9.34	Sched. of Rates, eff. 1/1/2026
Reclaimed water (large industrial users)	\$2.07	2024 Rate Study, Table E-3

Table 1. Loudoun Water rate comparison across customer classes (effective January 1, 2026)

4.2 Loudoun Water's reclaimed program is purpose-built for Data Centers

The Authority's published program materials state that the reclaimed distribution system was first constructed in 2010 specifically to supply irrigation and industrial cooling water to Loudoun County's data

² The White House, "Ratepayer Protection Pledge Proclamation," March 4, 2026, <https://www.whitehouse.gov/presidential-actions/2026/03/ratepayer-protection-pledge-proclamation>.

³ Loudoun Water, "Schedule of Rates for Residential Customers," effective January 1, 2026, Water Usage Rates schedule, <https://www.loudounwater.org>.

center industry; that it has grown to 20 miles of pipeline; and that in 2025 the Authority delivered more than 750 million gallons of reclaimed water. The reclaimed system is thus, by the Authority's own description, infrastructure purpose-built for a single industry. The data center industry.⁴

In a recorded public interview published June 21, 2026 on podcast platform WaterLoop, a Loudoun Water official stated that an industrial customer connecting to the potable system at 1 MGD pays a tap fee of approximately **\$15 million**; that connection to the reclaimed system is effectively free apart from a ten-percent backup-capacity reserve; and that ongoing reclaimed usage charges are approximately half of the equivalent potable bill. The official described this pricing as deliberate policy to spur growth of the reclaimed system for the data center industry.⁵

The Authority's own rate consultant confirms that reclaimed service is priced below cost. The Stantec Water and Sewer Rate Study finalized October 28, 2024, completed a cost-of-service analysis of the reclaimed system and concluded that current reclaimed rates are “not sufficient to meet the annual revenue requirements” of that system. The study found that reclaimed costs trend with the cost of operating the Broad Run facility and recommended increases of 7.0 percent per year, from \$1.80 to \$2.07 in 2026 and \$2.21 in 2027. Even under that remedy, the 2027 reclaimed rate will remain roughly one-sixth of the residential Tier 3 rate (\$13.40) taking effect the same day, and the absolute gap will widen. The identified revenue shortfall does not disappear; it is carried out by the Authority's broader rate base while the discount flows to the customer class with the greatest capacity to pay.⁶

The reclaimed pricing structure reportedly delivers to the largest reclaimed customers avoided potable tap fees on the order of \$15 million per MGD of connected capacity, aggregating to hundreds of millions of dollars across a reclaimed base of more than 40 data centers.

4.3 Scale of demand and uncompensated diversion of return flows

Based on FOIA-derived research and the Authority's public statements, approximately 200 data centers operate within the service area; roughly 40 are cooled with reclaimed water; and data center demand represents on the order of 15 percent of the Authority's total system demand of approximately 50 MGD.⁷ No other customer category of comparable concentration exists anywhere in the system, yet no rate class corresponds to it.

The diversion has a second, uncounted consequence. The Broad Run facility discharges treated effluent upstream of downstream intakes on the Potomac. Where 2 to 2.5 MGD of that effluent is instead diverted to cooling, a substantial portion is consumptively lost to evaporation rather than returned to the river. During record low-flow conditions, that diverted return flow is water physically removed from the supply available to downstream utilities, removed without compensation to any downstream party and at rates the Authority's

⁴ Loudoun Water, “Reclaimed Water Program,” program history and description, accessed July 6, 2026, <https://www.loudounwater.org>.

⁵ WaterLoop, “The Water Reality in Data Center Alley,” podcast audio, June 21, 2026, <https://www.waterloop.org>.

⁶ Stantec, Loudoun Water Water and Sewer Rate Study: Final Report (October 28, 2024), Tables E-1 and E-3, Sections E.4–E.5.

own consultant found to be below cost. The “potable water saved” framing of the reclaimed program counts only one side of this water ledger. Loudoun Water has in essence shifted the cost to downstream water users.

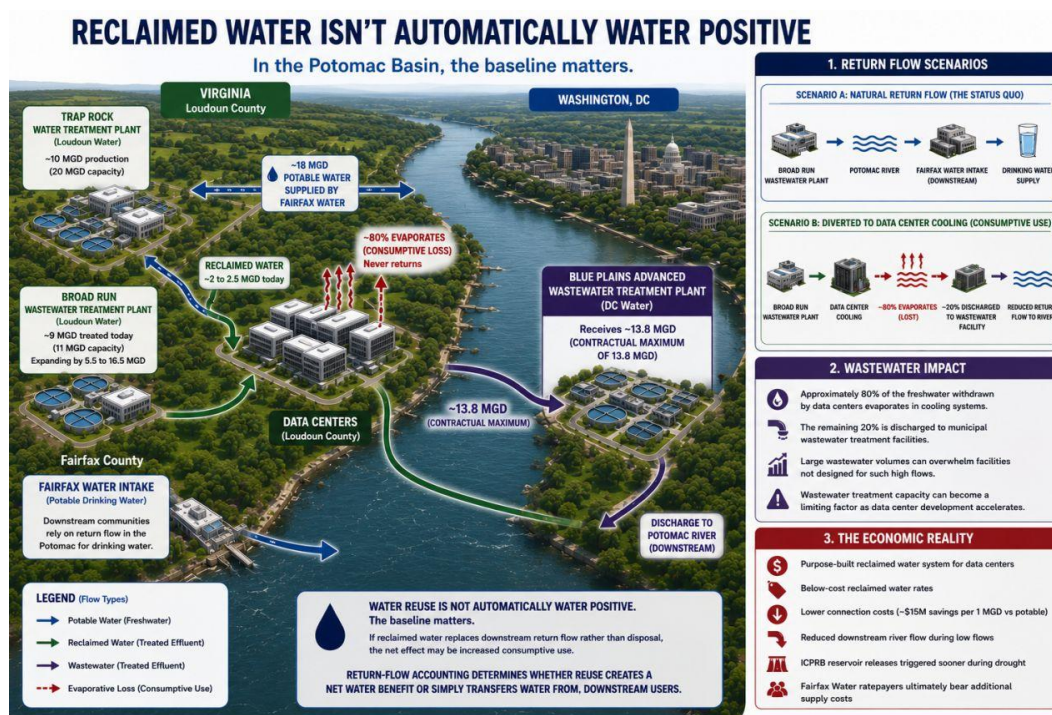


Figure 1. Return-flow accounting in the Potomac Basin. Reclaimed water diverted to data center cooling is largely lost to evaporation; the balance is discharged downstream through Blue Plains rather than returning to the Potomac above Fairfax Water's intakes, reducing return flow during low-flow conditions.

4.4 No drought-responsive rate applies to the largest water users

In early June 2026, the Metropolitan Washington Council of Governments declared a regional Drought Watch covering the District of Columbia, multiple Maryland counties, and numerous Northern Virginia jurisdictions, following record-breaking March–April temperatures, the Potomac's lowest recorded level for that time of year in 130 years, and a two-year precipitation deficit of nearly eight inches. On June 18, 2026, the Governor announced the Commonwealth's driest period since 1941, with 100 percent of the state's land area in drought and the majority, including Northern Virginia, in Drought Warning status. The Authority's own website carries a Drought Watch banner asking residents and businesses to conserve.⁸

During this declared drought, the rate structure enforces conservation economically on households through steep quarterly tiers while imposing no drought-responsive or escalating price signal on the largest consumptive users in the system. Reclaimed water diverted to evaporative cooling is consumptively lost, whereas the same effluent would otherwise return to the Potomac as flow that sustains downstream intakes precisely during the low-flow conditions the region now faces.

4.5 The Water-Positive framing is repurposed as corporate ESG credit by Data Centers

The same reclaimed diversion that reduces downstream return flow is, at the corporate level, reported as an environmental benefit. Most major data center operators (hyperscalers) have published water-positive commitments and reclaimed or recycled water features prominently in those claims. Within Loudoun Water's catchment, roughly 20 percent of data centers are supplied with recycled water, and that recycled volume is counted toward the operators' water-positive accounting. The result is that a single volume of water can be recorded as a sustainability benefit on a corporate ledger while, measured at the basin scale, it represents an increase in consumptive use.

The accounting benefit extends beyond corporate water reports. Reclaimed water supplied to data centers underpins water-positive and sustainable-computing claims for the cloud and AI services they host, even where those diversions reduce Potomac return flows during drought. The issue is the accounting baseline, not reuse itself. Reuse benefits a basin only when it replaces disposal. Where it diverts water that would otherwise have returned to the river, it reallocates existing water and can increase consumptive loss, yet corporate accounting often credits both outcomes equally.

This distinction is central to the Board's rate decision. If below-cost reclaimed-water rates are justified on stewardship grounds, they should be based on basin-wide hydrologic benefits and not corporate sustainability claims. Where reclaimed water diversions reduce return flow during drought, rates should be evaluated on cost-of-service principles alone.

5. The Rate Structure Warrants Review Under § 15.2-5136(D)

Section 15.2-5136(D) imposes a continuing duty of periodic review and adjustment. Four features of the current structure, taken together, warrant formal public review as applied to large-volume users:

- **Inverted conservation pricing.** The marginal gallon is priced highest for households and lowest for the largest industrial users, who derive the highest economic benefit per unit of water.
- **No distinct large-user class.** There is no rate class, demand charge, or minimum commitment for users whose demand drives capacity expansion, in contrast to the SCC's GS-5 determination for the analogous electric sector and the cost-causation commitments the operators accepted in the Ratepayer Protection Pledge.
- **Below-cost reclaimed pricing.** The Authority's own 2024 Rate Study found reclaimed rates insufficient to meet the reclaimed system's revenue requirements, alongside connection pricing conferring very large financial benefits on a small number of customers, without any published reconciliation of that under-recovery with § 15.2-5136(D).
- **No drought mechanism for large users.** No drought-responsive rate applies to the system's largest users during a declared regional Drought Watch and statewide Drought Warning.

5.1 The discounts cannot be justified by inability to pay

The discounts at issue cannot be justified by any claim of hardship by the data center operators. The industry is hugely profitable and can pay without any harm to their bottom line. Analysis of publicly available industry data indicates that, while data centers consume less water by raw volume than agriculture or thermoelectric power, they generate on the order of **\$0.14 of profit per gallon of water used per day**, roughly 128 times the

profit density of power plants, thousands of times that of cattle production, and 74 and 18 times that of golf courses and steel production respectively. Residential customers, by contrast, derive no revenue from their water use at all, yet pay the system's highest marginal rates.⁹



Figure 2. Water consumption and profit efficiency of various industries in comparison to Data Centers

This report does not suggest that profitability alone should set rates; cost of service should. But where the customer class with by far the greatest economic capacity to pay cost-based rates is instead the class receiving the system's deepest discounts, purpose-built infrastructure, waived connection fees, and below-cost rates, while non-commercial households carry the steepest conservation pricing during a declared drought, the structure is difficult to reconcile with § 15.2-5136(D).

This report does not contend that reclaimed water service is undesirable. Reclaimed service preserves potable supply and reduces nutrient discharges, and incentive pricing to build out the system may reflect sound policy. The question is narrower and procedural: whether rates conferring benefits of this magnitude on a single class of users, from infrastructure purpose-built for that class, and now known by the Authority's own study to under-recover cost, are supported by a transparent cost-of-service allocation and a properly constituted rate class.

⁹ "Water Consumption vs. Profit Efficiency by Industry," author's analysis, Data Center Water Leaks, <https://www.datacenterwaterleaks.com>.

6. Recommendations

The following actions would allow the Board to discharge its continuing duty under § 15.2-5136 and to align data center water pricing with the impact, volume, and value at issue:

- **Reconcile and publish the cost basis.** Publicly reconcile the 2024 Rate Study's below-cost finding with the fair-and-reasonable requirement of § 15.2-5136(D); publish the class-by-class cost allocation underlying that study; and commission and publish an independent cost-of-service and rate-design study addressing large-volume water users (potable and reclaimed), including allocation of the capital and operating costs of the reclaimed system and of capacity expansion driven by data center demand.
- **Establish a large-volume user rate class.** Following the public hearing required by § 15.2-5136(G), create a distinct large-volume class (for example, customers with contracted or actual demand of 1 MGD or greater), with minimum demand commitments analogous to the SCC's GS-5 requirements and consistent with the Ratepayer Protection Pledge commitments the operators have already accepted, so that infrastructure costs serving such users are borne by such users.
- **Adopt drought-responsive rates for large users.** Provide that declared drought stages carry escalating price signals for the system's largest users, as they already do, through tiered pricing, for households.
- **Publish the full reclaimed rate and fee schedule.** Publish the complete current reclaimed water rate schedule, connection and availability fee schedule, and any board resolutions adopting or supporting reclaimed pricing.
- **Analyze downstream return-flow impacts.** In consultation with the ICPRB and downstream drinking-water suppliers, publicly analyze the water-supply implications of consumptive reclaimed use (evaporative loss versus return flow to the Potomac) under the drought stages defined in the COG Water Supply and Drought Awareness Response Plan, and account for downstream return-flow impacts before approving any expansion of reclaimed diversions to consumptive uses.

7. References

- Loudoun Water, Schedule of Rates for Residential Customers and Water Usage Rates schedule.
- Loudoun Water, Reclaimed Water Program history and description (2010 origin; 20 miles of pipeline; 750+ million gallons delivered in 2025).
- WaterLoop podcast, “The Water Reality in Data Center Alley” (June 21, 2026): statements of Loudoun Water officials on tap fees and reclaimed pricing.
- Metropolitan Washington COG Regional Drought Watch declaration (June 2026); Governor's June 18, 2026 announcement; Virginia DEQ Drought Warning materials.
- Virginia State Corporation Commission, Final Order, Case No. PUR-2025-00058 (Nov. 25, 2025) (creation of GS-5 rate class).
- Index of FOIA-obtained billing and consumption records (Loudoun Water; Prince William Water Authority; Fairfax Water), datacenterwaterleaks.com.
- Author's analysis: Water Consumption vs. Profit Efficiency by industry.
- Stantec, Loudoun Water Water and Sewer Rate Study, Final Report (Oct. 28, 2024)
- White House, Ratepayer Protection Pledge: Proclamation, news release, and fact sheet (Mar. 4, 2026).