

Date: September 1, 2026

To: Chairman: Sen. Charles Perry and Water, Agriculture, & Rural Affairs Committee Members
CC: Senator Kevin Sparks, Senator César Blanco, Senator Roland Gutierrez, Senator Adam Hinojosa, Senator Lois Kolkhorst, and Senator José Menéndez

From: Rita Beving, Public Citizen, rita.beving@gmail.com, 214.557.2271

Re: Assessing Water Demands of Energy-Intensive Technologies in Texas

Public Citizen appreciates the opportunity to submit comments to this committee on the large water demands of energy-intensive technologies in our state. We will focus our comments on both the direct and indirect use of water for data centers.

Data from a recent August 2026 industry publication indicates there are 237 operating data centers in Texas.¹ Hundreds more have been announced or are under construction.

Today, a mid-size data center can use up to as much as 300,000 gallons per day for cooling its servers, while a large or hyperscale facility can use up to 5 million gallons per day.²

According to estimates by the Houston Advanced Research Council (HARC), the direct (on-site cooling) and indirect (electricity generation) water consumption for existing data centers may have totaled as much as 25 billion gallons in 2025.³

LACK OF REPORTING

The Texas Water Development Board (TWDB) initially adopted its 2027 water plan on July 23rd of this year. Currently, the TWDB five-year plan does not account for individual data center water use in its water plan, although it had issued a survey request to the industry for this and other information this past year. When the agency testified in June, it stated that of the 341 surveys sent this year, only 17% of the data centers responded to the agency.⁴ Yet the *next* water plan the agency will be reviewing is for 2032.

The TWDB has been sending data centers surveys since 2023. Only one-third of data centers surveyed in 2024 responded. In 2025, just 17% responded, the same percentage as last year. Though required by law to respond (see Statute 16.012m of the Texas Water Code),⁵ the consequences for data centers and other entities in noncompliance for answering the agency survey are minimal resulting in a Class C misdemeanor with a maximum fine of \$500.⁶

Commented [Adrian Sh1]: On August 19 at House State Affairs McKinnon said it was up to 29%.

Commented [Adrian Sh2]: Not sure what the point is here. Is it that the 2027 water plan is already approved and doesn't account for data center water use?

¹ <https://elpasomatters.org/2025/09/10/project-jupiter-data-center-santa-teresa-new-mexico-el-paso-texas-water-electricity/>

² <https://natureforward.org/data-centers-and-water-use/>

³ <https://harcresearch.org/wp-content/uploads/2026/01/Thirsty-Data-Water-Use-and-The-Projected-Data-Center-Boom-in-Texas.pdf>

⁴ <https://house.texas.gov/videos/22709> (Temple McKinnon testimony)

⁵ <https://www.twdb.texas.gov/waterplanning/waterusesurvey/index.asp>

⁶ <https://communityimpact.com/central-austin/texas-legislature/texas-includes-minimal-data-center-info-in-state-water-plan-citing-limited-data/>

Likewise, the Public Utilities Commission also sent out a survey this year in collaboration with the TWDB. It asked operators to provide information about water consumption, water sources, cooling systems, electricity demand and whether facilities are connected to the state's electric grid or have their own on-site power source such as a gas-fired power plant. In its June testimony before Natural Resources, the agency testified that it had received responses from only 28 companies, representing 92 data center facilities.⁷ It was unclear from the PUC's testimony whether the actual number quoted was the total number of surveys the agency had actually sent out.

INDIRECT WATER USE

Too often the question about data center water usage focuses solely on the actual cooling needs of a facility itself, when there is a need to look at the water-energy nexus of an **entire** data center campus, both on and off-site.

Data centers are now recognized as the most energy-intensive elements of the digital economy. The total electrical power going into a single data center rack is expected to approach 1 MW by 2028 —equivalent to the peak hour energy use of roughly 250 U.S. homes flowing into a computing unit the size of a bookcase.⁸

A February report by Bluefield Research, *"The Water-Power Nexus: How Data Centers are Reshaping the U.S. Water Landscape,"* notes that the biggest water story is not what is happening onsite with data center facilities, but rather with the development of power plants that accompany them. By 2030, data centers are expected to account for 8.9% of total electrical demand nationwide, up 4.4%, or more than double of 2023.⁹

According to an Environmental Integrity Project report, data centers connected to the grid have found that power plants use between 75 to 92% of all the water needed to keep data centers running.¹⁰

In a Global Energy Monitor report just released August 25, 2026, U.S. gas-fired power proposals tied to data centers nearly doubled in the first half of this year.¹¹ Texas accounts for nearly one-third of this explosive growth with a 51% increase in development during the last 6 months, more than any country worldwide.¹²

Commented [Adrian Sh3]: You could add a recommendation to the end of this section. Something like:

Require the PUC to collect the following information and share it with other agencies:

- Energy use and demand on the ERCOT (and statewide) grid by data centers
- Behind-the-meter energy production and use by data centers
- Any contract with existing or new generation (ie new power plant built by data center)
- Hours of operation of each backup generator, including whether the use was for maintenance, emergency power failure, voltage-ride through failure, or other causes.
- Water use, including the water source and whether the water is potable, and also indirect water use (ie to power the facility)

Impose mandatory fines for failure to report.

Commented [Adrian Sh4]: I would be more direct: "an entire data center campus, including any associated electric generation."

Commented [Adrian Sh5]: Unclear what this is, although the "size of a bookcase" bit helps. Can you estimate the total number of racks in use? Is there a meaningful relationship to the total demand number of ~500 MW.

Also 200 homes per MW is the normal ERCOT figure.

Commented [Adrian Sh6]: This got jumbled somehow. Is it saying, "of the total water demand coming from data centers, 75-92% of it is from associated power plants."

⁷ <https://www.houstonpublicmedia.org/articles/news/energy-environment/2026/06/24/555390/texas-data-centers-puc-water-survey/>

⁸ https://compass.beg.utexas.edu/files/publications/Water_Requirements_for_DC_White_Paper.pdf

⁹ <https://www.bluefieldresearch.com/research/the-water-power-nexus-how-data-centers-are-reshaping-the-u-s-water-landscape/>

¹⁰ <https://environmentalintegrity.org/news/74-gas-power-plants-proposed-for-u-s-data-centers-could-release-as-much-climate-pollution-as-australia/>

¹¹ <https://globalenergymonitor.org/research/us-gas-power-proposals-tied-data-centers-nearly-double-six-months>

¹² <https://globalenergymonitor.org/research/us-gas-power-proposals-tied-data-centers-nearly-double-six-months>

ERCOT is now tracking more than 438,000 MW of large load requests to connect to the grid. Almost 89% of those requests are from data centers.¹³ In 2025, ERCOT received 225 large load interconnection requests through mid-November, compared to the 152 requests received during the entire 2022-2024 period combined.¹⁴

As Texas leads the way in the development of data center campuses and the power that supports these facilities, Texas needs to look holistically at the water needed for both data center development and its supporting power generation.

Due to the backlog of connection requests, developers are pivoting to behind-the-meter power and faster-to-install engines to skip supply backlogs. In Texas, many of these developers are turning to gas turbines for onsite backup generation.

Gas turbines are the most expensive and critical component of a natural gas plant, accounting for almost half of the gas generation proposals for data centers nationwide.¹⁵ Both simple-cycle and combined-cycle gas turbines are often used for power generation, utilizing water in varying capacities.

In a basic *simple-cycle* gas turbine plant, water is used to cool the turbine and auxiliary equipment, and is not used for electric generation. The hot exhaust, typically around 600 °C, is routed through a closed-loop water circuit that absorbs heat from the turbine housing, bearings, and lubricants. After collecting heat, water is pumped to a cooling tower where it releases the thermal load into the air before returning to the system for reuse.¹⁶

Combined-cycle gas turbines, which combine gas and steam-powered turbines, can use an average of 2800 gallons per megawatt hour.¹⁷ In a combined-cycle natural gas plant, water is essential for electricity generation because the exhaust heat from the gas turbine is captured in a heat-recovery steam generator that produces steam to drive a second turbine.¹⁸ This steam cycle turns water into a power-producing medium, distinguishing it from a simple-cycle plant where water serves only for cooling.¹⁹

The 5800-acre FERMI Matador project near Amarillo plans to utilize 90 combined-cycle gas turbines, 16 cooling towers, and 6 emergency generators.²⁰ The full build out of the project is for 11 GW and will be supported by other forms of power including nuclear and solar.

Commented [Adrian Sh7]: They have more recently said 474 MW and event "close to 500 MW" at House State Affairs Aug. 19.

Commented [Adrian Sh8]: Aren't gas turbines the source of the backlog? Also isn't the backup generator need independent of backlogs? And isn't most backup diesel generators? I might say, "Many developers also install backup generation in the form of diesel generators or gas turbines."

Commented [Adrian Sh9]: This goes beyond the 11 GW though. They already have one 5 GW permit and they have another pending for 6 GW, and that's all gas.

¹³ <https://www.ercot.com/news/release/06182026-puct-approves-ercots>

¹⁴ <https://americanoverview.com/texas-grid-operator-ercot-sees-large-load-requests-surge-270-in-2025-driven-by-data-centers/>

¹⁵ <https://globalenergymonitor.org/research/us-gas-power-proposals-tied-data-centers-nearly-double-six-months>

¹⁶ <https://shuncy.com/article/does-natural-gas-plant-use-water-to-generate-electricity#basic-gas-turbine-operation-and-water-role>

¹⁷ <https://environmentalintegrity.org/news/74-gas-power-plants-proposed-for-u-s-data-centers-could-release-as-much-climate-pollution-as-australia/>

¹⁸ <https://shuncy.com/article/does-natural-gas-plant-use-water-to-generate-electricity#basic-gas-turbine-operation-and-water-role>

¹⁹ <https://shuncy.com/article/does-natural-gas-plant-use-water-to-generate-electricity#basic-gas-turbine-operation-and-water-role>

²⁰ <https://insideclimatenews.org/news/25082026/texas-data-center-gas-projects/>

The 1100-acre Stargate project in Abilene has now projected utilizing a total of 51 natural gas turbines. In 2024, the Stargate project initially filed for 10 simple cycle turbines²¹ and 62 diesel generators. It began operation without public input by securing a minor source permit from TCEQ for this portion of its facility. In July 2026, the project filed for an additional 41 turbines and 18 generators.²² At full buildout, Stargate will have a capacity of 1.2 GW of power.

The 2000-acre Nexus data center project in Hubbard is implementing the first phase of its campus with 500-612 MW of generation capacity. In full build out, it will be supported by 7.2 GW of onsite natural gas generation. It is utilizing 31 combustion engines, some combined-cycle capable, with 24 reciprocating engines and 6 diesel generators.²³

Due to the lack of reporting from data center projects, the water use for gas turbines coupled with cooling needs for an entire facility's campus will be unknown unless the water use is tracked in a more complete and comprehensive manner. The tracking of water use needs to include a developer's projections for the final buildout of these facilities.

DIRECT WATER USE

Most often in discussions about the water needs for data centers, the focus is on the direct water use in the cooling of the servers.

Data centers consume a considerable amount of power which generates heat. The more equipment a facility has, the more heat it generates. Servers and processes within a data center need to maintain optimum temperatures and humidity. Otherwise, excessive heat may damage equipment, causing servers to malfunction or even stop working.

Though cooling methods are evolving, data centers typically use either water- or air-based cooling systems. Water-based systems that are reliant on evaporative cooling use less electricity, while air-based systems consume less water but require more power. Below are some of the typical cooling technologies utilized for data center facilities:

1. **Air-cooling systems** release waste heat directly into the ambient air without using water.
2. **Direct-to-chip cooling** involves circulating liquid directly to the heat-generating components of servers.
3. **Immersion cooling** involves submerging entire servers or components in a non-conductive liquid coolant.
4. **Closed-loop systems** recirculate chilled water or coolant within a closed circuit minimizing water loss and increasing efficiency.
5. **Hybrid systems** combine multiple cooling methods, using evaporative cooling only when necessary.²⁴

²¹ <https://www.citriniresearch.com/p/stargate-a-citrini-field-trip-bde>

²² <https://www.aterio.io/blog/stargate-files-for-phase-3-expansion-in-abilene>

²³ <https://checkmarkpro.com/assets/Case-Study-Nexus-Data-Center-Campus-Hubbard-Texas.pdf>

²⁴ <https://waterwelljournal.com/data-centers-and-groundwater/>

Commented [Adrian Sh10]: Note that the industry says all new proposals are closed loop cooling. May want to address that claim head on.

Commented [Adrian Sh11]: I'm not sure this is useful unless we can comment on the relative water use of each, or give examples.

Commented [Adrian Sh12]: I'm not sure how this footnote landed here but make sure it gets back in its place!

There has been some discussion by some county and state officials about mandating closed loop water cooling systems to minimize water loss. While these systems have been marketed as waterless solutions reducing direct water use to data centers, the systems can take millions of gallons of water to fill. And at some given point in time, that water will need to be replaced.

Commented [Adrian Sh13]: The industry refers to this first bit as the “flush and fill.”

Closed loop systems can shift the water burden instead to upstream thermal electric demand. Industry experts note that closed loop systems may utilize as much as 40% more electricity than evaporative cooling systems for the same cooling output.²⁵ This increase may be even higher for hyperscale facilities since power demand for gas fired behind-the-meter generation can reach gigawatts of power.²⁶

Commented [Adrian Sh14]: You gave several gigawatt-sized examples above

As the data center industry evolves there are other emerging cooling technologies that may improve water efficiencies. But power-hungry solutions coupled with thermal power generation do not solve the water use problem.

To quote an industry expert, “Waterless cooling that drives up electricity demand, and thereby increases water use elsewhere, is not a sustainable solution. It is a redistribution of impact.”²⁷

Commented [Adrian Sh15]: This is a great point, but it and the last few paragraphs here probably belong in the “indirect water use” section.

REPORTED OR PERMITTED WATER USE

Below is a list of permitted or reported water requests of the larger data center projects in Texas. It is unclear whether these water requests include the additional water needed for the electric generation for these projects:

Commented [Adrian Sh16]: I might lead the water section with a few of these big examples. Maybe just bullets listing facility and total water use.

FERMI America Matador Project – 2.5 million gallons per day (Permitted-2024)

FERMI America has been approved for up to 2.5 million gallons per day for its 5800-acre Matador project (or approximately 912.5 million gallons annually) with the City of Amarillo and has an option with the city to increase that volume to 5 million gallons per day as the projects builds out.²⁸

FERMI’s data center has been permitted for 90 gas turbines, and in March, submitted an application for an additional 51 turbine units.²⁹

Note: On August 17, the City of Amarillo implemented its Stage 1 drought contingency plan after its reservoir dropped below 60 percent. During the month of July, FERMI reported its use of 310,000 gallons of water.³⁰

²⁵ <https://gneuton.com/the-illusion-of-waterless-ai-how-closed-loop-data-centers-shift-the-fresh-water-burden-to-power-plants>

²⁶ <https://gneuton.com/the-illusion-of-waterless-ai-how-closed-loop-data-centers-shift-the-fresh-water-burden-to-power-plants>

²⁷ <https://gneuton.com/the-illusion-of-waterless-ai-how-closed-loop-data-centers-shift-the-fresh-water-burden-to-power-plants>

²⁸ <https://amarillotribune.org/2026/08/27/asked-answered-how-much-water-is-fermi-america-using/>

²⁹ <https://environmentalintegrity.org/news/74-gas-power-plants-proposed-for-u-s-data-centers-could-release-as-much-climate-pollution-as-australia/>

³⁰ <https://amarillotribune.org/2026/08/27/asked-answered-how-much-water-is-fermi-america-using/>

Meta Platforms El Paso Campus – 1.5 million gallons per day (Permitted)

The Meta Platforms data center is building on a 1,000-acre parcel in northeast El Paso. The water supply agreement between Meta and the city-owned water utility permits the project to use as much as **1.5 million gallons of water per day with a capped allocation at 2.5 million gallons per day.**³¹

The campus plans on using 813 modular gas generators totaling 366 MW of power.³²

Google's Midlothian Data Center – 263 million gallons annually (Reported-2025 use)

Google's 375-acre data center campus in Midlothian first broke ground in 2019, later purchasing an additional 165 acres. In 2024, Google added a fourth building to its campus.³³ According to Google's own 2026 Environmental Annual Report, the data center withdrew a total of **263 million gallons of water in 2025, consumed 220 million gallons and discharged a total of 43.4 million gallons.** In January 2026, it started construction on a fifth building.³⁴

Nexus Hubbard Plant – Hubbard, Texas – 100 million gallons annually (Permitted)

A 600 MW natural gas-powered data center is planned on a 2000-acre site outside Hubbard with roughly 153 MW of emergency diesel generation at the site.³⁵ In February 2026, Nexus requested an operating amendment to its annual permit to increase its pumping from to 115 million gallons annual water request from the Prairielands Groundwater District.³⁶

The plant's profile notes that it has 31 combustion engines, some combined-cycle capable, 24 reciprocating engines, and 6 diesel generators.³⁷

³¹ <https://kfoxtv.com/news/local/meta-data-center-water-cap-set-at-25m-gallons-a-day-average-pegged-at-480000>

³² <https://www.theia.global/article/meta-to-install-813-gas-generators-for-1-gw-ai-data-center-in-el-paso-texas-55a7b147>

³³ <https://www.datacenterdynamics.com/en/news/google-files-for-fifth-data-center-at-midlothian-campus-in-texas/>

³⁴ <https://sustainability.google/reports/google-2026-environmental-report/>

³⁵ <https://checkmarkpro.com/assets/Case-Study-Nexus-Data-Center-Campus-Hubbard-Texas.pdf>

³⁶ https://www.prairielandsgcd.org/wp-content/uploads/2026/02/OP-Hearing-Notice_02.17.26.pdf

³⁷ <https://checkmarkpro.com/assets/Case-Study-Nexus-Data-Center-Campus-Hubbard-Texas.pdf>

RECOMMENDATIONS

Public Citizen recommends the following as a response to the water challenges the state may face with the increase of water not only for data centers, but also for the thermal generation that supports it:

1) Require Detailed Reporting of Direct *and* Indirect Water Use

Data center facilities should be required to report the total water demand for their entire campus including that needed for power generation or other critical infrastructure for their total buildout. Many campuses phase in their activities, not telling cities, counties, or the state what their expected buildout and final resource requirements will be.

Reliance on voluntary surveys should be replaced with mandatory reporting requirements.

Water data for both current plus electrical demand buildout should be reported. This reporting should be mandated and sent to the PUC, TCEQ, and the Texas Water Development Board (TWDB).

Failure to provide this information in a timely manner to the aforementioned agencies should be met with significant fines, and if needed, denial or delay of a facility's requested permits. Currently the failure to report to the TWDB is a Class C misdemeanor and a \$500 fine.

Cities and counties should be able to secure the same information outlined above in their development agreements.

Finally, this information should be publicly available, and the state code should be amended to ensure that utilities are able to release water use information for these large industrial users.

2) Include Large Users in Water Planning

The TWDB needs to track both data center and electrical infrastructure water usage. Regional planning groups and their respective utilities should be required to track and record large water usage within their respective areas. Likewise, this data should be reported by groundwater districts and river authorities. This data should be publicly available.

The reported actual and projected water usage needs to be utilized in the TWDB's water planning process which occurs every 5 years. The 2027 water plan has been finalized, and, therefore, the next opportunity for any data to be included would not be until 2032. Data collection needs to begin now to have meaningful projections for future water planning.

3) Energy and Data Center Water Use Should be Metered

Transparency and accessible data make for better planning both for local communities and for the state. All utility-provided energy and water should be metered. All groundwater use for data center campuses should also be metered.

4) Use of Non-Potable Water

Data centers and power plants should pursue gray water, treated wastewater, brackish water or other non-potable water sources first as their primary sources for their cooling systems.

5) Utilize Energy Efficient Technologies

Water demand may be decreased with utilizing the most energy efficient technologies appropriate for a data center facility. The legislature could require the use of Energy Star equipment. The state should explore developing water efficiency standards for data centers and other large industrial facilities.

6) Large Water Users Should Shoulder Infrastructure Costs

1 Large industrial and data center users should bear the costs for any new infrastructure required to service them including water distribution, water supply, water treatment, and associated financing costs. This may be done by increased tiered rate charges for large water users or some kind of surcharge.

7) Pretreatment of Wastewater May Be Required

2 Wastewater from data centers may contain biocides, glycols, corrosion inhibitors, traces of heavy metals, and PFAs. These chemicals can be somewhat concentrated when discharged and could strain or even overwhelm local water treatment facilities. This wastewater can also be quite warm, up to 140 degrees, due to the heat absorbed through the cooling of servers. The state should consider, especially for large scale data center operations, requiring pretreatment of water before it is discharged back into a system or into waters and streams.

8) Every Texas County Needs to Be in a Groundwater District

The time has also come to require that every county be in a groundwater district in order to protect aquifer and water resources. According to the TWDB, there are 98 groundwater districts that cover 73% of the state.³⁸ For those remaining counties or portions thereof without a groundwater district, a data center or other industrial facility could drill water wells in those areas with no accountability for the volumes of water extracted due to the lack of a permitting authority.

9) Existing Groundwater Districts Need Expanded Authority and Protection

Recent years have seen the increased threats of litigation against groundwater districts. Past hearings in Natural Resources have pointed to a lack of data, funding and staff to meet legal and other ongoing challenges. Groundwater districts need to be shielded from liability to meet drought contingency limits on pumping or to meet future conditions. The state should consider granting groundwater districts additional authority within Chapter 36 of the State Water Code.

10) Update the Rule of Capture

With the rapid development of data center sites and the increasing efforts to commoditize water in Texas, it is time to update the Rule of Capture to protect aquifers and protect water resources from the overpumping of water by individuals or entities. This is especially troubling in areas with no groundwater districts to set limits on water withdrawals.

Commented [Adrian Sh17]: You might explain what this means. "It is time to eliminate the Rule of Capture, which allows unlimited groundwater pumping from one's land, in favor of a rule that meters all water use in Texas."

³⁸ https://www.twdb.texas.gov/groundwater/conservation_districts/facts.asp