



Institute for Energy Economics
and Financial Analysis

Hydrogen and carbon capture and storage (CCS) in water-stressed Texas

Anika Juhn, Energy Data Analyst



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Key findings

The 2027 State Water Plan predicts Texas demand will outpace supply by 16% by 2030.

The five-year plan estimates Texas will need to spend \$174 billion by 2080 to meet the future demand of a growing population and expanding economy.

The Texas plan, however, does not account for the increasing demand for water from growing hydrogen, carbon capture, and direct air capture industries.

Evidence suggests that water may be the weak link in Texas's efforts to promote the hydrogen, carbon capture, and direct air capture industries.



Executive summary

Water availability poses a major risk to planned hydrogen and carbon capture and storage projects. Texas is a prime example of a state struggling to meet existing water demand while simultaneously encouraging the development of new water-intensive businesses and industries. The 2027 Texas State Water Plan projects that by 2030 demand will outstrip supply by 16%, even if all recommended water development projects are completed within their planned timeframes. The plan estimates the state will need to spend \$174 billion by 2080 to meet the future demand of a growing population and expanding economy.

However, the state's water plan fails to include sources of significant water demand that have emerged in the last few years. Hydrogen production operations and other industries dependent on carbon capture and storage (CCS) use enormous amounts of water. More recently, data centers and artificial intelligence (AI) training facilities have been proposed in the state. All three types of facilities will require significant amounts of water, and these newly announced projects are not included in the 2027 water plan.

Proponents of hydrogen and CCS are working to position Texas as a prime location for growth in these emerging sectors. International customers in regions or countries that have clear greenhouse gas (GHG) reduction mandates are the target market for green and blue low-carbon hydrogen, ammonia, and methanol.

The fossil fuel industry believes low natural gas prices from fracked fields in Texas and Louisiana, coupled with generous federal 45V and 45Q tax credits for clean hydrogen production and CCS, are paths to profitability. However, the lack of firm offtake contracts, challenging realities of demand-side incentives, and the shifting politics around federal subsidies make hydrogen and CCS-dependent projects risky undertakings.

In addition to economic risks, hydrogen and CCS-dependent projects also pose substantial risks to local communities. Community concerns about the effects of these projects on local air quality and pipeline routes, as well as storage and transport of hazardous substances such as hydrogen and carbon dioxide (CO₂), are significant.

To date, the water demands of these projects have gone largely undiscussed, but they will have very real consequences for other local users. Hydrogen production, CCS systems integration, and direct air capture are water-intensive. Cooling accounts for most of the water required, and even more is needed in states such as Texas, which have large areas that are hotter and may be more humid than the baseline used in system modeling.

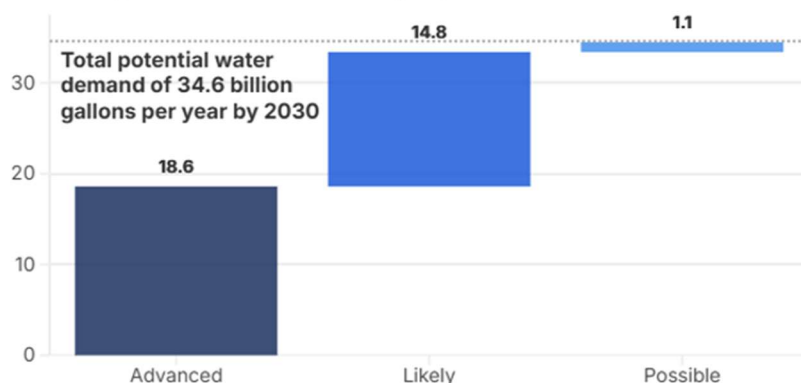
In a state already facing serious water challenges, the hydrogen and CCS buildout could bring unwelcome surprises. In some cases, particularly in areas currently experiencing water shortages, there may be conflict between these emerging sectors and residents, ranchers, farmers, or data centers.

Figure 1: Potential buildout of hydrogen and CCS-dependent projects would tax Texas water resources

It is unlikely that all proposed projects will be built but the potential water demand is enormous.

Water demand is excluded for projects planning to use brackish water or seawater.

Billions of gallons of water withdrawal per year



Source: EIP, company reports, media reports, IEEFA analysis.

Introduction

Water demand can be described in several ways. Industrial users often focus attention on water consumption. This refers to the difference between the amount of water withdrawn from a source, generally for cooling purposes, and then discharged. Water consumption is also referred to as water usage.¹

This report focuses on water withdrawal, or water demand, which is a more important figure because it dictates the availability of water for other users. Water that is discharged doesn't necessarily return to the source from which it was initially removed. It may be discharged into a different water body than it was extracted from, and is effectively unavailable for users sharing the same source. For instance, if a facility draws down water from a large aquifer, the recondensed and cooled water is not used to recharge the aquifer. Instead, it is typically discharged into a surface stream. There are some carefully managed projects in Texas that involve direct aquifer recharge,^{2,3} but these are the exception to the rule.

¹ Environmental Management. [Water Challenges for Geologic Carbon Capture and Sequestration](#). February 2010.

² Rolling Plains Groundwater Management District. [Managed Aquifer Recharge](#). Accessed September 2026.

³ El Paso Water. [Aquifer Recharge](#). Accessed September 2026.

This analysis provides a statewide view based on projected annual water demand and supply. It does not take into account the additional risks associated with variable seasonal water supply, , a key issue highlighted by researchers in planning for widespread implementation of CCS.⁴

Texas State Water Plan: How much water is there to work with?

Texas completes its statewide water planning on a five-year cycle. The 2027 State Water Plan was released in July 2026.⁵ When compared to the 2022 plan,⁶ cost estimates for recommended projects to develop new water supplies (not including water demand reduction projects) have almost tripled through 2070 after controlling for inflation. These estimates reflect costs for new projects—not rehabilitations or maintenance of existing water supply or delivery systems. The estimates also do not account for the potential buildout of water-hungry hydrogen and CCS-dependent projects or data centers.

The higher estimates in the 2027 plan reflect additional projects and recommended projects that have not been completed, as well as a large, expensive reservoir project. But much of the cost increase is associated with the higher cost of construction and “the broader trend that water supply infrastructure projects are increasingly costly as regions pursue more distant, complex, or marginal sources of supply.”⁷ Costs are not only higher for the entire five-year planning period; it’s also expected to cost \$69 billion to meet 2030 projected demand—2.8 times higher than the estimate given in the 2022 plan (in 2025 dollars).

⁴ Nature Sustainability. [Hydrological limits to carbon capture and storage](#). May 2020.

⁵ Texas Water Development Board. [2027 State Water Plan](#). July 2026.

⁶ Texas Water Development Board. [2022 State Water Plan](#). July 2021.

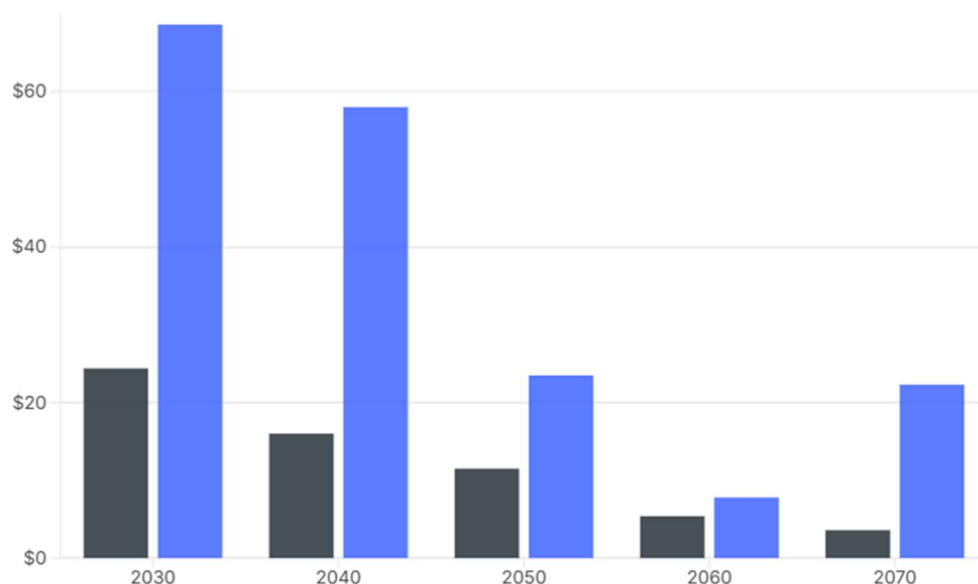
⁷ Texas Water Development Board. [2027 State Water Plan](#). July 2026.

Figure 2: Cost estimates for recommended water projects have skyrocketed

The 2027 Texas State Water Plan arrived at cost estimates 2.8 times higher than the 2022 plan for projects slated for completion to meet 2030 demand

■ 2022 ■ 2027

Estimated cost of recommended projects (billions of dollars)



Source: Texas Water Development Board; Estimates are in 2025 dollars.

The 2027 plan estimates statewide water use is expected to grow about 6% per decade. The manufacturing category, which would include hydrogen and CCS-based projects, accounts for about 11% of the total projected demand in 2030. The sector is projected to have a shortfall in supply of about 42,000 acre-feet (about 13.7 billion gallons) per year. All other sectors have a shortfall as well, so there is little wiggle room or opportunity to draw water supply from other sectors that may be reducing demand. Even with declines in projected demand for irrigation and mining, there will still be shortfalls.

Importantly, water demand and resource planning for the manufacturing sector is based on projections using historical water use from industry operations between 2010 and 2019. These historical datasets do not reflect the large water-intensive buildout associated with hydrogen and CCS-dependent products whose development was encouraged by the generous federal subsidies for hydrogen production and carbon capture and storage/use included in the Inflation Reduction Act in 2022. The 2027 plan only includes demand associated with signed water contracts and existing permits as of 2023, when the regional water plans were developed.

Figure 3: Texas' 2027 State Water Plan leaves little room for error

The plan has a gap in meeting expected irrigation demands but closely matches demand in all other sectors.



Source: Texas Water Development Board.

It is unclear how the Texas Water Development Board will square the circle of staging water supply for announced or proposed water-intensive projects. The 2027 plan notes that more information needs to be collected on data centers, but the data collection will follow similar procedures used in the past (namely, collecting water-use information via surveys and evaluating municipal and local utility contracts).

Water demand for hydrogen and CCS-based industry

There has been little in-depth analysis of the implications of a significant buildout of water-intensive infrastructure, such as CCS, hydrogen production, and data centers, particularly in already water-stressed locations such as Texas.

In January 2026, the Great Plains Institute (GPI) released the Texas Carbon Management Roadmap, outlining the state's potential for near-term and mid-century expansion of CCS-dependent power generation and industrial deployment.⁸ The roadmap recommends evaluating water availability and potential constraints to the projected hydrogen and CCS buildout, but it did not highlight water as a critical issue for the success of widespread retrofits of existing facilities or construction of new ones.

As recently as 2025, a paper reviewing the issue of water intensity for hydrogen production declared, "[t]o our best knowledge, there are no studies on water intensity, specifically detailed descriptions of water withdrawal and consumption, in the hydrogen production sector."⁹

⁸ Great Plains Institute. [Texas Carbon Management Roadmap](#). January 2026.

⁹ Journal of Environmental and Chemical Engineering. [Water intensity for hydrogen production with and without carbon capture and sequestration](#). October 2025.

Commercial-scale production of blue hydrogen (fossil fuel-based feedstock with CCS), green hydrogen (electrolytic process using renewable energy), and hydrogen derivatives such as ammonia and methanol requires billions of gallons of water. Direct air capture (DAC) using solvents is also water-intensive. Process and cooling water need to be pure, so water would ideally come from an aquifer or other source that would put these proposed projects in direct competition with municipal, residential, or agricultural uses. Alternatively, brackish or saline water can be treated as needed, but bring additional costs to the project.

Water demand estimates in preliminary project proposals may not reflect the realities on the ground. For instance, researchers found that most locations in Texas could require more than three times the water typically needed for green hydrogen production because electrolyzers there would require cooling that is not necessary in more temperate climates.¹⁰

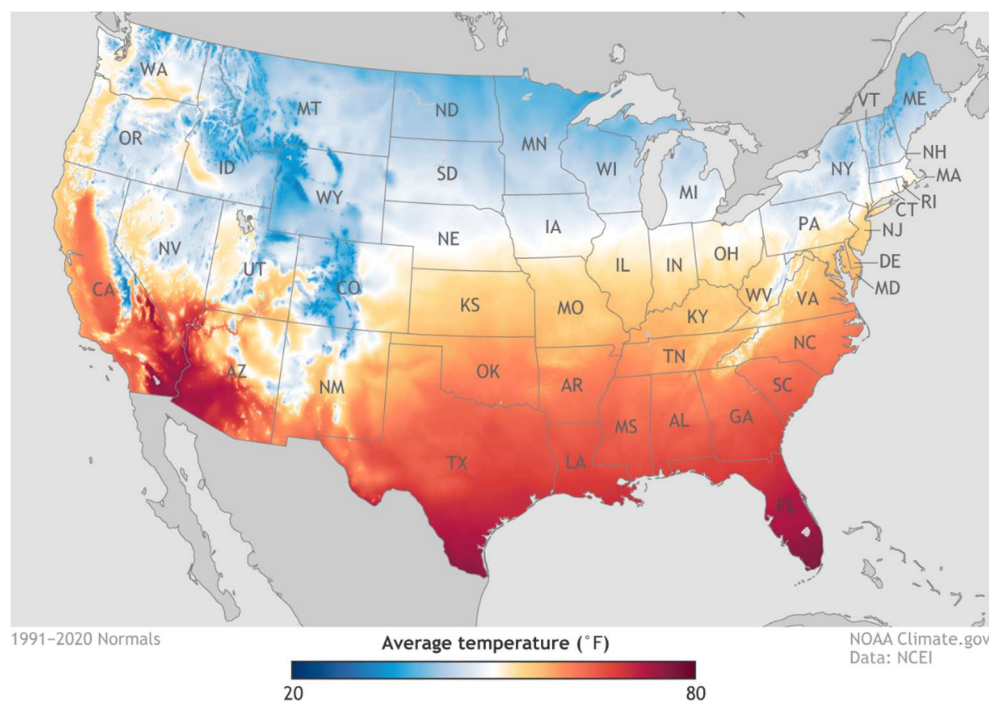
The challenges of high temperatures and humidity to evaporative cooling extend to CCS-based production and DAC. Most studies of water demand for these types of facilities rely on standard models. However, temperatures across Texas are often higher than the models, with much of the state experiencing annual average temperatures between 70 and 80 degrees, as shown on the map below.¹¹ These challenging weather conditions place higher demands on all types of cooling systems. While emerging technologies have shown some promise in reducing water demand for blue and green hydrogen production, they remain experimental.¹²

¹⁰ Communications Sustainability. [Demand for cooling water reshapes global water-sustainable hydrogen production](#). June 2026.

¹¹ National Oceanic and Atmospheric Administration (NOAA). [New maps of annual average temperature and precipitation from the U.S. Climate Normals](#). October 2021.

¹² Nexus. [Towards water-conscious green hydrogen and methanol production: A techno-economic review](#). March 2025.

Figure 4: Average annual temperatures in most of Texas are much higher than the rest of the contiguous U.S.



Source: NOAA

The project list analyzed in this report is based on the Environmental Integrity Project (EIP) CCUS database as of Aug. 5, 2026.¹³ Projects were included in the water demand summary if they involved hydrogen production and/or carbon capture, including DAC. Fully operational and canceled projects were excluded. Partial projects were included if they were substantive expansions of existing facilities. Projects committed to using brackish water or seawater are included in the project list in the appendix, but associated water demand is not included in the summary data or charts.

Most announced projects in Texas involving CCS are related to the production of hydrogen and derived ammonia and methanol. This water demand analysis does not include potential projects in sectors such as LNG or gas processing. This analysis also does not include power generation facilities, whether connected to the grid or planned for behind-the-meter, or water demands related to cooling at data/AI centers.

The full list of projects considered in this analysis is in Appendix B.

This analysis does not include details on proposed water sources for all projects because projects under development do not always announce their water usage plans. Companies have announced

¹³ Environmental Integrity Project Oil and Gas Watch. [Carbon Capture Use and Storage](#). Accessed August 2026.

plans to extract brackish water and treat it, sometimes in response to community concerns.¹⁴¹⁵ Projects located in coastal areas may choose to use seawater for once-through cooling.¹⁶ For the cases in which companies have made announcements or permit applications, the water demand is omitted from the total calculations in this report.

Finally, water withdrawal estimates are for facilities only and do not account for upstream water demand related to fuel or feedstock production and transport.

Table 1 summarizes the data used to determine average annual water withdrawal demand for a typical facility, based on production quantities. The Methods section in Appendix A provides details on the background and sources used to arrive at the values shown.

Table 1: Average water withdrawal for selected hydrogen and CCS-based products

Product	Gallons of water	Unit
Grey hydrogen	4,400	per metric ton H ₂
Blue hydrogen (closed loop cooling)	8,200	per metric ton H ₂
Blue hydrogen (once-through cooling)	10,000	per metric ton H ₂
Green hydrogen	3,900	per metric ton H ₂
Blue methanol	1,600	per metric ton MeOH
Green methanol	740	per metric ton MeOH
Blue ammonia	1,400	per metric ton NH ₃
Green ammonia	690	per metric ton NH ₃
Direct air capture (DAC)	2,800	per metric ton CO ₂

Sources: NETL, industry estimates, media reports, permit applications, IEEFA analysis.

Results

Statewide, the planned hydrogen and CCS-dependent projects most likely to be completed could require an additional 57,000 acre-feet (18.6 billion gallons) of water per year, putting significant new strain on the state's already-stressed water supplies. There are an additional 49,000 acre-feet (15.9 billion gallons) of water associated with projects that are in early phases of development or on hold with the possibility of resumption. Assuming all 21 of these projects are built out to their proposed levels by 2040, there would be about 106,000 acre-feet of demand that is not currently accounted for in the 2027 water plan. While not all the water would be consumed by these facilities, sufficient supply would need to be available, and discharged water may not be of sufficient quality for reuse in

¹⁴ Crossroads Today. [Synergen addresses community concerns over proposed Point Comfort green ammonia plant](#). July 2026.

¹⁵ E&E News. [Texas water fight shows pushback on 'clean' hydrogen](#). June 2024.

¹⁶ Oil and Gas Watch. [Enbridge/Yara Ingleside Blue Ammonia Plant \(Project YaREN\)](#). Accessed September 2026.

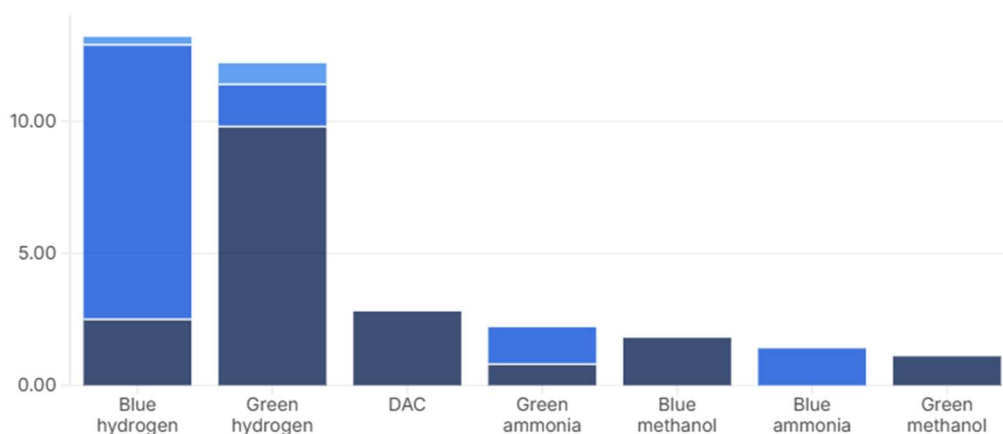
all purposes. However, the plan already projects a deficit of about 44,000 acre-feet for manufacturing consumption in 2040, as well as deficits in all other sectors. As pressure to expand water-intensive industries increases, Texas will be hard-pressed to develop sufficient water resources to accommodate project plans.

Figure 5: Annual water withdrawal for proposed Texas hydrogen and CCS-related projects

Projects could withdraw a total of 34.6 billion gallons of water per year (106,000 acre feet)

■ Advanced ■ Likely ■ Possible

Billion gallons of water per year



Source: Environmental Integrity Project, IEEFA analysis. Totals do not include projects planning to use brackish water or seawater.

Water resources vary significantly across the state. The map shown below shows expected water stress by county in 2030, based on demand and supply estimates included in the 2027 State Water Plan. Water stress reflects the percentage of available supply that is taken up by demand. An area has low or medium water stress if 40% or less of the water available is expected to be used. When 80% or more of the supply is allocated, an area is considered to have extremely high water stress.¹⁷ In Texas, 78% of counties meet that benchmark, and almost half its 254 counties have water demand projections that equal or surpass supply.¹⁸

¹⁷ World Resources Institute. [Aqueduct 4.0: Updated Decision-Relevant Global Water Risk Indicators](#). August 2023.

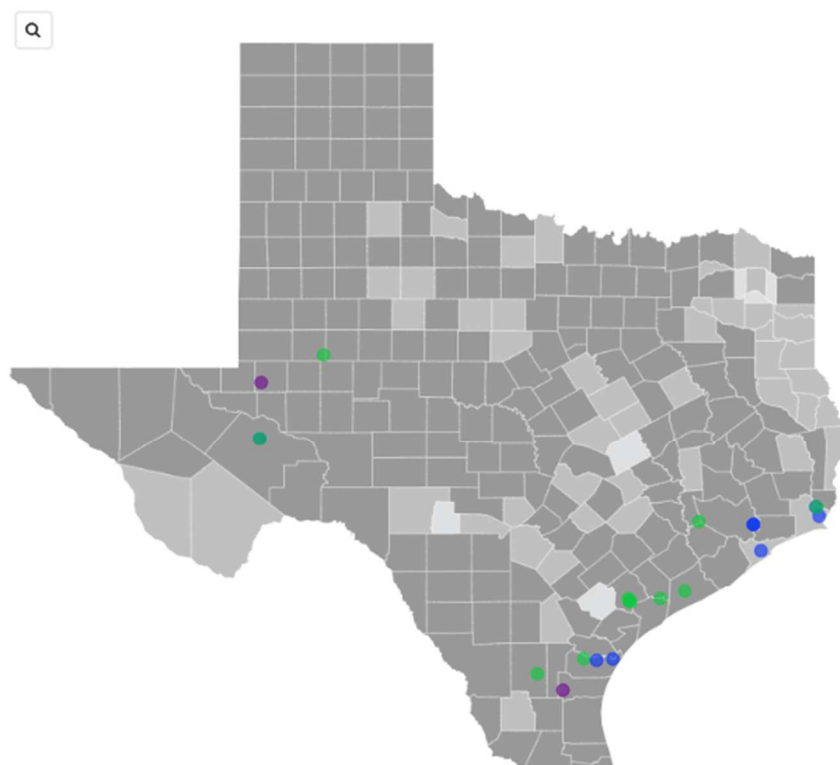
¹⁸ Texas Water Development Board. [Texas Water Development Board \(TWDB\) Database Reports Application](#). Accessed August 21, 2026. (Reports 72 and 74.)

Figure 6: Most Texas counties are projected to be water stressed in 2030

78% of Texas counties (dark grey) are expected to have extremely high water stress. Proposed hydrogen and CCS-based projects have high water demand and many are located in water-stressed counties. An area is considered to have extremely high water stress if demand is 80% of supply or higher.

Estimated water stress in 2030 (demand/supply): **Excess supply** 0.8 **Demand outstrips supply** 3.5

Proposed project type: ■ Green ■ Blue ■ DAC



Source: Texas Water Development Board, EIP, IEEFA analysis.

When proposed project locations are mapped against water stress, it is clear that there are parts of the state where developing industry will compete with many water demands.

Coastal CCS-dependent projects may fare better than others since they will have access to seawater for cooling, which could reduce cost and technology constraints. However, they may create additional challenges with high wastewater discharge volumes that may include contaminants or be warmer than the receiving water. Once-through cooling using seawater is extremely water-intensive. The Yara / Enbridge blue ammonia facility proposed for Ingleside, Texas, received a permit to withdraw a whopping 89,000 acre-feet of water per year (29 billion gallons) from Corpus Christi Bay and then return about 70% of to the bay.¹⁹²⁰ Closed-loop cooling, assumed to be planned for other

¹⁹ Texas Commission on Environmental Quality. [Ingleside Clean Ammonia Partners, LLC Water Use Permit application](#). November 2024.

²⁰ Texas Commission on Environmental Quality. [Ingleside Blue Ammonia wastewater permit application](#). January 2025.

projects included in this analysis, would have a much lower water withdrawal demand of 12,500 acre-feet (4 billion gallons) for a facility with YaREN's planned production.

Green hydrogen-based projects are more likely to struggle to find locations with water of sufficient quality and quantity. Project proposals targeting brackish water seem to have found an approach that doesn't conflict with other local users' needs. However, companies are targeting those water resources because they can be developed economically with the project, and there isn't currently as much competition for them. Future water needs for people, plants, and livestock may need to target these same reservoirs for the same reason industry is looking at them now—there just isn't enough fresh water to meet demand, and the more saline or polluted a water source is, the more expensive it is to purify.

Conclusion

Water availability for industrial and manufacturing purposes is a growing concern. Hydrogen and its derived products and CCS-dependent products are extremely water-intensive, and increasing supply concerns should factor into investor decisions on proposed projects. Texas communities are pushing to safeguard water resources and are demanding that officials take action.²¹ The growing concern regarding data center development, with its significant associated power and water needs, heightens the potential for increased scrutiny of all large industrial projects in Texas communities.²²

While the state is promoting the development of hydrogen and CCS-based projects because of favorable federal credits and available, cheap natural gas, water resources may prove to be the weakest link in project viability. This is especially true as hyperscalers and data center operators stake claims for space and water resources, moving much more quickly than a large industrial project can assemble the complex combination of offtake contracts, investor confidence, and infrastructure development.

²¹ The Cool Down. [Texas residents raise empty cups as officials weigh groundwater rules for developers](#). August 2026.

²² Texas Scorecard. [Hood County Rejects Data Center Concept Plan](#). March 2026.

Appendix A: Methods

Blue hydrogen

A key 2022 study from the National Energy Technology Laboratory (NETL) includes details on water withdrawal and consumption for grey and blue hydrogen generated with steam methane-reforming (SMR) or autothermal reforming (ATR) technology, with and without CCS. The study reported that blue hydrogen production has a withdrawal requirement of 3.7 gallons per pound of hydrogen gas (37 liters/kg H₂), for both SMR and ATR technologies when natural gas was used as fuel and feedstock. This estimate includes water for steam and cooling. Adding CCS to unabated hydrogen production increased the water withdrawal requirement by 85% due to the cooling demands of the carbon capture system.²³ All blue hydrogen projects included in this report use natural gas as the feedstock.

There are three main types of carbon capture technologies used in pre-combustion and post-combustion applications that would apply to blue hydrogen projects: amine absorption, membrane separation, and adsorption using a solid sorbent. There are large variations in water use in air-cooled applications, but demand is relatively similar for the three if evaporative cooling is used.²⁴ Evaporative cooling is the most common, so water demand is assumed to be consistent between the hydrogen-based projects using CCS, regardless of the carbon removal technology.

The 2022 NETL analysis uses the key assumption of an ambient temperature of 59°F and 60% relative humidity. This analysis uses the NETL figures without adjustment for the potentially higher temperatures and/or humidity levels in Texas to make a conservative estimate of water demand.

Green hydrogen

Many estimates of water demand for green hydrogen production focus solely on the water consumed during electrolysis (about 9L/kg of hydrogen). About one liter of water for every kilogram of hydrogen is also used in the purification of the water itself, but that quantity can be much higher, depending on the source of water and its treatment needs. What is not often discussed in relation to green hydrogen production is the additional water required for cooling the electrolyzer stacks. Electrolyzer temperatures are typically managed with evaporative cooling techniques, which are less effective in hot, humid climates such as Texas. According to a 2026 study published in the journal *Communications Sustainability*, such local climate conditions can dramatically increase water demand, with estimates rising threefold to between 31 and 35 L/kg of hydrogen produced.²⁵

²³ NETL. [Comparison of Commercial, State-of-the-Art, Fossil-Based Hydrogen Production Technologies](#). April 2022.

²⁴ Nature Sustainability. [Hydrological limits to carbon capture and storage](#). August 2020.

²⁵ Communications Sustainability. [Demand for cooling water reshapes global water-sustainable hydrogen production](#). June 2026.

This analysis uses a conservative figure of 3,900 gallons per metric ton of hydrogen.²⁶ This figure does not account for the additional demand that could be required for evaporative cooling in hotter or more humid conditions.

This estimate likely underestimates the actual withdrawal requirement for a green hydrogen project based in Texas. The Air Products / AES proposed green hydrogen facility in Vernon, Texas, had a capacity of 73,000 metric tons per year.²⁷ The city entered an agreement to sell 20,000 acre-feet of water to the project annually.²⁸ Of this, 8,000 acre-feet was expected to serve the hydrogen plant.²⁹ This would average out to an astounding 36 gallons of water per kilogram of green hydrogen (136L/kg H₂), almost nine times larger than the estimates made in this report and almost four times larger than the estimates made in the 2026 *Communications Sustainability* analysis that factored in additional demand due to the effects of local temperature and humidity.

Ammonia and methanol

Blue or green hydrogen can be combined with nitrogen to produce ammonia or carbon oxides to produce methanol. The water footprint of ammonia is determined by the water demand of the hydrogen production process.³⁰

In this analysis, water demand for ammonia and methanol is assumed to be proportional to the amount of blue or green hydrogen required for production. A metric ton of ammonia requires 0.176 metric tons of hydrogen.³¹

A metric ton of methanol requires 0.19 metric tons of hydrogen.³² Assuming a base water withdrawal requirement of 8,200 gallons per metric ton of blue hydrogen, a metric ton of blue methanol would require 1,600 gallons of water. A 2014 NETL study found it takes about 1,400 gallons of water to produce a metric ton of methanol when natural gas with carbon capture is used.³³

²⁶ Nature Communications. [Future hydrogen economies imply environmental trade-offs and a supply-demand mismatch](#). August 2024.

²⁷ Southwest Ledger. [\\$4B hydrogen production facility planned for idled Oklaunion site](#). December 2022.

²⁸ Texoma's Homepage. [Hydrogen Plant proposal sells billions of gallons of water](#). August 2023.

²⁹ Texas Water Development Board. [2026 Regional Water Plan: Region B](#). January 2026. (Table 2-6.)

³⁰ IEA. [Ammonia Technology Roadmap](#). October 2021.

³¹ Green Ammonia Working Group. [Green Ammonia Production](#). Accessed September 2026.

³² Tata Consulting Engineers. [Green Methanol: A Sustainable Future](#). November 2024.

³³ NETL. [Baseline Analysis of Crude Methanol Production from Coal and Natural Gas](#). October 2014.

Direct air capture (DAC)

A recently published review of water requirements for DAC systems with liquid-based capture systems, such as those proposed for projects in Texas, found a water demand of as much as 13,200 gallons of water per metric ton of CO₂ captured. Hot and humid sites would be on the high end of those estimates.³⁴

This analysis assumes 2,800 gallons of water is withdrawn for every metric ton CO₂ captured, based on figures published in a 2022 NETL analysis of a DAC system designed to capture 1 metric ton per annum (MTPA) of CO₂ per year.³⁵ The NETL modeling included capture from ambient air, as well as the natural gas-fired power plant required to operate the facility and the calcination system.

The cost of water treatment and wastewater components in the facility construction plan is substantial. Raw water treatment and wastewater processing components accounted for about 8% of the facility's cost—a low estimate, considering half of the modeled supply came from a potable municipal source that would not require any pre-treatment. This highlights the trade-offs industry has when it comes to water supply and management. Limited high-quality water may force unfavorable economic decisions and ultimately prove too expensive.

1PointFive's Stratos project, located in west Texas, plans to use brackish water from an aquifer more than 4,000 feet underground.³⁶ While this plan will alleviate pressure on local potable water, it will entail additional costs for the company. Brackish water has about one-third the total dissolved solids of seawater, so it is less expensive to purify.³⁷ But using brackish aquifers could pose challenges for future water resource management. While they are currently not used for municipal purposes or watering crops and livestock, future needs could change.

³⁴ Journal of Cleaner Production. [Techno-economic assessment of CO₂ direct air capture plants](#). July 2019.

³⁵ NETL. [Direct Air Capture Case Studies: Solvent System](#). August 2022.

³⁶ 1Point5. Stratos: [Our First Direct Air Capture Facility](#). Accessed August 2026.

³⁷ COMPASS. [Water Use Requirements for Data Centers in Texas](#). August 2026.

Appendix B: Project list

Projects included in this analysis were drawn from the Environmental Integrity Project's CCUS database in August 2026.³⁸ This analysis was based on large, commercial-scale projects announced for development in Texas over the last five years that involve green (electrolytic) or blue (fossil fuel feedstock with CCS) hydrogen production. Products derived from low-carbon hydrogen (ammonia and methanol) were also included.

CCS projects associated with LNG, natural gas processing, and refining were not included as part of this analysis. Many projects were also excluded if they are very unlikely to proceed, as evidenced by a lack of company announcements or recent acquisitions of property or permits. Some companies announced projects have been put "on hold," such as ExxonMobil's Baytown project. These projects were included in the analysis if they had not been canceled and a company had put significant resources behind the endeavor, since such projects may resume if economic conditions change or offtaker contract opportunities arise. Finally, high-profile projects such as Woodside's blue ammonia plant do not appear on this list because they do not include the facilities that are actually producing the low-carbon hydrogen. In the case of Woodside, Linde's Nederland facility is providing blue hydrogen, so it is included in the analysis.

Table 2: Project list

Facility	Type	Units (annual)	Annual water withdrawal (gallons)	Annual water withdrawal (acre-feet)
Hydrogen		Metric tons H₂		
ExxonMobil Baytown Olefins Plant -- hydrogen	Blue hydrogen	900,000	7,380,000,000	22,648
Linde Nederland Facility	Blue hydrogen	300,000	2,460,000,000	7,549
Chevron Crescent Bayou - Project Labrador	Blue hydrogen	252,000	2,066,400,000	6,342
Javelina Gas Processing Facility	Blue hydrogen	118,920	975,144,000	2,993
Trans Permian H2 Hub: MMEX Blue Hydrogen Project	Blue hydrogen	34,000	278,800,000	856
Hydrogen City	Green hydrogen	2,500,000	9,750,000,000	29,922
HyFuels Green Hydrogen Plant	Green hydrogen	400,000	1,560,000,000	4,787

³⁸ Environmental Integrity Project Oil and Gas Watch. [Carbon Capture Use and Storage](#). Accessed August 2026.

Facility	Type	Units (annual)	Annual water withdrawal (gallons)	Annual water withdrawal (acre-feet)
Trans Permian H2 Hub: MMEX Green Hydrogen to Green Ammonia Project	Green hydrogen	210,000	819,000,000	2,5
New Fortress Energy ZeroParks	Green hydrogen	18,000	70,200,000	2
HNO Houston Green Hydrogen Plant	Green hydrogen	180	702,000	
Ammonia		Metric tons NH₃		
Enbridge/Yara Ingleside Blue Ammonia Plant (Project YaREN)	Blue ammonia	2,900,000	*	
ACME Port of Victoria Green Ammonia Plant	Green ammonia	1,200,000	828,000,000	2,5
First Ammonia Victoria Plant	Green ammonia	1,100,000	759,000,000	2,3
ExxonMobil Baytown Olefins Plant -- ammonia	Blue ammonia	1,000,000	1,400,000,000	4,2
Avina Nueces Clean Ammonia Plant	Green ammonia	800,000	552,000,000	1,6
Synergen Point Comfort Green Ammonia Plant	Green ammonia	219,000	*	
Methanol		Metric tons MeOH		
Sandpiper Blue Methanol Plant	Blue methanol	1,100,000	1,760,000,000	5,4
HIF Matagorda eFuels Plant (Project Helix)	Green methanol	1,400,000	1,036,000,000	3,1
Port of Victoria E-Methanol Plant (Project Nightshade)	Green methanol	100,000	74,000,000	2
Direct Air Capture (DAC)		Metric tons CO₂		
South Texas DAC Hub	DAC	1,000,000	2,800,000,000	8,5
Stratos Direct Air Capture Facility	DAC	1,000,000	*	

* Water supply from brackish source or seawater

Sources: EIP, company reports, media reports, IEEFA analysis.

About IEEFA

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About the author

Anika Juhn

Anika Juhn is an energy data analyst with the Institute for Energy Economics and Financial Analysis (IEEFA). Her areas of research include fossil-based hydrogen production technologies, life cycle emissions accounting, carbon capture technologies, and issues related to long-term CO₂ storage.

ajuhn@ieefa.org

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