BUILD IT RIGHT OR DON'T BUILD IT

Mandatory Design, Mitigation, Permitting Standards for Data Centers in Texas

A Legislative and Regulatory Model for Community Protection

The premise is not anti-technology. It is anti-extraction. Texas can host the world's most advanced AI infrastructure without sacrificing its water, its air, its grid, or its communities. But only if the state stops permitting these facilities as though they were warehouses and starts regulating them as what they are: industrial megaprojects with footprints rivaling power plants and refineries.

This proposal establishes five mandatory standards that any data center exceeding 100 MW must meet before receiving permits, tax abatements, or construction approval within 50 miles of inhabited areas. For speculative projects—those without named, contracted tenants—construction permitting should be prohibited entirely until contracts are executed and independently verified.

STANDARD 1: BRING YOUR OWN POWER—AND SHARE IT

The principle: No data center should draw from the public grid. Period. Every facility over 100 MW must generate 100% of its own power on-site or through dedicated, behind-the-meter generation—plus a minimum 15% surplus committed to the local community grid at regulated rates.

Why 15% surplus: These facilities are extracting community resources (land, water, air quality, road infrastructure, emergency services). Surplus power returned to the grid is a tangible, ongoing community benefit that offsets the externalized costs. It also creates a natural incentive for operators to invest in efficient power generation.

Precedent: GW Ranch (Pecos County) and the Shackelford County Frontier Campus are already designed as off-grid, private-power facilities. This is not theoretical—it is the direction the industry is already moving. The standard simply requires it universally and adds the surplus-sharing requirement.

Implementation Details…

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- Power generation mix must include minimum 30% renewable (solar, wind, battery storage).
- Gas-fired generation must use best-available emissions controls and be subject to annual emissions audits.
- 15% surplus power dedicated to local grid at rates not exceeding the regional average retail rate.
- During ERCOT-declared grid emergencies, facilities must curtail data center operations to maintain surplus power delivery. SB 6 (2025) already provides the legal framework for this.

STANDARD 2: ZERO NET WATER CONSUMPTION

The principle: No data center may draw from municipal water supplies, aquifers, or surface water for ongoing operations. Initial fill is permitted with verified closed-loop technology. All facilities must demonstrate net-positive water impact through active groundwater recharge.

Tier 1: Cooling Technology (Mandatory)

1. **Closed-loop cooling systems required.** Direct-to-chip liquid cooling (already deployed at Abilene for Nvidia GB200 racks) or closed-loop chiller systems (specified at Shackelford Frontier Campus). Evaporative cooling towers are prohibited for facilities over 100 MW.
2. **Initial fill verification.** Operator must document the total water volume required for initial system fill and periodic refill, with third-party engineering verification that the system is genuinely closed-loop.
3. **Water source for fill:** Reclaimed wastewater, produced water from oil and gas operations (already common in the Permian Basin, with 87% recycled produced water in hydraulic fracturing as of 2024), or desalinated brackish water. GW Ranch has already proposed using waste heat for desalination—this should be required, not optional.

Tier 2: Active Groundwater Recharge (Mandatory)

Every data center campus must implement engineered stormwater capture and groundwater recharge infrastructure across its perimeter and throughout its site. The goal: net-positive water impact, meaning the facility's existence actually improves local groundwater conditions compared to pre-development baseline.

1. **Beaver Dam Analogs (BDAs) on all perimeter drainage.** BDAs are low-cost, low-impact structures made of woody material that mimic natural beaver dams. They slow surface water flow, raise water tables, reconnect floodplains, and increase groundwater recharge through hyporheic exchange. USDA and USGS research documents their effectiveness in arid and semi-arid landscapes. Installation cost is minimal—materials are locally sourced wood and stone. For 1,000–8,000 acre sites, a network of 50–200 BDAs along natural drainage channels would be appropriate. These also create riparian habitat that serves as a natural visual and noise buffer.

   Engineered infiltration basins,…

2. **Engineered infiltration basins.** Stormwater from impervious surfaces (roofs, parking, access roads) must be directed to infiltration basins designed per EPA Enhanced Aquifer Recharge (EAR) best practices. The Infrastructure Investment and Jobs Act authorized $5M/year through 2026 for state and tribal EAR grants—Texas data center operators should be required to fund and implement these systems as a condition of permitting, not as a voluntary nicety. Pre-treatment filtration required per EPA groundwater protection guidelines to prevent contaminant introduction.

3. **Monitoring and reporting.** Quarterly groundwater monitoring at downgradient wells, with data submitted to TCEQ and made publicly available. If groundwater levels decline below pre-development baseline, operator must implement additional recharge measures within 90 days.

STANDARD 3: LIVING INFRASTRUCTURE—VEGETATION WALLS, GREEN ROOFS, AND SITE RESTORATION

The principle: Data centers are industrial facilities that look like industrial facilities—massive, flat, featureless buildings surrounded by gravel and security fencing. This is a choice, not a necessity. Living infrastructure serves five simultaneous functions: visual screening, noise attenuation, air filtration, thermal insulation (reducing cooling load), and habitat creation.

Required Elements

1. **Perimeter vegetation walls (minimum 3 rows, 50-foot depth).** Native species only, selected for the specific ecoregion (e.g., Texas Live Oak, Ashe Juniper, Texas Mountain Laurel for Hill Country; Mesquite, Desert Willow, Texas Sage for West Texas). Three rows minimum: canopy trees (30–50 ft), understory trees (15–25 ft), and dense shrub/grass layer. This provides year-round visual screening, absorbs CO_2 and particulates, attenuates noise by 6–10 dB per 50 feet of dense vegetation, and creates wildlife corridors.

2. **Green roofs on all data hall buildings.** Extensive green roof systems (sedum, native grasses, 4–6 inch growing medium) reduce roof surface temperature by 30–40°F, reducing cooling energy requirements by 10–25%. They also capture and slow stormwater runoff, extending the life of roof membranes by 2–3x. Cost premium is $10–25/sq ft—trivial on facilities costing $1B+. For a 500,000 sq ft building, the roof system costs $5–12.5M against a building cost of $350M+.

3. **Full site vegetation plan (minimum 60% pervious surface).** No more than 40% of total site area may be impervious surface (buildings, roads, hardscape). The remaining 60% must be maintained as native vegetation, including restored prairie grasslands, bioswales, and riparian buffers. This directly supports the stormwater infiltration and groundwater recharge requirements of Standard 2.

4. **Irrigation exclusively from captured rainwater and recycled water.** No potable water or groundwater pumping for landscape irrigation. All landscape watering from on-site rainwater harvesting cisterns (fed by green roofs and impervious surface runoff) and recycled gray water from facility operations. Vegetation species selection must be drought-tolerant, with the goal of zero supplemental irrigation within 3 years of planting establishment.

Practical note: Many successful practical examples support these options. Singapore, Frankfurt, and several European jurisdictions already require green infrastructure for data centers. Apple's data centers in Oregon and North Carolina use 100% renewable energy with extensive site restoration. Google has committed to being water-positive by 2030. The technology and precedent exist. What's missing is the regulatory mandate.

STANDARD 4: AIR QUALITY AND EMISSIONS CONTROLS

The problem: GW Ranch in Pecos County is authorized to emit 33 million tons/year of greenhouse gases—equivalent to nearly 5% of Canada's total annual emissions. Project Matador: 24 million tons/year. These would be among the largest single-source emitters on the planet. Current TCEQ permitting treats these as routine industrial applications.

Required Standards

1. **Emissions cap per MW of data center capacity.** No facility may exceed [to be determined by independent technical review] tons of CO_2e per MW per year. This forces operators to invest in cleaner generation technology rather than simply scaling gas turbines.

2. **Mandatory transition timeline to clean energy.** Facilities may begin operations with gas generation but must achieve 50% renewable within 5 years and 80% within 10 years. Nuclear is counted as clean. This mirrors commitments already made voluntarily by Meta, Google, and Microsoft—it simply makes them enforceable.

3. **Vegetation as air filtration infrastructure.** The perimeter vegetation walls and site plantings from Standard 3 serve double duty as particulate filters. Dense vegetation removes PM2.5, PM10, SO_2, NO_2, and ground-level ozone. The 60% pervious surface requirement ensures sufficient vegetated area for meaningful air quality benefit.

4. **Community air monitoring.** Operator-funded, independently operated air quality monitors at facility perimeter and at nearest inhabited areas, with real-time public data access.

STANDARD 5: NO SPECULATIVE PERMITTING

The core problem: Texas is currently permitting facilities at multi-gigawatt scale without any requirement that the developer have a customer. GW Ranch's 7.65 GW permit was issued with no named data center tenant. The VP of development told reporters the timeline "depends on the customer." This means Texas communities are absorbing the environmental impact, the infrastructure burden, and the tax abatements for facilities that may sit partially built or idle for years—or permanently.

Required Standards

1. **Prohibition on speculative construction permits for facilities over 100 MW within 50 miles of inhabited areas.** Construction permits may only be issued upon presentation of executed, binding operator lease or purchase agreements for a minimum of 50% of planned capacity. The remaining 50% may be permitted in phases as additional leases are executed.

2. **Tax abatements tied to performance.** No abatement may be granted upfront. Instead, abatements are earned annually based on verified performance: actual jobs created, actual tax revenue generated, compliance with all environmental standards, and community benefit agreement milestones. If a facility fails to reach 50% of projected operational employment within 3 years, the abatement is rescinded and back taxes are due.

3. **Environmental remediation bonds.** Before construction begins, operator must post a bond sufficient to cover full site remediation and restoration to pre-development conditions. This protects communities from being left with abandoned industrial sites if projects fail. Bond amount determined by independent environmental engineer, not the developer.

4. **Mandatory independent counsel for communities.** Before any abatement negotiation, the state must fund independent legal and technical counsel for the affected community. These are towns with annual budgets in the low millions negotiating against SoftBank, Oracle, and OpenAI. The playing field must be leveled.

5. **Pollution footprint limits for speculative projects.** Any facility with projected annual emissions exceeding 1 million tons CO_2e may not receive construction permits until all five standards are met AND a contracted tenant is in place. This single provision would have prevented the GW Ranch and Project Matador permits in their current form.

IMPLEMENTATION PATHWAY

Legislative: These standards can be enacted through amendment to SB 6 (2025) or new legislation during the current or next legislative session. The framework already exists—SB 6 established ERCOT authority over large-load consumers. These standards extend that logic to water, air, and community impact.

Regulatory: TCEQ has existing authority under the Texas Clean Air Act and Texas Water Code to impose conditions on permits. The green infrastructure and water requirements can be implemented through rulemaking without new legislation.

Local: Cities with zoning authority can adopt these standards as conditions for special use permits and rezoning. Counties can adopt them as conditions for tax abatement agreements. The Lacy Lakeview opposition model demonstrates that organized communities can extract meaningful concessions.

Litigation: Where legislative and regulatory pathways fail, courts can impose equivalent requirements through injunctive relief in nuisance and environmental enforcement actions. See companion brief: "The $1 Billion Giveaway: A Litigation Roadmap."

THE BOTTOM LINE

None of these standards would prevent a single legitimate data center from being built in Texas. They would prevent speculative industrial megaprojects from extracting billions in public value while externalizing environmental costs onto communities that cannot afford them. They would require the wealthiest corporations on Earth—entities with combined market capitalizations exceeding $7 trillion—to build responsibly.

The industry's own trajectory already points toward closed-loop cooling, on-site power, and renewable energy commitments. These standards simply make the best available practices mandatory and add the community-protection provisions that the market will never provide on its own: surplus power sharing, groundwater recharge, vegetation infrastructure, speculative-construction prohibition, and performance-based abatements.

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