Data Centers: What Communities Should Know

Questions and evidence for residents, journalists, and public officials

Large data centers can bring investment, tax revenue, and infrastructure — but also create substantial demands on electricity, water, land, and public services. This guide evaluates proposed or operating data centers without treating every possible concern as established fact. The full impact of a project often extends beyond the facility itself, to the power plants, transmission lines, pipelines, and water systems built to serve it.

HOW TO READ THE EVIDENCE TIERS

WELL-ESTABLISHED Supported by authoritative evidence, broadly applicable.

PROJECT-DEPENDENT Credible concern; severity depends on the specific facility.

EMERGING EVIDENCE Early research, not yet strong enough for universal claims.

USE WITH CAUTION Allegations that should not be repeated as fact without stronger evidence.

WHAT THIS GUIDE COVERS

Nine topic clusters follow: energy and the grid, water systems, environment and emissions, land and farmland, community wellbeing, local economy and fiscal risk, governance and transparency, security and critical infrastructure, and AI and society. Each entry is written to be checked, not just cited — use it alongside the full source list. This guide is a starting point for public conversation, not a final judgment on any specific proposal: use it to ask sharper questions of applicants, utilities, and local officials, and to weigh claims against the evidence tiers above.

1. ENERGY, GRID & EMERGENCY POWER

Large continuous loads can strain generation and transmission if planning lags demand — but proper integration, flexible demand, and enforceable conditions can offset risk.

- **Electricity demand:**[2,3] U.S. data centers used ~4.4% of electricity in 2023; projected 6.7–15.3% by 2028–2030 (LBNL/DOE)
- **Grid reliability:**[2] rapid large-load additions can outpace local capacity without advance planning
- **Rate/cost-shifting:**[2] existing ratepayers may absorb infrastructure costs built for one large customer
- **Backup generators:**[2] diesel/gas units used for backup or "grid support" add emissions
- **Transmission corridors:**[2] new lines/substations can cross private land and trigger easements or eminent domain
- **Transformer/equipment shortages:** large orders can delay housing, renewables, and reliability upgrades elsewhere
- **Wildfire risk:** new lines and backup fuel can add ignition/smoke risk in fire-prone areas
- **Fire service/hazmat:** high-voltage equipment and lithium batteries require specialized emergency response
- **Emergency fuel competition:** large diesel backup demand may compete with hospitals and fire services in a crisis
- **Grid stability:** very large loads can affect voltage/frequency; sudden disconnection is an operational risk
- **Interconnection displacement:** one large request can occupy capacity otherwise available to housing or renewables
- **Waste heat:** most consumed electricity becomes heat; reuse (district heating, etc.) is often unevaluated

2. WATER SYSTEMS

Water impact depends heavily on cooling technology and local hydrology — never assume all facilities affect water the same way.

- **Water consumption:**[2] cooling and associated power generation can use substantial water
- **Water quality/wastewater:**[2] cooling chemicals and spill risk (fuel, coolant, batteries) require management plans
- **Cooling towers/Legionella:**[2] require documented water-management and monitoring programs
- **Stormwater/flooding:**[2] large impervious campuses can increase runoff and downstream flood risk
- **Water infrastructure cost:** new wells/pipes/treatment plants may leave the public with long-term or stranded costs
- **Withdrawal vs. consumption vs. discharge:** often used interchangeably but not the same — ask for all three
- **Cooling resilience:** performance may degrade in drought, extreme heat, or contaminated source water
- **Wetlands/aquatic ecosystems:** campuses and supporting infrastructure can fill, drain, or alter habitat
- **Thermal pollution:** heated discharge water can affect dissolved oxygen and aquatic life
- **Groundwater drawdown:** large withdrawals can lower water tables and affect connected streams
- **Water rights:** can intensify competition among municipal, agricultural, Tribal, and ecological users

3. ENVIRONMENT, EMISSIONS & CLIMATE

- **Fossil fuel/GHG:**[2] added demand can be met by fossil generation, extending gas-plant and pipeline life
- **Air pollution:**[2] onsite engines, construction equipment, and traffic can affect respiratory/cardiovascular health
- **Local heat/microclimate:**[2] campuses convert most electricity to heat; localized warming is plausible but not yet strongly established generally. EMERGING EVIDENCE
- **Embodied impacts:** chip fabrication, mining, and global manufacturing carry emissions and labor risk outside the community
- **Refrigerant leakage:** high-GWP refrigerants require inventory and leak-detection plans
- **Battery risk:** batteries improve resilience but add mining, fire/toxic-smoke, and disposal-liability risk
- **Construction dust:** site clearing, blasting, and haul trucks generate particulate pollution during construction
- **Manufacturing/supply chain:** server and component manufacturing creates emissions and impacts outside the host community
- **Cumulative/EJ burden:**[2] added pollution, traffic, and water demand can compound existing burdens in already-stressed communities, even when each permit complies individually

4. LAND, HABITAT & FARMLAND

- **Land use:** campuses and infrastructure can displace other uses, compact soil, fragment habitat
- **Biodiversity:** fencing, lighting, and transmission corridors can affect wildlife, including bird collisions
- **Tree removal:** mature-tree loss raises surface temperature and alters stormwater and habitat
- **Farmland loss:** conversion of productive farmland and irrigation infrastructure is often permanent

5. QUALITY OF LIFE & COMMUNITY WELLBEING

- **Noise:**[2] continuous/tonal sound from fans, chillers, and generators can disturb sleep and increase stress
- **Light pollution:**[2] security/industrial lighting can increase nighttime glare, affecting residents and wildlife
- **Mental health:** noise, uncertainty, and loss of rural character may contribute to stress and reduced quality of life
- **Severe stress in siting disputes:**[2] land pressure and prolonged disputes can create serious psychosocial burdens. Population-level causation of suicide is NOT established, but any individual crisis is urgent — 988 Suicide & Crisis Lifeline (call/text 988)

6. LOCAL ECONOMY & FISCAL RISK

- **Employment:** substantial construction jobs and investment, but often fewer permanent onsite jobs than similarly sized industrial uses
- **Tax incentives:**[2] abatements and public spending can reduce revenue or expose governments to risk
- **Property values:** noise, scale, and new transmission lines may affect nearby property desirability
- **Stranded assets:** equipment can become obsolete quickly; facilities may be underused if demand shifts
- **Consumer-electronics competition:** AI-infrastructure growth may compete for chips/components. NOT YET GENERALIZABLE
- **Resource competition:** very large projects can compete with other priorities for capital, labor, and land
- **Unequal distribution:** tax benefits may be broad while burdens concentrate on nearby residents
- **Revenue volatility:** high initial taxable value can depreciate rapidly or shift via exemptions
- **Construction inflation:** multibillion-dollar builds can raise costs or delay housing, schools, and other public projects
- **Construction traffic:**[2] years of heavy-truck traffic, dust, and congestion during multi-year builds
- **Temporary workforce pressure:** large crews strain rentals, hotels, schools, and emergency services
- **Insurance/credit risk:** dependence on one dominant customer can affect utility debt and municipal credit
- **Land-value inflation:** nearby land prices may rise, pressuring existing residents and farms
- **Public subsidies:** significant subsidies sometimes support facilities with relatively few permanent jobs

9. AI & SOCIETY

- **Compute concentration:** advanced chips and large-scale compute may concentrate among few firms
- **Copyright/training data:** AI training raises unresolved consent, compensation, and attribution disputes
- **Hidden labor:** data labeling and content moderation work is sometimes low-paid and psychologically difficult
- **Deepfakes/misinformation:** high-capacity compute can enable convincing synthetic media used for fraud or manipulation
- **Automation:** expanded AI compute may accelerate job displacement across many categories

7. GOVERNANCE, TRANSPARENCY & ACCOUNTABILITY

- **NDAs/transparency:** communities may be asked to approve projects without key ownership, load, or cost information
- **Corporate benefit dependence:**[2] reliance on voluntary donations can weaken independent oversight
- **Regulatory capacity:** local governments may lack expertise to evaluate utility, acoustic, or cybersecurity questions
- **Contractual lock-in:** long-term agreements may rest on uncertain assumptions about technology and demand
- **Corporate structure:** layered subsidiaries can obscure responsibility for taxes, cleanup, and obligations
- **Public records:** trade-secret and NDA claims can limit access to key information
- **Political influence:** lobbying and funded research/community groups can shape public debate
- **Weak consultation:** communities are often consulted only after major decisions are effectively made
- **State preemption:** state law may limit local authority to impose stronger protections
- **Procedural overload:**[2] residents get limited time to review technical filings without paid expertise
- **Public opposition:**[2] concerns over rates, water, and limited local benefit have driven moratoria, permit denials, and litigation nationally

8. SECURITY, DATA & CRITICAL INFRASTRUCTURE

- **Critical-infrastructure risk:**[2] facilities hosting essential systems create consequences beyond the site if disrupted
- **Site surveillance:** cameras, ALPR, and biometric systems can affect workers, visitors, and passersby
- **Hosted computing uses:**[2] a facility's actual workloads may raise separate social concerns worth asking about directly
- **Cloud concentration:** dependence on few hyperscale operators means one failure can cascade widely
- **Insider/supply-chain threats:** compromised hardware and weak remote-access controls are documented risk categories
- **Data sovereignty:** physical/legal data location determines which governments can compel access
- **Cybersecurity:** ransomware, credential theft, and OT attacks are standard threat categories for this infrastructure

CLAIMS TO VERIFY INDEPENDENTLY

"Data centers cause cancer clusters."

"Healthcare costs near data centers rise significantly."

"Data centers raise temperatures by 9–16 degrees on average."

"Data centers broadly disrupt animal navigation through electromagnetic fields."

"Every data center is a terrorist target."

"All data centers pollute water."

"All data centers destabilize the grid."

"All data centers increase everyone's utility bills."

"All data centers devalue surrounding property."

"Infrasound from data centers causes significant disease in people and animals."

Environmental claims ("green," "clean," "necessary for decarbonization") are sometimes used to discourage scrutiny of local risk and alternatives — verify independently rather than accepting framing at face value.

QUESTIONS TO ASK ABOUT ANY PROPOSAL

- Who owns the land, facility, and operating company — including parent companies and subsidiaries?
- What are the initial, average, peak, and full-build electricity and water demands?
- What supporting infrastructure (power plants, transmission, pipelines, water/wastewater) is required?
- What tax benefits and public spending are involved, and who pays if the project is delayed or cancelled?
- What enforceable limits apply to emissions, water use, and noise — and who monitors compliance?
- How close is the project to homes, schools, farms, and sensitive habitat?
- What financial assurance covers decommissioning and cleanup?

MINIMUM PUBLIC DISCLOSURE CHECKLIST

☐ Ownership

☐ Site acreage & phases

☐ Electricity demand (initial/avg/peak/max)

☐ Water demand (initial/avg/peak/max)

☐ Cooling technology

☐ Backup generation (capacity, fuel, emissions)

☐ Required supporting infrastructure

☐ Expected permanent & construction jobs

☐ Tax incentives & public costs

☐ Cost-allocation protections for other ratepayers

☐ Environmental studies (air, water, noise, heat)

☐ Emergency-response & decommissioning plans

☐ Financial assurance & clawback provisions

☐ Annual public reporting of actual usage

☐ Public complaint-resolution process

ABOUT THIS GUIDE

Compiled from public agency filings, utility and water-district records, academic literature, and reporting on operating and proposed data center projects nationally. Evidence tiers reflect the strength of available research as of publication and are updated as new information becomes public — not a verdict on any single facility.