



Principles for Sustainable Data Center Growth

Practical guardrails for companies, communities, and policymakers to minimize
the effects of data centers on natural resources and host communities

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Nature is one of America's most precious resources. As we enter a new era of unprecedented technological growth, AI data center development must be in harmony with the water, land, and energy that sustain us. Companies should meet the moment by innovating not only what they build but how they build it – using ingenuity and investment to pursue the highest possible environmental standards.

The following 30 principles offer practical guardrails to minimize the effects of data centers on natural resources and host communities. Organized into five categories, these principles can serve as a guide for companies, communities, and policymakers to establish strong environmental standards at the state and local levels, regardless of the regulatory landscape.



GENERAL PRINCIPLES

General #1

All data centers should pursue **nature-positive impacts that reverse nature loss and directly benefit the host community**, including improvements to local infrastructure and landscapes that stretch beyond the data center's property line.

Such nature-positive improvements include but are not limited to:

- A. Investing in **local conservation projects** that meaningfully contribute to natural resilience, such as by sponsoring the acquisition and stewardship of public parks or other conserved land.
- B. Investing in **other conservation projects where water and power are sourced** and in places affected by data center support infrastructure such as transmission lines, substations, and energy generation facilities.
- C. Improving a local community's **aging and leaky water infrastructure** to benefit its overall water security and efficiency.
- D. Upgrading a local community's **wastewater infrastructure** and treatment capacities.
- E. Developing infrastructure to advance **beneficial use of waste heat** generated from the data center.
- F. **Funding or cost-sharing required studies** for the above and/or related projects.

General #2

Data centers and their associated infrastructure should be **sited on existing industrial-zoned lands** and should not be sited on conserved lands or lands of high conservation or agricultural value.

General #3

As technology advances, data center companies should **retrofit and upgrade** their existing infrastructure rather than construct new facilities that consume additional land.

General #4

Data center companies should make advanced preparations for potential **site decommissioning and mitigation needs**, such as through development of a trust fund, letter of credit, or other financial assurance.



COMMUNITY PRINCIPLES

Community #1

Data center developers should **employ a substantive and ongoing community outreach process** early and often in project development during siting, initial permitting, construction, and ongoing operations.

Such **community** outreach ought to include:

- A. **Prohibited** usage of non-disclosure agreements (NDAs).
- B. A reasonable number of **community meetings** and advertisements that attempt to reach all households in both the local jurisdiction and jurisdictions where water and energy resources will be sourced.
- C. **Tribal consultation** where applicable.
- D. **Compliance** with applicable federal, state, and local plans and zoning regulations.
- E. **Respect** for community development decisions and local knowledge.
- F. Acquisition of project sites only through **voluntary market transactions** between willing buyers and sellers that fairly reflect the value of the landowner's property.
- G. Ongoing **transparency** in resource use and sustainability operations.

Community #2

Data center companies should pursue negotiation of **community benefit agreements** (CBAs) as a standard practice.

Such **CBAs** ought to include:

- A. Good-faith measures for **monitoring and enforcing** agreed-upon benefits.
- B. **Enforceable remedies** for instances of broken agreements.
- C. Provisions for **community governance** in CBA implementation.
- D. Clearly indicated steps for **ongoing community engagement and transparency** in data center resource use and sustainability operations.

Community #3

Data center companies should pursue **high levels of transparency** with local communities about estimated impacts, with the understanding that transparency is one of the values held in highest regard by the public.

Such **transparency** ought to include facility-level reporting and digital documentation of:

- A. **Data center location**, size, physical footprint, and any reasonably expected expansion of physical footprint or equipment.
- B. Expected total annual and peak **energy demand**.
- C. Expected total annual and peak **water consumption**; peak facility water use per acre.
- D. **Water sourcing** and associated water availability.
- E. Tasks done to improve energy and water efficiency, reduce overall energy and water consumption, and limit environmental pollution.
- F. **Wastewater discharge** volume with pollutant concentrations and mass loads; wastewater pretreatment activities.
- G. Wastewater management and **waste heat reuse plans**.
- H. Projections for the following year's energy and water usage, and sustainability measures.
- I. Annual reports of **community benefit investments** and activities.





WATER PRINCIPLES

Water #1

No data center should be sited where its surface or groundwater withdrawals would put **local water availability** for existing instream and out-of-stream water uses at risk. **Local climate** should be factored into siting and water use decisions.

Water #2

Monthly water consumption and discharge should be **tracked and reported at the facility level** to the applicable local or state water regulatory agency regardless of the presence or absence of a legal mandate.

Water #3

A data center should seek to annually improve its water use effectiveness (WUE) metric and **reduce its total water use** over time, with the goal of becoming **water-positive** where climate allows.

Water #4

Operation at **higher interior temperatures**, for water efficiency purposes, is encouraged.

Water #5

Data centers should **purchase reclaimed water or reuse water onsite** as their primary water-use option where such resources exist, and they should further invest in the expansion and/or development of such resources where they do and do not exist.

Water #6

Cooling technologies that optimize water and energy use for a site's particular climate should be utilized or **retrofitted** as a primary choice.

Water #7

Data centers should **monitor for, report, and prevent the introduction of contaminants** to drinking water sources and receiving waters, and maintain close communication with treatment facilities to ensure compliance.

Water #8

Data centers should **ensure sufficient industrial pretreatment capacity** for known wastewater contaminants that are commonly found in data center wastewater (including phosphates, molybdates, and biocides) but do not possess EPA Maximum Contaminant Level (MCL) requirements, and they should **provide water infrastructure upgrades** where existing local treatment capacities are insufficient.

- A. **Contaminants** that should be monitored and treated include but are not limited to:
- B. Effluent **temperature**.
- C. Those affecting **pH**.
- D. Total **dissolved solids**, including salts, heavy metals, and microplastics.
- E. Chemicals used in **pipe-cleaning** and passivation, including acids, disinfectants, dispersants, and corrosion inhibitors.
- F. **Bacteria**, other biological contaminants, and the chemicals used to inhibit them.
- G. **PFAS** and other flame-retardant chemicals.

Water #9

Data centers should fund **local watershed conservation and restoration efforts** to invest in the long-term resilience of the water source their cooling water is extracted from as well as the water source used to cool the energy they consume, using measurable methods that accurately convert improvements into volume of water returned.





AIR & NOISE PRINCIPLES

Air & Noise #1

Data centers should source power from **clean and water efficient energy sources**, including through development of microgrids. They should also seek to annually **reduce energy use** and prevent ratepayers from **shouldering the burden** of associated higher energy costs.

Air & Noise #2

Data centers should be sited sufficiently **away from residential areas** to eliminate noise pollution for residents.

Air & Noise #3

Use of **diesel generators** for backup power generation should be a last resort and only used when capable of meeting the **highest available emission standards**.

Air & Noise #4

Data centers should give preference to **clean backup power sources**, including innovative long-duration battery storage systems, fuel cells, or other means.

Air & Noise #5

Data centers should not utilize backup power for **non-emergency uses**.

Air & Noise #6

New and existing data centers should **maximize equipment soundproofing** to benefit nearby humans and wildlife that may be disturbed.

Appropriate **soundproofing measures** include but are not limited to:

- A. Use of **noise-absorbing materials** on interior equipment and walls.
- B. Use of **acoustic barriers** and silencers on exterior equipment.
- C. Planting of **vegetated buffers** around the building using native species.





LANDSCAPE PRINCIPLES

Landscape #1

The siting of data centers should operate in accordance with the **mitigation hierarchy**, which seeks:

- A. First, to **avoid harms** to conservation values by choosing an industrial-zoned site with minimal impact.
- B. Second, to **minimize impacts** where avoidance is not possible, by adjusting location and utilizing best practices in design.
- C. Third, to **mitigate impacts** where minimization is not possible, via creating or enhancing adjacent conservation attributes.

Landscape #2

Data center construction should **prioritize previously developed areas** and locations that maximize existing grid transmission capacity, such as brownfields, Superfund sites, and other industrial sites, regardless if a local zoning ordinance happens to permit a data center in other areas.

Landscape #3

When constructed in rural settings, data centers should respect and seek to integrate into, not upend, the **rural and/or agricultural character** of the community.

Landscape #4

Data center development should not be considered within **culturally or ecologically sensitive areas**, including wildlife corridors, community greenspaces, and public lands.

Landscape #5

Data center developers should limit or entirely avoid **wetland and stream impacts**, even for wetlands and intermittent streams that are not state or federally regulated.

Landscape #6

New and existing data centers should **measurably improve upon the local habitats** present at the site or within the watershed prior to construction, with the goal of increasing native species diversity and abundance.

Appropriate improvements include but are not limited to:

- A. Land use offsets through **conservation easements**.
- B. Reforestation and **forest enhancement treatments** that reduce wildfire risk and enhance water outcomes.
- C. On-site introduction of **native and pollinator-benefiting** vegetative species.
- D. **Improvements to local wetlands** that result in a measurable replenishment of water volume.
- E. Other beneficial actions that advance the goals of applicable **State Wildlife Action Plan(s)**.

Landscape #7

Investments in **off-site habitat improvement projects** should also be conducted in places affected by necessary data center support infrastructure, such as transmission lines, substations, and energy generation facilities.

Landscape #8

Data center developers should utilize **design principles and best practices** that further minimize the impact of their sites on local wildlife and ecological functions.

Such **practices** include but are not limited to:

- A. Enhanced **stormwater management** to treat runoff from roofs and parking lots.
- B. Efforts to minimize landscape watering by **planting native and drought-adapted plants**.
- C. Methods to **reduce light pollution**.
- D. Steps to reduce the **urban heat island effect**.
- E. Utilization of **timber harvested from US forests** for US-based projects, and prioritization of wood sourced from the region in which the project is located.
- F. Sourcing **wood products** from ecologically-appropriate restoration projects.





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