

Environmental Impacts of Data Centers: Water, Air, Energy

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Why Pennsylvania?



Water

Hyperscale/AI

Up to **5 million** gallons/day for evaporative cooling.

Equivalent to the water use of Harrisburg, roughly 61,000 people.

One proposed hyperscale in Cumberland Co - 400,000 gal/day

Electricity

Peak load in PJM growing 30GW 2024-2030

- Water usage for electricity 2-3x that of on site cooling
- 5 million gal/day for cooling = 10-15 million gal/day for power plant

Discharges

Discharges often contain concentrated minerals, salts, biocides, corrosion inhibitors, and heavy metals

Cooling fluids and additives can introduce "forever chemicals" (PFAS)

The Value of Water in Pennsylvania

Fees and rates for large users are often minimal and don't reflect long term costs like aquifer depletion or drought resilience.

Within the DRBC- water supply charges are \$105/million gallons for consumptive use and \$1.05/million gallons for non consumptive use.

- 100,000 gal/day consumptive use = \$2,000 - \$5,000 annually
 - 100,000gal/day = 36.5 million gallons/year

Solutions

Enhance Transparency

Mandate annual public reporting of projected and actual water use (direct + indirect), sources, and WUE metrics to DEP/DNCR. **HB 2150** supports this by requiring data centers to report energy and water consumption, including efficiency measures, to the DEP.

Require pre-construction disclosure of detailed water sourcing, usage projections, and plans before any permits. **HB 2246** (passed the House) advances this by creating a specific permitting and reporting framework for data center water withdrawals and integrating them into the State Water Plan.

Promote Efficiency and Conservation

- Set minimum efficiency standards and require low-water technologies like closed-loop, immersion, or dry cooling.
- Tie existing tax incentives/credits (**HB 2650 / Governor Shapiro's GRID standards**) to verifiable savings via recycled water, rainwater harvesting, or co-location with treatment plants.

HB 1834

Clean Firm Energy Requirements: Requires large data centers to get an increasing share of their power from new, in-state clean and reliable ("firm") energy sources, starting at 10% in 2027 and rising to 32% by 2035.

LIHEAP and Energy Funds: Directs data centers to contribute to a special fund that boosts the Low-Income Home Energy Assistance Program (LIHEAP) for heating/cooling help for low-income families, plus a separate account to support new clean energy projects

Air Quality

Diesel Backup Generators

Large sites frequently install 50–250+ generators, each usually in the 2–4 MW range.

Emit nitrogen oxides (NO_x), particulate matter (PM), carbon monoxide, and volatile organic compounds when they run for testing or outages



Solutions

Reducing Air Pollution

Strengthen Air Permitting

Make large data centers with many generators get full air quality reviews by DEP. Consider all generators at one site together and require the cleanest available technology (Tier 4).

Limit Testing and Runtime

Set clear limits on how often and how long generators can run for testing or non-emergencies.

Push for Cleaner Technology. Make the cleanest diesel controls the standard for new generators, and encourage better options like batteries or lower-emission systems when possible.

Tie Incentives to Cleaner Backup .Link state tax breaks to using batteries or other low/zero-emission backup solutions instead of relying heavily on diesel.

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Thank you!
Questions?