



Data centers produce enormous amounts of heat, and that heat does not always stay inside the building.

KEY FACTS

1. **Cooling data centers can consume a major share of their electricity.** The **Congressional Research Service** (CRS) reports that **roughly one half or more** of data center electric demand comes directly from operating IT equipment, while **much of the remaining demand is used for cooling**. CRS also notes that cooling systems could account for another **38 to 40 percent** of electricity consumption, because servers and chips generate heat that must be removed to prevent overheating and protect performance.
2. **AI data centers may create a measurable local “data heat island” effect.** A **2026 preprint** analyzing AI data centers worldwide estimated that nearby **land surface temperatures increased by an average of 2°C, or 3.6°F, after the start of operations**. The authors warn that these local microclimate changes could affect surrounding communities, but the impacts on **farmland, wildlife, plant life, animal habitat, and human health** still need more site-specific study.
3. **Even small increases in local heat can matter for agriculture.** **Ohio State University Extension** explains that **high nighttime temperatures** can reduce corn yield by increasing **plant respiration** and leaving **less energy available** for kernel development.
4. **Data center heat effects may extend miles beyond the facility itself.** A 2026 preprint on the “**data heat island effect**” estimated that land surface temperature increases linked to AI hyperscale data centers could be detected up to **10 kilometers**, or about **6.2 miles**, from the facility.

5. **Replacing natural landscapes with industrial infrastructure can intensify heat island effects.** The EPA explains that **heat islands form** when trees and vegetation are replaced with **pavement, buildings, and other heat-retaining surfaces**. This can increase **energy costs, air pollution, heat-related illness, and mortality**, with the greatest risks often falling on already vulnerable communities.
6. **Data center cooling can strain both electricity and water resources.** Some cooling systems rely on refrigeration, which requires more electricity, while others use water-based cooling, which often depends on fresh water. During heat waves, these demands can increase even further. If the grid cannot keep up, data centers may rely on backup generators, adding more **air pollution, heat, and noise** to the surrounding community.



QUESTIONS FOR LOCAL OFFICIALS

- What environmental impact assessment has been done?
- What will be done to mitigate the effects of the heat produced by the facility?
- Can the facility be better insulated?
- Can legislation be written to prevent data centers from being built in residential areas?

Cautionary Example

Phoenix, Arizona is an example of why data center waste heat needs to be studied before projects are approved. A **2026 Arizona State University study** measured temperatures around four Phoenix-area data centers and found that downwind neighborhoods were 1.3°F to 1.6°F warmer on average, with temperatures reaching up to 4°F higher than upwind areas. Researchers also found that air-cooled condenser arrays discharged air 14°F to 25°F hotter than the surrounding air, creating thermal plumes that moved into nearby neighborhoods.



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Community Win

The Stop Data Centers Coalition shows that data center opposition has become a coordinated national movement. On June 11, 2026, more than 520 organizations from 48 states called on Congress to pass a nationwide moratorium on new hyperscale data centers until stronger protections are in place for communities, natural resources, public health, and the environment.