PROTECT OXMOOR

The Heat Question Nobody Has Answered

Two new studies, and more than eighty years of local wind records, about the land, the lakes, and the animals next to the proposed AI factory.

If a neighbor lights a bonfire, nobody asks whether the smoke stays in their yard. Everybody knows the wind carries it. Heat works the same way.

Start with something everyone knows

Almost everything that runs on electricity gives off heat. The back of your refrigerator is warm. A phone charger heats up. A hair dryer pours out hot air. Now picture millions of those running at once, in one place, day and night, all year. That is a large data center. Nearly all the electricity it pulls turns into heat, and that heat must go somewhere.

On a facility like this one, it goes into the air. Nebius's own noise study lists the equipment responsible: 28 air-cooled chillers and 48 dry coolers. A dry cooler is a giant version of the radiator in your car. Its only job is to blow heat into the air. So, we are not guessing. Their own paperwork tells us.

Two studies. Two methods. Same answer.

In 2026, two separate teams of scientists measured how that heat affects the neighborhoods around data centers. They used completely different tools and reached the same conclusion.

Think of two ways to check how hot a parking lot is. You can stand in it and feel the air. Or you can take a heat camera picture from above and read the pavement. Those are two different temperatures. The asphalt can be hot enough to burn your hand while the air only feels warm. Both matter. The two studies measured these two different things.

The air kind

A university team at Arizona State drove sensors through neighborhoods next to working data centers and measured the air people breathe.

Downwind homes ran about 1.3 to 1.6 degrees Fahrenheit warmer, near 4 degrees in one spot, still measurable more than 1,600 feet away.

This study was peer reviewed, meaning independent experts checked it before publication.

The ground kind

A team led by the University of Cambridge used twenty years of satellite readings to check the ground temperature around thousands of AI data centers worldwide.

After a facility switched on, the ground ran about 3.6 degrees Fahrenheit warmer on average, and the warming reached for miles. They named it the data heat island effect.

We will be straight with you. That study is newer, not yet peer reviewed, and it measured the ground, not the air. We are not mixing the two up. We point it out because it studied AI factories exactly like this one, worldwide, and found the same thing.

Here is the simplest way to see them next to each other.

	The air study (Arizona State)	The ground study (Cambridge)
What they measured	The air people and pets breathe	The ground, from a satellite
How	Drove sensors through neighborhoods	Twenty years of satellite data, thousands of sites
What they found	About 1 to nearly 4 degrees F warmer nearby	Ground about 3.6 degrees F warmer after opening
How far	More than 1,600 feet	Reaching for miles
Checked by experts	Yes, peer reviewed	Not yet, newer study

Why a few degrees is not 'no big deal'.

It is easy to hear a degree or two and shrug. Here is why you should not.

Think about your own body. It runs at about 98.6 degrees. Let it climb just three or four degrees, and you are not a little warm. You have a fever, and you are in bed. A small number, measured against the right starting point, changes everything.

Outdoor heat is the same. Our summer afternoons already sit close to the edge of what is safe outside. A degree or two does not get added to a pleasant day. It gets added to the most dangerous days, the ones already at the limit. That can be the difference between a dog yard that is open and one that must close. Between pavement, a dog can cross, and pavement that burns paws. Between an event that happens and one that cannot. And it is not one afternoon. It is every summer afternoon, year after year, adding more hours each season when it is simply too hot to be outside.

Animals feel it first

They wear fur coats they cannot take off. They cannot sweat the way we do. They sit lower to the ground, where heat pools. And they cannot tell anyone they are overheating.

A small rise in the air around them is not a small thing to them.

Why this matters to you, not just to us

You do not have to care about an animal shelter to care about this. A warmer pocket of air does not stop at a fence. Here is what federal agencies say locally higher temperatures can mean for the people right around a facility like this.

Your power bill. Your air conditioner fights the outside air. When that air is warmer, it runs longer and costs more. The EPA reports cooling costs climb as outdoor temperatures rise, and here, cooling is already the biggest part of a summer electric bill.

Comfortable time outside. Your yard, your porch, an evening walk, a restaurant patio. On the hottest afternoons, a few extra degrees can be the difference between pleasant and not, and between safe and not for the very young, the elderly, and anyone working outdoors.

The lakes and the wildlife. The EPA links higher local temperatures to warmer runoff flowing into nearby lakes and creeks. Warmer water holds less oxygen, which stresses fish and the life in them. The birds and pollinators in the green space feel the heat too.

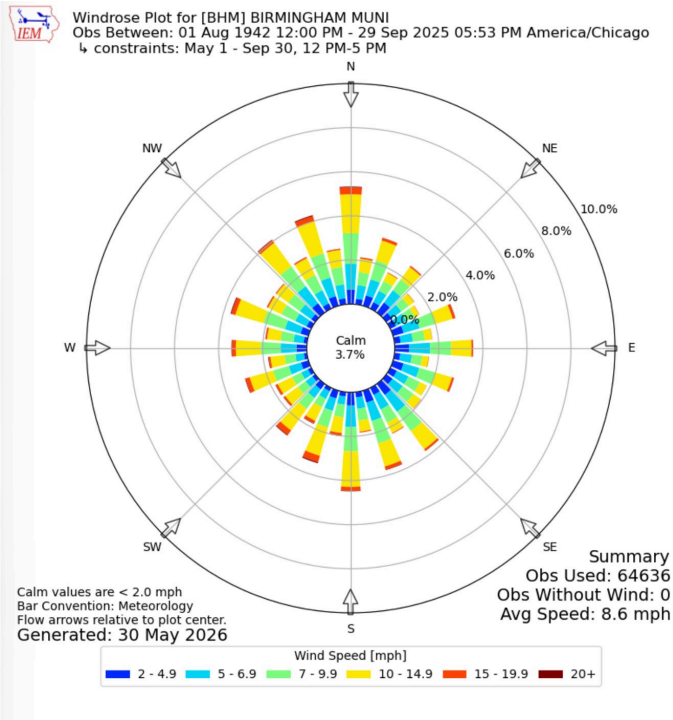
The power grid everyone shares. When a whole area heats up at once, everyone's air conditioning peaks together. The EPA warns that in extreme heat this can strain the grid to the point of brownouts, exactly when people need cooling most.

None of this is a promise that it will happen. It is the reason the question deserves an answer before a decision, not after.

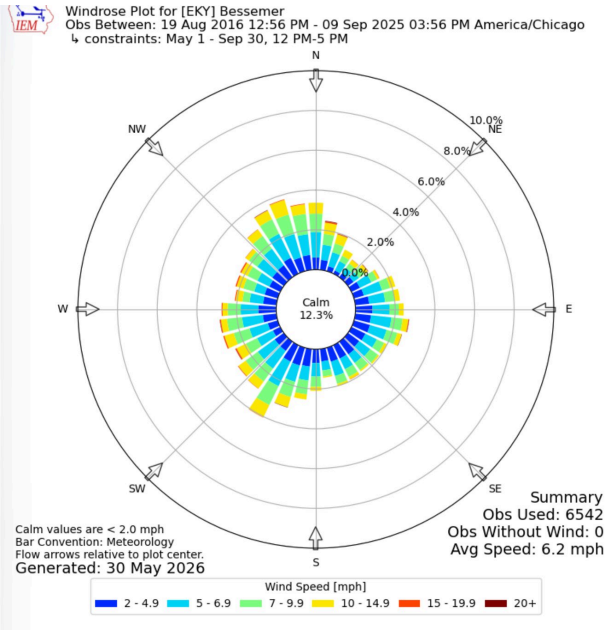
Which way does the wind carry it?

Heat does not stay put. The wind carries it, the way grill smoke drifts across the yard into the neighbor's. So the real question is simple. When this facility throws off heat on a hot afternoon, which way does the wind take it?

We pulled the answer straight from the official weather record at the Birmingham airport, more than eighty years of it, and from the Bessemer airport. We looked only at summer afternoons, because that is when these machines work hardest.



Birmingham airport, summer afternoons, more than eighty years of records. The longer arms show where the wind most often comes from. Here it comes from the south, which means it blows toward the north, toward our campus.



Bessemer airport, summer afternoons. The wind most often comes from the southwest, which means it blows toward the northeast, again toward our campus.

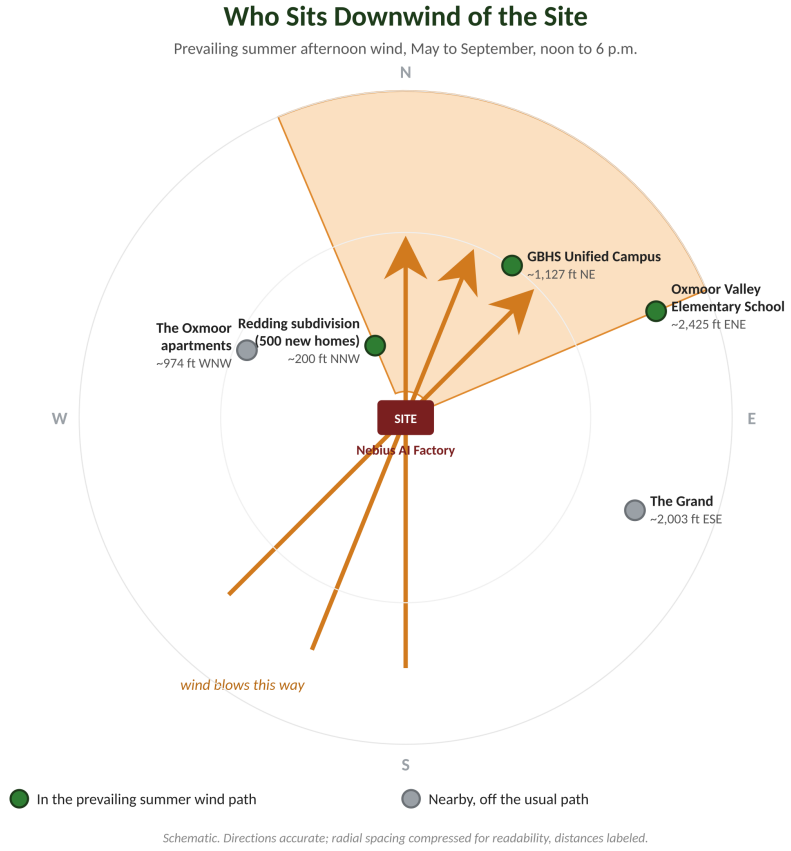
The record is clear

On the typical summer afternoon, the wind here blows from the direction of the data center site toward our campus.

If heat leaves that site, the weather record says we are standing in its path.

And it is not only us

We are not the only ones in the path. The same summer wind that reaches our campus also carries across our neighbors. Look at where everyone sits.



The shaded fan is the prevailing summer afternoon wind path. In it sit the new Redding homes about 200 feet away, our campus, and Oxmoor Valley Elementary School. The Oxmoor apartments and The Grand sit nearby but off the usual path. Directions are accurate; spacing is drawn for readability with distances labeled.

That is the part worth sitting with. On the typical summer afternoon, the wind out of this site does not just cross our fence. It crosses a brand-new neighborhood of 500 homes and a public elementary school full of children. This was never only about animals. It is about everyone the wind reaches.

Why this matters right here

Now put it together with distance. Our nearest land is about 178 feet from the proposed equipment. Our main building is about 1,127 feet away. The whole campus sits less than half a mile from the site. The air study found warming past 1,600 feet. The ground study found it reaching for

miles. We are not at the edge of this. We are in the middle of it, downwind, during the hottest part of the year, next to animals who cannot tell anyone they are too hot.

What we are not saying

We want to be straight with you, because the company will not be.

These are new studies. Yes. And the right time to study what an AI factory does to the air and land around it is before you build it next to a place full of animals, not after.

One was Arizona, one is brand new, one measured the ground not the air. All true, and we are telling you on purpose. We are not promising an exact number for our campus. We are saying two separate teams, two different methods, found real warming around facilities like this one, and our land sits close and downwind.

The wind does not blow our way every minute. Correct. But on most summer afternoons it does, and on those days we are directly in the path. The company has never studied where its heat goes, in any direction. Their only study was about noise, and it left the wind out completely.

> **So here is the honest version**
>
> We cannot promise the thermometer on our campus will rise by an exact number.
>
> We can tell you that two independent studies found real warming around facilities like this one, that more than eighty years of wind records put our campus downwind on the typical summer afternoon, and that the company has measured none of it.
>
> When they say there is no impact past their fence line, ask one question. How would they know? They never put a thermometer out there.

What we are asking for

This is not complicated, and it is not unreasonable.

- Study the heat. An honest accounting of how much this facility gives off and where the wind carries it, before any approval.
- Study the wind. A real assessment for this valley, not a model that leaves the wind out.
- Disclose it. Put the answers in front of the public, in time to matter.

Other communities got the facts too late. We do not have to.

Sources

Sailor, David J., et al. Data Center Waste Heat as an Emerging Urban Thermal Hazard: First Field Measurements of Neighborhood Scale Air Temperature Impacts. ASME Journal of Engineering for Sustainable Buildings and Cities, vol. 7, 2026. Peer reviewed.

Marinoni, Andrea, et al. The Data Heat Island Effect: Quantifying the Impact of AI Data Centers in a Warming World. Preprint, arXiv, 2026. Not yet peer reviewed.

Nebius Data Center, Birmingham, Alabama, Noise Study Report. Prepared by Basel Jurdy, Affiliated Engineers Inc., March 2026.

U.S. Environmental Protection Agency. Heat Island Impacts, and Climate Change and Heat Islands. epa.gov/heatislands. Energy demand, peak load and grid strain, water quality, air quality, and nighttime temperature effects.

U.S. Centers for Disease Control and Prevention, and National Weather Service. Extreme heat as a leading weather related cause of death in the United States; vulnerable populations. cdc.gov and weather.gov.

National Weather Service ASOS wind records, Birmingham-Shuttlesworth (BHM) and Bessemer (EKY), via the Iowa Environmental Mesonet, Iowa State University. Summer afternoons, May to September, noon to 6 p.m.

Learn more, follow, and share at ProtectOxmoor.org

Follow Protect Oxmoor on Facebook for updates.