

The Heat Dome Explanation

A clear look at extreme heat — science, maps, and impacts, minimal jargon.

Definition

What is a heat dome?

THE LID EFFECT

High pressure aloft traps hot air over a region, acting like a lid that holds heat near the surface.

PERSISTENCE

The pattern can lock in place and persist for days or even weeks, letting temperatures build steadily.

2026 SCALE

A single July 2026 dome affected more than 200 million people at its peak across the U.S.



Four-step mechanism

How a heat dome forms

01 • RIDGE BUILDS

A strong high-pressure ridge builds high in the atmosphere over the region.

02 • SINKING AIR

Sinking air compresses and warms further as it descends toward the surface.

03 • CLEAR SKIES

Suppressed clouds let full sunlight intensify heating day after day.

04 • BLOCKED SYSTEMS

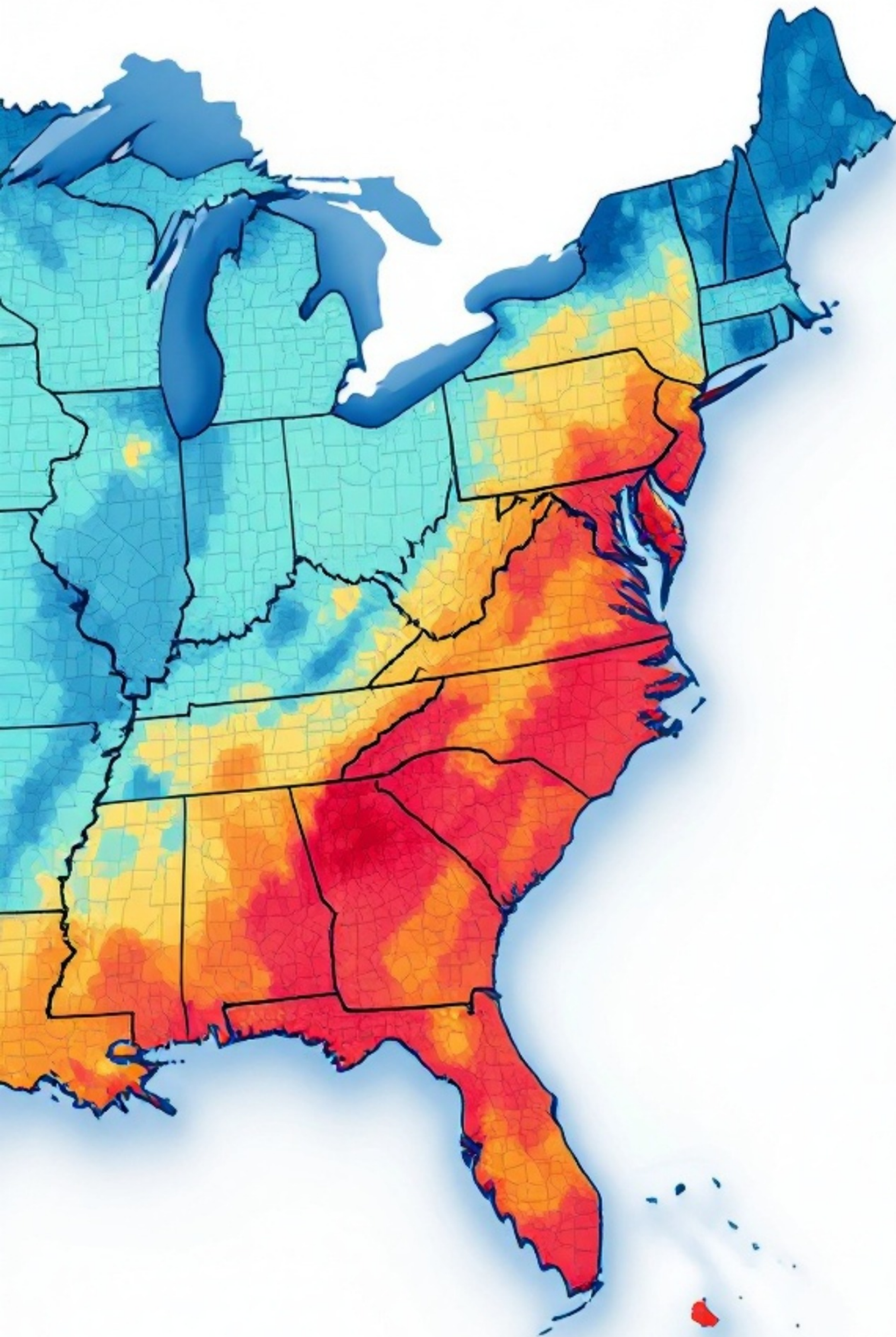
The dome blocks cooler weather systems from moving in.

U.S. footprint

Where the U.S. feels it most

REGIONS REPEATEDLY STRUCK

The **Pacific Northwest and Southwest** are hit hard, while the Southern Plains and Texas are frequently affected. The Midwest and Southeast bake during peak summer. Temperature maps show the heat footprint shifting across the country as the dome drifts eastward.



THE OVERNIGHT PROBLEM

Day and night without relief

Highs soar well above normal, and lows stay dangerously warm — bodies can't recover without overnight cooling, so prolonged exposure raises risk.

Daytime High

104°F • PEAK DOME



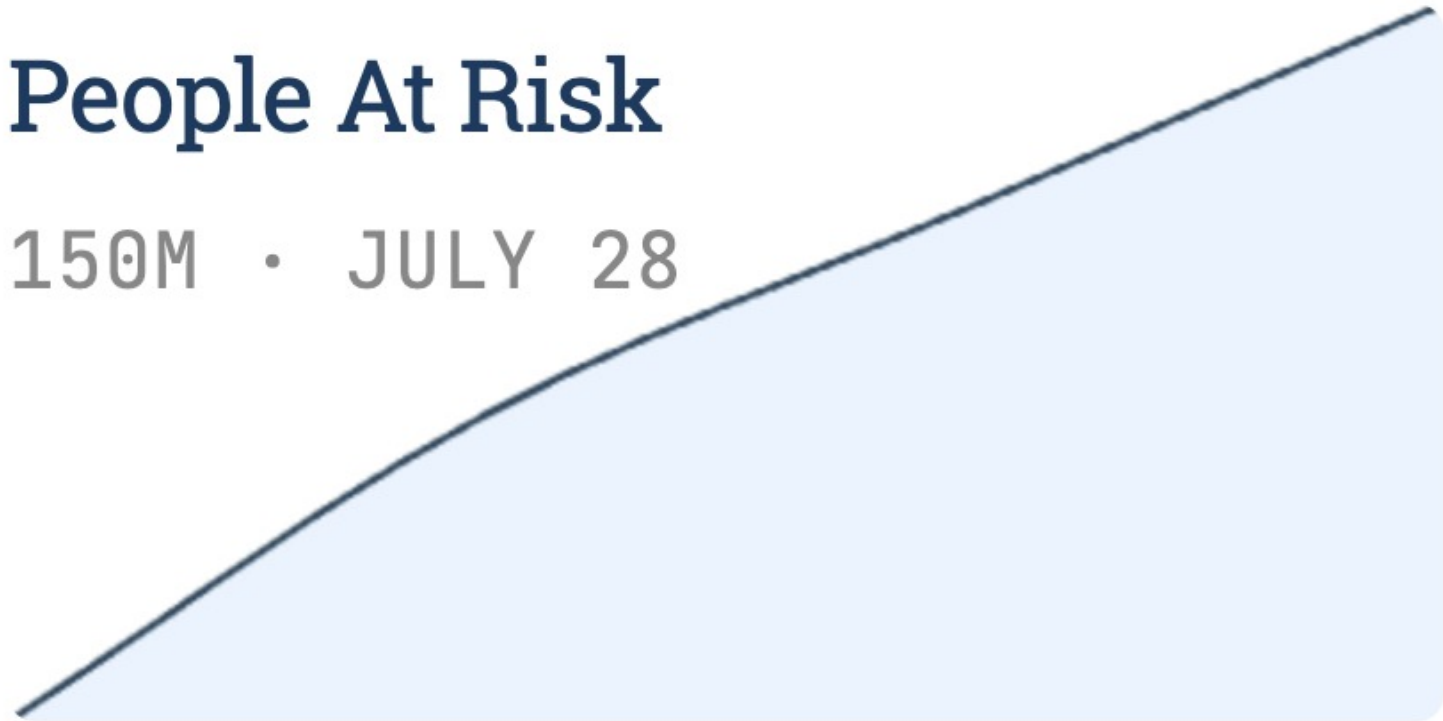
Nighttime Low

STAYS WARM • OVERNIGHT



People At Risk

150M • JULY 28



Duration

DAYS TO WEEKS



Human impact

Impact on public health

ILLNESS RISES

Heat exhaustion and heat stroke rise sharply, and emergency room visits climb during prolonged events.

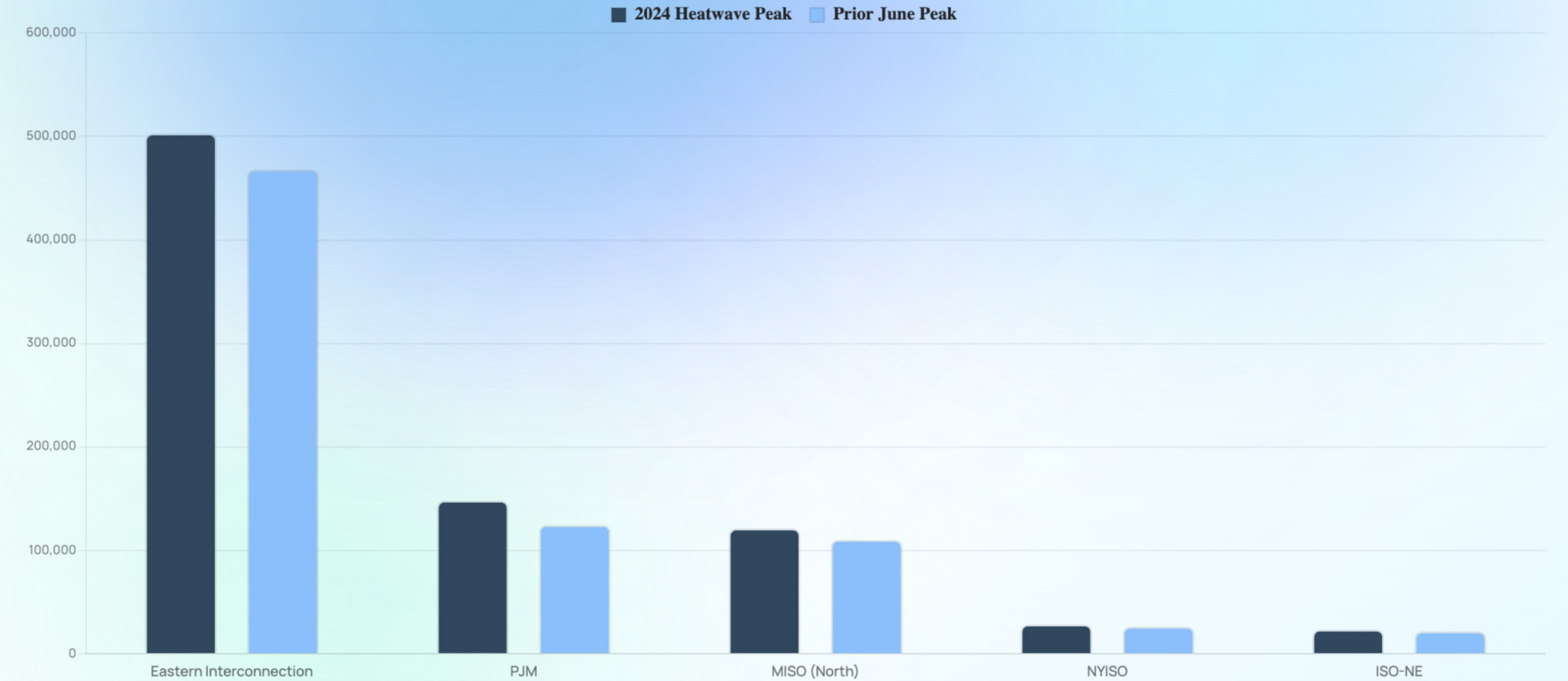
WHO IS VULNERABLE

Older adults and children are most vulnerable, along with outdoor workers and those without air conditioning.

WHAT HELPS

Hydration and access to cooling centers save lives during extreme heat.

Strain on the power grid



Agriculture & the food supply



CROPS UNDER STRESS

Crops stress and yields decline under sustained heat, with ripple effects reaching food prices.



LIVESTOCK & WATER

Livestock face heat-related losses while higher irrigation needs strain water resources.

Transportation & wildfires



INFRASTRUCTURE STRAIN

Roads buckle and rail lines warp, while aircraft performance suffers in thin, hot air.



FIRE & AIR QUALITY

Dry conditions fuel faster-spreading wildfires, and smoke degrades air quality across regions.

Turn complex science into a clear story with Ocuport

Understand the science, prepare for the heat, and make data-driven decisions with confidence.