Union of Concerned Scientists

FACT SHEET

KILLER HEAT

Extreme Heat in Maryland's 3rd District

Extreme heat is among the deadliest weather hazards in the United States. When temperatures spike, so do heat-related deaths and hospital admissions for illnesses such as heat exhaustion. People who are elderly, young children, those experiencing poverty, and other vulnerable groups are particularly susceptible to these effects. New analysis from the Union of Concerned Scientists (UCS) points to a future in which such dangerous, even deadly, heat will occur regularly throughout most of the country. As global temperatures rise, driven by heat-trapping emissions, people will experience more frequent and more intense episodes of extreme heat.

UCS has analyzed climate projections to find out where and how often in the contiguous United States the heat index (the National Weather Service's "feels like" temperature) could top 90°F, 100°F, and 105°F during future warm seasons—April through October—if no action is taken to reduce carbon emissions, or with rapid and aggressive emissions reductions.

The choices we make today will determine how often we experience extreme heat in the future. Aggressively cutting US carbon emissions by investing in low-carbon energy sources, energy efficiency, and other solutions, alongside robust global climate action, will help limit future warming and the frequency of days with extreme heat.

Extreme Heat across the United States

The National Weather Service generally recommends issuing a heat advisory when the heat index reaches 100°F, and issuing an excessive heat warning when it reaches 105°F. At these heat index levels, people—particularly vulnerable groups, such as children and elderly adults—are susceptible to heat-related illness and death. Outdoor workers are susceptible to the same effects with a heat index around 90°F.

By midcentury, across the United States, with no action to reduce heat-trapping emissions, in an average year there would be (compared with average conditions from 1971 to 2000):

- a 70 percent increase in the number of days with a heat index above 90°F;
- more than twice as many days with a heat index above 100°F; and
- more than four times as many days with a heat index above 105°F.

By late century, under the same scenario, in an average year there would be (compared with average conditions from 1971 to 2000):

Annual Days of Extreme Heat Per Year in Maryland's 3rd District

Heat index above	Historical	By midcentury	By late century	By late century, *if we limit warming to 2°C*
90°F	34 days per year	78 days per year	106 days per year	71 days per year
100°F	5 days per year	36 days per year	64 days per year	25 days per year
105°F	1 days per year	20 days per year	44 days per year	12 days per year

With no action to reduce global heat-trapping emissions, the average frequency of extreme heat in this district would rise as shown here. Taking rapid action to reduce emissions and cap future global warming at 2°C (3.6°F) would limit the increase in extreme heat days. For more information and detailed data, visit www.ucsusa.org/killer-heat.

- more than twice as many days with a heat index above 90°F;
- four times as many days with a heat index above 100°F; and
- nearly eight times as many days with a heat index above 105°F.

Nearly 300 urban areas with a population of 50,000 people or more—more than 60 percent of such places in the United States—would experience an average of 30 or more days with a heat index above 105°F by late century.

Limiting Future Extreme Heat

UCS found large reductions in the intensity and frequency of extreme heat days—and the number of people potentially exposed to them—in a scenario that limits global warming to 2°C (3.6°F) or less. Nationally, by late century, aggressive action to reduce heat-trapping emissions would lead to about half as many days with a heat index above 105°F, and 68 percent fewer US residents would endure a month or more of such conditions, compared with conditions if we take no action.

To limit future extreme heat, the United States must contribute to global efforts to constrain climate change and invest in solutions that get us to net-zero carbon emissions by midcentury. To this end, the nation should implement a robust suite of federal and state policies, including:

- an economywide price on carbon;
- a low-carbon electricity standard that helps drive more zero-carbon electricity generation;
- policies to reduce transportation emissions, such as those increasing vehicle fuel economy standards, deploying more electric vehicles, and investing in mass transit;
- policies to increase carbon storage in vegetation and soils;
- investments in new low-carbon energy technologies;
- policies to cut emissions in the building and industrial sectors;
- policies to cut methane and other non-CO_2 heat-trapping emissions;
- investments in research, development, and deployment of environmentally and socially sound technologies and practices to remove carbon from the atmosphere; and
- support for global climate action, including participation in the Paris agreement.

Making Heat Less Harmful

In years to come, we will also need to significantly ramp up efforts to build resilience to the effects of extreme heat in all communities, targeting resources especially to those most at risk.

Congress and the administration should:

- Continue to invest in scientific research, data, tools, and public communication of risks related to extreme heat and protective actions for communities
  - A national extreme heat early warning system
  - Heat metrics that are applicable to the full range of future temperatures
  - Coordination across federal, state, and local agencies during heat emergencies
  - Support and funding for state and local efforts to build resilience to extreme heat
- Help develop climate-resilient design standards and, along with state agencies and the private sector, invest in upgrading critical infrastructure to be resilient to extreme heat
- Invest in upgrading public housing, including setting minimum cooling standards for these buildings
- Direct the Occupational Safety and Health Administration to set national heat health protective standards for outdoor worker safety
- Set standards and provide incentives for utilities, businesses, and homeowners to increase energy efficiency and reliance on renewable energy and energy storage
- Increase efficiency standards for appliances such as refrigerators and air conditioners, and phase out use of hydrofluorocarbons (powerful heat-trapping gases)

State and local policymakers should:

- Develop heat adaptation plans, heat emergency response plans, and local warning systems, prioritizing the needs of high-risk populations
- Expand funding to provide cooling assistance to low- and fixed-income households and ban the disconnection of residential utilities during extreme heat events
- Establish guidance on heat safety standards for outdoor work and outdoor activities at schools and athletic events

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FIND RELATED MATERIALS ONLINE: www.ucsusa.com/killer-heat

The Union of Concerned Scientists puts rigorous, independent science to work to solve our planet's most pressing problems. Joining with people across the country, we combine technical analysis and effective advocacy to create innovative, practical solutions for a healthy, safe, and sustainable future.

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