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Emergency Response to Extreme Heat: Federal Financial Assistance and Considerations for Congress

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SUMMARY

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Emergency Response to Extreme Heat: Federal Financial Assistance and Considerations for Congress

The National Oceanic and Atmospheric Administration (NOAA) reported that several areas of the United States experienced record heat during the summer of 2023. In August alone, 130 million Americans in 22 states were subject to heat alerts. Arizona and New Mexico also experienced their hottest months on record, with temperatures exceeding previous highs by nearly two degrees Fahrenheit. Previously, extreme heat during the summers and autumns of 2021 and 2022 had set heat records in multiple states. Government and academic experts generally expect these trends to continue as the planet warms; the U.S. Global Change Research Program's *Fifth National Climate Assessment* (2023) reported that "it is *very likely* that heatwaves will increase in frequency, severity, and duration as warming continues."

Meteorologically, extreme heat is assessed relative to each specific climate. The Centers for Disease Control and Prevention (CDC) defines extreme heat as air temperature that is much hotter and/or humid than average for a particular time and place. For the purposes of emergency preparedness, the Federal Emergency Management Agency defines extreme heat as a period of temperatures above 90 degrees Fahrenheit and high humidity for at least two to three days. During these events, affected communities frequently report excess deaths, overwhelmed health care systems and increased rates of hospitalization, and power supply strains that may affect access to air-conditioning or other services. Socially vulnerable populations, including individuals with medical conditions and disabilities, children, older adults, unhoused persons, agricultural and other outdoor workers, lower-income persons, people of color, incarcerated persons, and persons without air-conditioning, may be at particular risk of heat-related illness or death.

CDC and NOAA report that extreme heat is one of the leading weather-related causes of death in the United States. CDC identified 10,527 heat-related deaths from 2004 to 2018 in the United States (averaging 702 deaths annually). Annual fatalities in more recent years are higher: in 2022, the CDC reported that 3,066 heat-related deaths occurred between 2018 and 2020 (averaging 767 per year), and in 2023, the agency reported that 1,600 heat-related deaths occurred in 2021 alone. Given actuarial challenges with attributing deaths to heat, researchers estimate that the actual number of heat-associated deaths is higher, ranging from 1,300 to 5,000 annually in the United States in recent decades.

Given these impacts, state, local, tribal, and territorial governments (SLTTs) have taken an interest in responding to extreme heat events. CDC and the Environmental Protection Agency have highlighted emergency response measures that governments and communities may undertake to protect residents, including

- developing heat health action plans;
- communicating risks to the public;
- cancelling outdoor events;
- expanding surveillance of health effects;
- increasing emergency medical staff;
- expanding services and distributing water to vulnerable populations;
- providing emergency energy assistance; and
- opening cooling centers.

Some SLTTs have taken additional measures, such as issuing rules or guidance requiring rest, water, and access to climate-controlled environments for workers, students, and other people. Some SLTTs have also undertaken long-term measures to reduce the risks that extreme heat poses to human health, including measures to reduce the effect of urban "heat islands" – or areas where buildings, roads, and other built features absorb and intensify heat. Some experts and stakeholders have raised concern that nonfederal measures do not provide sufficient protection to affected populations.

The federal government has also taken action to manage risks associated with extreme heat, including (1) establishing the National Integrated Heat Health Information System, an interagency information system providing data and tools to protect the public from heat; (2) launching Heat.gov, a centralized webpage on federal resources to help the public understand, plan for, and manage the risks of extreme heat; and (3) creating an Interagency Working Group on Extreme Heat, which is to

publish a National Heat Strategy. Congress has also introduced several bills authorizing assistance to nonfederal entities to mitigate and/or respond to the health impacts of extreme heat events.

This report summarizes federal resources that may be available to facilitate emergency preparedness and response to extreme heat, as well as considerations for Congress on the federal government's past response to extreme heat and challenges adapting existing federal relief programs to extreme heat episodes, among other topics.

Contents

Figures

Appendixes

Contacts

Introduction

In recent years, parts of the United States have experienced record episodes of extreme heat. For instance, in 2021, a historic "heat dome" set temperature records in multiple states,[1] and became the deadliest weather-related incident in recorded Washington state history.[2] Extreme heat across the United States during September 2022 broke nearly 1,000 heat records.[3] In the wake of some of these incidents, several governors (including those in Louisiana, Arizona, California, Washington, and Oregon) declared emergencies for extreme heat.[4] According to the National Aeronautics and Space Administration (NASA), July 2023 was the globe's hottest month in 174 years of records, and unusual heat continued to set records in the fall.[5] NASA further reported that the summer of 2023 was the hottest summer—and 2023 the hottest year—recorded to date (see **Figure 1**).[6] Government authorities and scientific organizations expect the United States to experience extreme heat episodes of greater frequency, duration, and intensity due to climate change, among other factors.[7]

[1] National Oceanic and Atmospheric Administration (NOAA), National Centers for Environmental Information (NCEI), "U.S. Climate Summary for June 2021: Hottest June on Record," July 9, 2021, https://www.climate.gov/news-features/understanding-climate/us-climate-summary-june-2021-hottest-june-record.

[2] University of Washington Climate Impacts Group et al., *In the Hot Seat: Saving Lives from Extreme Heat in Washington State*, June 2023, p. 1, https://cig.uw.edu/wp-content/uploads/sites/2/2023/06/CIG-Report-Heat-202-pages.pdf.

[3] NOAA NCEI, "National Overview: National Climate Report 2022," January 12, 2023, https://www.ncei.noaa.gov/access/monitoring/monthly-report/national/202213.

[4] Governor of Louisiana Jon Bel Edwards, Proclamation No. 141 JBE2023, "State of Emergency—Heat-Related Emergencies," August 11, 2023, https://gov.louisiana.gov/assets/141JBE2023.pdf; Governor of Arizona Katie Hobbs, "2023 Record Excessive Heat Risk," August 11, 2023, https://azgovernor.gov/sites/default/files/2023.08.11_doe_record_excessive_heat_risk.pdf; Governor of California Gavin Newsom, "Proclamation of a State of Emergency," June 17, 2021, https://www.gov.ca.gov/wp-content/uploads/2021/06/6.17.21-Extreme-Heat-proclamation.pdf, and "Proclamation of a State of Emergency," August 21, 2022, GSS_9534-1E-20220831133826 (ca.gov); Governor of Washington Jay Inslee, Emergency Proclamation 21-12, "WSDOT Heat Damage," July 16, 2021, https://governor.wa.gov/sites/default/files/proclamations/21-12%20-%20WSDOT%20Heat%20Damage%20%28tmp%29.pdf; Governor of Oregon Kate Brown, Executive Order No. 22-13, "Determinate of State of Emergency ... Due to Excessive High Temperatures Causing a Threat to Life, Health, and Infrastructure," July 25, 2022, https://www.oregon.gov/gov/eo/eo_22-13.pdf.

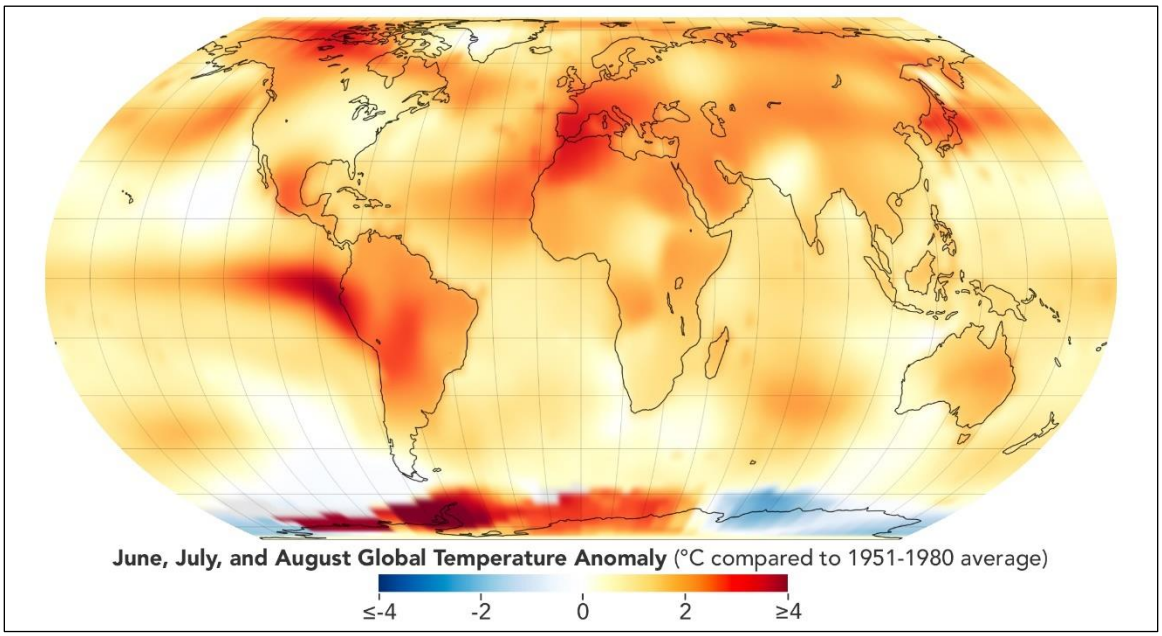
[5] NASA, "NASA Clocks July 2023 as Hottest Month on Record Ever Since 1880," August 14, 2023, https://www.nasa.gov/news-release/nasa-clocks-july-2023-as-hottest-month-on-record-ever-since-1880/; NOAA, "Topping the Charts: September 2023 Was Earth's Warmest September in 174-Year Record," October 13, 2023, https://www.noaa.gov/news/topping-charts-september-2023-was-earths-warmest-september-in-174-year-record.

[6] NASA, "NASA Analysis Confirms 2023 as Warmest Year on Record," January 12, 2024, https://www.nasa.gov/news-release/nasa-analysis-confirms-2023-as-warmest-year-on-record/.

[7] For further discussion, see CRS Insight IN12250, *Climate Change and Extreme Heat*, by Jonathan D. Haskett. NASA, "NASA Analysis Confirms 2023 as Warmest Year on Record," January 12, 2024, https://www.nasa.gov/news-release/nasa-analysis-confirms-2023-as-warmest-year-on-record/; K. Marvel et al., "Climate Trends," Chapter 2 of *Fifth National Climate Assessment*, A.R. Crimmins et al., eds., U.S. Global Change Research Program, 2023, pp. 2-17, 2-24, 2-38, https://doi.org/10.7930/NCA5.2023.CH2; Intergovernmental Panel on Climate Change, *Climate Change 2023: Synthesis Report*, 2023, pp. 46, 98, https://www.ipcc.ch/report/sixth-assessment-report-cycle/.

Figure 1. June, July, and August 2023 Global Temperature Anomaly

According to NASA



Source: NASA, "NASA Announces Summer 2023 Hottest on Record," September 14, 2023, https://climate.nasa.gov/news/3282/nasa-announces-summer-2023-hottest-on-record/.

Notes: For more information about the probabilities represented in the image, see National Weather Service, Climate Prediction Center, "How to Read the 3-class Three-Month Outlook maps," https://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal_info.php.

Congress has recently taken action to respond to the threat that extreme heat poses to U.S. public health. Several bills in the 118th Congress would authorize assistance to nonfederal entities to mitigate and/or respond to the health impacts of extreme heat events (e.g., H.R. 4953/S. 2645; H.R. 4733/ S. 2383; H.R. 4314; H.R. 3965; H.R. 2945/S. 1379; H.R. 662/S. 180). Others (e.g., H.R. 4256/S. 2081) would introduce heat-related requirements for federal program participants.[8] The 118th Congress has further examined the threat extreme heat poses to communities and the built environment through several hearings.[9]

The executive branch has also responded to extreme heat. Since 2015, the National Oceanic and Atmospheric Administration (NOAA) and the Centers of Disease Control and Prevention (CDC) have led the National Integrated Heat Health Information System (NIHHIS), an interagency information system "to develop and provide actionable, science-based information to help protect people from heat."[10] In 2022, the Administration of Joe Biden launched Heat.gov, where NIHHIS shares tools and research to support planning, mitigation, and response to extreme heat.[11] In 2021,

[8] Other heat-related legislation concerns private business heat standards (e.g., H.R. 4897/S. 2501) or to provide assistance to businesses with losses due to extreme heat, among other weather events (e.g., H.R. 662/S. 180).

[9] For example, see U.S. Senate, Committee on Environment and Public Works, *Examining the Effects of Extreme Heat and Weather on Transportation*, 118th Cong., 1st sess., September 13, 2023), https://www.epw.senate.gov/public/index.cfm/2023/9/examining-the-effects-of-extreme-heat-and-weather-on-transportation.

[10] National Integrated Heat Health Information System (NIHHIS), *National Integrated Heat Health Information System*, 2022, https://cpo.noaa.gov/wp-content/uploads/2023/06/NIHHIS-2-Pager-2022.pdf; Heat.gov, "About Heat.gov," https://www.heat.gov/pages/about-heat-gov.

[11] Heat.gov, "About Heat.gov," https://www.heat.gov/pages/about-heat-gov. Climate.gov, "Biden Administration (continued...)

President Biden announced new initiatives in several federal agencies to respond to the health impacts of extreme heat, including the establishment of the Interagency Working Group on Extreme Heat and the Department of Health and Human Services (HHS) Office of Climate Change and Health Equity.[12] In July 2023, President Biden additionally announced that federal partners were at work on a National Heat Strategy in consultation with local and tribal officials to understand how the federal government could assist communities coping with extreme heat.[13]

This report provides an overview of the health effects of extreme heat on humans, existing federal resources available to respond to such consequences, and measures some nonfederal governments are taking in response to extreme heat.[14] The final section offers considerations for Congress regarding the past and present role of the federal government in response to episodes of extreme heat, and challenges in adapting existing federal authorities to the threat of extreme heat.

Defining Extreme Heat

What constitutes "extreme" heat meteorologically is relative to each region's climate.[15] Federal agencies have defined extreme heat in various ways.

For the purposes of helping communities prepare, the Federal Emergency Management Agency (FEMA) explains that extreme heat may be generally defined as a period of temperatures above 90 degrees Fahrenheit and high humidity for at least two to three days.[16]

For the purposes of understanding the impacts of extreme heat on human health, the Environmental Protection Agency (EPA) defines an extreme heat event or a heat wave as "a period of two or more consecutive days when the daily minimum apparent temperature (the actual temperature adjusted for humidity) in a particular city exceeds the 85th percentile of historical July and August temperatures (1981–2010) for that city."[17] The EPA

Launches Heat.gov ... " July 27, 2022, https://www.climate.gov/news-features/feed/biden-administration-launches-heatgov-tools-communities-facing-extreme-heat.

[12] The White House, "FACT SHEET: Biden Administration Mobilizes to Protect Workers and Communities from Extreme Heat," September 20, 2021, https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/20/fact-sheet-biden-administration-mobilizes-to-protect-workers-and-communities-from-extreme-heat/; Executive Order 14008, "Tackling the Climate Crisis at Home and Abroad," January 27, 2021. For more information on the Department of Labor's Occupational Safety and Health Administration (OSHA's) initiatives, see CRS Insight IN11701, *Occupational Safety and Health Administration (OSHA) Regulation of Employee Exposure to Heat*, by Scott D. Szymendera.

[13] The White House, "Biden Harris Administration Takes Action to Protect Communities From Extreme Heat Fueled by the Climate Crisis," July 11, 2023, https://www.whitehouse.gov/briefing-room/statements-releases/2023/07/11/fact-sheet-biden-harris-administration-takes-action-to-protect-communities-from-extreme-heat-fueled-by-the-climate-crisis/.

[14] For federal grants that may assist with research on the effects of extreme heat on local populations, long-term regional planning to mitigate the effects of extreme heat, and management of urban forests to mitigate heat, among other uses, see Sara Hoverter and Laura Dziorny, "Federal Funding Compendium for Urban Heart Adaptation," *Georgetown Climate Center*, December 2013, https://www.georgetownclimate.org/files/report/Federal%20Funding%20Compendium%20for%20Urban%20Heat%20Adaptation.pdf. This report does not discuss the effects of extreme heat on workers; see CRS Insight IN11701, *Occupational Safety and Health Administration (OSHA) Regulation of Employee Exposure to Heat*, by Scott D. Szymendera.

[15] Federal Emergency Management Agency (FEMA), "Extreme Heat," https://community.fema.gov/ProtectiveActions/s/article/Extreme-Heat. By contrast, the Centers for Disease Control and Prevention (CDC) defines extreme heat as "summertime temperatures that are much hotter and/or humid than average." CDC, "About Extreme Heat," https://www.cdc.gov/disasters/extremeheat/heat_guide.html. NOAA uses the term "excessive heat" rather than extreme heat in its forecast watches and warnings. NOAA, "Heat Watch vs. Warning," https://www.weather.gov/safety/heat-ww.

[16] Ready.gov, "Extreme Heat," last updated July 20, 2021, https://www.ready.gov/heat.

[17] Environmental Protection Agency (EPA), "Climate Change Indicators: Heat Waves," https://www.epa.gov/climate-indicators/climate-change-indicators-heat-waves.

analyzes historic trends in extreme heat by analyzing the frequency, duration, intensity, and season length of extreme heat episodes.[18]

Separately, the National Oceanic and Atmospheric Administration (NOAA) has established a "heat index"—a combined measure of temperature and relative humidity designed to capture how heat feels to the human body.[19] NOAA generally issues excessive heat warnings, advising individuals to take protective actions, when the maximum heat index is expected to exceed 105 degrees Fahrenheit for at least two days and night time air temperatures are not expected to drop below 75 degrees Fahrenheit.[20] However, the agency notes that "these criteria vary across the country, especially for areas not used to extreme heat conditions."[21]

The CDC defines extreme heat as "summertime temperatures that are much hotter and/or humid than average," noting that extreme heat "depends on what's considered average for a particular location at that time of year."[22]

Extreme Heat: Snapshot of Health Effects on Humans

Since 2021, U.S. communities affected by extreme heat events have experienced heat-related deaths,[23] spikes in heat-related emergency room visits that overwhelm health care systems,[24] and power supply strains,[25] among other consequences. In some cases, insufficient cooling and/or power outages in hospitals, nursing homes, and operating rooms have required emergency

[18] EPA, "Climate Change Indicators: Heat Waves," https://www.epa.gov/climate-indicators/climate-change-indicators-heat-waves.

[19] NOAA National Weather Service (NWS), "Heat Forecast Tools," https://www.weather.gov/safety/heat-index.

[20] NOAA NWS, "Heat Watch vs. Warning," https://www.weather.gov/safety/heat-ww.

[21] Ibid.

[22] CDC, "About Extreme Heat," https://www.cdc.gov/disasters/extremeheat/heat_guide.html.

[23] See, for example, Joan Casey et al, "Excess Injury Mortality in Washington State During the 2021 Heat Wave," *American Journal of Public Health,* vol. 113, no. 6 (June 1, 2023), pp. 657-660; Oregon Military Department Office of Emergency Management, State of Oregon, "Initial After-Action Review (AAR) of the June 2021 Excessive Heat Event," July 27, 2021, https://www.oregon.gov/oem/Documents/2021_June_Excessive_Heat_Event_AAR.pdf; Multnomah County, "News Release: Multnomah County Medical Examiner Finds 45 Deaths Related to Historic Heat Wave," June 30, 2021; California Department of Public Health, "Excess Mortality During the September 2022 Heat Wave in California," August 2023, https://www.cdph.ca.gov/Programs/OHE/CDPH%20Document%20Library/Climate-Health-Equity/CDPH-2022-Heat-Wave-Excess-Mortality-Report.pdf; and Maricopa County Department of Public Health, "2023 Weekly Heat Report," November 2023, https://www.maricopa.gov/ArchiveCenter/ViewFile/Item/5734.

[24] Paul J. Scramm et al., "Heat-Related Emergency Department Visits During the Northwestern Heat Wave—United States, June 2021," *Morbidity and Mortality Weekly Report,* vol. 70, no. 29, July 23, 2021. Orla McCaffrey, Ian Lovett, and Paul Vieira, "Deadly Heat Wave in Pacific Northwest Overwhelmed Healthcare System," *Wall Street Journal*, July 5, 2021, https://www.wsj.com/articles/deadly-heat-wave-in-pacific-northwest-overwhelmed-healthcare-system-11625493601; Oregon Health Authority, "Climate and Health in Oregon: 2021-2022 Report," Summer 2022, https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/CLIMATECHANGE/Documents/le-105251_23.pdf; Maricopa County Department of Public Health, "2023 Weekly Heat Report," November 2023, https://www.maricopa.gov/ArchiveCenter/ViewFile/Item/5734.

[25] Dale Kasler, "'Risk of Further Outages': California Warns of Blackouts as Another Hot Summer Looms," *Sacramento Bee,* May 6, 2022; Dalie Faheid, "Texas Heat Wave Explained: What Does It Have to Do with the ERCOT Power Grid?" *Fort Worth Star Telegram,* May 6, 2022; Anne C. Mulkern, "Spikes in Air-Conditioning Use with Warming Could Tax Electric Grid," *E&E News,* February 7, 2022.

evacuations and compounded health risks.[26] Some experts have found that extreme heat additionally poses risks to student learning, food security, and other measures of social welfare.[27]

Socially vulnerable populations face particular risk of heat-related illness or death. Such populations include individuals with medical conditions and disabilities, as well as children, older adults, unhoused persons, agricultural and other outdoor workers, marginalized racial groups, pregnant persons, lower-income persons, incarcerated persons, persons without air-conditioning due to access or affordability, and athletes.[28] Certain living situations—including living in urban environments, living alone, or living on higher floors of buildings—have also been found to increase risk of heat-related death.[29]

The CDC and the National Weather Service report that extreme heat is one of the leading weather-related causes of death in the United States.[30] CDC identified 10,527 heat-related deaths from 2004 to 2018 in the United States based on information reported on death certificates (averaging approximately 700 deaths annually).[31] Annual fatalities in more recent years are higher. In 2022, the CDC reported that 3,066 heat-related deaths occurred between 2018 and 2020 (averaging 767 per year), and in 2023, the agency reported that 1,600 heat-related deaths occurred in 2021 alone.[32] Other scholars and methods estimate that in recent decades, the United States has

[26] Health and Human Services, Administration for Strategic Preparedness and Response, Technical Resources, Assistance Center, and Information Exchange, *Extreme Heat Events: Lessons from Seattle's Record-Breaking Summers*, https://files.asprtracie.hhs.gov/documents/extreme-heat-events-lessons-from-seattles-record-breaking-summers.pdf.

[27] See Travis Roach, "Heat and Learning In Elementary and Middle School," *Education Economics*, vol. 30, no. 1 (2022); Caroline Kroeger, "Heat Is Associated with Short-Term Increases in Household Food Insecurity in 150 Countries and This Is Mediated by Income," *Nature Human Behavior*, vol. 7 (2023), https://doi.org/10.1038/s41562-023-01684-9; Kun Hou et al., "High Ambient Temperatures Are Associated with Urban Crime Risk in Chicago," *Science of the Total Environment*, vol. 865, part 1, January 2023.

[28] EPA, "Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts," September 2021; Leah Schinasi et al., "Associations Between Historical Redlining and Present-Day Heat Vulnerability Housing and Land Cover Characteristics in Philadelphia, PA," *Journal of Urban Health*, vol. 99, no. 1 (2022), pp. 134-145; Roger Renteria et al., "Social Disparities in Neighborhood Heat in the Northeast United States," *Environmental Research*, vol. 203, January 2022, p. 111805; Jessica Abbinett, et al., CDC, "Heat Response Plans: Summary of Evidence and Strategies for Collaboration and Implementation," p. 11, https://www.cdc.gov/climateandhealth/docs/HeatResponsePlans_508.pdf; Julianne Skarha et al., "An Overlooked Crisis: Extreme Temperature Exposures in Incarceration Settings," *American Journal of Public Health*, vol. 110, January 2020, S41-S42; Rebecca Marx and Jorge Morales-Burnett, Urban Institute, *Centering Equity to Address Extreme Heat*, February 2022, https://www.urban.org/sites/default/files/2022-02/centering-equity-to-address-extreme-heat_1.pdf; CDC "Heat—Reproductive Health," https://www.cdc.gov/niosh/topics/repro/heat.html#:~:text=If%20you%20are%20pregnant%2C%20you,more%20likely%20to%20become%20dehydrated.

[29] Jan C. Semenza et al., "Heat-Related Deaths During the July 1995 Heat Wave in Chicago," *New England Journal of Medicine*, vol. 335, no. 2 (1996), pp. 84-90.

[30] CDC, "CDC's Tracking Network in Action: Extreme Heat," last reviewed June 1, 2021, https://www.cdc.gov/nceh/features/trackingheat/index.html; National Weather Service, *Weather Related Fatality and Injury Statistics*, https://www.weather.gov/hazstat/.

[31] Ambarish Vaidyanathan et al., "Heat-Related Deaths—United States, 2004-2018," *CDC Morbidity and Mortality Weekly Report*, vol. 69, no. 24 (June 19, 2020), p. 1. In this study, heat-related deaths include listing exposure to excessive natural heat, environmental hyperthermia of newborn, effects of heat and light as the underlying cause of death, or as one of the contributing causes, but do not include those listing exposure to excessive heat of man-made origin (e.g., an electrical fire).

[32] CDC, "QuickStats: Percentage Distribution of Heat-Related Deaths, by Age Group—National Vital Statistics System, United States, 2018–2020," *CDC Morbidity and Mortality Weekly Report*, vol. 71, no. 24, June 17, 2022, https://www.cdc.gov/mmwr/volumes/71/wr/mm7124a6.htm; CDC, "QuickStats: Age-Adjusted Rates of Death Involving Exposure to Excessive Heat Among States with the Highest Numbers of Deaths—National Vital Statistics System, United States, 2021," vol. 72, no. 35, September 1, 2023, https://www.cdc.gov/mmwr/volumes/72/wr/mm7235a7.htm.

experienced 1,300 to 5,000 heat-related deaths annually.[33] Heat-related death counts, including CDC figures, are generally understood to underestimate the true number of deaths linked to heat events due to inconsistency in diagnosis and reporting on death certificates.[34] The National Climate Assessment anticipates that the number of heat-related fatalities in the United States will increase unless greenhouse gas emissions decline and adaptation measures are implemented.[35] Certain demographic trends (including population aging) may increase the risk of heat-related illness and death.[36]

Managing Extreme Heat: Nonfederal Authorities and Efforts

The CDC[37] and EPA[38] highlight response measures that state, local, tribal, and territorial governments (SLTTs) and communities may undertake to protect residents and manage episodes of extreme heat, including

- developing heat health action plans;[39]
- communicating risks to the public, including through "early warning" systems;[40]
- suspending outdoor events;
- expanding surveillance of health effects;
- increasing emergency medical staff;

[33] Sameed Ahmed M. Khatana et al., "Association of Extreme Heat with All-Cause Mortality in the Contiguous US 2008-2017," *JAMA Network*, vol. 5, no. 5, May 19, 2022, 10.1001/jamanetworkopen.2022.12957; Laurence S. Kalkstein et al., "An Evaluation of the Progress in Reducing Heat-Related Human Mortality in Major U.S. Cities," *Natural Hazards*, vol. 56 (2011), pp. 113-129, https://link.springer.com/article/10.1007/s11069-010-9552-3; Kate Weinberger, "Estimating the Number of Excess Deaths Attributable to Heat in 297 United States Counties," *Environmental Epidemiology*, vol. 4, no. 3 (April 2020), e096.

[34] M.C. Sarofim et al., "Temperature-Related Death and Illness," Chapter 2, *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment*, U.S. Global Change Research Program, 2016, pp. 43-68, http://dx.doi.org/10.7930/J0MG7MDX.

[35] M.H. Hayden et al., "Human Health," Chapter 15, *Fifth National Climate Assessment*, A.R. Crimmins et al., eds., U.S. Global Change Research Program, 2023. See also Union of Concerned Scientists, *Killer Heat in the United States: Climate Choices and the Future of Dangerously Hot Days*, July 2019, https://www.ucsusa.org/sites/default/files/2020-12/UCS_extreme_heat_report_190712b_low-res_corrected12-20.pdf.

[36] Deborah Carr, Giacomo Falchetta, and Ian Sue Wing, "Population Aging and Heat Exposure in the 21st Century: Which U.S. Regions Area at Greatest Risk and Why?" *The Gerontologist*, vol. 64, no. 3 (March 2024), pp. 1-10; M.H. Hayden et al, "Human Health," Chapter 15 of *Fifth National Climate Assessment*, 2023. Other trends (like increased access to air-conditioning) may mitigate immediate risk to human health but may also contribute to emissions and the urban heat-island effect. (Ibid.)

[37] Jessica, Abbinett, Paul J. Schramm, Stasia Widerynski, et al., CDC, "Heat Response Plans: Summary of Evidence and Strategies for Collaboration and Implementation," https://www.cdc.gov/climateandhealth/docs/HeatResponsePlans_508.pdf.

[38] EPA, "Excessive Heat Events Guidebook," June 2006, https://www.epa.gov/sites/default/files/2016-03/documents/eheguide_final.pdf.

[39] Nicole Errett et al., "Survey of Extreme Heat Public Health Preparedness Plans and Response Activities in the Most Populous Jurisdictions in the United States," BMC Public Health, vol 23, no. 811 (2023), https://doi.org/10.1186/s12889-023-15757-x. For discussion of content, see Juliette Randazza et al., "Planning to Reduce the Health Impacts of Extreme Heat: A Content Analysis of Heat Action Plans in Local United States Jurisdictions," *American Journal of Public Health*, vol. 113, no. 5,May 2023, pp. 559-567, https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2022.307217.

[40] CDC, "Climate Change and Extreme Heat Events," https://www.cdc.gov/climateandhealth/pubs/ClimateChangeandExtremeHeatEvents.pdf.

- expanding services and distributing water to vulnerable populations;[41]
- providing emergency energy assistance;[42] and
- opening cooling centers.[43]

Experts have found that some cities that executed such measures observed fewer casualties and hospitalizations during extreme heat.[44] Some affected state and local governments have taken additional measures, including proposing and sometimes adopting emergency protocols or safety measures for businesses,[45] elementary and secondary schools,[46] and other facilities[47] to protect health and safety in the workplace and greater public. Other state and local governments provide transportation to cooling centers or other safe areas to individuals at risk,[48] which may reduce access barriers for some vulnerable populations.[49] Several states require or advise utility companies to suspend service disconnections during specified episodes of extreme heat.[50] In the past several years, a handful of cities have established offices and positions dedicated to the issue

[41] Jessica Abbinett, Paul J. Schramm, Stasia Widerynski, et al., CDC, "Heat Response Plans: Summary of Evidence and Strategies for Collaboration and Implementation," p. 34, https://www.cdc.gov/climateandhealth/docs/HeatResponsePlans_508.pdf.

[42] Ibid., p. 36.

[43] Ibid., p. 33.

[44] Marc Weisskop et al., "Heat Wave Morbidity and Mortality, Milwaukee, Wis., 1999 vs 1995: An Improved Response?" *American Journal of Public Health*, vol. 92, no. 5 (May 2002), pp. 830-833; Karen Smoyer, "A Comparative Analysis of Heat Waves and Associated Mortality in St. Louis, Missouri—1980 and 1995," *International Journal of Biometerology*, vol. 42 (1998), pp. 44-50.

[45] See, for example, State of Nevada Division of Industrial Relations, "Revised Adopted Regulation of the Division of Industrial Relations of the Department of Business and Industry," LCB Fil No. R053-20, https://www.leg.state.nv.us/Register/RegsReviewed/$R053-20RA. Further efforts are described at the National Agriculture Law Center, "Recent Federal and State Heat Safety Proposals," September 21, 2023, https://nationalaglawcenter.org/recent-federal-and-state-heat-safety-proposals/. For further discussion of federal requirements for occupational safety related to extreme heat, see CRS Insight IN11701, *Occupational Safety and Health Administration (OSHA) Regulation of Employee Exposure to Heat*, by Scott D. Szymendera.

[46] See, for example, Arizona Department of Health Services, *Managing Extreme Heat Recommendations for Schools: Pilot Version,* April 2021, https://www.azdhs.gov/documents/preparedness/epidemiology-disease-control/extreme-weather/heat/managing-extreme-heat-recommendations-for-schools.pdf; and Alex Herrera, "Water, breaks, and limits: Miami-Dade schools will enforce temperature protocols for athletes," *Health News Florida,* August 23, 2023, https://health.wusf.usf.edu/health-news-florida/2023-08-23/water-breaks-and-limits-miami-dade-schools-will-enforce-temperature-protocols-for-athlete. Further proposals are available in UCLA Luskin Center for Innovation, "Protecting Californians with Heat-Resilient Schools," policy brief, May 2023, https://innovation.luskin.ucla.edu/wp-content/uploads/2023/05/Protecting-Californians-with-Heat-Resilient-Schools.pdf.

[47] Tim Henderson, "Some States Act to Protect Residents from Extreme Heat—With a Focus on Young People, *Missouri Independent,* November 27, 2023, https://missouriindependent.com/2023/11/27/some-states-act-to-protect-residents-from-extreme-heat-with-a-new-focus-on-young-people/.

[48] For example, see Executive Office of the Mayor, "Mayor Bowser Activates Hot Weather Emergency for Wednesday, July 26-Sunday, July 30," July 25, 2023, https://mayor.dc.gov/release/mayor-bowser-activates-hot-weather-emergency-wednesday-july-26-%E2%80%93-sunday-july-30; and City of Los Angeles Emergency Management Department, "Extreme Heat," https://emergency.lacity.gov/la-responds/heat#:~:text=Rides%20to%20City%20Cooling%20Centers,LADOT%20Transit%20connections%20City%20facilities.

[49] Stasia Widerynski et al., "The Use of Cooling Centers to Prevent Heat-Related Illness: Summary of Evidence and Strategies for Implementation," *Climate and Health Technical Report Series, CDC,* pp. 11-14, 17, https://www.cdc.gov/climateandhealth/docs/UseOfCoolingCenters.pdf.

[50] Wesley Muller, "State Regulator Will Ask Louisiana Power Companies to Pause Shut-Offs in Extreme Heat," *Louisiana Illuminator,* August 15, 2023, https://lailluminator.com/2023/08/15/state-regulator-will-ask-louisiana-power-companies-to-pause-shut-offs-in-extreme-heat/; Texas Administrative Code Title 16, Part II, Public Utility Commission of Texas Substantive Rules Applicable to Electric Service Providers, Chapter §25.29(i); HHS Low Income Home Energy Assistance Program Clearinghouse, "State Disconnect Policies," https://liheapch.acf.hhs.gov/disconnect. For more discussion, see CRS Report R47417, *Electric Utility Disconnections*, by Ashley J. Lawson and Claire Mills.

of extreme heat—for example, the City of Phoenix's Office of Heat Response and Mitigation.[51] In March 2024, the State of Arizona became the first to appoint a Chief Heat Officer.[52]

In addition to urgent response measures, some state and local agencies have also identified and implemented long-term projects to reduce health risks posed by extreme heat, including

- Providing shade cover (including tree canopy) for pedestrians, particularly in urban areas;[53]
- Providing chilled drinking water access in schools and public places;[54] and
- Increasing tree and vegetative cover over built surfaces (e.g., roofs and pavement).[55]

These strategies may particularly benefit urban "heat islands"[56] where built surfaces absorb and re-emit heat in the absence of cooling, shade-creating vegetation.[57]

Gaps in Nonfederal Authorities and Resources for Extreme Heat Response

Despite some of the recent initiatives discussed above, most states do not have specific laws, standards, or plans addressing extreme heat.[58] Identified gaps or disparities in relevant state and local emergency procedures and authorities include

- Lack of a clearly identified party responsible for extreme heat preparedness, response, and mitigation;[59]

[51] See also The City of Los Angeles, "The City of LA's First Chief Heat Officer and CEMO Director," https://www.climate4la.org/about/#chief-heat-officer; and City of Miami, "Chief Heat Officer," https://www.miamidade.gov/global/economy/environment/chief-heat-officer.page.

[52] Office of Governor Katie Hobbs, "Governor Hobbs Announces Extreme Heat Preparedness Plan," March 1, 2024, https://azgovernor.gov/office-arizona-governor/news/2024/03/governor-hobbs-announces-extreme-heat-preparedness-plan.

[53] V. Kelly Turner et al., "Shade is an Essential Solution for Hotter Cities," *Nature*, vol. 619, July 27, 2023, pp. 694-697, https://www.nature.com/articles/d41586-023-02311-3.

[54] Testimony of David Hondula, Director of the Office of Heat Response and Mitigation, City of Phoenix, in U.S. Senate, Committee on Environment and Public Works, *Examining the Effects of Extreme Heat and Weather on Transportation*, hearing, 118th Cong., 1st sess., September 13, 2023, https://www.epw.senate.gov/public/index.cfm/2023/9/examining-the-effects-of-extreme-heat-and-weather-on-transportation; Brian Stone Jr. et al., "How Blackouts during Heat Waves Amplify Mortality Risk, *Environmental Science & Technology*, vol. 57 (2023), p. 8253.

[55] See Nyla Holland, "Five Ways to Combat Extreme Temperatures on Urban Heat Islands," *Urban Institute*, September 7, 2022, https://housingmatters.urban.org/articles/five-ways-combat-extreme-temperatures-urban-heat-islands.

[56] See EPA, "Reduce Urban Heat Island Effect," https://www.epa.gov/green-infrastructure/reduce-urban-heat-island-effect.

[57] EPA, "Heat Island Effect," https://www.epa.gov/heatislands; Jeff Goodell, *The Heat Will Kill You First*, Chapter 3, New York: Little, Brown, and Company, July 2023.

[58] Ladd Keith et al, "Urban Heat Governance: Examining the Role of Urban Planning," *Journal of Environmental Policy & Planning*, vol. 25, no. 5, (2023), [[/ 642-662, https://www.tandfonline.com/doi/full/10.1080/1523908X.2023.2244446.

[59] See, for example, comments by David Hondula in FEMA, "Extreme Heat," resilience webinar, July 12, 2023, https://femahmawebinars.vfairs.com/en/ondemand-recordings; Sara Meerow and Ladd Keith, "Planning for Extreme Heat: A National Survey of U.S. Planners," *Journal of the American Planning Association*, vol. 88, no. 3 (2022), pp. 319-334, https://doi.org/10.1080/01944363.2021.1977682.

- Lack of insurance or other financial means to cover costs incurred by governments or community healthcare systems for emergency response during an episode of extreme heat;[60]
- Insufficient focus on heat safety and a patchwork of relevant standards;[61] and
- Energy disconnection policies that vary widely across state and local governments, posing risks that individuals may face disconnection—and lack of access to climate control—during an episode of extreme heat.[62]

Federal Financial Assistance by Agency

The next section identifies select federal assistance potentially available through the Department of Homeland Security (DHS), HHS, the Department of Housing and Urban Development (HUD), the Department of Agriculture (USDA), the Department of Commerce, and other authorities for certain extreme heat response and mitigation costs incurred by SLTTs, eligible community organizations (e.g., nonprofit hospitals), and individuals. However, none of the federal assistance programs listed below were specifically designed to provide assistance for extreme heat. Given evolving and flexible program and grant guidelines, the information provided in this report may not be comprehensive. Program applicability to each applicant or incident may vary.

Federal assistance for other costs related to extreme heat (e.g., infrastructure improvements, assistance to individual survivors) may be available from other programs and agencies. Selected programs through the Department of Energy to assist with electricity reliability and efficiency that may reduce risks related to extreme heat events are summarized in **Appendix A**.[63] Technical assistance may also be available to communities for the purposes of extreme heat emergency response, such as that provided by the EPA to develop cooling centers in public school facilities.[64]

Department of Homeland Security—FEMA

FEMA's response, recovery, and Hazard Mitigation Assistance (HMA) programs could provide funding to address risks from extreme heat.[65]

FEMA may provide assistance for heat-related response costs if the President issues an emergency or major disaster declaration for extreme heat under the Robert T. Stafford Disaster

[60] Berkeley Law Center for Law, Energy, and the Environment, Insuring Extreme Heat Risks, December 2020, pp. 13-14, https://www.law.berkeley.edu/wp-content/uploads/2020/11/Insuring-Extreme-Heat-Risks-Dec-2020.pdf. Most entities and individuals are not well insured against extreme heat according to broker Patrick Kelly, "Understanding Extreme Heat: An Increasing Risk for People, Businesses, and Society," Aon Insights, November 2, 2023, https://www.aon.com/en/insights/articles/understanding-extreme-heat.

[61] For more information on the federal role in establishing heat standards, see CRS Report R43969, *OSHA State Plans: In Brief, with Examples from California and Arizona*, by Scott D. Szymendera.

[62] See CRS Report R47417, *Electric Utility Disconnections*, by Ashley J. Lawson and Claire Mills; Matthew Flaherty, Sanya Carley, and David M. Konisky, "Electric Utility Disconnection Policy and Vulnerable Populations," *The Electricity Journal*, vol. 33, no.10 (December 2020) 106859, https://www.sciencedirect.com/science/article/abs/pii/S1040619020301512?via%3Dihub.

[63] See CRS In Focus IF11921, *Surface Transportation and Climate Change: Provisions in the Infrastructure Investment and Jobs Act (P.L. 117-58)*, by William J. Mallett; and CRS Insight IN11988, *FEMA IHP Assistance for Extreme Heat: Considerations and Limitations*, by Elizabeth M. Webster.

[64] EPA, "EPA to Help Schools in Four Communities Become Cleaner Air and Cooling Centers," October 29, 2021, https://www.epa.gov/newsreleases/epa-help-schools-four-communities-become-cleaner-air-and-cooling-centers.

[65] See related discussion in FEMA, "Hazard Mitigation Assistance Guidance," February 27, 2015, https://www.fema.gov/sites/default/files/2020-07/fy15_HMA_Guidance.pdf.

Relief and Emergency Assistance Act (the Stafford Act; P.L. 93-288, as amended).[66] However, past Presidents have denied all requests for Stafford Act declarations for extreme heat:[67]

- In 1980, Governor Joseph Teasdale of Missouri requested two major disaster declarations for extreme heat and drought. A FEMA representative reported that the initial request was denied because "'the severity and magnitude of the situation did not warrant a declaration under the Disaster Relief Act' and explained that the severity must be beyond the ability of state government to handle before the federal government [would] step in."[68]
- In 1995, Governor Jim Edgar requested a major disaster declaration for a Chicago heat wave that had directly caused over 500 deaths (scholars have since put the number above 700).[69] FEMA, state, and local officials conducted a preliminary damage assessment that tallied costs incurred due to the fatalities and emergency response costs, as well as some structural damage to O'Hare International Airport.[70] President Clinton denied the request; FEMA's then-Administrator explained that the event was "not of a severity and magnitude" required of a major disaster.[71]

Additionally, governors have requested Stafford Act declarations for incidents caused or exacerbated by extreme heat. For example, in October 2022, Governor Gavin Newsom requested a major disaster declaration for the 2022 heat dome and resulting wildfires.[72] FEMA denied the request,[73] and subsequent appeal,[74] finding that "the damage from this event was not of such severity and magnitude" to warrant a major disaster declaration.[75] FEMA further reported to CRS that the agency does not consider the request to be for the heat dome, as the wildfires caused the damage for which the state sought assistance and "FEMA precedent is to evaluate discrete events and impacts, not seasonal or general atmospheric conditions."[76]

[66] 42 U.S.C. §§5121 et seq.

[67] FEMA email to CRS, January 26, 2024 and April 8, 2024.

[68] "Carter Rejects Initial Bid for Heat Aid," Associated Press, July 29, 1980; "Heat and Drought Conditions in the United States," in Public Papers of the Presidents of the United States: Jimmy Carter, 1980-81, Book 2—May 24 to September 26, 1980 (Washington: U.S. Government Printing Office, 1982), pp. 1345-1346 and 1421-1423.

[69] Letter from Illinois Governor Jim Edgar to President William J. Clinton, July 24, 1995, provided to CRS by FEMA Congressional Affairs Division.

[70] Letter from FEMA Administrator James Lee Witt to Illinois Governor Jim Edgar, August 7, 1995, provided to CRS by FEMA Congressional Affairs Division..

[71] Letter from FEMA Administrator James Lee Witt to Illinois Governor Jim Edgar, August 7, 1995, provided to CRS by FEMA Congressional Affairs Division..

[72] Letter from California Governor Gavin Newsom to President Joseph R. Biden, Jr, October 26, 2022, https://www.gov.ca.gov/wp-content/uploads/2022/10/Heat-Dome-Fires-Request.pdf?emrc=a4a383.

[73] Letter from FEMA Administrator Deanne Criswell to California Governor Gavin Newsom, February 3, 2023, provided to CRS from FEMA Congressional Affairs Division.

[74] Letter from FEMA Administrator Deanne Criswell to California Governor Gavin Newsom, May 9, 2023, provided to CRS from FEMA Congressional Affairs Division.

[75] Additional examples of Stafford Act declaration requests citing heat as an underlying factor in a disaster include Letter from Washington Governor Jay Inslee to President Joseph R. Biden, Jr., October 4, 2023, https://content.govdelivery.com/attachments/WAGOV/2023/10/04/file_attachments/2637406/Spokane%20County%20Fires%20Major%20Disaster%20Declaration%20Request%2010.04.2023.pdf, and Letter from California Governor Gavin Newsom to President Donald J. Trump, September 28, 2020.

[76] FEMA Congressional Affairs Division, email correspondence to CRS, April 9, 2024.

For more information on federal assistance provided in past episodes of extreme heat, see **Appendix B**.

Despite this history, past Presidents and recent FEMA officials have affirmed the potential relevance of the Stafford Act to extreme heat. President George W. Bush did declare emergencies for several states for power outages in August 2003 following supply strains attributed, in part, to air-conditioning use during extreme heat.[77] In September 2023, FEMA Administrator Deanne Criswell testified before Congress that the Stafford Act could be activated to provide assistance for extreme heat if warranted, after being asked whether the statue required amending for this purpose:

> The Stafford Act does not need to be amended to include extreme heat. We base our decisions on a number of factors, mostly on what—does it exceed the capacity of the state and local jurisdictions. If the response to an extreme heat incident exceeds the capacity of a state and local jurisdiction, they are very open to submit a disaster declaration request. And we will consider that based on whether or not it exceeds their capacity.[78]

Five FEMA programs could offer assistance for costs associated with extreme heat response, if authorized.

Public Assistance (PA)[79]

CRS Expert: Erica Lee

- FEMA's Public Assistance program provides financial and direct assistance (e.g., materials, operational support, personnel) to SLTTs and eligible nonprofits when authorized by the President through a Stafford Act declaration.[80] Subject to agency discretion, FEMA may provide reimbursement or direct assistance for emergency protective measures, including "sheltering," which could potentially include cooling centers, as well as emergency food, water, or medical care, and risk communication.[81]

[77] See "Ohio Power Outage (EM-3187-OH)," "New Jersey Power Outage (EM-3188-NJ)," "Michigan Power Outage (EM_3189-MI)," "New York Power Outage (EM-3186-NY)," at FEMA, "Declared Disasters," https://www.fema.gov/disaster/declarations?field_dv2_state_territory_tribal_value=All&field_year_value=2003&field_dv2_declaration_type_value=All&field_dv2_incident_type_target_id_selective=49142; Jeremy Dillon and Edward Klump, "Heat Wave Slams the Grid. Here's What to Know," *Politico Pro*, July 22, 2019, https://subscriber.politicopro.com/article/eenews/1060771407; and JR Minkel, "The 2003 Northeast Blackout—Five Years Later," *Scientific American*, August 13, 2008, https://www.scientificamerican.com/article/2003-blackout-five-years-later/; U.S.-Canada Power System Outage Task Force, "Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations," March 2004, pp. 25, D:\0myfiles\DOE Policy (LBL) Blackout Final\final-blackout-body-xx.vp (energy.gov).

[78] FEMA Administrator Deanne Criswell, testimony, U.S. Congress, House Transportation and Infrastructure, Subcommittee on Economic Development, Public Buildings and Emergency Management, *FEMA: The Current State of Disaster Readiness, Response, and Recovery*, 118th Cong., 1st sess., September 19, 2023, https://transportation.house.gov/calendar/eventsingle.aspx?EventID=406854.

[79] FEMA, "Assistance for Governments and Private Non-Profits After a Disaster," last updated August 7, 2020, https://www.fema.gov/assistance/public.

[80] For more information, see CRS Report R46749, *FEMA's Public Assistance Program: A Primer and Considerations for Congress*, by Erica A. Lee.

[81] FEMA, *Public Assistance Program and Policy Guide V. 4.0*, June 1, 2020, pp. 120-121, https://www.fema.gov/sites/default/files/documents/fema_pappg-v4-updated-links_policy_6-1-2020.pdf.

Individual Assistance (IA)

CRS Expert: Elizabeth Webster

- When the Individual Assistance program is authorized by the President pursuant a Stafford Act declaration, FEMA may provide financial assistance for housing and/or other needs (referred to as Other Needs Assistance or ONA) to disaster survivors through the Individuals and Households Program (IHP). In certain cases, FEMA may be able to provide Assistance for Miscellaneous Items, a form of IHP-ONA, to eligible individuals to reimburse the costs of purchasing new AC units and/or electrical fans to assist their disaster recovery. Other forms of IHP assistance only permit FEMA to provide funding to repair or replace an HVAC, air conditioning (AC) units, and/or electric fans that were owned prior to, and were damaged by, the declared emergency or major disaster, including through Home Repair Assistance and Personal Property Assistance.[82]

Hazard Mitigation Grant Program (HMGP)[83]

CRS Expert: Diane Horn

- Following a declaration of any Stafford Act major disaster[84] or Fire Management Assistance Grant (FMAG),[85] HMGP is awarded as a formula grant to states based on estimated federal assistance per declaration or FMAG, subject to a sliding scale.[86] Funds may be used for eligible activities irrespective of the hazard or area for which the grant was awarded. For example, while one county may use funding allocated following a flooding incident in one county, another county could use funding for eligible mitigation measures of extreme heat.[87] FEMA has clarified that HMGP can be used for mitigation planning and projects that reduce risk of extreme heat.[88]

[82] For more information on assistance FEMA may provide to individuals and households through the Individuals and Households Program (IHP) that may help address the threat of extreme heat, see CRS Insight IN11988, *FEMA IHP Assistance for Extreme Heat: Considerations and Limitations*, by Elizabeth M. Webster. For specific assistance requirements, including related to IHP program eligibility and limitations, see FEMA's *Individual Assistance Program and Policy Guide*, v. 1.1, FP 104-009-03, May 2021, https://www.fema.gov/sites/default/files/documents/fema_iappg-1.1.pdf.

[83] FEMA, "Hazard Mitigation Grant Program," last updated May 4, 2022, https://www.fema.gov/grants/mitigation/hazard-mitigation. For more information, see CRS Insight IN11187, *Federal Emergency Management Agency (FEMA) Hazard Mitigation Assistance*, by Diane P. Horn.

[84] FEMA, "How a Disaster Gets Declared," last updated January 4, 2022, https://www.fema.gov/disaster/how-declared.

[85] FEMA, "Fire Management Assistance Grants," last updated April 8, 2022, https://www.fema.gov/assistance/public/fire-management-assistance.

[86] 42 U.S.C. §5170c.

[87] FEMA, "Hazard Mitigation Assistance Guidance," February 27, 2015, https://www.fema.gov/sites/default/files/2020-07/fy15_HMA_Guidance.pdf.

[88] FEMA, "Mitigating the Risk of Extreme Temperatures with Hazard Mitigation Assistance Funds," fact sheet, Mitigating the Risk of Extreme Temperatures with Hazard Mitigation Assistance Funds (fema.gov).

Building Resilient Infrastructure and Communities (BRIC)[89]

CRS Expert: Diane Horn

- The Building Resilient Infrastructure and Communities (BRIC) program provides financial and direct assistance (e.g., personnel) to SLTTs undertaking risk mitigation activities to reduce the threat of future disaster-related losses of life and property. BRIC is a pre-disaster mitigation grant and, as such, does not require a declaration. It is awarded competitively to communities on an annual basis. FEMA guidance notes that BRIC funds may be available to cover the cost of plans to mitigate the effects of extreme heat, providing emergency power to cooling centers, and implementing long-term building projects to reduce the risk of extreme heat (e.g., providing shade in public places).[90]

Emergency Management Performance Grant (EMPG)[91]

CRS Expert: Shawn Reese

- Emergency Management Performance Grant (EMPG) funds are available on a formula basis to all states, territories, and the District of Columbia, and do not require a Stafford Act declaration.[92] EMPG provides federal funds to states to assist SLTTs in preparing for all hazards in accordance with the National Preparedness System.[93] FEMA says the EMPG program for FY2023 will support the agency's focus on preparedness for all hazards, including evolving threats and risks associated with climate change.[94] As in 2022, the 2023 EMPG Notice of Funding Opportunity states that "emergency managers must learn to manage and support climate-related emergencies such as drought and extreme heat."[95]

Department of Health and Human Services

Administration for Strategic Preparedness and Response (ASPR)

The Administration for Strategic Preparedness and Response (ASPR) administers a suite of programs that aim to bolster the ability of hospitals, health care facilities, and health care systems

[89] FEMA, "Building Resilient Infrastructure and Communities (BRIC)," last updated April 25, 2022, https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities. For more information, see CRS Insight IN11515, *FEMA Pre-Disaster Mitigation: The Building Resilient Infrastructure and Communities (BRIC) Program*, by Diane P. Horn.

[90] FEMA, "Mitigating the Risk of Extreme Temperatures with Hazard Mitigation Assistance Funds," October 2022, https://www.fema.gov/sites/default/files/documents/fema_extreme-heat-fact-sheet_102022.pdf.

[91] FEMA, "Emergency Management Performance Grant," last updated May 13, 2022, https://www.fema.gov/grants/preparedness/emergency-management-performance.

[92] For more information, see CRS Report R44669, *Department of Homeland Security Preparedness Grants: A Summary and Issues*, by Shawn Reese.

[93] See CRS Report R46696, *National Preparedness: A Summary and Select Issues*, by Shawn Reese and Lauren R. Stienstra.

[94] FEMA, *Manual (FM) 207-22-0001 Fiscal Year 2023 Preparedness Grants*, p. H-33, https://www.fema.gov/sites/default/files/documents/fema_gpd-fy-23-preparedness-grants-manual.pdf.

[95] FEMA, "The Department of Homeland Security (DHS) Notice of Funding Opportunity (NOFO) Fiscal Year 2023 Emergency Management Performance Grant (EMPG) Program," February 27, 2023, https://www.fema.gov/grants/preparedness/emergency-management-performance/fy-23-nofo.

to prepare for and respond to public health emergencies.[96] In addition to providing technical assistance and education, ASPR also provides funds through grants and cooperative agreements. While these funds are generally designed to bolster the preparedness and response capacities of recipients, they can sometimes be used to respond to emergencies. Specifically, certain ASPR programs may cover emergency response costs associated with extreme heat.

Hospital Preparedness Program[97]

CRS Expert: Hassan Sheikh

- The Hospital Preparedness Program (HPP) provides assistance to all 50 states, eight territories and freely associated states, three metropolitan areas and the District of Columbia. Recipients are to use these funds to support health care preparedness capabilities for disasters and the development and enhancement of health care coalitions within their jurisdictions. These funds can be used to support preparedness efforts for extreme weather events, including extreme heat.[98] In certain instances, these funds can also be used to support emergency response efforts.[99]

Centers for Disease Control and Prevention (CDC)

Recipients of certain CDC grants may use some funds to prepare for or respond to extreme heat. These funds are generally designed to increase public health planning or preparedness capacity. However, in certain circumstances, funds can be used for response costs. Depending on the grant, funded activities can include emergency planning, health communication, data surveillance and analysis, and efforts to identify and assist at-risk individuals. The following provides an overview of selected relevant CDC grant programs.

Public Health Emergency Preparedness (PHEP) Cooperative Agreement[100]

CRS Expert: Hassan Sheikh

- The Public Health Emergency Preparedness (PHEP) Cooperative Agreement provides assistance to 62 state, local, and territorial public health departments[101] to strengthen public health preparedness and response capacity. PHEP Cooperative Agreement recipients engage in activities that align with the Public Health Emergency Preparedness and Response Capabilities, which allow for an all-hazards approach to responding to public health emergencies and the public

[96] Administration for Strategic Preparedness and Response (ASPR), "ASPR Health Care Readiness Programs Portfolio," last reviewed August 15, 2023, https://aspr.hhs.gov/_catalogs/masterpage/ASPR/Documents/Health%20Care%20Readiness%20Programs/HCRP-Portfolio-Fact-Sheet-508.pdf.

[97] ASPR, "About the Hospital Preparedness Program," last reviewed August 15, 2023, https://aspr.hhs.gov/HealthCareReadiness/HPP/Pages/about-hpp.aspx.

[98] Ibid., pp. 58-59.

[99] ASPR, "U.S. Department of Health and Human services, Office of the Assistant Secretary for Preparedness and Response, Hospital Preparedness Program (HPP), Funding Opportunity Announcement and Grant Application Instructions," 2019, p. 21, https://www.grantsolutions.gov/gs/preaward/previewPublicAnnouncement.do?id=63163.

[100] CDC, "Public Health Emergency Preparedness (PHEP) Cooperative Agreement," last reviewed April 22, 2022, https://www.cdc.gov/cpr/readiness/phep.htm.

[101] CDC, *PHEP Budget Period 2 (Fiscal Year 2020) Funding*, https://www.cdc.gov/cpr/readiness/00_docs/CDC_PHEP-FY-2020_Budget-Period-2_Funding-Table_final.pdf.

health consequences of traditional disasters.[102] Recipients can use funds to prepare for and respond to extreme weather, including heat events.[103]

Climate-Ready States & Cities Initiative[104]

CRS Expert: Kavya Sekar

- The Climate-Ready States & Cities Initiative funds grantees' efforts to identify local climate change effects, potential health effects, at-risk populations, and potential mitigating interventions. Funds may be used for climate-related health planning activities. Currently, the Initiative funds 11 jurisdictions, including state, county, and local governmental agencies.[105] A separate but related Climate-Ready Tribes Program funds a similar grant for three American Indian and Alaska Native (AI/AN) tribes (administered by the National Indian Health Board and funded by CDC).[106]

Preventive Health and Health Services (PHHS) Block Grant[107]

CRS Expert: Kavya Sekar

- The Preventive Health and Health Services (PHHS) Block Grant is a flexible block grant to 61 health jurisdictions that allows grantees to address the unique and emerging public health needs of their communities, which could include those related to extreme heat.[108]

Administration for Children and Families

Community Services Block Grant (CSBG)[109]

CRS Expert: Conor Boyle

- The Community Services Block Grant (CSBG) provides flexible funding to states, territories, and tribes for distribution to local agencies to support

[102] CDC, Public Health Emergency Preparedness and Response Capabilities: National Standards for State, Local, Tribal, and Territorial Public Health, Atlanta, GA, October 2018, https://www.cdc.gov/cpr/readiness/00_docs/CDC_PreparednesResponseCapabilities_October2018_Final_508.pdf.

[103] See, for example, CDC, Public Health Emergency Preparedness Cooperative Agreement Budget Period 1 Performance Measure Specifications and Implementation Guidance Version 1, https://www.cdc.gov/cpr/readiness/00_docs/PHEP_BP1-2017PerformanceMeasureGuidance_508-FINAL.PDF.

[104] CDC, "CDC's Climate-Ready States and Cities Initiative," last reviewed November 4, 2021, https://www.cdc.gov/climateandhealth/climate_ready.htm.

[105] CDC, "Climate-Ready States and Cities Initiative Grant Recipients," last reviewed September 30, 2021, https://www.cdc.gov/climateandhealth/crsci_grantees.htm.

[106] National Indian Health Board, "Climate Ready Tribes," https://www.nihb.org/public_health/climate_ready_tribes.php.

[107] CDC, "Public Health Professionals Gateway: Preventive Health and Health Services (PHHS) Block Grant," last reviewed March 1, 2022, https://www.cdc.gov/phhsblockgrant/index.htm.

[108] CDC, "PHHS Block Grant Program Contacts," last reviewed March 4, 2022, https://www.cdc.gov/phhsblockgrant/phhscontacts.htm.

[109] U.S. Department of Health and Human Services (HHS), Office of Community Services, "Community Services Block Grant (CSBG)," last reviewed April 27, 2022, https://www.acf.hhs.gov/ocs/programs/community-services-block-grant-csbg.

community-based activities to reduce poverty.[110] Funds may be used for emergency assistance, which may include cooling center operations.

Low Income Home Energy Assistance Program (LIHEAP)[111]

CRS Expert: Libby Perl

- The Low Income Home Energy Assistance Program (LIHEAP) is a flexible block grant to states, tribes, and territories for operating home energy assistance programs for low-income households.[112] Grantees[113] may use funds to pay for heating and cooling costs, crisis assistance, weatherization assistance, and services to reduce the need for energy assistance. HHS has issued memoranda stating that grantees may use funds to establish and operate cooling centers and provide air-conditioning units to eligible households, among other activities to prevent heat stress.[114] In addition, HHS has established a LIHEAP and Heat Stress Geographic Information System Dashboard, which includes historical temperature data, information on the effects of extreme heat on health, and ways in which LIHEAP can help.[115] Several Presidents have used LIHEAP to deliver emergency assistance for extreme heat, as detailed in **Appendix B**.

Department of Housing and Urban Development

Community Development Block Grant Program (CDBG)[116]

CRS Expert: Joe Jaroscak

- The Community Development Block Grant Program (CDBG) provides flexible federal funding to states and localities to support economic development, community development, and infrastructure.[117] In some cases, CDBG grantees could target or reprogram funds to prepare for or respond to extreme heat events. In particular CDBG funds could support the development or rehabilitation of

[110] HHS Office of Community Services, "CSBG Map State and Territory Grantee Contact Information," last reviewed April 27, 2022, https://www.acf.hhs.gov/ocs/map/csbg-map-state-and-territory-grantee-contact-information.

[111] HHS Office of Community Services, "Low Income Home Energy Assistance Program (LIHEAP)," last reviewed February 13, 2024, https://www.acf.hhs.gov/ocs/low-income-home-energy-assistance-program-liheap.

[112] For more information on LIHEAP, see CRS Report RL31865, *LIHEAP: Program and Funding*, by Libby Perl.

[113] HHS Office of Community Services, "LIHEAP Map State and Territory Contact Listing," last reviewed February 13, 2024, https://www.acf.hhs.gov/ocs/map/liheap-map-state-and-territory-contact-listing.

[114] HHS Office of Community Services, "LIHEAP IM-2022-06 Heat Stress Flexibilities and Resources," July 19, 2022, https://www.acf.hhs.gov/ocs/policy-guidance/liheap-im-2022-06-heat-stress-flexibilities-and-resources-fy2022.

[115] HHS Office of Community Services, "LIHEAP DC-2022-11 Heat Stress FY2022," April 22, 2022, https://www.acf.hhs.gov/ocs/policy-guidance/liheap-dcl-2022-11-heat-stress-fy2022. The dashboard is available at https://liheap-and-extreme-heat-hhs-acf.hub.arcgis.com/, last reviewed February 13, 2024.

[116] U.S. Department of Housing and Urban Development (HUD), "Community Development Block Grant Program," content current as of June 8, 2021, https://www.hud.gov/program_offices/comm_planning/cdbg.

[117] HUD Exchange, "Community Development Block Grant Program," https://www.hudexchange.info/programs/cdbg/. For more information, see CRS Report R43520, *Community Development Block Grants and Related Programs: A Primer*, by Joseph V. Jaroscak.

public facilities,[118] or the provision of public services[119] to meet specific community needs related to heat events, if compliant with one of the program's three national objectives and all relevant requirements.[120]

CDBG—Disaster Recovery (CDBG-DR)[121]

CRS Expert: Joe Jaroscak

- Congress has provided for supplemental appropriations using CDBG authorities for disaster recovery (CDBG-DR), or in response to other emergency events. Emergencies may potentially include extreme heat. In February 2018, Congress dedicated funds to mitigate against future disaster risk (CDBG-MIT) following some incidents; this could serve as a model for extreme heat mitigation resilience.[122]

The Indian Community Development Block Grant (ICDBG)[123]

CRS Expert: Joe Jaroscak

- The Indian Community Development Block Grant (ICDBG) provides economic development and urgent needs funding to federally recognized tribal nations and Alaska Native villages. ICDBG funding is awarded in two categories: (1) competitive community and economic development grants allow for a variety of uses, including potentially extreme heat mitigation; and (2) noncompetitive imminent threat grants address issues posing an urgent threat to the public health or safety of tribal residents, which could also respond to extreme heat incidents or their aftermath.

Department of Agriculture

CRS Expert: Lisa Benson

- USDA Rural Development may provide assistance for certain kinds of projects in qualifying rural areas.[124] For example, USDA Community Facilities Programs

[118] HUD, *Guide to National Objectives and Eligible Activities for CDBG Entitlement Communities*, "Chapter 2: Categories of Eligible Activities," February 2001, pp. 2-11 through 2-12, https://www.hudexchange.info/sites/onecpd/assets/File/CDBG-National-Objectives-Eligible-Activities-Chapter-2.pdf.

[119] Ibid., p. 2-22.

[120] HUD Exchange, "Guide to National Objectives and Eligible Activities for CDBG Entitlement Communities," February 2001, https://www.hudexchange.info/resource/89/community-development-block-grant-program-cdbg-guide-to-national-objectives-and-eligible-activities-for-entitlement-communities/.

[121] HUD Exchange, "Community Development Block Grant Disaster Recovery Program," https://www.hudexchange.info/programs/cdbg-dr/. For more information, see CRS Report R46475, *The Community Development Block Grant's Disaster Recovery (CDBG-DR) Component: Background and Issues*, by Joseph V. Jaroscak.

[122] See CRS In Focus IF11814, *Disaster Resilience Investments: Community Development Block Grant Authorities for Mitigation (CDBG-MIT)*, by Joseph V. Jaroscak; and HUD Exchange, "Community Development Block Grant Mitigation Program," https://www.hudexchange.info/programs/cdbg-mit/.

[123] HUD, "Indian Community Development Block Grant Program," https://www.hud.gov/program_offices/public_indian_housing/ih/grants/icdbg.

[124] U.S. Department of Agriculture (USDA), "Rural Development," https://www.rd.usda.gov/.

(such as Community Facilities Direct Loans and Grants)[125] assist with developing or improving essential public services and facilities; these funds might be used for efforts related to community emergency shelters and cooling centers.[126] The USDA Disaster Resource Center also gives timely information on assistance to communities affected by severe weather events and other disasters and emergencies.[127] (See Rural Development State Offices for contacts.[128])

Department of Commerce

Economic Development Administration (EDA)—Disaster Recovery[129]

CRS Expert: Julie Lawhorn

- In response to some major disasters and emergencies, Congress has provided supplemental funding for long-term disaster recovery for selected incidents under the Economic Development Administration's (EDA's) economic adjustment assistance (EAA) program. The EAA program supports a variety of activities, including expenses related to disaster relief, the restoration of infrastructure, flood mitigation, and other forms of assistance for specific areas. EDA directs prospective applicants to demonstrate how projects may facilitate resilience to future disruptions including extreme heat. For instance, funding could be used for the development and construction of resilient infrastructure and buildings to mitigate future risk and vulnerability, including from impacts of climate change.[130]

Federal Regional Commissions and Authorities[131]

CRS Expert: Julie Lawhorn

- Congress authorized eight federal regional commissions and authorities to address instances of major economic distress in certain defined socioeconomic regions. Of the eight authorized federal regional commissions and authorities, five could be considered active and functioning as of the date of publication:

[125] USDA, "Community Facilities Direct Loan & Grant Program," https://www.rd.usda.gov/programs-services/community-facilities/community-facilities-direct-loan-grant-program.

[126] USDA, "Community Facilities Programs," https://www.rd.usda.gov/programs-services/all-programs/community-facilities-programs.

[127] USDA, "Disaster Resource Center," https://www.usda.gov/topics/disaster-resource-center.

[128] USDA, "State Offices," https://www.rd.usda.gov/about-rd/state-offices#.

[129] U.S. Department of Commerce Economic Development Administration (EDA), "Disaster Recovery," https://www.eda.gov/strategic-initiatives/disaster-recovery. See also 42 U.S.C. §§3149(c)(2), 3233. EDA grants are awarded on a competitive basis to states, cities, counties, tribal governments, economic development districts (EDDs), and other political subdivisions of states, as well as institutions of higher education or a consortium of such institutions, and not-for-profit organizations acting in cooperation with officials of a political subdivision of a state (i.e., eligible recipients). For the authorization of appropriations for EDA's disaster economic recovery activities, see section 703 of the Public Works and Economic Development Act of 1965, as amended (PWEDA, 42 U.S.C. §3233).

[130] See, for example, EDA, "FY 2023 Disaster Supplemental NOFO," https://www.grants.gov/web/grants/view-opportunity.html?oppId=347414.

[131] See CRS Report R45997, *Federal Regional Commissions and Authorities: Structural Features and Function*, by Julie M. Lawhorn.

Appalachian Regional Commission (ARC);[132] Delta Regional Authority (DRA);[133] Denali Commission;[134] Northern Border Regional Commission (NBRC);[135] and Southeast Crescent Regional Commission (SCRC).[136] As chartered federal-state partnerships, the federal regional commissions receive appropriated funds, which they sub-allocate for community and economic development purposes in their respective service areas. These funds are generally flexible, and can be used to address a variety of community and economic development purposes, including pre- and post-disaster hazard mitigation uses related to extreme heat or other climate-related issues. Previously, grant funding has been used to respond to natural disasters and the COVID-19 pandemic.

Defense Production Act of 1950 (DPA)[137]

CRS Experts: Luke Nicastro, Alex Neenan, and Adam Levin

- The Defense Production Act of 1950 (DPA) provides the President with the authority to mobilize the domestic economy in service of the national defense, broadly defined, which may include emergency management and disaster recovery purposes. The DPA generally does not provide direct financial assistance to SLTTs. However, it does allow the federal government to intervene in the civilian economy to facilitate the provision, movement, and expanded production of critical goods, materials, and services. During an extreme heat event, DPA authorities could be used to procure and distribute supplies, or provide resources to SLTTs to mitigate adverse effects.

Congressional Considerations

As the United States faces another projected season of extreme heat, Congress may consider the following policy issues, among others.

Clarifying the Federal Role in Managing Extreme Heat

"Who is in charge of extreme heat?" is an ongoing question asked by emergency managers, government officials, and members of the public.[138] At least one recent study found that SLTT public health entities like hospitals, health departments, and emergency services often end up bearing the greatest responsibility for managing extreme heat response, planning, and costs.[139] However, most jurisdictions do not designate a branch or official specifically responsible for

[132] Appalachian Regional Commission, "Investing in Appalachia's economic future," https://www.arc.gov/.

[133] Delta Regional Authority, "Delta Regional Authority," https://dra.gov/.

[134] Denali Commission, "Denali Commission," https://www.denali.gov/.

[135] Northern Border Regional Commission, "Northern Border Regional Commission," https://www.nbrc.gov/.

[136] Southeast Crescent Regional Commission, "Southeast Crescent Regional Commission," https://scrc.gov/.

[137] FEMA, "Defense Production Act," last updated July 6, 2021, https://www.fema.gov/disaster/defense-production-act.

[138] See, for example, comments by David Hondula in FEMA, "Extreme Heat," resilience webinar, July 12, 2023, https://femahmawebinars.vfairs.com/en/ondemand-recordings.

[139] Berkeley Law Center for Law, Energy, and the Environment, *Insuring Extreme Heat Risks*, December 2020, pp. 26-27, https://www.law.berkeley.edu/wp-content/uploads/2020/11/Insuring-Extreme-Heat-Risks-Dec-2020.pdf.

extreme heat response and/or mitigation.[140] No federal agency claims responsibility for managing emergency preparedness and response to extreme heat, raising additional concern.[141]

According to a range of experts and advocates, this "governance gap" has confused response efforts and increased risk to workers, students, and other members of the public.[142] It may also inhibit the design of new authorities, funds, or insurance policies to assist governments at all levels in covering the costs associated with heatwaves.

Since at least the early 1980s, experts and some Members of Congress have called on the federal government to assume a larger role in a national response program for extreme heat and establishing standards to determine a heat-related death.[143] The establishment of NIHHIS in 2015 cohered federal existing efforts to provide information on risks associated with extreme heat. Yet some experts raise concern that the federal government's role in extreme heat response remains unclear.[144] For example, in fall 2023, the Federation of American Scientists (FAS) launched a call for policy ideas to support a coordinated federal role in managing risks from extreme heat; FAS held a summit among participants in March 2024 that has put forth new ideas for Congress to monitor.[145]

Amid these debates, Congress may clarify what—if any—role the federal government should take in extreme heat events. Should Congress affirm the federal government's role in assisting with extreme heat response, it may seek to clearly delineate a lead agency, key authorities, and relevant funding mechanisms to avoid confusion seen around federal interventions in other public health incidents, including the COVID-19 pandemic.[146] However, some may argue that scarce federal resources may become overburdened should the federal government assume a larger role in such incidents—both due to the expected frequency of extreme heat events, and because federal emergency response funding and personnel have been strained in recent years.[147]

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[140] Ladd Keith et al, "Urban Heat Governance: Examining the Role of Urban Planning," *Journal of Environmental Policy & Planning,* vol. 25, no. 5 (2023), pp. 642-662, https://www.tandfonline.com/doi/full/10.1080/1523908X.2023.2244446.

[141] See, for example, Ladd Keith et al., "Deploy Heat Officers, Polices, and Metrics," October 5, 2021, comment, *Nature,* vol. 598, pp. 39-31, https://www.nature.com/articles/d41586-021-02677-2; Ladd Keith et al, "Urban Heat Governance: Examining the Role of Urban Planning," *Journal of Environmental Policy & Planning,* vol. 25, no. 5 (2023), pp. 642-662, https://www.tandfonline.com/doi/full/10.1080/1523908X.2023.2244446. Extreme heat is not referenced in the National Response Framework, the federal government's doctrine for all types of incidents.

[142] Barbara Barrett, "States Decline Outdoor Workers' Breaks Despite Heat," *Governing,* June 22, 2023; https://www.governing.com/work/states-decline-outdoor-workers-breaks-despite-extreme-heat.

[143] U.S. Congress, Senate Committee on Aging, *Heat Stress and Older Americans: Problems and Solutions,* S.Prt. 98-76, 98th Cong., 1st sess., July 1983, p. 7; Stanley Changnon, Kenneth Kunkel and Beth Reinke, "Impacts and Responses to the 1995 Heat Wave: A Call to Action," *Bulletin of the American Meteorological Society,* vol. 77, no. 7, July 1996.

[144] Ladd Keith et al., "Ladd Keith et al., "Deploy Heat Officers, Polices, and Metrics," October 5, 2021, comment, *Nature,* vol. 598, pp. 39-31, https://www.nature.com/articles/d41586-021-02677-2; Doug Parsons, "Climate Change and Extreme Heat End of Summer Episode with Dr. Kelly Turner and Dr. Ladd Keith," *America Adapts Podcast,* September 11, 2023, https://www.americaadapts.org/episodes/climate-change-and-extreme-heat-end-of-summer-episode-with-dr-kelly-turner-and-dr-ladd-keith.

[145] Federation of American Scientists, "An Open Call for Policy Ideas to Tackle the Extreme Heat Crisis," August 14, 2023, https://fas.org/accelerator/extreme-heat-policy-challenge/; and "Hot Policy Ideas to Tackle the Extreme Heat Crisis," March 31, 2024, https://fas.org/accelerator/extreme-heat-policy-challenge/.

[146] For example, oversight bodies and stakeholders confused the roles of FEMA and HHS in the response to the COVID-19 pandemic, another slow-onset, large-scale public health incident. See CRS Report R47048, *FEMA's Role in the COVID-19 Federal Pandemic Response*, coordinated by Erica A. Lee.

[147] See, for example, GAO, "FEMA Disaster Workforce: Actions Needed to Improve Hiring Data and Address Staffing Gaps," GAO-23-105663, May 2, 2023; and CRS Report R47676, *Disaster Relief Fund State of Play: In Brief*, by William L. Painter.

For more information on federal assistance that has been provided for past episodes of extreme heat, see **Appendix B**.

Adapting Existing Grant Programs to Extreme Heat Response

None of the federal assistance programs summarized in this report were specifically designed to provide assistance for the impacts of extreme heat events.[148] Further, previous uses of the above programs for extreme heat response that CRS could identify were relatively limited in scope and frequency. For example, while the LIHEAP statute authorizes "emergency contingency funds" for distribution to one or more grantees in cases of "natural disaster and other emergency"[149] (a natural disaster includes "a weather event (relating to hot or cold weather)"),[150] Congress has not appropriated emergency contingency funds since FY2011, and FY2007 was the last year in which funds were awarded to grantees (two states and tribes within those states) due to extreme heat.[151]

For more information on federal assistance that has been provided for past episodes of extreme heat, see **Appendix B**.

Despite the relatively limited known use of federal assistance for extreme heat response, some agencies appear to be directing existing programs more deliberately towards extreme heat emergencies by modifying policies, guidance documents, and grantee communications. For example, HUD released new guidance on the use of CDBG funds to assist during the Pacific Northwest 2021 episode of extreme heat,[152] and in late 2022 FEMA released guidance on how communities could use existing mitigation funds to support resilience to extreme heat.[153] In fall 2023, FEMA also launched a series of events publicizing potential mitigation resources for extreme heat.[154]

These adaptations may enhance nonfederal capacity to respond to extreme heat. However, some raise concerns that such actions divert resources away from the efforts for which these programs were originally designed, or introduce undesirable competition for scarce funds.[155] Some grant programs may also be difficult for certain jurisdictions to access. For example, some local health

[148] Given the lack of readily available data, it is unclear how the other listed programs have been consistently utilized for extreme heat, despite their potential relevance. The absence of reporting and tracking requirements for some grants hinder efforts to measure federal assistance historically provided for extreme heat response. For example, Community Service Block Grant funds may fund subgrants to local organizations that do not require consistent reporting. For more information, see CRS Report RL32872, *Community Services Block Grants (CSBG): Background and Funding*, by Conor F. Boyle.

[149] 42 U.S.C. §8621(e).

[150] 42 U.S.C. §8622(7).

[151] See the LIHEAP Clearinghouse compilation of emergency contingency fund awards, https://liheapch.acf.hhs.gov/Funding/emrgfund.htm, last reviewed May 18, 2022. The LIHEAP Clearinghouse compiles and makes available LIHEAP information via a contract with HHS.

[152] HUD, "FAQs: CDBG Resources and Authorities to Help Pacific Northwest Communities Respond to Heat Waves and Extreme Temperature Events," June 29, 2021, https://www.hud.gov/sites/dfiles/CPD/documents/CDBG-FAQ-for-heat-wave-support-v2.pdf.

[153] FEMA, "Mitigating the Risk of Extreme Temperatures with Hazard Mitigation Assistance Funds," October 2022, https://www.fema.gov/sites/default/files/documents/fema_extreme-heat-fact-sheet_102022.pdf.

[154] FEMA "Extreme Heat," resilience webinar, July-August 2023, https://femahmawebinars.vfairs.com/en/ondemand-recordings.

[155] For research on emergency preparedness funding, resource scarcity and competition, see Justeen Hyde et al., "Better Prepared but Spread Too Thin: The Impact of Emergency Preparedness Funding on Local Public Health," *Disaster Management & Response*, vol. 4, no. 4, (Fall 2006), pp. 106-113; and Aaron Katz, Andrea Staiti and Kelly McKenzie, "Preparing for the Unknown, Responding to the Known: Communities and Public Health Preparedness," *Health Affairs*, vol. 25, no. 4 (July 2006).

jurisdictions may lack the workforce capacity and subject matter expertise to contend with an increased focus on heat emergencies amid other public health threats.[156]

Congress may consider monitoring agency modifications to existing funding sources to communicate such changes to nonfederal partners and potential grant recipients. Congress may also consider appropriating new funds to support the expanded scope of existing programs. Alternatively, Congress could discourage agencies from adapting existing grant programs given the risk of resource competition, and instead address extreme heat through other means.

Stafford Act Declarations for Extreme Heat

Presidents have denied past requests for Stafford Act declarations for extreme heat (for further discussion see "Department of Homeland Security—FEMA"). These denials align with historical trends: Presidents generally have issued Stafford Act declarations for sudden-onset hazards that caused structural damage (e.g., hurricanes and tornadoes).[157] This pattern may be attributable to regulatory authorities that primarily rely upon the costs of structural damages as thresholds for particular forms of federal assistance,[158] the applicability of assistance available under the Stafford Act for extreme heat, and existing interpretations of events that qualify as major disasters under the Stafford Act.[159]

Some recent declarations suggest these trends—and understandings of the scope of the Stafford Act—are changing. For example, prior to 2020, the Stafford Act was rarely invoked for public health incidents.[160] In such instances, the President declared an *emergency*—a broadly defined event eligible for less assistance than a *major disaster*.[161] In 2020, President Donald J. Trump issued 59 major disaster declarations for the COVID-19 pandemic, the first major disasters declared for a public health incident under current law.[162] Since then, President Biden has issued Stafford Act emergency declarations for an influx of sargassum in the U.S. Virgin Islands,[163] the Mississippi water crisis,[164] an intrusion of seawater into freshwater sources in Louisiana,[165] and lead and copper contamination of the water supply of the U.S. Virgin Islands,[166] all which are fairly novel declarations for ongoing incidents without extraordinary physical damage.

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[156] Justeen Hyde et al., "Better Prepared but Spread Too Thin: The Impact of Emergency Preparedness Funding on Local Public Health," *Disaster Management & Response*, vol. 4, no. 4, (Fall 2006), pp. 106-113.

[157] See CRS Report R46749, *FEMA's Public Assistance Program: A Primer and Considerations for Congress*, by Erica A. Lee.

[158] See CRS Insight IN11534, *Will FEMA Recommend Public Assistance Following a Disaster? Proposed Rulemaking*, by Erica A. Lee. While FEMA's Individual Assistance program does not use set damage "thresholds" that must be met in order for assistance to become available, consideration is given to the uninsured and underinsured home and personal property losses resulting from the incident that are eligible for certain forms of assistance, as well as certain measures of the affected state or territory's capacity and resources to manage the incident. See CRS Report R46014, *FEMA Individual Assistance Programs: An Overview*, by Elizabeth M. Webster.

[159] The Stafford Act defines a major disaster in part with a non-exclusive list of qualifying events that does not currently include extreme heat, as well as other public health hazards. For further discussion, see CRS Insight IN11229, *Stafford Act Assistance for Public Health Incidents*, by Erica A. Lee and Bruce R. Lindsay.

[160] Ibid.

[161] Ibid.

[162] FEMA, "COVID-19 Declarations," https://www.fema.gov/covid-19.

[163] FEMA, "Virgin Islands; Emergency and Related Determinations," 87 *Federal Register* 75059, December 7, 2022.

[164] FEMA, "Mississippi: Emergency and Related Determinations," 87 *Federal Register* 64510, October 25, 2022.

[165] FEMA, "Louisiana: Emergency and Related Determinations," 88 *Federal Register* 83566, November 30, 2023.

[166] FEMA, "Virgin Islands; Emergency and Related Determinations," 89 *Federal Register* 1114, January 9, 2024.

The relevance of Stafford Act declaration for extreme heat has also attracted new attention. In September 2023, FEMA Administrator Deanne Criswell affirmed that extreme heat was eligible for Stafford Act assistance if an incident exceeded state and local capacity to respond and recover.[167] If Congress determines that the Stafford Act should be more clearly available for extreme heat response, Congress could consider directing FEMA to give greater consideration to casualties and other nonstructural losses when evaluating the need for Stafford Act declarations and associated financial assistance for emergency response for hazards like extreme heat.[168] Congress could also consider legislation introduced in the 118th Congress amending the definition of a major disaster to explicitly include extreme heat events.[169]

Members of Congress concerned about how Stafford Act declarations for extreme heat could strain FEMA's existing response and recovery capacity and funding may consider other ways that FEMA does and could reduce risks related to extreme heat.[170]

For example, FEMA could further incorporate extreme heat into hazard mitigation assistance and requirements. In 2022, FEMA clarified that mitigation assistance available outside of a specific incident or declaration could support heat-related preparedness and adaptation measures (e.g., development of heat emergency communications and response plans,[171] installation of cool roofs and shade structures)[172] into existing requirements for governments applying for federal assistance.[173] This may encourage more nonfederal governments to prepare for and reduce future costs and casualties associated with extreme heat. FEMA could take additional actions, for example, requiring jurisdictions to incorporate heat health action plans into mitigation plans required to be in place to access certain forms of Public Assistance and Hazard Mitigation Assistance.[174] Such a requirement could reorient attention towards the threat of extreme heat, which most state hazard mitigation plans do not sufficiently consider.[175] Similarly, Congress could encourage FEMA to expand the forms of reasonable hazard mitigation measures it will

[167] Testimony of David Hondula, Director of the Office of Heat Response and Mitigation, City of Phoenix, in U.S. Senate, Committee on Environment and Public Works, *Examining the Effects of Extreme Heat and Weather on Transportation*, hearing, 118th Cong., 1st sess., September 13, 2023, https://www.epw.senate.gov/public/index.cfm/2023/9/examining-the-effects-of-extreme-heat-and-weather-on-transportation.

[168] For discussion, see CRS Insight IN11696, *Climate Change, Slow-Onset Disasters, and the Federal Emergency Management Agency*, by Diane P. Horn, Erica A. Lee, and Elizabeth M. Webster.

[169] H.R. 3965

[170] See, for example, concerns raised in U.S. Congress, House Committee on Transportation and Infrastructure, *Disaster Readiness: Examining the Propriety of the Expanded Use of FEMA Resources*, hearing, 118th Cong., 2nd sess., February 14, 2024, https://democrats-transportation.house.gov/committee-activity/hearings/03/05/2024/disaster-readiness-examining-the-propriety-of-the-expanded-use-of-fema-resources.

[171] Lisa Zottarelli, Starla Blake, and Michelle Garza, "Communicating Heat-Health Information to the Public: Assessing Municipal Government Extreme Heat Event Website Content," *Weather, Climate, and Society*, vol. 14, no. 1 (February 2022).

[172] Department of Energy, "Cool Roofs," https://www.energy.gov/energysaver/cool-roofs; Ladd Keith and Sara Meerow, *Planning for Urban Heat Resilience*, American Planning Association, PAS Report 600, April 2022, https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/PAS-Report-600-r1.pdf.

[173] FEMA, "Mitigating the Risk of Extreme Temperatures with Hazard Mitigation Assistance Funds," September 2022, https://www.fema.gov/sites/default/files/documents/fema_extreme-heat-fact-sheet_102022.pdf.

[174] 44 C.F.R. §206.226. Sample heat emergency response plans include State of California, *Protecting Californians From Extreme Heat: A State Action Plan to Build Community Resilience*, https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/Climate-Resilience/2022-Final-Extreme-Heat-Action-Plan.pdf, April 2022.

[175] Jordan Clark and Ashley Ward, *Defining Extreme Heat as a Hazard: A Review of Current State Hazard Mitigation Plans*, Duke University Nicholas Institute for Energy, Environment, and Sustainability, 2023, https://nicholasinstitute.duke.edu/sites/default/files/publications/defining-extreme-heat-hazard-review-current-state-hazard-mitigation-plans_0.pdf.

fund through the Individuals and Households Program to include assistance for eligible extreme heat measures (e.g., installing an air-conditioner in a disaster survivor's home).[176]

Designing Federal Assistance for Emergency Response to Extreme Heat

An increase in heat-related deaths is among the first dangers to human health discussed in the U.S. Global Change Research Program's Fifth National Climate Assessment.[177] Further, experts project that extreme heat events are likely to become more frequent, severe, and longer in duration, placing particular stress on populations living in urban areas.[178]

Extreme heat may also compound or increase risks of other hazards. For example, federal officials have recently warned that extreme heat episodes may strain certain power supply systems in the United States, leading to rolling blackouts or power losses.[179] This could precipitate additional threats to human health and safety as people lose access to air-conditioning and critical electricity-dependent medical equipment.[180] Some experts have underscored the particular vulnerability of low-income residents who experience extreme heat as they may forgo air-conditioning to avoid high energy costs, or experience electricity disconnection due to nonpayment of electricity costs.[181] These compound hazards are not easily incorporated into federal incident management procedures designed to evaluate and manage discrete incidents.[182]

For these reasons, Congress may consider revising existing statutory authorities providing federal assistance available for emergency response, or creating new authorities, to explicitly provide assistance for emergency response to extreme heat. Under current law and practice, requests for federal assistance for extreme heat response may compete with demands for emergency assistance or preparedness for hazards that more commonly receive federal attention and assistance; for example, hurricanes, terrorist attacks, or infectious disease incidents.

Congress could clarify the applicability of existing authorities to ensure the availability of federal assistance for extreme heat. It could, for example, incorporate specific language directing or

[176] Currently FEMA's IHP Home Repair Assistance includes eligible hazard mitigation measures to withstand high winds and prevent water infiltration and flood damage, as well as mitigation for individuals affected by wildfire damage. In June 2021, FEMA announced initial mitigation measures that are eligible for Home Repair Assistance, and in July 2022, FEMA announced additional eligible wildfire mitigation measures (FEMA, "Hazard Mitigation Under the Individuals and Households Program," press release, June 10, 2021, https://www.fema.gov/fact-sheet/hazard-mitigation-under-individuals-and-households-program; FEMA, "FEMA to Provide Additional Hazard Mitigation Funds to Help Homeowners Affected by Wildfires," press release, HQ-22-089, July 28, 2022, https://www.fema.gov/press-release/20220728/fema-provide-additional-hazard-mitigation-funds-help-homeowners-affected).

[177] M.H. Hayden et al., "Human Health," Chapter 15, *Fifth National Climate Assessment,* A.R. Crimmins et al., eds., U.S. Global Change Research Program, 2023.

[178] David Dodman et al., "Cities, Settlements, and Key Infrastructure," International Panel on Climate Change, *Climate Change 2022: Impacts, Adaptation and Vulnerability: Summary for Policymakers,* Chapter 6, pp. 6-21–6-24.

[179] North American Electric Reliability Corporation, "2023 Summer Reliability Assessment," May 2023, https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SRA_2023.pdf; U.S. Energy Information Administration, "Two-Thirds of North America Is at Risk of Energy Shortfalls in High Summer Heat, NERC Says," June 26, 2023, https://www.eia.gov/todayinenergy/detail.php?id=56920.

[180] Brian Stone Jr. et al., "How Blackouts During Heat Waves Amplify Mortality and Morbidity Risk," *Environmental Science and Technology*, May 2023, https://pubs.acs.org/doi/10.1021/acs.est.2c09588; Joan Casey et al., "Power Outages and Community Health: A Narrative Review," *Current Environmental Health Reports,* vol. 7, no. 4 (December 2020).

[181] See Emmanuel Proussaloglou, Joseph Kane, and Adie Tomer, "Data Shows 23 Million Americans Live in Places Most at Risk of Extreme Heat," *Brookings Institution,* November 2, 2022, https://www.brookings.edu/articles/data-shows-23-million-americans-live-in-places-most-at-risk-of-extreme-heat/.

[182] For more information, see CRS In Focus IF12307, *Understanding Linked Climate and Weather Hazards and the Challenges to Federal Emergency Management*, by Katie Hoover et al.

incentivizing recipients to undertake measures for heat response, preparedness, and mitigation into appropriations for HHS's PHEP Cooperative Agreement. Alternatively, Congress could provide new financial or operational assistance programs specifically designed to enhance the ability of jurisdictions to respond to the threat of extreme heat and reduce the future risks to public health and safety to avoid creating competition for resources in existing programs. For example, Congress could authorize and appropriate an emergency fund deployed to provide advance assistance for extreme heat incidents that meet a pre-determined severity or duration, thereby eliminating the delays of assistance programs which depend upon damage assessments and/or reimbursements. Alternatively, Congress could authorize a program providing direct federal assistance (e.g., personnel, expertise) for nonfederal jurisdictions launching their own extreme heat operations.

Congress may also weigh the potential fiscal demands of such new or clarified authorities to provide assistance for extreme heat and the potential burdens placed on federal, state, and local emergency response offices to execute such authorities. Some may prefer to retain existing flexibilities so as to allow nonfederal governments and public health authorities to determine the best use of existing grant funds.

Communicating and Increasing Public Understanding of Health Risks of Extreme Heat

State and local governments' preparedness and response to extreme heat has sometimes garnered criticism, with some researchers finding that governments do not adequately plan, neglect plans and previous experiences, and thus begin "from 'scratch'" in each new incident.[183] This may result, in part, from officials' lack of understanding of the human experience of and vulnerability to heat,[184] which many individuals lack as well.[185] Without such understanding, individuals and communities may fail to recognize and respond to the dangers of extreme heat until it is too late.

As a result, some stakeholders have called upon the federal government to enhance risk awareness and "heat literacy" at the local level:

> [E]ducation is a really important role that the Federal Government can play in supporting resilience efforts at the local scale for heat or other hazards…. [A]gencies like NOAA, like the CDC and others can be very helpful in building heat literacy at the local level, understanding the design vocabulary, the specifications. What is the difference between air temperature and surface temperature, for example? These are critical concepts that our local leaders need to have ... to help our residents.[186]

Heat.gov aims to address this need by providing a central repository of tools and information on heat health risks to vulnerable communities intended, in part, for emergency managers. Congress

[183] R.S. Allexenberg, "Combatting the Heat Wave of 1980: Lessons for the Future," *Urban Health*, vol. 10, no. 7, (1981), https://pubmed.ncbi.nlm.nih.gov/10253341/; Michael T. Schemltz, "Extreme Heat Governance: A Critical Analysis of Heat Action Plans in California," *American Journal of Public Health*, vol. 113, no. 1, January 2023.

[184] C. Wobus et al, "Reframing Future Risks of Extreme Heat in the United States, *Earth's Future*, vol. 6, no. 9 (2018); V. Kelly Turner et al., "Shade Is an Essential Solution for Hotter Cities," *Nature*, July 26, 2023, https://www.nature.com/articles/d41586-023-02311-3.

[185] Peter Howe et al., "Public Perceptions of the Health Risks of Extreme Heat Across US States, Counties, and Neighborhoods," *Proceedings of the National Academy of Sciences*, vol. 116, no. 14 (March 12, 2019).

[186] Testimony of David Hondula, Director of the Office of Heat Response and Mitigation, City of Phoenix, in U.S. Senate, Committee on Environment and Public Works, *Examining the Effects of Extreme Heat and Weather on Transportation*, 118th Cong., 1st sess., September 13, 2023, https://www.epw.senate.gov/public/index.cfm/2023/9/examining-the-effects-of-extreme-heat-and-weather-on-transportation.

may evaluate how affected communities use the resource, particularly during the 2024 summer months.

Congress may consider whether, and how, federal agencies and experts could play additional roles in ensuring members of the public are aware of their risk—for example, by establishing a national information campaign about the risks of extreme heat, prioritizing heat-related projects in competitive grant programs, providing training to nonfederal government officials, or supporting mutual aid or other heat information-sharing mechanisms across local governments. The federal government could, separately, establish a measure of extreme heat around which emergency managers and governments may construct their own authorities or guidelines to protect public health, or which could help individuals understand their own risk. Some recent research suggests that extreme heat is a rising concern among many state and local jurisdictions in the United States,[187] perhaps precluding a more robust need for risk communication from the federal government.

Insurance for Extreme Heat

Despite the costs they may incur due to extreme heat, state and local governments have few relevant insurance policy options.[188] For this reason, governments (and public and nonprofit hospitals and other medical services) generally pay related costs on their own (e.g., uninsured patient care, energy costs, structural damages, mortuary operations), particularly given the lack of federal assistance generally available for extreme heat. The resulting costs could become unmanageable in the face of more intense and frequent hot days.[189]

Insuring a government against extreme heat presents several difficulties, according to insurers and policymakers.[190] First, there is not always a clear party responsible for the effects of extreme heat, as noted above.[191] Second, exactly what is being insured in a government's policy for extreme heat is not as clearly defined as it may be for other hazards. While a city insures real property against the risk of damages from hurricanes or tornados, how could it insure the welfare and health of local residents against extreme heat?[192]

Amid these difficulties, insurers are exploring different ways for governments to protect themselves against certain risks associated with extreme heat. For example, some have considered

[187] For different perspectives on the incorporation of extreme heat in nonfederal emergency plans and the development of heat action plans, see Ladd Keith et al., "Planning for Extreme Heat: A Review," *Journal of Extreme Events*, vol. 6, nos. 3-4 (2019); and V Kelly Turner et al., "How are Cities Planning for Heat? Analysis of United States Municipal Plans," *Environmental Research Letters,* vol. 17, no. 6 (2022).

[188] Berkeley Law Center for Law, Energy, and the Environment, *Insuring Extreme Heat Risks,* December 2020, pp. 13-14, https://www.law.berkeley.edu/wp-content/uploads/2020/11/Insuring-Extreme-Heat-Risks-Dec-2020.pdf. Most entities and individuals are not well insured against extreme heat according to broker Patrick Kelly, "Understanding Extreme Heat: An Increasing Risk for People, Businesses, and Society," *Aon Insights*, November 2, 2023, https://www.aon.com/en/insights/articles/understanding-extreme-heat.

[189] California Department of Insurance, Climate Insurance Working Group, *Protecting Communities, Preserving Nature, and Building Resiliency*, p. 53, https://www.insurance.ca.gov/cci/docs/climate-insurance-report.pdf.

[190] Laurie Goering, "How Heatwave Insurance Can Help Cities Adapt to Climate Change," October 14, 2020, *Global Center on Adaptation*, https://gca.org/how-heatwave-insurance-can-help-cities-adapt-to-climate-change/.

[191] Berkeley Law Center for Law, Energy, and the Environment, *Insuring Extreme Heat Risks,* December 2020, pp. 13-14, https://www.law.berkeley.edu/wp-content/uploads/2020/11/Insuring-Extreme-Heat-Risks-Dec-2020.pdf.

[192] Berkeley Law Center for Law, Energy, and the Environment, *Insuring Extreme Heat Risks,* December 2020, pp. 26-27, https://www.law.berkeley.edu/wp-content/uploads/2020/11/Insuring-Extreme-Heat-Risks-Dec-2020.pdf; remarks by Jackie Higgins, Swiss Re, "Reducing Inequities in Recovery," *2023 Climate Risk and Insurance Conference*, American University School of Public Affairs, September 14, 2023, https://www.american.edu/spa/cep/climate-risk-and-insurance.cfm.

covering activities covered in a jurisdiction's heat action plan (e.g., the cost of operating cooling center during a heatwave).[193] Others have conceived of policies wherein payments are triggered during certain well-defined heatwaves, without the need to make a claim (known as parametric insurance).[194] Some insurance experts have called upon industry stakeholders to model policies that could insure governments against certain losses incurred during extreme heat for costs including emergency communications, transportation, cooling centers, and increased electricity use; other proposals include pooling risks among cities in a given state, or issuing supplemental coverage to public hospitals for the operational costs of extreme heat response.[195]

Congress may monitor developments in private insurance that may help nonfederal governments manage the risks and costs of extreme heat. New policies could help Congress to understand how the private sector may help jurisdictions cope during widespread or persistent heat emergencies. At the same time, Congress may note that nonfederal governments are particularly likely to be bearing the costs of extreme heat incidents on their own.[196] This could make future extreme heat events particularly burdensome for certain communities that may be coping with high casualties and high costs without many resources to draw upon.

Conclusion

The 118th Congress has experienced the hottest year in U.S. history. As the United States enters the summer months of 2024, Congress may consider how American communities will cope, how the federal government may be called upon to assist, and whether and how Congress seeks such help to be provided.

[193] Remarks by Jackie Higgins, Swiss Re, "Reducing Inequities in Recovery," *2023 Climate Risk and Insurance Conference*, American University School of Public Affairs, September 14, 2023, https://www.american.edu/spa/cep/climate-risk-and-insurance.cfm.

[194] See, for example, Karl Larsson, "Parametric Heat Wave Insurance," *Journal of Commodity Markets*, no. 31 (2023); California Department of Insurance, Climate Insurance Working Group, *Protecting Communities, Preserving Nature, and Building Resiliency*, https://www.insurance.ca.gov/cci/docs/climate-insurance-report.pdf, pp. 61-62.

[195] California Department of Insurance, Climate Insurance Working Group, *Protecting Communities, Preserving Nature, and Building Resiliency*, https://www.insurance.ca.gov/cci/docs/climate-insurance-report.pdf, pp. 52-62, 82.

[196] For an overview of the state use of insurance for disasters, see Colin Foard, *How States Pay for Natural Disasters in an Era of Rising Costs*, Pew Charitable Trusts, May 2020, pp. 22-23.

Appendix A. Department of Energy Assistance for Energy Access Relevant to Extreme Heat Events

The following programs offer assistance for energy access that could promote community or individual resilience to extreme heat.

Energy Efficiency and Conservation Block Grant Program

DOE's Energy Efficiency and Conservation Block Grant (EECBG) program provides funding to local governments, states, territories, and tribes to reduce energy use and carbon emissions and to increase energy efficiency at the local and regional level.[197] An eligible entity may use the funding to carry out 14 types of activities including strategy development, energy efficiency building retrofits, and clean energy deployment, among others. In addition to the identified activities, the Secretary of Energy in consultation with the Administrator of the EPA, the Secretary of Transportation, and the Secretary of Housing and Urban Development also may approve any other appropriate activity. Eligibility requirements include payment of prevailing wage rates, submission of a strategic plan, and sharing of information.

Weatherization Assistance Program

DOE's Weatherization Assistance Program (WAP) provides funding to states, tribes, and territories to enable low-income families to permanently reduce their energy consumption by making their households more energy efficient. DOE program guidelines specify that a variety of energy efficiency measures are eligible for support under the program. The measures include insulation, space-heating equipment, energy-efficient windows, water heaters, and efficient air-conditioners. The Energy Act of 2020 (Division Z, P.L. 116-260) amended the program, included a clarification that renewable energy technologies and other advanced technologies are considered to be weatherization materials, and authorized DOE to account for the non-energy benefits of weatherization improvements—such as improvements to health and safety—when determining appropriate standards and procedures for WAP.[198]

State Energy Program

DOE's State Energy Program (SEP) provides funding and technical assistance to states, the District of Columbia, and territories to promote the efficient use of energy and reduce the rate of growth of energy demand through the development and implementation of specific state energy programs. In order to be eligible for financial assistance through the SEP, grantees are required to develop energy plans with mandatory and optional features. Grantees may use the funds to support a range of activities including energy efficiency upgrades and retrofits of public facilities, piloting of innovative energy projects, installation of renewable energy systems, and implementation of energy security, resiliency, and emergency preparedness plans.[199]

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[197] For more information, see the Department of Energy, Office of State and Community Energy Programs, "Energy Efficiency and Conservation Block Grant Program," https://www.energy.gov/scep/energy-efficiency-and-conservation-block-grant-program.

[198] For more information, see CRS Report R46418, *The Weatherization Assistance Program Formula*, by Corrie E. Clark and Lynn J. Cunningham.

[199] For more information, see the Department of Energy, Office of State and Community Energy Programs, "State Energy Program," https://www.energy.gov/scep/state-energy-program.

Home Energy Rebates Programs

DOE's Home Energy Performance-Based, Whole-House Rebates, also known as a HOMES (Home Owner Managing Energy Savings), authorizes state energy offices (SEOs) to provide rebates for energy efficiency upgrades that improve the overall energy performance of a single-family home (SFH) or multi-family building (MFB). The types of eligible upgrades are not specified but could include efficient windows, doors, and insulation materials.[200] DOE's High-Efficiency Electric Home Rebate (HEEHR) Program authorizes SEOs to provide point-of-sale rebates to eligible entities for qualified electrification projects. This can include rebates for purchase and installation of space heating/cooling equipment of up to $8,000 for households that satisfy income means-testing requirements. Both programs were authorized and funded through P.L. 117-169, commonly known as the Inflation Reduction Act of 2022 (IRA).

[200] For more information, see CRS In Focus IF12258, *The Inflation Reduction Act: Financial Incentives for Residential Energy Efficiency and Electrification Projects*, by Martin C. Offutt.

Appendix B. Selected Past Federal Assistance for Emergency Response to Extreme Heat

The federal government has never responded to an extreme heat event through the Stafford Act. However, federal assistance for emergency response has been provided through other federal relief programs for certain heatwaves; selected examples are provided below. This list may not be comprehensive.

1980 Extreme Heat in Multiple States

In 1980, drought conditions exacerbated the effects of an episode of extreme heat in parts of the Central and Southern Plains region of the United States.[201] NOAA scientists estimated that extreme heat directly caused up to 1,300 deaths and $16 billion in economic losses in the most severe episode of extreme heat in the United States since 1954, according to the agency.[202]

Governor Joseph Teasdale of Missouri requested a major disaster declaration under the Stafford Act for extreme heat early in the summer of 1980, and submitted a second request for extreme heat and drought later that year.[203] President Jimmy Carter denied both requests; however, he directed then-FEMA Administrator John Macy "to coordinate the Federal response to this situation," in conjunction with state governments of affected areas.[204]

Congress passed P.L. 96-321, authorizing the transfer of funds to support assistance for the incident.[205] The President directed the then-Community Services Administration (CSA) to provide approximately $6.7 million to six states to assist low-income individuals and senior populations at risk, for measures including transportation to cooling centers, acquisition of air-conditioning units, payment of utility bills, and other services.[206] Additionally, the President directed both CSA and HHS to reprogram up to $21 million of existing Energy Crisis Assistance Program funds to assist affected areas. Several affected hospitals lacking air-conditioning requested emergency assistance from the U.S. Air Force and Army reserve to secure portable units, and the mayor of St. Louis testified that the National Guard flew in air-conditioners from New York.[207]

[201] Thomas Karl and Robert Quayle, NOAA National Climatic Center, "The 1980 Summer Heat Wave and Drought in Historical Perspective," *Monthly Weather Review*, vol. 109, no. 10, October 1981.

[202] Thomas Karl and Robert Quayle, NOAA National Climatic Center, "The 1980 Summer Heat Wave and Drought in Historical Perspective," *Monthly Weather Review*, vol. 109, no. 10, October 1981.

[203] FEMA Congressional Affairs Division, email to CRS January 26, 2024.

[204] Administration of Jimmy Carter, "Heat and Drought Conditions in the United States," published July 15, 1980, as reprinted in Presidential Papers, pp. 1345-1346.

[205] P.L. 96-321.

[206] Administration of Jimmy Carter, "Heat and Drought Conditions in the United States," published July 15, 1980, as reprinted in Presidential Papers, pp. 1345-1346. The President also directed the Secretary of Agriculture to provide economic relief for agricultural entities.

[207] U.S. Congress, Senate Committee on Aging, *Heat Stress and Older Americans: Problems and Solutions*, 98th Cong., 1st sess., S.Prt. 98-76, July 1983, p. 4.

1995 Extreme Heat in Illinois and Midwest

In July 1995, several states in the Midwest experienced extreme heat; the CDC and certain medical scholars estimated that the incident caused at least 700 excess deaths in Chicago.[208]

President William J. Clinton denied Governor Edgar's request for a major disaster declaration for the 1995 Chicago heat wave. However, he announced the provision of $100 million through the Low Income Home Energy Assistance Program (LIHEAP) to assist with low-income residents' electricity bills in 19 states, including tribes within the states.[209] Awards were based on temperatures during the July heat wave and the amount of low-income housing in the state, with Illinois receiving the most funding ($15.7 million).[210] The Department of Health and Human Services also provided technical assistance to local governments in Illinois coping with the effects of the heat wave in Cook County and Chicago, according to FEMA's Administrator James Lee Witt.[211]

1998 Extreme Heat in South and Southwestern United States

Abnormally hot temperatures affected Texas and several states in the southern and southwestern United States during the summer months of 1998.[212] President Clinton released $150 million in emergency LIHEAP funds to the 11 southern and southwestern states that were hit hardest by the heat wave, including tribes within those states,[213] explaining that "those who cannot afford air-conditioning are at real peril of further health risks as the heat wave goes on."[214]

1999 Extreme Heat in Multiple States

In July 1999, several weeks of extreme heat affected multiple states across the country and ultimately resulted in several hundred heat-related deaths.[215] Officials in Chicago, one of the hardest-hit localities, estimated that the heat wave cost the city approximately $100,000 a day, and media reported that the Governor of Illinois requested emergency assistance to assist low-income individuals and elderly residents with electricity costs.[216] On July 12, 1999, President Clinton released $100 million in emergency funds through LIHEAP for 17 states (and tribes

[208] Jan Semenza et al., "Heat-Related Deaths During the July 1995 Heat Wave in Chicago," *New England Journal of Medicine*, vol. 335, July 11, 1996; CDC, "Heat-Related Mortality—Chicago, July 1995," *MMWR Weekly*, vol. 44, August 11, 1995.

[209] Stanley Changnon, Kenneth Kunkel and Beth Reinke, "Impacts and Responses to the 1995 Heat Wave: A Call to Action," *Bulletin of the American Meteorological Society*, vol. 77, no. 7, July 1996.

[210] Ibid.; letter from FEMA Administrator James Lee Witt to Illinois Governor Jim Edgar, August 7, 1995, provided to CRS by FEMA Congressional Affairs Division.

[211] Letter from FEMA Administrator James Lee Witt to Illinois Governor Jim Edgar, August 7, 1995, provided to CRS by FEMA Congressional Affairs Division.

[212] NOAA, "Special Climate Summary: Atmospheric Conditions and Impacts Affecting the United States During July and Early August 1998," https://www.cpc.ncep.noaa.gov/products/special_summaries/98_2/#section2.

[213] President Clinton, "Statement on Announcing Assistance to Heat-Stricken Areas in South and Southwest," August 14, 1998, available at UCSB American Presidency Project, https://www.presidency.ucsb.edu/documents/statement-announcing-assistance-heat-stricken-areas-the-south-and-southwest.

[214] "Clinton OKs Heat Wave Relief of $100 Million," *Los Angeles Times*, July 24, 1998.

[215] Michael Palecki, Stanley Changnon, and Kenneth Kunkel, "The Nature and Impacts of the July 1999 Heat Wave in the Midwestern United States: Learning from the Lessons of 1995," *Bulletin of the American Meteorological Society*, vol. 82, no. 7, July 2001.

[216] Jeremy Manier, "Heat Wave Gets Serious," *Chicago Tribune*, July 30, 1999.

within those states) experiencing extreme heat. He released an additional $55 million in August 1999 to nine other states and tribes.[217]

2000 Extreme Heat in Southern United States

A severe drought and prolonged heat wave affected south-central and southeastern states, which NOAA estimated contributed to 140 deaths nationwide.[218] On July 25, 2000, President Clinton released $41.75 million in LIHEAP funds to nine states, most of which was directed to southern states experiencing extreme heat.[219]

2002 Extreme Heat

Following extreme summer heat, HHS released $100 million in LIHEAP contingency funds to 34 states based on the severity of extreme heat between June and August, as well as the number of households with incomes below 125% of the federal poverty level.[220]

2007 Extreme Heat

HHS released $50 million in LIHEAP funds to 12 states and tribes within those states that experienced hotter than average temperatures during the month of August.[221]

[217] See CRS Report 94-211, *The Low-Income Home Energy Assistance Program: A Fact Sheet*, August 3, 1999 (out of print; available to congressional clients upon request).

[218] Tom Ross and Neal Lott, "A Climatology of 1980-2003 Extreme Weather and Climate Events," *NOAA Technical Report 2003-01*, p. 3, https://www.ncei.noaa.gov/monitoring-content/billions/docs/lott-and-ross-2003.pdf.

[219] See CRS Report RS20893, *The Low-Income Home Energy Assistance Program: How Are State Allotments Determined?*, April 17, 2001 (out of print; available to congressional clients upon request).

[220] CRS Report 94-211, *The Low-Income Home Energy Assistance Program*, by Emilie Stoltzfus, March 13, 2003 (out of print; available to congressional clients upon request); HHS, Administration for Children and Families, *LIHEAP Report to Congress for Fiscal Year 2002*, December 29, 2004, p. 44.

[221] See CRS Report RL31865, *LIHEAP: Program and Funding*, by Libby Perl, updated August 30, 2007, p. 3.

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