



BEFORE THE FEDERAL EMERGENCY MANAGEMENT AGENCY

**PETITION FOR RULEMAKING, PURSUANT TO THE ADMINISTRATIVE
PROCEDURE ACT, TO INCLUDE EXTREME HEAT AND WILDFIRE SMOKE AS
MAJOR DISASTERS UNDER THE STAFFORD ACT**

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Submitted by:

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I. Introduction

Pursuant to the Administrative Procedure Act (“APA”), 5 U.S.C. § 553(e), and the Federal Emergency Management Agency’s (“FEMA”) regulations, 44 C.F.R. § 1.8 (2022), the Center for Biological Diversity, Alliance of Nurses for Healthy Environments, The Amalgamated Transit Union, American Federation of Labor and Congress of Industrial Organizations, The Arizona Public Health Association, Center for Popular Democracy, Climate Justice Alliance, Communication Workers of America, Farmworkers Association of Florida, Fe y Justicia Worker Center, Food & Water Watch, Fridays for Future NYC, Fridays for Future USA, Friends of the Earth, GreenLatinos, Green Workers Alliance, Grid Alternatives, Labor Network for Sustainability, Migrant Clinicians Network, National Council for Occupational Safety and Health, National Nurses United, New York Communities for Change, Physicians for Social Responsibility, The Service Employees International Union, Solar United Neighbors, Sunrise Movement, Transport Workers Union, United Farmworkers Foundation, United Food and Commercial Workers International Union, Utility Workers Union of America, and Workers Defense Project (“Petitioners”) hereby submit this Rulemaking Petition for FEMA Extreme Heat and Smoke Relief Rules.

The Petition urges FEMA to amend its regulations to include extreme heat and wildfire smoke in the Stafford Act regulatory definition of “major disaster.” This simple but elegant amendment serves to unlock critical funds for state, Tribal, and local governments and communities to manage and mitigate extreme heat and wildfire smoke—both natural catastrophes predicted to worsen in duration, frequency, and

severity due to the climate emergency. Petitioners also request that FEMA amend its regulations to authorize funds to address wildfire smoke as part of the Fire Management Assistance Grant (“FMAG”) program under the Stafford Act. (See Addendum 1 for proposed FEMA Extreme Heat and Smoke Relief Rules.)

Extreme heat and wildfire smoke are here, now; scientists deemed 2023 the hottest year on record and anticipate even more severe heat waves for 2024.¹ In 2023, an estimated 2,300 people died from heat-related illness, and a record number of 130 million Americans were under heat alerts.² In recent years, increasing extreme heat events have impacted millions of workers and communities—ranging from farmworkers sowing outdoor crops under fatal heat dome conditions, to postal workers ducking in and out of searing hot trucks, to warehouse workers experiencing record indoor heat while undertaking fast-paced physical labor, and to communities of color suffering disproportionate heat while living in concrete urban heat islands, legacies of racist redlining housing policies. Extreme heat is particularly dangerous for disadvantaged communities, which are less able to prepare for, withstand and recover from the impacts of extreme heat. A recent study from ICF estimates that at least 25 million people in Justice40 communities will be exposed to health-threatening extreme heat annually by

¹ Nat’l Oceanic and Atmospheric Admin., *2023 Was the World’s Warmest Year On Record, By Far* (Jan. 12, 2024), <https://www.noaa.gov/news/2023-was-worlds-warmest-year-on-record-by-far>.

² Centers for Disease Control and Prevention, *About Provisional Mortality Statistics, 2018 through Last Week*, <https://wonder.cdc.gov/mcd-icd10-provisional.html>; U.S. Department of Health and Human Services, *Extreme Heat*, <https://www.hhs.gov/climate-change-health-equity-environmental-justice/climate-change-health-equity/climate-health-outlook/extreme-heat/index.html#:~:text=Extreme%20summer%20heat%20is%20already,2022%2C%20and%202%2C302%20in%202023>; Press Release, Fed. Emerg. Mgmt. Agency, *Department of Homeland Security Offers Community Leaders New Resources to Prepare for Extreme Temperature Events as 17 States Experience Record-Breaking Heat* (Aug. 25, 2023), <https://www.fema.gov/press-release/20230825/department-homeland-security-offers-community-leaders-new-resources-prepare>.

2050—with Arizona, New Mexico, Louisiana, and Texas experiencing extreme heat days for a staggering one-third of the year.³

In parallel, hotter and drier conditions cause fires to ignite more easily and spread more quickly, tearing through dry fuels and nearby communities. Toxic smoke blows far beyond these record-breaking fires' borders. In 2023, heavy smoke from wildfires in British Columbia choked up the air across Montana, blowing through the Great Lakes, into New York, and down as far south as Georgia. The average U.S. resident in 2023 breathed in more wildfire smoke than in any year since 2006.⁴ For many, smoke is deadly. As just one example, the smoke arising from 2020 wildfires in California likely led to the deaths of thousands of seniors, one vulnerable population among many that are acutely harmed by smoke's consequences for cardiovascular and respiratory health.⁵ Like extreme heat, smoke is particularly dangerous for those who cannot shelter indoors and those with preexisting health conditions—not only populations with respiratory illness like asthma, chronic obstructive pulmonary disease, and heart disease, but also responders and outdoor workers.

The crescendo of extreme heat and smoke can be traced to the same cause: anthropogenic climate change. Extreme heat and smoke from wildfires are natural weather events, but the climate crisis is increasing their severity, duration, and frequency. Greenhouse gases trap increasingly more heat in the Earth's atmosphere,

³ Justice40 communities refers to disadvantaged communities that are marginalized by underinvestment and overburdened by pollution identified in the Biden administration's Justice40 initiative. Judsen Bruzgul *et al.*, ICF, *Extreme Heat in Disadvantaged Communities* (May 2024), https://www.icf.com/insights/climate/report-how-justice40-communities-adapt-extreme-heat?itid=lk_inline_enhanced-template (hereinafter, "ICF Extreme Heat Report").

⁴ Marshall Burke and Minghao Qiu, Climate Central, *Wildfire Smoke: Nationwide Health Risk* (Oct. 3, 2023), <https://www.climatecentral.org/climate-matters/wildfire-smoke-nationwide-health-risk-2023>.

⁵ Marshall Burke *et al.*, Stanford Inst. for Econ. Policy, *Managing the Growing Cost of Wildfire Research* 5 (Figure 2) (Oct. 2020), <https://drive.google.com/file/d/1tVnthvqvX3Uqs9WI43WOW8FqbPFi5i7B/view>.

causing temperatures to rise and extreme heat events to occur with more frequency and severity. Hotter years mean an increase in drier organic matter—including trees, grasses, and other vegetation that serve as fuel for wildfires. As wildfires become more intense and more common, wildfire smoke increases in tandem and not only expands to neighboring jurisdictions but also crosses borders into states, Tribal nations, and communities where the wildfires did not originate.

Extreme heat and smoke exact a devastating toll on the healthcare system and on national, state, and local economies. Already, heat-related healthcare costs have grown nationally to about \$1 billion each summer.⁶ Smoke reduces yearly earnings for U.S. workers by over \$120 billion per year,⁷ and extreme heat cuts into 2.5 billion hours of work for agricultural, construction, manufacturing, and service workers.⁸ Public infrastructure—like roadways, runways, and railways—has buckled and weakened, while large demands on electrical grids and physical impacts on power lines have led to power outages.⁹

These twin climate-fueled catastrophes now consistently, year after year, vastly exceed the economic and technical capabilities of state and local governments to manage them, adapt to them, and mitigate further harm. Federal action is necessary. In fact, it is precisely this kind of problem—lack of preparation for extreme weather

⁶ Staff of Joint Econ. Comm., 118th Cong., *The Mounting Costs of Extreme Heat 2* (Aug. 2023), https://www.jec.senate.gov/public/_cache/files/45b02coe-04ed-41cd-9fec-c65e71a87f9f/jec-heat-wave-report-final.pdf (hereinafter “JEC Heat Report”).

⁷ Mark Borgschulte et al., *Air Pollution and the Labor Market: Evidence from Wildfire Smoke 2* (Nat’l Bureau of Econ. Rsch. Working Paper No. 29952, Apr. 2022), https://www.nber.org/system/files/working_papers/w29952/w29952.pdf.

⁸ JEC Heat Report at 2–3.

⁹ JEC Heat Report at 6 (citing B. Shane Underwood et al., *Increased Costs to US Pavement Infrastructure From Future Temperature Rise*, 7 *Nature Climate Change* 704, 704 (2017)); Zeeshan Aleem, *California’s Heat Wave Caused Rolling Blackouts for Millions*, *Vox*, Aug. 15, 2020, <https://www.vox.com/2020/8/15/21370128/california-blackouts-rolling-power-outage>.

events—that led to the passage of the Stafford Act in the first place. Nevertheless, the federal government has left a crucial dial on its climate controls unturned: the major disaster provisions of the Stafford Act.

This Petition calls for a simple but vital fix. As described herein, pursuant to its statutory authority under the Stafford Act, FEMA should include extreme heat and smoke in the regulatory definition of a “major disaster.”¹⁰ Historically, FEMA has declined to recognize extreme heat and wildfire smoke as qualifying “major disasters” under the Stafford Act, despite the fact that FEMA quickly acted to use the Stafford Act to respond to the COVID-19 pandemic. By choosing to address heat and smoke in the same fashion, FEMA can make crucial funding available to state, local, and Tribal governments to prepare for and respond to extreme heat and smoke events. Additionally, as a logical extension, FEMA should also amend its regulations under FMAG to explicitly authorize funding for wildfire smoke impacts. As a complement to this Petition’s proposed regulations, FEMA should separately consider addressing long-standing issues in relief delivery and implementation to further ensure the effectiveness of these regulations in action.¹¹

Fueled by the climate emergency, extreme heat and smoke will occur more frequently—the only question is whether FEMA can become fit for purpose to support

¹⁰ Federal legislation has also been introduced to amend the “major disaster” definition to explicitly include “extreme heat” under the Stafford Act. *See* Extreme Heat Emergency Act, H.R. 3965, 118th Congress (2023), <https://www.congress.gov/bill/118th-congress/house-bill/3965/text>. The bill has bipartisan support.

¹¹ These long-standing issues include but are not limited to: ensuring fairness and transparency of major disaster appeals processes within and across FEMA regions; addressing data and evidence requirements for establishing injury, death, and property damage from extreme heat and wildfire smoke; revising cost-benefit analysis rules to facilitate competitive hazard mitigation funding for extreme heat and smoke events; addressing cost thresholds for Public Assistance to recognize increased intensity of rain/flooding events; and structurally addressing FEMA’s discriminatory practices in denying relief to communities of color and low-income recipients.

subnational governments and communities through these climate-exacerbated disasters.

II. Petitioners' Interests

Petitioners consist of environmental and climate justice organizations, labor unions and organizations, and public health organizations, each of which have interests in this Petition's proposed FEMA regulations in order to better protect communities and the environment from extreme heat, wildfire smoke, and the ravages of the climate emergency through funding for commonsense short-term emergency response measures, long-term mitigation efforts, and critical planning and wrap-around services.

Petitioners are the Center for Biological Diversity, Alliance of Nurses for Healthy Environments, The Amalgamated Transit Union, American Federation of Labor and Congress of Industrial Organizations, The Arizona Public Health Association, Center for Popular Democracy, Climate Justice Alliance, Communication Workers of America, Farmworkers Association of Florida, Fe y Justicia Worker Center, Food & Water Watch, Fridays for Future NYC, Fridays for Future USA, Friends of the Earth, GreenLatinos, Green Workers Alliance, Grid Alternatives, Labor Network for Sustainability, Migrant Clinicians Network, National Council for Occupational Safety and Health, National Nurses United, New York Communities for Change, Physicians for Social Responsibility, The Service Employees International Union, Solar United Neighbors, Sunrise Movement, Transport Workers Union, United Farmworkers Foundation, United Food and Commercial Workers International Union, Utility Workers Union of America, and Workers Defense Project.

The interests of Petitioners are set out in Addendum 2.

III. Legal Background

a. Congress created the Stafford Act to help U.S. communities respond to and recover from disasters.

Prior to the 1950s, federal disaster assistance came as a result of *ad hoc* congressional response; state and local governments had to appeal to Congress to authorize specific expenditures of funds to support their efforts to respond to a disaster.¹² Beginning in 1950, Congress began to shift power to the President and federal agencies to provide supplementary federal assistance when a state or local government sought help in responding to a disaster.¹³ Decades of congressional action culminated in the late 1970s and 1980s, when Congress created the Federal Emergency Management Agency and passed the Stafford Act, which establishes the current framework for the federal government’s response to state and local requests for disaster assistance.¹⁴

Today, the Stafford Act exists to “provide an orderly and continuing means of assistance by the Federal Government to State and local governments . . . to alleviate the suffering and damage which result” from disasters.¹⁵ The landmark law created a cost-sharing framework. For most major programs, FEMA covers up to 75 percent of costs for disaster preparation or recovery—or higher for certain vulnerable communities—while state and local governments cover the remainder.¹⁶ Some program regulations allow the President to increase the federal share.¹⁷

¹² Bruce Lindsay, Cong. Rsch. Serv., R42702, *Stafford Act Declarations 1953-2016: Trends, Analyses, and Implications for Congress 2* (2017).

¹³ *Id.*

¹⁴ *Id.*

¹⁵ 42 U.S.C. § 5121(b) (declaring the intent of Congress in passing the Stafford Act).

¹⁶ Erica A. Lee, Cong. Rsch. Serv., R47646, *Stafford Act Cost Shares: History, Trends, Analysis 2* (2023); *see* 42 U.S.C. § 5172(b) (establishing the first cost-share framework intended to address equity concerns).

¹⁷ *Id.* at 12 (citing 42 U.S.C. § 5193(a)).

Congress annually appropriates to the Disaster Relief Fund (“DRF”), which covers key disaster activities—including the three funding programs implicated in this Petition—pursuant to the Stafford Act, supplementing the appropriations where necessary.¹⁸ Since FY 2020 to FY 2024, appropriations for DRF funding has ranged from \$20-70 billion, the higher amounts spiking during the COVID-19 pandemic in both FY 2020 and FY 2021.¹⁹ As FEMA is able to carry over DRF funding year-to-year, FEMA’s expenditures of DRF appropriations have also fluctuated, spending \$69 billion in FY 2021, \$19 billion in FY 2022, and \$41 billion in FY 2023.²⁰ Through the establishment of the Stafford Act, yearly appropriations, and agency operation of crucial programs, the federal government has established a nationwide, coordinated framework for response to disaster.

b. States are required to declare a “major disaster” to request federal assistance for state disasters.

The Stafford Act authorizes the President to declare major disasters upon a request from a governor or Tribal chief executive. Depending on the requested support from a governor or Tribal entity, a major disaster declaration may make available several disaster assistance programs.²¹ These include hazard mitigation measure

¹⁸ See William L. Painter, Cong. Rsch. Serv., R47676, Disaster Relief Fund State of Play: In Brief 3–5 (2023).

¹⁹ *Id.* at 6–7 (Figure 2 & Table 1).

²⁰ Dep. of Homeland Security, *Disaster Relief Fund: Monthly Report as of December 31, 2021, FY 2022 Report to Congress* (Jan. 7, 2022), https://www.fema.gov/sites/default/files/documents/fema_jan-2022-disaster-relief-fund-report.pdf; Dep. of Homeland Security, *Disaster Relief Fund: Monthly Report as of December 31, 2022, FY 2023 Report to Congress* (Jan. 11, 2023), https://www.fema.gov/sites/default/files/documents/fema_disaster-relief-fund-report_012023.pdf; Dep. of Homeland Security, *Disaster Relief Fund: Monthly Report as of December 31, 2023, FY 2024 Report to Congress* (Jan. 8, 2024), https://www.fema.gov/sites/default/files/documents/fema_ofo-january2024disasterrelieffundreport.pdf.

²¹ 42 U.S.C. §§ 5170–5189h.

assistance,²² individual assistance programs like housing assistance,²³ and public assistance programs like community disaster loans.²⁴

A major disaster is statutorily defined as:

*“any natural catastrophe (including any hurricane, tornado, storm, high water, winddriven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this Act to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby.”*²⁵

The Stafford Act authorizes the President or designated agencies to prescribe rules and regulations as necessary and proper to carry out the provisions of the Stafford Act.²⁶ Regulations implementing the Stafford Act repeat the statutory definition of “major disaster;” these definitions have been amended several times.²⁷

c. Historically, FEMA has failed to provide relief to subnational governments and communities hit by extreme heat or smoke events.

Despite the major risks of extreme heat and smoke, the Stafford Act has provided little to no support for subnational governments and communities battling the effects of heat or smoke events. Although FEMA has received state requests to declare a major

²² 42 U.S.C. § 5170c.

²³ 42 U.S.C. § 5174.

²⁴ 42 U.S.C. § 5184.

²⁵ 42 U.S.C. § 5122(2) (emphasis added).

²⁶ 42 U.S.C. § 5201(a)(1).

²⁷ 44 C.F.R. § 206.2(a)(17); *see, e.g.*, Disaster Assistance Definitions; Statutory Change, 69 Fed. Reg. 24,082, 24,083–84 (May 3, 2004) (amending the definitions of “Local government,” “State,” and “United States”).

disaster based on extreme heat, it has never granted such a request.²⁸ In July 2023, the Center for Biological Diversity requested public records related to three FEMA denials of major disaster declarations for extreme heat events.²⁹ One major disaster request from Illinois in 1995 was denied because the heat event was deemed insignificant.³⁰ FEMA does not have record of the remaining two denials, both in response to requests from Missouri in 1980, but FEMA’s public databases and independent research confirmed these requests’ existence.³¹ In addition, FEMA’s databases indicate that it rejected California’s 2022 request for a major disaster declaration in response to the heat dome that swept the state, explaining that “precedent is to evaluate discrete events and impacts, not seasonal or general atmospheric conditions.”³²

As shown below, state, Tribal, and local governments, as well as communities, need federal assistance in responding to heat and smoke catastrophes. FEMA’s extreme heat rejections—and uncertainty surrounding FEMA’s openness to wildfire smoke and

²⁸ See Washington Post Live, *How extreme weather events are testing disaster preparedness and resilience*, at 40:31–41:34 (June 28, 2023), <https://www.washingtonpost.com/washington-post-live/2023/06/28/how-extreme-weather-events-are-testing-disaster-preparedness-resilience/> (FEMA Administrator Deanne Criswell confirmed that FEMA has never issued a major disaster or emergency declaration based on extreme heat, stating, “we don’t necessarily have the authorities right now within the Stafford Act.”); see also Editorial, *Heat waves are disasters. Why don’t they get federal disaster relief?*, L.A. Times, Aug. 3, 2023, <https://www.latimes.com/opinion/story/2023-08-03/extreme-heat-major-disaster-declaration#:~:text=FEMA%20says%20that%20the%20costs,can't%20effectively%20respond%20on> (citing that FEMA has acknowledged that “[n]othing in the law precludes an emergency or disaster declaration for extreme heat”).

²⁹ Fed. Emerg. Mgmt. Agency, *FEMA 2023-FEFO-00886 Final Response* (Oct. 5, 2023).

³⁰ *Id.*

³¹ *Id.*; Elizabeth Webster, Cong. Rsch. Serv., IN11988, FEMA IHP Assistance for Extreme Heat: Considerations and Limitations 2 (2022); Fed. Emerg. Mgmt. Agency, OpenFEMA Dataset: Declaration Denials, <https://www.fema.gov/openfema-data-page/declaration-denials-v1> (last updated May 3, 2024).

³² Fed. Emerg. Mgmt. Agency, OpenFEMA Dataset: Declaration Denials, <https://www.fema.gov/openfema-data-page/declaration-denials-v1> (last updated May 3, 2024); Coral Davenport and Noah Weiland, *‘New Territory’ for Americans: Deadly Heat in the Workplace*, New York Times, May 25, 2024, <https://www.nytimes.com/2024/05/25/climate/extreme-heat-biden-workplace.html>. Interviews with FEMA officials reveal that the agency is typically activated by property damage, whereas extreme heat presents stresses on human health that can be harder to measure. *Id.*; Editorial, *Heat waves are disasters. Why don’t they get federal disaster relief?*, L.A. Times, Aug. 3, 2023, <https://www.latimes.com/opinion/story/2023-08-03/extreme-heat-major-disaster-declaration#:~:text=FEMA%20says%20that%20the%20costs,can't%20effectively%20respond%20on>.

heat major disaster declarations—explain the low volume of requests and militate in favor of a regulatory change.

d. Historically, FEMA’s Fire Assistance Management Grants also do not provide relief for wildfire smoke.

In addition to a major disaster declaration, the President may also declare that a subnational government is eligible for Fire Assistance Management Grants (“FMAG”). Under Section 420 of the Stafford Act, FMAG funds are dedicated to “the mitigation, management, and control of any fire on a public or private forest land or grassland that threatens such destruction as would constitute a major disaster”.³³ The President is authorized to prescribe such rules and regulations as necessary to carry out these provisions, and the President has delegated FMAG authorities to FEMA’s Regional Administrators.³⁴

Based on public searches, FEMA has not rewarded FMAG funding to explicitly address wildfire smoke, which results in both short-and long-term destruction from wildfires.

IV. Factual Background

a. Extreme heat is devastating communities and infrastructure across the country and will only worsen in coming years.

Extreme heat is a destructive natural catastrophe—much like hurricanes, storms, landslides, droughts, and other harrowing natural events already treated as major disasters under the Stafford Act. As FEMA itself recognizes, extreme heat catastrophes are becoming more frequent and severe due to anthropogenic climate change. They are

³³ 42 U.S.C. § 5187(a); Fed. Emerg. Mgmt. Agency, *Fire Management Assistance Grant Program Guide* (June 2021), https://www.fema.gov/sites/default/files/documents/fema_fmaggpg_063121.pdf.

³⁴ 42 U.S.C. § 5187(a); 44 C.F.R. § 204.24.

already overwhelming. Extreme heat is lethal—and even when it does not kill, it can exact a severe physical toll. Further, its harms extend beyond health and into the safety of the workplace, the function of critical infrastructure, the growth of the economy, and the basic stability of society. It threatens U.S. communities from every background, but its worst impacts are felt most often by low-income populations and communities of color. The suffering wrought by extreme heat lives with us today, and as the global thermometer continues to rise, extreme heat’s tragic imprint will grow unless the federal government takes swift action.

1. Extreme heat exacts a major toll on human health.

On average, extreme heat has been the leading cause of weather-related deaths in the United States for over thirty years, accounting for over double the deaths of any other weather event and killing more people each year than hurricanes, floods and tornadoes combined.³⁵ Heat’s death toll has worsened in recent years. The Centers for Disease Control estimated that, in 2023, 2,300 people died from heat-related illness, and in 2022, extreme heat was the underlying or contributing cause of at least 1,670 deaths.³⁶ 2020 set a two-decade heat death high, only to be broken subsequently in 2021, 2022, and again in 2023.³⁷ Over the 36 years for which the federal government

³⁵ JEC Heat Report, *supra* note 6, at 2 (2023); Nat’l Weather Serv., *Weather Related Fatality and Injury Statistics*, <https://www.weather.gov/hazstat/> (last visited May 3, 2024).

³⁶ Centers for Disease Control and Prevention, *About Provisional Mortality Statistics, 2018 through Last Week*, <https://wonder.cdc.gov/mcd-icd10-provisional.html>; U.S. Department of Health and Human Services, *Extreme Heat*, <https://www.hhs.gov/climate-change-health-equity-environmental-justice/climate-change-health-equity/climate-health-outlook/extreme-heat/index.html#:~:text=Extreme%20summer%20heat%20is%20already,2022%2C%20and%202%2C302%20in%202023>; See also Phillip Reese, *Heat-Related Deaths Are Up. It’s Not Just from the Weather*, KFF Health News, Sept. 11, 2023, <https://www.governing.com/climate/heat-related-deaths-are-up-its-not-just-from-the-weather> (citing data from the Center for Disease Control).

³⁷ Nat’l Weather Serv., *80-Year List of Severe Weather Fatalities*, https://www.weather.gov/media/hazstat/80years_2022.pdf (last visited May 3, 2024)

has heat fatality data, the years 2020 through 2023 (the most recent years for which data is available) comprise four of the five deadliest heat death years.³⁸ It is nevertheless widely believed that these figures undercount the number of heat deaths; as one news report explained, “[currently,] about the only consistency in counting heat deaths in the U.S. is that officials and climate specialists acknowledge fatalities are grossly undercounted.”³⁹

Extreme heat harms human health on several fronts, generating as high as \$1 billion in healthcare costs, 235,000 emergency department visits, and 56,000 hospital admissions every summer, in addition to the long-term health costs generated by heat’s impact on human health.⁴⁰ Heatstroke, the most serious heat-related illness, occurs when the body can no longer control its temperature.⁴¹ It degrades the function of the nervous, digestive, and cardiovascular systems, inducing widespread tissue injury and multiple organ dysfunction and failure.⁴² It can be fatal if not treated. Heat exhaustion, another dangerous heat-related illness, can cause dizziness, nausea, headaches, and weakness.⁴³ The CDC also identifies dehydration, rhabdomyolysis, heat syncope, heat cramps, heat rash, and burns as additional heat-related illnesses that

³⁸ *Id.*

³⁹ Anita Snow and Kendria LeFleur, *Mismatch of How US Heat Deaths Are Counted Complicates Efforts to Keep People Safe As Earth Warms*, Associated Press, Aug. 13, 2023, <https://apnews.com/article/counting-extreme-heat-deaths-7125ad9a5289625bd9ca312945996399>.

⁴⁰ JEC Heat Report, *supra* note 6, at 2; Steven Woolf et al., Ctr. for Am. Progress, *The Health Care Costs of Extreme Heat*, (June 27, 2023), <https://www.americanprogress.org/article/the-health-care-costs-of-extreme-heat/>.

⁴¹ Nat’l Inst. for Occupational Safety & Health, *Heat Stress – Heat Related Illness*, <https://www.cdc.gov/niosh/topics/heatstress/heatrelillness.html> (last reviewed May 13, 2022).

⁴² Saber Yezli et al., *Classic heat stroke in a desert climate: A systematic review of 2632 cases*, 294 *J. of Internal Med.* 7, 10-15 (2023).

⁴³ Nat’l Inst. for Occupational Safety and Health, *supra* note 41.

harm human health.⁴⁴ Further, as discussed below, multiday blackout events caused by heat waves would more than double the estimate rate of heat-related deaths.⁴⁵

The health risks of heat hit some populations harder than others. For example, extreme heat makes pregnancy dangerous. Stillbirth risk is nearly 50 percent higher and preterm birth is about 16 percent higher during heat waves, and preterm birth and stillbirth risk rise about five percent with each additional degree in Fahrenheit; heat exposure during pregnancy makes heart problems more likely during labor and delivery; and exposure to heat is dangerous for developing fetuses.⁴⁶ Children are particularly vulnerable because their bodies take longer than adult bodies to increase sweat production and regulate body temperature, making heat-related illness more likely.⁴⁷ Similarly, the elderly are particularly vulnerable because older adult bodies cannot adjust as quickly to temperature changes.⁴⁸ Among elderly and Black Americans, the number of deaths from extreme heat is expected to triple by mid-century, as preexisting disparities in respiratory health drive heat death inequality.⁴⁹

In sum, researchers estimate that heat-related cardiovascular deaths will increase 2.6 times among the general population by mid-century.⁵⁰ Across the United States,

⁴⁴ *Id.*

⁴⁵ Brian Stone, Jr. et al., How Blackouts during Heat Waves Amplify Mortality and Morbidity Risk, 57(22) *Environ Sci Technol.*, 8245–8255, June 6, 2023, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10249403/>.

⁴⁶ Samantha Harrington, *Extreme Heat Makes Pregnancy More Dangerous*, Yale Climate Connections, July 22, 2022, <https://yaleclimateconnections.org/2022/07/extreme-heat-makes-pregnancy-more-dangerous/>.

⁴⁷ Emmarie Huetteman, *Heat Waves Affect Children More Severely*, *Sci. Am.*, Aug. 5, 2022, <https://www.scientificamerican.com/article/heat-waves-affect-children-more-severely/>.

⁴⁸ Ctr. for Disease Control and Prevention, *Older Adults and Extreme Heat* (June 9, 2021), <https://www.cdc.gov/aging/emergency-preparedness/older-adults-extreme-heat/index.html>.

⁴⁹ Sameed Ahmed M. Khatana et al., *Projected Change in the Burden of Excess Cardiovascular Deaths Associated With Extreme Heat By Midcentury (2036-2065) in the Contiguous United States*, *Circulation* 1559 (Oct. 30, 2023), <https://www.ahajournals.org/doi/epub/10.1161/CIRCULATIONAHA.123.066017>.

⁵⁰ *Id.*

extreme heat is exacting a devastating toll on individual health and well-being. As climate change continues to amplify extreme heat events, both in severity and in frequency, an increasing number of Americans will be forced to bear the health burdens of extreme heat.

2. Extreme heat makes work dangerous.

In addition to its health consequences, extreme heat makes work dangerous for those who are forced to labor in unsafe temperature conditions. Some workers, including farm laborers, construction workers and roofers, warehouse packers, delivery truck drivers, and airplane cabin cleaners sweat through summers in particularly high-risk professions due to the combination of intense physical labor and exposure to extreme temperatures.⁵¹ The passing of William Salas Jimenez served as one among many tragic examples.⁵² Jimenez, a Central Valley farmworker, had taken a break amidst the July heat, which bore down that day at 95 degrees.⁵³ When he stood back up, he collapsed suddenly, suffering and succumbing to a heart attack in part induced by extreme heat exposure.⁵⁴

The potential fatality of outdoor work threatens workers across industries; between 1992 and 2016, about one in every three heat-related occupational deaths was a construction worker, and crop workers died at 20 times the rate of other civilian workers.⁵⁵ These high-heat-risk jobs are more likely to be filled by workers of color, low-

⁵¹ See e.g., Aryn Baker, *Extreme Heat Is Endangering America's Workers—And Its Economy*, Time (Aug. 3, 2023), <https://time.com/6299091/extreme-heat-us-workers-economy>.

⁵² Liza Gross and Peter Aldhous, *Excessive Heat and Air Pollution Are Putting Farmworkers' Lives at Risk*, Mother Jones (Dec. 31, 2023), <https://www.motherjones.com/politics/2023/12/heat-and-air-pollution-putting-scores-of-california-farmworkers-lives-at-risk>.

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ JEC Heat Report, *supra* note 6, at 2.

income workers, and undocumented workers; in other words, extreme heat exacerbates American economic and racial inequality and shines a damning spotlight on structural racism.⁵⁶

While outdoor workers face serious risks, it isn't only outdoor work that becomes more hazardous in the heat—indoor jobs without guaranteed climate controls, like warehouses, kitchens, and factories, are also exceedingly dangerous during extreme heat events.⁵⁷ For example, workers at Amazon factories have recorded indoor temperatures as high as 89 degrees during heat waves in California⁵⁸ and workers have died during extreme heat events at more than one warehouse in New Jersey.⁵⁹

As workers shoulder severe heat burdens at work, the economy suffers. Workers are predictably less able to perform their jobs safely and productively when extreme heat events strike.⁶⁰ It is no small problem. In 2020, loss of productivity from heat exposure cost the economy \$100 billion.⁶¹ That figure is expected to rise to \$500 billion by 2050.⁶²

⁵⁶ Nambi Ndugga and Samantha Artiga, Kaiser Family Found., *Continued Rises in Extreme Heat and Implications for Health Disparities*, (Aug. 24, 2023), <https://www.kff.org/racial-equity-and-health-policy/issue-brief/continued-rises-in-extreme-heat-and-implications-for-health-disparities/>.

⁵⁷ See Nicole Greenfield, Nat. Res. Def. Council, *Indoor Workers Need Protection From Extreme Heat Too* (Aug. 10, 2023), <https://www.nrdc.org/stories/indoor-workers-need-protection-extreme-heat-too>.

⁵⁸ Adiel Caplan, J.J. McCorvey and Zoya Wazir, *Big, Hot Steel Boxes: Warehouses Are Booming As Summers Heat Up and Safety Rules Lag*, NBC News Aug. 6, 2023, <https://www.nbcnews.com/investigations/warehouse-workers-extreme-heat-illness-osha-rcna95936>.

⁵⁹ Daniel Munoz, *Worker Deaths in NJ, Including Three at Amazon, Draw Attention to Heat Risks*, North Jersey, Aug. 22, 2022, <https://www.northjersey.com/story/news/state/2022/08/26/amazon-nj-warehouse-death-heat-related-injuries-dehydration/65415932007/>.

⁶⁰ See e.g., Sévane Ananian, *Impact of Heat Stress on Labor Productivity and Decent Work*, Perry World House, Univ. of Penn. (May 28, 2023), <https://global.upenn.edu/perryworldhouse/news/impact-heat-stress-labor-productivity-and-decent-work> (explaining that “[f]or workers, exposure to extreme heat can cause occupational illnesses, increase risk of injury, and lower productivity through natural defense mechanisms such as slowing down, taking more frequent and longer breaks, or limiting working hours. For economies, it threatens their productivity.”).

⁶¹ JEC Heat Report, *supra* note 6, at 3.

⁶² *Id.*

3. Extreme heat weakens U.S. energy and transportation infrastructure and increases risk of blackouts.

As many Americans have experienced firsthand, extreme heat also undermines critical infrastructure systems in the United States, particularly the incumbent energy system dominated by utility grid infrastructure that is very vulnerable to heat. Extreme heat makes cooling water harder for fossil fuel power plants, causes transformers to become less efficient, and sags power lines lessening energy deliver. When coupled with increased power demand—due to higher usage of air conditioning, electric vehicles, and data centers—extreme heat has led utilities across the country to implement rolling blackouts, which are costly for households and local economies, and devastating to those who rely on electricity to run life-saving medical equipment or refrigerate medicines.⁶³ Blackout events that leave more than 50,000 people without power for at least an hour have increased more than 60 percent between 2015 and 2021, as climate change has intensified heat waves.⁶⁴

Many homes do not have air conditioning, leaving families who live in these homes deeply vulnerable to the worst health impacts of heat waves; lack of air conditioning is disproportionately common for low-income households and households of color.⁶⁵ What's more, schools—schoolchildren and teachers—are at particular risk of extreme heat; a study from the Center for Climate Integrity found that more than 13,700

⁶³ See e.g., Zeeshan Aleem, *California's Heat Wave Caused Rolling Blackouts for Millions*, Vox, Aug. 15, 2020, <https://www.vox.com/2020/8/15/21370128/california-blackouts-rolling-power-outage>; Charlotte Huff, *Growing Power Outages Pose Grave Threat To People Who Need Medical Equipment To Live*, Nat'l Pub. Radio, May 15, 2021, <https://npr.org/sections/health-shots/2021/05/15/996872685/growing-power-outages-pose-grave-threat-to-people-who-need-medical-equipment-to->.

⁶⁴ Brian Stone, Jr. et al., *Compound Climate and Infrastructure Events: How Electrical Grid Failure Alters Heat Wave Risk*, 10(5) Environmental Sci. Technol., 6597-6964, May 18, 2021, <https://pubmed.ncbi.nlm.nih.gov/33930272/>.

⁶⁵ Rebecca Mann and Jenny Schuetz, Brookings Inst., *As Extreme Heat Grips the Globe, Access to Air Conditioning Is An Urgent Public Health Issue* (July 25, 2022), <https://www.brookings.edu/articles/as-extreme-heat-grips-the-globe-access-to-air-conditioning-is-an-urgent-public-health-issue/>.

schools that previously did not need air conditioning need so today given the rising temperatures, estimating investment needs of over \$40 billion.⁶⁶ Energy-efficient technologies like heat pump cooling systems and insulation, as well as distributed energy resources like rooftop solar and storage, are crucial tools for quickly deploying cooling systems and reliable electricity that avoids grid outages.⁶⁷

Transportation infrastructure is vulnerable to extreme heat as well. Extreme heat undermines the function of the cables that power public transportation systems and requires greater road maintenance, as the asphalt on the ground was not designed to bear such high temperatures.⁶⁸ Americans who rely on public transportation—again, disproportionately likely to be low-income commuters and commuters of color—are particularly vulnerable to extreme heat because of wait times at outdoor bus stops and lack of air conditioning in many rail stations.⁶⁹ In addition, riders who do have an alternative form of transportation opt to drive instead of taking public transit.⁷⁰ Extreme heat is a one-two punch to transportation dynamics, simultaneously pushing people

⁶⁶ Sverre LeRoy et al., *Hotter Days, Higher Costs: The Cooling Crisis in America's Classrooms*, *The Center for Climate Integrity* (2021), <https://coolingcrisis.org/uploads/media/HotterDaysHigherCosts-CCI-September2021.pdf>; see also Anna Phillips and Veronica Penney, *Schools that never needed AC are now overheating. Fixes will cost billions*, *Washington Post*, May 24, 2024, <https://www.washingtonpost.com/climate-environment/interactive/2024/school-temperatures-heat-climate-change/>.

⁶⁷ See Off. of Energy Efficiency and Renewable Energy, Dep't of Energy, *Solar Integration: Distributed Energy Resources and Microgrids*, <https://www.energy.gov/eere/solar/solar-integration-distributed-energy-resources-and-microgrids> (last visited May 5, 2024) (discussing how distributed energy technologies “strengthen grid resilience, help mitigate grid disturbances, and function as a grid resource for faster system response and recovery”); Howard Crystal et al., Ctr. for Biological Diversity, *Rooftop Solar Justice* (March 2023), <https://www.biologicaldiversity.org/programs/energy-justice/pdfs/Rooftop-Solar-Justice-Report-March-2023.pdf>.

⁶⁸ JEC Heat Report, *supra* note 6, at 6 (citing B. Shane Underwood et al., *Increased Costs to US Pavement Infrastructure From Future Temperature Rise*, 7 *Nature Climate Change* 704, 704 (2017)).

⁶⁹ See e.g., Michelle Baruchman, *How Cities Can Help Protect Transit Riders From Extreme Heat*, *Seattle Times*, Aug. 21, 2021, <https://www.seattletimes.com/seattle-news/transportation/how-can-cities-help-protect-transit-riders-from-extreme-heat/> (discussing research findings on the effects of extreme heat on transportation ridership).

⁷⁰ *Id.*

away from sustainable public transit options while stranding low-income Americans who have no other option.

Even car infrastructure breaks under the weight of extreme heat. As FEMA has explained, “heat . . . and its effects threaten our critical infrastructure. For instance, roadways, runways[,] and railways can begin to buckle and weaken.”⁷¹ The cost of road repairs required by extreme heat could total as high as \$26.3 billion by 2040.⁷² These costs will fall hardest on jurisdictions with the least resources to fund road repairs, in addition to further eating into transportation budgets and the ability of federal, state, local, and Tribal governments to shift investment away from car infrastructure and toward a sustainable transportation system.

4. Extreme heat exacerbates environmental injustice.

The impacts of extreme heat are felt most frequently and severely in Black, Latino, and Indigenous communities, particularly those that are low-income. According to a recent study from ICF, by 2050 at least 25 million people annually in Justice40 communities—defined by the Biden administration as historically disadvantaged communities marginalized by underinvestment and overburdened by pollution—will be disproportionately harmed by extreme heat, expected to face nearly 50 days of health-threatening heat days per year.⁷³ The study identified that overburdened communities

⁷¹ Press Release, Fed. Emerg. Mgmt. Agency, Department of Homeland Security Offers Community Leaders New Resources to Prepare for Extreme Temperature Events as 17 States Experience Record-Breaking Heat (Aug. 25, 2023), <https://www.fema.gov/press-release/20230825/department-homeland-security-offers-community-leaders-new-resources-prepare>.

⁷² ICF Extreme Heat Report, *supra* note 3; see also B. Shane Underwood et al., *Increased costs to US pavement infrastructure from future temperature rise*, 7 *Nature Climate Change* 704 (2017).

⁷³ Alique G. Berberian, et. al., *Racial Disparities in Climate Change-Related Health Effects in the United States*, 9 *Current Env't Health Reps.* 451, 454–56 (2022), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9363288/pdf/40572_2022_Article_360.pdf;

most exposed to health-threatening heat days could include those in Texas, Louisiana, Oklahoma, Arizona, California, Florida, and even patches of the Northeast.

Several reasons underpin extreme heat's disproportionate impacts on disadvantaged communities. First, disadvantaged communities are more exposed to extreme heat than their counterparts. The legacy of racist redlining has concentrated these populations in structurally deficient housing that is costlier to heat and cool.⁷⁴ This vulnerability is compounded by the deprivation of adequate tree cover, shade, and green space from Black and Brown neighborhoods. Many of these neighborhoods endure summer temperatures that are on average 5°F hotter than their predominantly white counterparts once favored for housing loans—a phenomenon often referred to as the urban heat island effect.⁷⁵

Second, extreme heat can take a larger health toll on disadvantaged communities who have greater health sensitivity due to environmental and social conditions. Communities of color are often surrounded by pollution and polluting facilities and lack nearby affordable and nutritious sources of food. Extreme heat can exacerbate the very illnesses that result from over-exposure to pollution and lack of access to nutritious food, like heart and respiratory diseases.⁷⁶

⁷⁴ Jamal Lewis et al., *Energy efficiency as energy justice: addressing racial inequities through investments in people and places*, 13 *Energy Efficiency* 419 (2020), <https://doi.org/10.1007%2Fs12053-019-09820-z>; Eva Lyubich, Energy Inst. at Haas, *The Race Gap in Residential Energy Expenditures* (June 2020), <https://haas.berkeley.edu/wp-content/uploads/WP306.pdf>; Brad Plumer & Nadja Popovich, *How Decades of Racist Housing Policy Left Neighborhoods Sweltering*, N.Y. Times, Aug. 24, 2020, <https://www.nytimes.com/interactive/2020/08/24/climate/racism-redlining-cities-global-warming.html>.

⁷⁵ Jeremy S. Hoffman et al., *The effects of historical housing policies on resident exposure to intra-urban heat: a study of 108 US urban areas*. *Climate*, Jan. 13, 2020, at 1, 2, <https://www.mdpi.com/2225-1154/8/1/12/html>.

⁷⁶ Khatana et al., *supra* note 49.

Finally, disadvantaged communities face greater economic barriers to adapt to extreme heat conditions. Low average income coupled with high energy burdens—energy cost as a percentage of income—make it more difficult for disadvantaged communities to cool themselves during an extreme heat event due to the expense of electricity and reliability of a current fossil-fueled and heat-vulnerable grid system, as described above.⁷⁷ Extreme heat is a harm multiplier that not only makes it harder for residents in poor housing stock to afford their utility bills, but also increases the risk of utility disconnection and even worst health and economic consequences as a result.

b. Like heat, wildfire smoke is causing major health and economic suffering across U.S. communities.

Like extreme heat, smoke from wildfires is also a natural catastrophe that is becoming more frequent and severe due to anthropogenic climate change. Wildfire smoke is poisonous. In just the past few years, it has caused thousands of deaths and many more injuries and health complications, seeping into the lungs and bloodstreams of asthmatic children, exhausted outdoor workers, and others. As more intense wildfire seasons ravage U.S. communities, the threat of smoke grows in kind. Fires near and far, including those beyond U.S. borders, have scattered noxious particles into the air of record-breaking numbers of U.S. residents, hitting communities of color and low-

⁷⁷ Energy burdens crossing 6 percent of household income are considered high. In 2018, U.S. households in the bottom 30 percent by income on average spent 16 percent of their income on energy. Department of Energy, Office of Energy Efficiency & Renewable Energy, Low-Income Energy Affordability Data Tool (2018), <https://www.energy.gov/eere/slsc/maps/lead-tool>. See also Drehoble, Ariel, Lauren Ross & Roxana Ayala, How High Are Household Energy Burdens?, ACEEE (Sept. 2020), <https://www.aceee.org/sites/default/files/pdfs/u2006.pdf>; Selah Goodson Bell et al., *Powerless in the United States: How Utilities Drive Shutoffs and Energy Injustice*, Center for Biological Diversity, Energy and Policy Institute, Bailout Watch (2022), https://www.biologicaldiversity.org/programs/energy-justice/pdfs/Powerless-in-the-US_Report.pdf; ICF Extreme Heat Report, *supra* note 3.

income communities hardest—and without action, climate change will make smoke catastrophes only worse.

1. Wildfire smoke is a serious and expensive health risk for millions of U.S. residents.

Wildfire smoke is exacting a severe health toll across the United States. According to a recent estimate, smoke particulate matter contributed to over 1,000 deaths per year in the United States from 2006 to 2016.⁷⁸ Researchers expect smoke-induced premature death tolls to rise in the coming years, reaching between 4,000 and 9,000 deaths per year, with the worst impacts coming in states across the country like California, Montana, Florida, Texas, Georgia, and Alabama.⁷⁹ Wildfire smoke worsens many existing respiratory and cardiovascular conditions, and can even increase the risk of newly onset diseases, most notably asthma.⁸⁰ These health risks—ranging from major, like premature death and cardiovascular morbidity, to minor, like eye irritation—are typically caused by exposure to the fine particles in smoke.⁸¹ Chronic exposure to these particles can degrade lung function, affecting the body’s ability to remove viruses and bacteria from the lungs—impacts that some early studies suggest could become permanent with persistent short-term exposure.⁸²

⁷⁸ Yiqun Ma et al., *Wildfire Smoke PM_{2.5} and Mortality in the Contiguous United States*, medRxiv (2023), <https://doi.org/10.1101/2023.01.31.23285059> (preprint).

⁷⁹ Shuai Pan et al., *Quantifying the Premature Mortality and Economic Loss From Wildfire-Induced PM_{2.5} in the Contiguous U.S.*, 875 Sci. Total Env’t 162614 (2023). See also Rachel Connolly et al., *Mortality attributable to PM_{2.5} from wildland fires in California from 2008 to 2018*, 10 Sci. Advances 23 (2024) (estimating a total of 52,480 to 55,710 premature deaths are attributable to wildfire smoke PM_{2.5} over the 11-year period).

⁸⁰ Terry L. Noah et al., *The Effects of Wildfire Smoke on Asthma and Allergy*, 23 Current Allergy and Asthma Reports 375, 376–378 (2023).

⁸¹ U.S. Env’t Prot. Agency, *Health Effects Attributed to Wildfire Smoke*, <https://www.epa.gov/wildfire-smoke-course/health-effects-attributed-wildfire-smoke> (last updated Nov. 2, 2023).

⁸² *Id.*

The total healthcare costs are staggering. One Senate report concluded that costs from the short- and long-term exposure to wildfire smoke are between \$117 billion to \$202 billion.⁸³ On the whole, the annual healthcare cost of California's 2012–2018 wildfires alone spiked from around \$88 million in 2012 to \$348 million in 2018.⁸⁴ According to one estimate, a day of smoke exposure leads to about 11 extra hospital admissions for respiratory diagnoses and 3 for circulatory diagnoses.⁸⁵ Another study estimating yearly health impacts of wildfire smoke found between 5,200 and 8,500 hospital admissions for respiratory problems and between 1,500 and 2,500 admissions for cardiovascular problems attributable to wildfire smoke particulate matter.⁸⁶

2. Wildfire smoke undermines worker safety and the U.S. economy.

Smoke makes work less safe, and the cumulative health and economic effects of wildfire smoke hamper the U.S. economy. Wildfire smoke presents serious workplace safety risks for outdoor workers; as Central Park pedicab driver Mamadu Barrie put it, “If we’re not outside, then we don’t make money.”⁸⁷ For many, from farmworkers in the Central Valley breathing in California wildfire smoke to fruit stand salesmen in Philadelphia bombarded by particulate matter from blown-in Canadian wildfires, the

⁸³ Staff of Joint Econ. Comm., 118th Cong., *Climate-Exacerbated Wildfires Cost the U.S. Between \$394 to \$893 Billion Each Year in Economic Costs and Damages* 3 (Oct. 2023), https://www.jec.senate.gov/public/_cache/files/9220abde-7b60-4d05-ba0a-8cc20df44c7d/jec-report-on-total-costs-of-wildfires.pdf.

⁸⁴ Daniel Cullen, *The Health Cost of Wildfire Smoke* 27 (Table 8) (June 25, 2020), https://drive.google.com/file/d/1hURy1jmg9w2gt2z5ReP9NM8E_S529CnV/view.

⁸⁵ *Id.* at 3; James Kingland, *Spiraling Healthcare Costs of Wildfire Smoke in California*, MedicalNewsToday, Oct. 21, 2020, <https://www.medicalnewstoday.com/articles/spiraling-healthcare-costs-of-wildfire-smoke-in-california> (summarizing the research from Cullen).

⁸⁶ U.S. Env’t Prot. Agency, *Research Shows Health Impacts and Economic Costs of Wildland Fires* (Sept. 28, 2017), <https://www.epa.gov/sciencematters/research-shows-health-impacts-and-economic-costs-wildland-fires> (citing Neal Fann, et al. *The health impacts and economic value of wildland fire episodes in the US: 2008–2012*. 610 Sci. Total Env’t 802 (2018)).

⁸⁷ Pranshu Verma et al., *Hazardous Air Quality From Wildfire Smoke Takes a Toll on Outdoor Workers*, Wash. Post, June 8, 2023, <https://www.washingtonpost.com/climate-environment/2023/06/08/workers-outside-hazardous-air-quality-wildfire-smoke/>.

choice is not between indoor and outdoor work, but between livelihood and unemployment.⁸⁸ In sum, 20 percent of workers are required to be outdoors for a third or more of their workday, and many live in states without comprehensive standards that protect workers from wildfire smoke.⁸⁹

The economic costs of wildfire smoke reach into the billions. Across the United States, workers lose \$125 billion a year due to wildfire smoke, about two percent of all national labor income.⁹⁰ An additional day of smoke exposure reduces employment by 80 employees per million working-age residents and reduces labor force participation by 39 individuals per million people.⁹¹ As these figures show, the individual stories of workers across the country accumulate to hundred-billion-dollar losses for families and the economy due to wildfire smoke.

3. Like heat, wildfire smoke exacerbates environmental injustice.

Wildfire smoke disproportionately harms Black, Latino, and Indigenous communities, particularly those who are lower income. While 87 percent of the U.S. population experienced an increase in the number of days of heavy smoke during the 2010s, the increase was notably large in communities of color.⁹² As described above, outdoor workers are at greater risk of the health effects of wildfire smoke—and Black

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ Mark Borgschulte et al., *Air Pollution and the Labor Market: Evidence from Wildfire Smoke 2* (Nat'l Bureau of Econ. Rsch., Working Paper No. 29952, 2022), https://www.nber.org/system/files/working_papers/w29952/w29952.pdf.

⁹¹ *Id.* at 3.

⁹² Jason Vargo et al., *Social Vulnerability in U.S. Communities Affected By Wildfire Smoke, 2011 to 2021* 113 Am. J. of Pub. Health 759, 761–62 (2023).

and Latino workers are disproportionately likely to be outdoor workers, increasing exposure to wildfire smoke's worst effects.⁹³

In addition to greater exposure to smoke, people of color and low-income people are disproportionately harmed by wildfire smoke because of a greater pre-existing incidence of asthma and other respiratory diseases that wildfire smoke worsens.⁹⁴ Higher asthma rates in these communities are the result of environmental and housing racism, making wildfire smoke an accelerant in the vicious cycle of environmental injustice that chokes the lungs and airways of communities of color in general and children of color in particular.⁹⁵ In all, mortality risks from smoke are dramatically higher for Black and Latino communities; one study found that one microgram per cubic meter air increase in smoke particulate matter increased all-cause mortality about six times higher for Black and Latino U.S. residents than white U.S. residents.⁹⁶ As wildfire smoke grows in frequency and severity, it will threaten most the Black, Latino, Indigenous, and low-income communities already harmed worst by fossil fuel extraction and the climate crisis.

c. Extreme heat and wildfire smoke have and will continue to threaten federal, state, and local government budgets.

Without action, heat and smoke will undermine the fiscal health of federal, state, and local governments, the latter two already being forced to outlay billions of dollars to

⁹³ Kristina Dahl and Rachel Licker, Union of Concerned Scientists, *Too Hot to Work 2* (Aug. 2021), https://www.ucsusa.org/sites/default/files/2021-08/Too%20Hot%20to%20Work_8-13.pdf.

⁹⁴ U.S. Env't Prot. Agency, *Which Populations Experience Greater Risks of Adverse Health Effects Resulting from Wildfire Smoke Exposure?*, <https://www.epa.gov/wildfire-smoke-course/which-populations-experience-greater-risks-adverse-health-effects-resulting> (last updated Feb. 8, 2024).

⁹⁵ Gina Jimenez, *When Wildfire Smoke Shrouds a City, People of Color Are Most At Risk*, Mother Jones, June 19, 2023, <https://www.motherjones.com/environment/2023/06/wildfire-smoke-black-communities-asthma-pollution-risk/>.

⁹⁶ Yiqun Ma et al., *Wildfire Smoke PM_{2.5} and Mortality in the Contiguous United States*, medRxiv (2023), <https://doi.org/10.1101/2023.01.31.23285059> (preprint).

respond to these growing crises. As the Congressional Budget Office has explained, climate impacts like extreme heat and smoke attack budgets on both ends; because catastrophes and worsening climate conditions undermine the economy, tie up the healthcare system, and demand government action, they reduce revenues while increasing spending.⁹⁷ Extreme heat, for example, makes agricultural land less productive, reduces labor force participation and productivity, and increases private sector production costs—all undermining tax revenue and pressuring mandatory and discretionary spending programs.⁹⁸ Smoke has similar effects, particularly pressuring federal and state healthcare programs that cover low-income and elderly residents who may suffer from increased respiratory and cardiovascular problems, spurring hospital visits and medication expenses.⁹⁹

State and local governments are particularly vulnerable to the budgetary consequences of extreme heat and smoke, both due to their revenue bases and their fiscal inflexibility. State and local budgets are reliant on a combination of income, property, and sales taxes.¹⁰⁰ As described above, heat and smoke undermine individual and firm income, and early research shows that increases in ambient air pollution

⁹⁷ Perry Beider et al., *Budgetary Effects of Climate Change and of Potential Legislative Responses to It* 5–6, Cong. Budget Off. (Apr. 2021), <https://www.cbo.gov/system/files/2021-04/57019-Climate-Change.pdf>; Flannery Dolan et al., *The Budgetary Effects of Climate Change and Their Potential Influence on Legislation* 7–16, RAND Corp. (2023), https://www.rand.org/content/dam/rand/pubs/research_reports/RRA2600/RRA2614-1/RAND_RRA2614-1.pdf.

⁹⁸ Beider et al., *supra* note 97, at 3.

⁹⁹ *Id.* at 5.

¹⁰⁰ See, e.g., Katherine Loughhead et al., Tax Found., *Unpacking the State and Local Tax Toolkit: Sources of State and Local Tax Collections* 3 (Table 1) (Aug. 2022), <https://files.taxfoundation.org/20170620103551/Tax-Foundation-FF5501.pdf>.

reduces consumer spending.¹⁰¹ These decreases in income and spending reduce revenue for income and sales tax-reliant state and local governments.

These governments are nevertheless forced to increase expenditures, all while losing tax revenue, to fight the heat and smoke catastrophes. California, for example, allocated \$800 million in 2022 alone to combat extreme heat, making major investments in community resilience centers, a statewide heat monitoring system, cooling upgrades and schools and homes, development of codes, standards, and regulations related to heat safety, and more.¹⁰² Arizona recently began expanding grants to local entities to create cooling centers in at-risk communities.¹⁰³ Nevertheless, state and local efforts are constrained by the key fact that state and local governments, unlike the federal government, cannot run budget deficits without severe fiscal consequences, undermining the flexibility of these subnational governments to commit funds to these crises. As expenditures go up and tax receipts go down, subnational governments are stretched thin. The economic and health consequences of heat and smoke rise into the tens of billions—and without new, major federal revenue support, state and local governments will continue to be overwhelmed by extreme heat and wildfire smoke.

d. Climate change is fueling increased events of extreme heat and wildfire smoke.

The dangers of extreme heat and smoke are being amplified by climate change, which makes these events more frequent and more severe. The planet has entered a

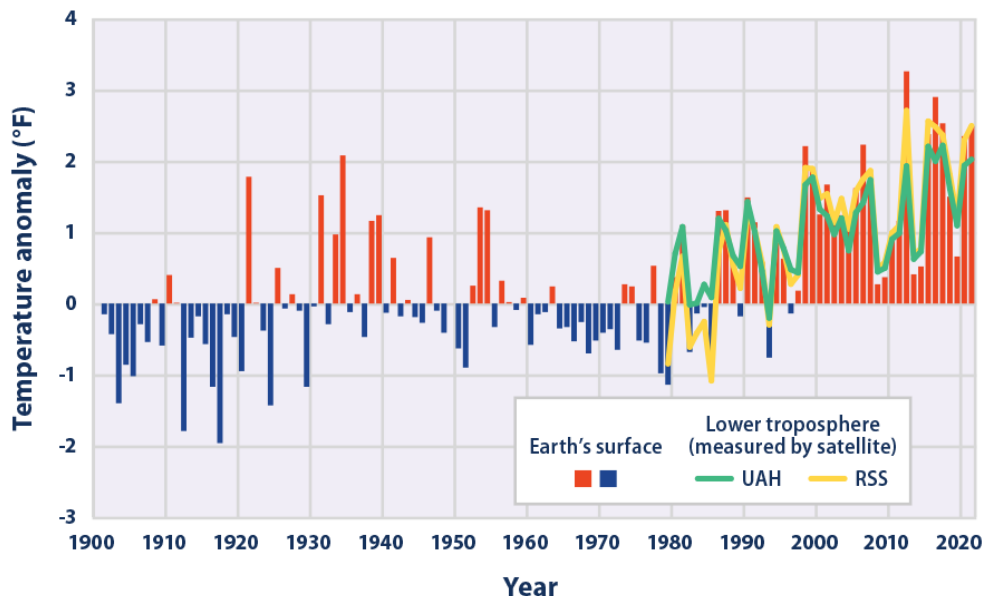
¹⁰¹ John Brandt et al., *Ambient Air Pollution and Consumer Spending: Evidence from Spain*, PLoS One, Jan. 24, 2024, at 1, 13–14.

¹⁰² Press Release, California Natural Resources Agency, *California Releases Extreme Heat Action Plan to Protect Communities from Rising Temperatures* (Apr. 28, 2022).

¹⁰³ *State of Arizona Extreme Heat Fact Sheet*, Office of Governor Katie Hobbs, https://azgovernor.gov/sites/default/files/state_of_arizona_extreme_heat_fact_sheet_2.pdf (last visited May 6, 2024).

dangerous period defined by anthropogenic climate change.¹⁰⁴ Since the late 19th century, fossil fuel emissions and other human activities have increased average global temperatures by over 1.1°C.¹⁰⁵ The IPCC estimates that global average temperatures will surpass 1.5°C (2.7°F) above industrial levels in the near-term without dramatic global action.¹⁰⁶ Current climate policies under countries' Paris Agreement pledges (Nationally Determined Contributions) would lead to a devastating 2.5°C to 2.9°C of temperature rise this century, if not made much more ambitious.¹⁰⁷

Figure 1: Temperature Increase in the Contiguous 48 States, 1901-2021



¹⁰⁴ See e.g., Intergovernmental Panel on Climate Change, *Summary for Policymakers*, in Climate Change 2023 Synthesis Report 4–8 (H. Lee and J. Romero eds., 2023), https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf.

¹⁰⁵ *Id.* at 4.

¹⁰⁶ *Id.* at 10 (determining that “global GHG emissions in 2030 implied by nationally determined contributions (NDCs) announced by October 2021 make it *likely* that warming will exceed 1.5°C during the 21st century and make it harder to limit warming below 2°C”).

¹⁰⁷ United Nations Environment Programme, *Emissions Gap Report 2023: Broken Record* at XXII (2023), <https://wedocs.unep.org/bitstream/handle/20.500.11822/43922/EGR2023.pdf>; Climate Action Tracker, *2100 Warming Projections*, <https://climateactiontracker.org/global/temperatures/> (last updated Dec. 5, 2023).

Temperatures in the United States are rising faster than the global average.¹⁰⁸ Average surface temperature increased by 2.5°F (1.4°C) in the contiguous U.S. and by 4.2°F (2.3°C) in Alaska since 1970, compared with 1.7°F (0.9°C) globally during the same period.¹⁰⁹ According to the National Oceanic and Atmospheric Association, average temperatures in the contiguous U.S. have risen approximately 0.32 to 0.55°F per decade since 1979 (Figure 1).¹¹⁰ Some areas in the United States have experienced more severe temperature increases than others over the past century. Examples arise across the country, from Southern and Central California (with increases anywhere from 2.04°F to 3.47°F since 1901), to Southern Florida (with increases from 2.27°F to 2.84°F), to New Jersey (with increases anywhere from 3.08°F to 3.51°F), to Central and Southeast New Mexico (with increases around 2.5°F), to Alaska's North Slope (with increases of 4.5°F since 1925) (See Figure 2).¹¹¹

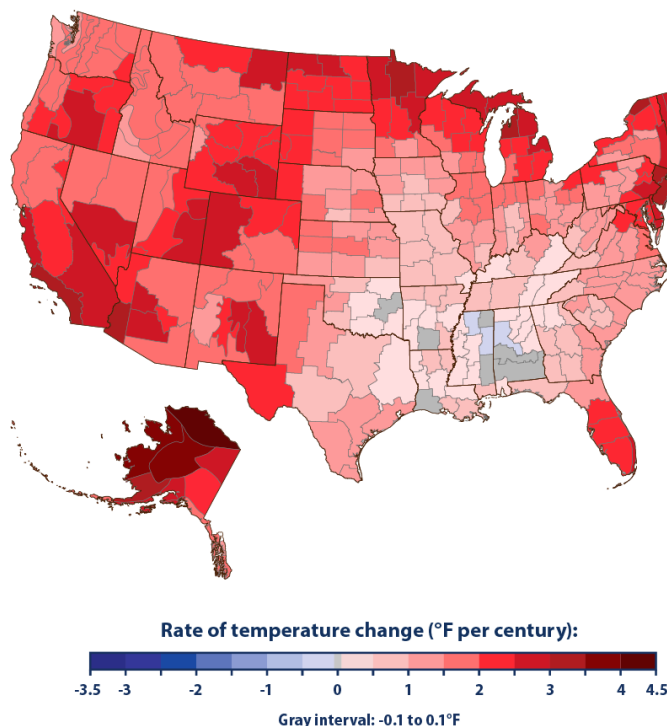
¹⁰⁸ Kate Marvel et al., U.S. Glob. Change Rsch. Pro., *Climate Trends*, in Fifth Nat'l Climate Assessment 2-11 (A.R. Crimmins et al. eds., 2023), https://nca2023.globalchange.gov/downloads/NCA5_Ch2_Climate-Trends.pdf.

¹⁰⁹ *Id.*

¹¹⁰ U.S. Env't Prot. Agency, *Climate Change Indicators: U.S. and Global Temperature*, https://www.epa.gov/system/files/images/2022-07/temperature_download2_2022.png (last updated July 2022).

¹¹¹ U.S. Env't Prot. Agency, *Rate of Temperature Change in the United States, 1901–2021*, <https://www.arcgis.com/home/webmap/viewer.html?webmap=cf64690fb96644b3b132216a91fa819c&extent=-180,-3.3604,3.9725,71.5734> (last modified Aug. 1, 2022).

Figure 2: Map of Temperature Increase in the Contiguous 48 States, 1901-2021



Climate change is driving an increase in the frequency and intensity of extreme heat events, particularly in the western U.S.¹¹² According to FEMA, an extreme heat event is “[a] prolonged period of excessively hot weather, with temperatures above the average high.”¹¹³ Typically, extreme heat is defined by a relative change from past local temperature conditions and takes into account not just temperature but other factors

¹¹² See e.g., Marvel, *supra* note 108, at 2-16 to 2-18 ; U.S. Env’t Prot. Agency, *Climate Change and Extreme Heat* 5 (Oct. 2016), <https://www.epa.gov/sites/default/files/2016-10/documents/extreme-heat-guidebook.pdf>; Sonia I. Seneviratne et al., Intergovernmental Panel on Climate Change, *Weather and Climate Extreme Events in a Changing Climate*, in *Climate Change 2021: The Physical Science Basis* 1548–1550 (V. Masson-Delmotte et al. eds., 2021), https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter11.pdf.

¹¹³ Fed. Emerg. Mgmt. Agency, *Be Prepared for Extreme Heat*, , <https://community.fema.gov/ProtectiveActions/s/article/Extreme-Heat> (last visited May 7, 2024).

like humidity that affect the subjective experience of the temperature.¹¹⁴ In 50 large U.S. cities, the average number of heat waves has doubled since the 1980s and the heat wave season has increased in length from about 40 to 70 days.¹¹⁵ Extreme heat events will continue to grow in frequency, duration, spatial extent, and intensity, exposing more people and infrastructure for longer periods, so long as the planet continues to warm.¹¹⁶ By mid-century nationwide, the annual number of days in the U.S. with a heat index above 100°F is projected to double, and days with a heat index above 105°F are projected to triple, compared to an end of 20th century baseline.¹¹⁷ In fact, the IPCC anticipates that extreme events will “very likely increase *nonlinearly* with increasing global warming”—in other words, the rate of increase of extreme heat events will at times *outpace* the rate of increase of average annual temperatures.¹¹⁸

Anthropogenic climate change is also driving an increase in area burned by wildfires in the western U.S. and the smoke that accompanies wildfires. Extensive research shows that rising temperatures, lower air moisture leading to drier vegetation, and increasing extreme fire weather conditions—periods of high temperatures, low humidity, and strong winds—driven by climate change are leading to rapidly spreading wildfires that are responsible for most of the areas burned and most community destruction by wildfire.¹¹⁹ More wildfire leads to more smoke.

¹¹⁴ Ctr. for Climate Change & Health, Pub. Health Inst., *Extreme Heat, Climate Change, and Health* 1–2 (2016), <https://climatehealthconnect.org/wp-content/uploads/2016/09/ExtremeHeat.pdf>.

¹¹⁵ Marvel, *supra* note 108, at 2–17.

¹¹⁶ *Id.*, Seneviratne et al., *supra* note 111, at 1522–24.

¹¹⁷ Kristina Dahl Kristina et al., *Increased frequency of and population exposure to extreme heat days in the United States during the 21st century*, Env’t Rsch. Comm’n’s, July 16, 2019, at 1, 5, <https://iopscience.iop.org/article/10.1088/2515-7620/ab27cf/pdf>.

¹¹⁸ Seneviratne et al., *supra* note 111, at 1518.

¹¹⁹ John T. Abatzoglou & A. Park Williams, *Impact of anthropogenic climate change on wildfire across western US forests*, 113 Proc. Nat. Acad. Sci. 111770–72 (2016), <https://pnas.org/doi/epdf/10.1073/pnas.1607171113>; A. Park Williams et al., *Observed impacts of*

To be clear, heat waves and wildfire smoke are not new to climate change; they are the kinds of natural phenomena—like tornadoes, hurricanes and fires—that the Stafford Act intends to cover.¹²⁰ As the U.S. Global Change Research Program explains, “unusually hot days and multi-day heat waves are a natural part of day-to-day variation in weather”¹²¹ and “fire is a critical ecosystem process,” particularly in the Western United States.¹²² As the Earth’s climate warms, however, the natural phenomena of heat waves and wildfire smoke grow in intensity and frequency, producing a new, catastrophic era of extreme heat and wildfire smoke.

This era is here now. In June 2022, 125 million Americans simultaneously lived under heat warnings and advisories from the National Weather Service.¹²³ The heat wave began across Texas and the Southwest. Millions in Phoenix experienced 112°F heat, and highs in Las Vegas, Sacramento, and several other communities neared

anthropogenic climate change on wildfire in California, 7 *Earth’s Future* 892, 905–06 (2019), <https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2019EF001210>; Michael Goss et al., *Climate change is increasing the likelihood of extreme autumn wildfire conditions across California*, *Env’t Rsch. Letters*, Aug. 20, 2020, at 1, 2, <https://iopscience.iop.org/article/10.1088/1748-9326/ab83a7/pdf>; Linnia Hawkins et al., *Anthropogenic influence on recent severe autumn fire weather in the west coast of the United States*, *Geophysical Rsch. Letters*, Feb. 4, 2022, at 1, 4–9, <https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2021GL095496>; Piyush Jain et al., *Observed increases in extreme fire weather driven by atmospheric humidity and temperature*, *Nature Climate Change*, Nov. 25, 2001, at 63, <https://par.nsf.gov/servlets/purl/10348387>; Kristina Dahl et al., *Quantifying the contribution of major carbon producers to increases in vapor pressure deficit and burned area in western US and southwestern Canadian forests*, *Env’t Rsch. Letters*, May 16, 2023, at 1, 2, 7, <https://iopscience.iop.org/article/10.1088/1748-9326/acbce8>; Marco Turco et al., *Anthropogenic climate change impacts exacerbate summer forest fires in California*, *Proc. Nat. Acad. Sci.*, June 12, 2023, at 1, 2–5, <https://pnas.org/doi/epdf/10.1073/pnas.2213815120>.

¹²⁰ See *infra* Section VI.a (discussing the types of phenomena the Stafford Act was created and amended to cover).

¹²¹ U.S. Glob. Rsch. Program, *Heat Waves*, <https://www.globalchange.gov/indicators/heat-waves> (last visited May 7, 2024).

¹²² Steven Ostojia et al., U.S. Glob. Rsch. Program, *Focus on Western Wildfires*, in *Fifth Nat’l Climate Assessment F2-3* (Allison Crimmins et al. eds., 2023).

¹²³ Andrew Freedman, *Record-Breaking Heat Wave Envelops Nearly 130 Million In U.S.*, *Axios*, June 13, 2022, <https://www.axios.com/2022/06/13/heat-wave-intensifies-plains-chicago-memphis>.

110°F.¹²⁴ Overall, the 2022 summer was the third hottest on record in the past 128 years.¹²⁵ Over 7,000 daily temperature records, 400 monthly records, and 27 all-time records were broken as heat scorched communities across the United States in 2022.¹²⁶

2023 was even hotter—it was the hottest global summer on record.¹²⁷ It was nearly half a degree Fahrenheit warmer than any summer in NASA’s record.¹²⁸ Fifteen cities across the South and Southwest had record streaks of days over 100°F.¹²⁹ For example, Tucson, Arizona, experienced 53 consecutive days over 100°F.¹³⁰ In Phoenix, every single day in July topped 110°F.¹³¹

Wildfire smoke has set records of its own. In 2017 and 2018, climate change-driven fires caused the highest PM_{2.5} concentrations ever observed in many cities across the western United States.¹³² 2023 was a low year for fire activity across the western United States—and yet, because of the dramatic fire season in Canada, the average American inhaled more wildfire smoke over an eight month period than any recent full

¹²⁴ Andrew Freedman, “*Dangerous and deadly*” heat grips Texas to California, threatens 40 million, Axios, June 10, 2022, <https://www.axios.com/2022/06/10/dangerous-heat-wave-texas-arizona-california>.

¹²⁵ Brady Dennis, *The Toll Extreme Weather Took In The U.S. During 2022, By The Numbers*, Wash. Post, Dec. 30, 2022, <https://www.washingtonpost.com/climate-environment/2022/12/30/blizzard-hurricane-drought-flood-tornado-2022/>.

¹²⁶ Harry Stevens & Jason Samenow, *Maps Show Where Extreme Heat Shattered 7,000 Records This Summer*, Wash. Post, Sep. 13, 2022, <https://www.washingtonpost.com/climate-environment/interactive/2022/temperature-records-summer/>.

¹²⁷ Press Release, NASA, NASA Announces Summer 2023 Hottest On Record (Sep. 14, 2023), <https://www.nasa.gov/news-release/nasa-announces-summer-2023-hottest-on-record/>.

¹²⁸ *Id.*

¹²⁹ Climate Central, *Hot Summer Days Linked To Climate Change In U.S. Cities* (Sep. 12, 2023), <https://www.climatecentral.org/climate-matters/us-summer-2023-in-review>.

¹³⁰ *Id.*

¹³¹ Erum Salam, *Phoenix’s Record Streak of Temperatures Above 110F Ends After 31 Days*, The Guardian, July 31, 2023, <https://www.theguardian.com/us-news/2023/jul/31/us-extereme-heat-alert-wildfires>.

¹³² Daniel A. Jaffe et al., *Wildfire and Prescribed Burning Impacts on Air Quality in the United States*, 70 J. Air & Waste Mgmt. Ass’n 583, 592 (2020), <https://www.tandfonline.com/doi/pdf/10.1080/10962247.2020.1749731>.

year.¹³³ Over the last decade, the number of people in the United States that experience at least one day per year of smoke-related particulate pollution at triple the level of EPA's recommended maximum has increased.¹³⁴ In 2020, 25 million U.S. residents endured this level of smoke exposure—and in 2023, per-capita exposure more than doubled that figure.¹³⁵

Extreme heat and smoke will only worsen in the coming years. The IPCC projects that extreme heat cost impacts will surge fivefold by 2050, costing the United States half a trillion dollars a year.¹³⁶ In other words, extreme heat will likely cost us about as much *every year* as the government is expected to invest implementing the Inflation Reduction Act, the CHIPS Act, and the Infrastructure and Investment Jobs Act *over the course of the decade*.¹³⁷ At 1.5°C of warming, daily temperatures of 95°F will spike in several cities; over the course of a year, these heat events are projected to hit Phoenix 131 days a year and Austin, San Antonio, Tucson, and Las Vegas all around 100 days a year.¹³⁸ Smoke, too, will grow, with some estimates anticipating near or above double smoke emissions in the coming decades, as more destructive wildfire seasons across North America take their toll on U.S. communities.¹³⁹

¹³³ Meghan Bartels, *Americans Have Breathed More Wildfire Smoke in Eight Months Than In Entire Years*, Sci. Am., Aug. 15, 2023, <https://www.scientificamerican.com/article/americans-have-breathed-more-wildfire-smoke-in-eight-months-than-in-entire-years1/>.

¹³⁴ Burke, *supra* note 3 (citing Marissa Childs et al., *Daily Local-Level Estimates of Ambient Wildfire Smoke PM_{2.5} for the Contiguous U.S.*, 56 Env't Sci. Tech. 13607 (2022)).

¹³⁵ Burke, *supra* note 3.

¹³⁶ See Erick Mackres et al., *The Future of Extreme Heat in Cities: What We Know—and What We Don't*, World Res. Inst., Nov. 29, 2023, <https://www.wri.org/insights/future-extreme-heat-cities-data>.

¹³⁷ See Peter Henderson, *U.S. To Spend More Than \$500 Billion On Climate Over A Decade Under Three New Laws, Study Says*, Reuters, Aug. 25, 2022, <https://www.reuters.com/legal/us-spend-more-than-500-bln-climate-over-decade-under-three-laws-study-says-2022-08-22/>.

¹³⁸ Mackres et al., *supra* note 136.

¹³⁹ Sally S.-C. Wang et al., *Projection of Future Fire Emissions Over the Contiguous U.S. Using Explainable Artificial Intelligence and CMIP6 Models*, J. of Geophysical Rsch.: Atmospheres, July 2023 (reviewing the literature on wildfire smoke emission increases).

V. Petitioners' Request for Rulemaking

As set forth in detail below and captured in Addendum 1, FEMA should initiate a rulemaking to amend its Stafford Act-implementing regulations.

First, FEMA should propose the inclusion of extreme heat and wildfire smoke in the regulatory definition of a major disaster eligible for a major disaster declaration and the attendant financial assistance. Specifically, FEMA should amend 44 C.F.R.

§ 206.2(a)(17) to include the following bolded changes to the definition of “major disaster”:

Major disaster: Any natural catastrophe (including any hurricane, tornado, storm, high water, winddriven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, [] drought, **extreme heat event, or wildfire smoke event**), or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this Act to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby.

The bolded changes amend 44 C.F.R. § 206.2(a)(17) to remove the “or” before “drought” and to insert extreme heat events and wildfire smoke events as major disasters eligible for a major disaster declaration under the Stafford Act.¹⁴⁰ The

¹⁴⁰ We recommend that FEMA works with health professionals to prescribe the appropriate heat index and smoke criteria that triggers an “extreme heat” and “wildfire smoke” event. For example, FEMA currently defines extreme heat as a “period of high heat and humidity with temperatures above 90 degrees for at least two to three days” informed by the National Weather Service’s heat index, a measure of heat based on both temperature and humidity. Fed. Emerg. Mgmt. Agency, *Extreme Heat*, <https://www.ready.gov/heat>. This heat index threshold is generally consistent with the 16 states and D.C. that provide heat-based protections against utility shutoffs for non-payment, triggered by temperatures and heat indices ranging from 90 to 105°F.

However, the agency could consider further refining the definition to protect against heat indices harmful to health, work, and living. For example, the Occupational Safety and Health Administration, has proposed an 80°F and 90°F set of heat index thresholds to trigger tiered worker protection heat standards. OSHA, *Heat Injury and Illness Prevention in Outdoor and Indoor Work Settings Regulatory Framework* (Aug. 2023), <https://www.osha.gov/sites/default/files/Heat>

definitions section of FEMA’s implementing regulations have been amended several times.¹⁴¹

Second, as a logical extension, FEMA should also propose comprehensive amendments to FMAG regulations that explicitly ensure that wildfire smoke impacts are eligible for funding assistance. As a threshold amendment, FEMA should amend 44 C.F.R. § 204.21(a), which enumerates FEMA’s determination of a FMAG declaration, to include the following bolded changes¹⁴²:

Determinations. FEMA will approve declarations for fire management assistance when the Administrator determines that a fire or fire complex on public or private forest land or grassland threatens such destruction, **including wildfire smoke resulting from such fire or fire complex**, as would constitute a major disaster.

Regulatory Framework 8_21_2023.pdf. The 2023 Asunción Valdivia Heat Illness, Injury, and Fatality Prevention Act further defines “excessive heat” that warrants occupational protections as any “outdoor or indoor exposure to heat at levels that *exceed the capacities of the body to maintain normal body functions* and may cause heat-related injury, illness, or fatality (including heat stroke, heat exhaustion, heat syncope, heat cramps, or heat rashes).” H.R. 4897/S. 2501, 118th Cong. (2023)(emphasis added); see also Attorneys General of New York, Arizona, Colorado, Connecticut, Illinois, Maine, Maryland, Massachusetts, New Jersey, Pennsylvania, and the District of Columbia, *Petition for an Emergency Temporary Standard for Occupational Heat Exposure for Farmworkers and Construction Workers* (Feb. 9, 2024), <https://ag.ny.gov/sites/default/files/2024-02/osha-multistate-petition.pdf> (which proposes heat standards triggered at 80°F).

¹⁴¹ See, e.g., Disaster Assistance Definitions; Statutory Change, 69 Fed. Reg. 24,082, 24,083–84 (May 3, 2004) (amending the definitions of “Local government,” “State,” and “United States”); Technical, Organizational and Conforming Amendments, 74 Fed. Reg. 15,328, 15,345–52 (Apr. 3, 2009).

¹⁴² Through the rulemaking process, FEMA should propose and adopt a comprehensive suite of regulatory changes to the FMAG regulations to ensure funding is available for wildfire smoke impacts, including for states in which the wildfire did not originate. In addition to the threshold change suggested here, FEMA should also consider amendments including, but not limited to: (1) expansion of “evaluation criteria” under 44 C.F.R. § 204.21(b) to include threats of wildfire smoke and availability of resources to address them; (2) expansion of “eligible costs” under 44 C.F.R. § 204.42 to include measures that address wildfire smoke; (3) expansion of the definition of “incident period” under 44 C.F.R. § 204.3 to include the time where the wildfire smoke is causing unsafe air conditions, which likely extends beyond the end of a wildfire’s flame life; and (4) expansion of the definition of “fire complex” 44 C.F.R. § 204.3 to account for Canadian and other wildfires that may originate beyond the United States or a particular state’s borders.

In addition, as discussed below, FEMA should use its authority to approve disaster mitigation plans to commit subnational governments to adopting strong heat and wildfire smoke workplace standards for employers.¹⁴³

Separately, as a complement to this Petition's proposed regulations, FEMA should also consider addressing long-standing issues in relief delivery and implementation to further ensure the effectiveness of these regulations in action.¹⁴⁴

VI. Discussion and Legal Argument

a. The Stafford Act allows FEMA to consider extreme heat and smoke major disasters.

The nation's premier disaster recovery and mitigation law, the Stafford Act, is a crucial tool available to the federal government to address extreme heat and wildfire smoke. The Stafford Act authorizes the President to declare major disasters upon a request from a governor or Tribal chief executive. Depending on the requested support from a governor or Tribal entity, a major disaster declaration may make funding available from several disaster assistance programs.¹⁴⁵ These include Public Assistance,¹⁴⁶ Individual Assistance,¹⁴⁷ and Hazard Mitigation Grant Program assistance.¹⁴⁸ As described above, FEMA has never taken advantage of the Stafford Act's

¹⁴³ See *infra* Section V.e (proposing FEMA action to this end).

¹⁴⁴ These long-standing issues include but are not limited to: ensuring fairness and transparency of major disaster appeals processes within and across FEMA regions; addressing data and evidence requirements for establishing injury, death, and property damage from extreme heat and wildfire smoke; revising cost-benefit analysis rules to facilitate competitive hazard mitigation funding for extreme heat and smoke events; addressing cost thresholds for Public Assistance to recognize increased intensity of rain/flooding events; and structurally addressing FEMA's discriminatory practices in denying relief to communities of color and low-income recipients.

¹⁴⁵ 42 U.S.C. §§ 5170–5189h.

¹⁴⁶ 42 U.S.C. § 5184.

¹⁴⁷ 42 U.S.C. § 5174.

¹⁴⁸ 42 U.S.C. § 5170c.

major disaster provisions to support communities during extreme heat and wildfire smoke events.

A close reading of the Stafford Act reveals that the statute covers extreme heat and wildfire smoke as natural catastrophes eligible for major disaster declarations. In statute and regulation, a major disaster is defined as:

*any natural catastrophe (including any hurricane, tornado, storm, high water, winddriven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this Act to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby.*¹⁴⁹

The Stafford Act authorizes the President or designated agencies to prescribe rules and regulations as necessary and proper to carry out the provisions of the Stafford Act.¹⁵⁰

The plain language of the major disaster definition demonstrates that FEMA has the authority to amend its regulations to include extreme heat and wildfire smoke as two types of major disaster for which a governor or Tribal chief executive may seek federal major disaster assistance. A major disaster is “*any natural catastrophe (including any [listed cause]) . . . which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance . . .*”¹⁵¹ The statute does not prescribe that a major disaster may only be caused by the listed causes of a natural catastrophe—it authorizes a major disaster declaration for “any” natural

¹⁴⁹ 42 U.S.C. § 5122(2); 44 C.F.R. § 206.2(a)(17) (emphasis added).

¹⁵⁰ 42 U.S.C. § 5201(a)(1).

¹⁵¹ 42 U.S.C. § 5122 (emphasis added).

catastrophe with damage sufficient to warrant assistance, “including” any hurricane, tornado, or other listed natural catastrophe.

Reading the statute only to include listed causes effectively gives the words “any natural catastrophe” no effect. If Congress intended only to include the listed causes, the statutory definition could have simply defined major disaster as any listed cause causing sufficient damage to warrant federal assistance.¹⁵² Instead, Congress made “any natural catastrophe,” including those listed, eligible for major disaster assistance, so long as the disaster is sufficiently damaging and the process for declaration is followed. Two such catastrophes are extreme heat and wildfire smoke.

The most recent congressional amendments to the “major disaster” definition further evidence Congress’s intent to allow funding for unlisted natural catastrophes. Prior to the late 1980s, federal disaster relief law did not limit response to natural catastrophes—the law listed a variety of causes similar to those in statute today, like hurricane, tornado, or storm, in addition to any “*other catastrophe*.”¹⁵³ On a few select, high-profile circumstances, FEMA used its authority to declare major disasters for non-natural catastrophes, like providing shelter for refugees and relocating families affected by toxic dump sites.¹⁵⁴ As a result, Congress’s major disaster definition in the Stafford

¹⁵² As the Supreme Court has emphasized, “[i]t is ‘a cardinal principle of statutory construction’ that ‘a statute ought, upon the whole, to be so construed that, if it can be prevented, no clause, sentence, or word shall be superfluous, void, or insignificant.’ *TRW Inc. v. Andrews*, 534 U.S. 19, 31 (2001) (quoting *Duncan v. Walker*, 533 U.S. 167, 174 (2001) (additional citation omitted)). Reading the major disaster definition as only including listed causes would violate the surplusage canon by making insignificant the broader language that precedes those causes.

¹⁵³ Disaster Relief Act Amendments of 1974, Pub. L. No. 93-288, § 102(2), 88 Stat. 143, 144 ; see Edward C. Liu, Cong. Rsch. Serv., RL34724, Would an Influenza Pandemic Qualify as a Major Disaster Under the Stafford Act? 8 (2008).

¹⁵⁴ *Id.* at 9.

Act specifically made eligible “any *natural* catastrophe,” excluding non-natural catastrophes caused by economic or social conditions.¹⁵⁵

The crucial detail is not only what Congress excluded, but what Congress included. When Congress was limiting the events that could generate a major disaster declaration, it still included the expansive phrase “any natural catastrophe.” It could have simply listed an exclusive set of natural catastrophes eligible for funding to further prevent relief funding for any causes it did not intend to include, but it didn’t. The legislative history shows that the key distinction made by Congress is between non-natural catastrophes and natural catastrophes, not listed catastrophes and unlisted catastrophes. Indeed, the current “major disaster” definition distinguishes disaster by cause, separating (i) “natural catastrophe” and (ii) “any fire, flood, or explosion” “regardless of cause”. Extreme heat and wildfire smoke, like hurricanes, tornadoes, and wildfires, are natural catastrophes that FEMA and the President can and should counteract using the Stafford Act’s major disaster provisions.

Because the major disaster definition in statute and regulation already makes “any natural catastrophe” eligible for approval, FEMA could begin to approve these requests at any time, with or without a change in the regulatory definition. Indeed, providing this policy guidance prior to rulemaking could allow subnational governments to access relief before the upcoming summer. In either event, altering regulations to explicitly include extreme heat and wildfire smoke will provide state, local, and Tribal governments needed certainty that major disaster funds will be made available when future disasters strike.

¹⁵⁵ 42 U.S.C. § 5122(2) (emphasis added); Liu, *supra* note 153, at 8–9; see Bruce R. Lindsay, Cong. Rsch. Serv., R44801, Stafford Act Assistance and Acts of Terrorism 16–20 (2023) (explaining the legislative history of the current definition).

b. As indicated by its COVID-19 response, FEMA already acts in accordance with this reading of the Stafford Act’s major disaster provisions.

FEMA has functionally adopted the reading of the Stafford Act offered in this Petition. Over the past three years, the federal government used the Stafford Act’s major disaster assistance provisions to support state, local, and Tribal governments’ response to COVID-19. In 2020, then-President Trump approved COVID-19 major disaster declaration requests under the Stafford Act for all 50 states, five territories, the District of Columbia, and the Seminole Tribe of Florida. Indeed, the former President specifically invited these requests when he issued his emergency declaration for the COVID-19 pandemic, writing:

I believe that the disaster is of such severity and magnitude nationwide that requests for a declaration of a major disaster as set forth in section 401(a) of the Stafford Act may be appropriate.

I encourage all governors and tribal leaders to consider requesting Federal assistance under this provision of the Stafford Act, pursuant to the statutory criteria. I stand ready to expeditiously consider any such request.¹⁵⁶

President Biden later approved major disaster declaration requests from the Navajo Nation and the Poarch Band of Creek Indian, as well as made available a blanket \$3.46 billion (4 percent of the overall Covid-19 pandemic disaster costs) in hazard mitigation funding for all states, territories, and Tribes that received a major disaster declaration for COVI-19.¹⁵⁷ Together, the Biden and Trump administrations recognized

¹⁵⁶ Letter from President Donald J. Trump on Emergency Determination Under the Stafford Act, 2020 Daily Comp. Pres. Doc. 2 (Mar. 13, 2020), <https://www.govinfo.gov/content/pkg/DCPD-202000159/pdf/DCPD-202000159.pdf>.

¹⁵⁷ Erica A. Lee, Cong. Rsch. Serv., R46809, Federal Emergency and Major Disaster Declarations for the COVID-19 Pandemic 1, 16 (2021).

that infectious diseases constitute major disasters under the Stafford Act, despite the fact that these events are not listed in the definition of “major disaster.”¹⁵⁸

Indeed, the only interpretation of the Stafford Act and its implementing regulations that supports declaring a major disaster due to an infectious disease is the interpretation offered here: “any natural catastrophe”—including an infectious disease, a heat wave, or a smoke event—may be a major disaster, so long as the damage is sufficient and the process for declaration is followed.¹⁵⁹ This is the proper reading of the Stafford Act, hewing most faithfully to the law’s text. It supported a major disaster declaration for COVID-19, and it provides sound legal basis to declare extreme heat and smoke as major disasters upon request.

This reading of the Stafford Act is also consonant with the law’s purpose. As described above, the Stafford Act was passed to shift away from dispersed disaster response that left state, local, and Tribal governments in the lurch. Instead, the law favors coordinated efforts to furnish effective disaster assistance, particularly when federal financial and programmatic support will boost state, local, and Tribal action and efficacy at managing crises.¹⁶⁰ To that end, the federal government used the Stafford Act’s major disaster provisions to support a coordinated response to the COVID-19 pandemic. Similarly, the federal government has a valuable role to play in supporting state, local, and Tribal governments as communities across the United States experience

¹⁵⁸ See *id.* at 16–17. In fact, the funding for major disaster declarations for the COVID-19 pandemic was not restricted to pandemic-related mitigation efforts; the President allowed such hazard mitigation funding for the Covid-19 pandemic to be used for mitigation projects to reduce the impacts of climate change. Press Release, Fed. Emerg. Man. Agency, *Biden Administration Commits Historic \$3.46 Billion in Hazard Mitigation Funds to Reduce Effects of Climate Change* (Aug. 5, 2021), <https://www.fema.gov/press-release/20210805/biden-administration-commits-historic-346-billion-hazard-mitigation-funds>.

¹⁵⁹ See 42 U.S.C. § 5122(2); 44 C.F.R. § 206.2(a)(17) (stating the major disaster definition and outlining the severity and declaration requirements).

¹⁶⁰ See 42 U.S.C. § 5121 (declaring the intent of Congress in passing the Stafford Act).

more frequent and severe extreme heat and smoke events due to climate change. The Stafford Act was designed to enable that kind of support, not to tie the federal government's hands to an unduly narrow definition of "major disaster."

c. Major disaster aid can be directed toward short- and long-term solutions to extreme heat and wildfire smoke disasters.

A major disaster declaration is crucial to unlocking provisions of meaningful federal aid to counteract the threat and consequences of extreme heat and wildfire smoke. The Stafford Act unlocks three categories of federal assistance when a major disaster is declared: Public Assistance, Individual Assistance, and Hazard Mitigation Assistance. A major disaster declaration for extreme heat and smoke made upon request from a governor or Tribal chief executive would open up additional, well-fit funding streams to respond to and prepare for these crises in a systematic and systemic manner.¹⁶¹

Funded efforts could include:

- (1) **short-term measures** like temporary emergency water and cooling centers, air conditioning, air filtration systems, air quality sensors, N95 masks, respirators, and evacuation services;
- (2) **long-term mitigation measures** like permanent cooling and safe air centers and shelters with on-site clean energy and energy storage; distributed rooftop and community solar energy systems, storage, and microgrids to allow communities and households to withstand heat in the face of crippling centralized grid systems and rolling utility blackouts; energy efficiency and

¹⁶¹ Elizabeth M. Webster and Bruce R. Lindsay, Cong. Rsch. Serv., R41981, Congressional Primer on Responding to and Recovering From Major Disasters and Emergencies 13–17 (2023).

weatherization technologies like insulation, high-efficiency windows, and energy-efficient induction and electric stoves and heat pumps; and green roofs, permeable or cool pavement, and tree canopies.

(3) **planning measures and critical services** like mitigation planning tools, including GIS and environmental health trackers, which could lead to a more effective and targeted government response on the most vulnerable populations; warning systems; funding for wrap-around services to impacted populations, including mental health, medical help, human services, and translation; and payment for essential utilities to prevent electricity shutoffs.

**Chart 1: Major Disaster Funding Programs and Disaster Relief Types for
Extreme Heat & Wildfire Smoke**

Funding Program	Type of Disaster Relief		
	Short-term Measures	Long-term Measures	Planning and Critical Services
Public Assistance	Emergency water and cooling centers; N95 masks and respirators; evacuation; solar generators	Permanent cooling and safe air centers and shelter; on-site and distributed solar, energy storage, and microgrids; building weatherization; permeable or cool pavement; tree canopy	Mitigation planning tools; warning systems; funding for wrap-around services; payment for essential utilities to prevent electricity shutoffs
Individual Assistance	Air conditioning; air filtration systems; solar generators	Rooftop and community solar and storage; energy efficiency and weatherization technologies; energy-efficient appliances; and green roofs	Funding for essential services like medical, rental, and (limited) utilities assistance
Hazard Mitigation Assistance	Emergency water and cooling centers	Permanent cooling and safe air centers and shelter; on-site and distributed solar, energy storage, and microgrids; building weatherization; permeable or cool pavement; tree canopy	Mitigation planning tools; warning systems; benefit-cost analyses support

Critically, if done properly, this Petition’s sought-after changes would also be an opportunity for FEMA to better serve communities of color, low-income communities, and Tribal communities who the agency has a long history of disproportionately neglecting in its disaster response and mitigation programs.¹⁶²

¹⁶² See, e.g., Christopher Flavelle, *Why Does Disaster Aid Often Favor White People?*, N.Y. Times, June 7, 2021, <https://www.nytimes.com/2021/06/07/climate/FEMA-race-climate.html>; Rebecca Hersher & Ryan Kellman, *Why FEMA Aid Is Unavailable To Many Who Need It The Most*, Nat’l Pub. Radio, June 29, 2021, <https://www.npr.org/2021/06/29/1004347023/why-fema-aid-is-unavailable-to-many-who-need-it-the-most>; Junia Howell & James R. Elliott, *As Disaster Costs Rise, So Does Inequality*, 4 Socius, Jan. 1, 2018, <https://journals.sagepub.com/doi/pdf/10.1177/2378023118816795>; Hannah Dreier, *Why FEMA is denying disaster aid to Black families that have lived for generations in the Deep South*, Wash. Post., July 11, 2021, <https://www.washingtonpost.com/nation/2021/07/11/fema-black-owned-property/>; Thomas Frank, *FEMA Says It Will Make Disaster Response More Equitable*, E&E News, Mar. 15, 2021, <https://www.scientificamerican.com/article/fema-says-it-will-make-disaster-response-more-equitable/>. As the FEMA National Advisory Council noted, FEMA recovery programs currently “provide an additional

1. Public Assistance funds can support subnational governments to deploy emergency and long-term heat and smoke relief.

Arguably the most extensive general disaster relief program, FEMA's Public Assistance ("PA") program can serve as a central funding source for short-term and long-term measures to address extreme heat and wildfire smoke. Over the past decade, the PA has been authorized in every single county, parish, and municipality in the country and has been recently used for reconstruction of the Puerto Rico grid in the aftermath of Hurricane Maria and mass evacuations ahead of California wildfires.¹⁶³ Its unprecedented use by both Presidents Trump and Biden for the COVID-19 pandemic is particularly instructive for this Petition; PA funds were used for vaccine, testing, and PPE distribution and servicing; emergency medical care; and non-congregate sheltering.¹⁶⁴ The PA program provides funding to state, local, and Tribal governments and certain nonprofit entities to support publicly funded disaster recovery efforts. PA funds go toward emergency work, like emergency protective measures, and permanent work, like public building repair.¹⁶⁵ The federal government generally covers 75 percent of the cost of assistance, while the remaining 25 percent is the responsibility of the

boost to wealthy homeowners and others with less need, while lower-income individuals and others sink further into poverty after disasters." Nat'l Advisory Council, FEMA, *Report to the FEMA Administrator* 6 (2020), https://www.fema.gov/sites/default/files/documents/fema_nac-report_11-2020.pdf; see also Oronde Drakes et al., *Social Vulnerability and Short-Term Disaster Assistance in the United States*, Int'l J. Disaster Risk Reduction, Dec. 2021, at 1, 7–9, https://www.researchgate.net/profile/Eric-Tate-2/publication/347088658_Social_vulnerability_and_short-term_disaster_assistance_in_the_United_States/links/5fe245fd92851c13feb182fe.

¹⁶³ Erica A. Lee, Cong. Rsch. Serv., 46749, FEMA's Public Assistance Program: A Primer and Considerations for Congress 1 (2021).

¹⁶⁴ *Id.* at 45–46.

¹⁶⁵ Fed. Emerg. Mgmt. Agency *Public Assistance Program and Policy Guide*, FP 104-009-2, at 51 (June 2020), https://www.fema.gov/sites/default/files/documents/fema_pappg-v4-updated-links_policy_6-1-2020.pdf (hereinafter "PAPPG").

recipient.¹⁶⁶ Major disaster eligibility for wildfire smoke and extreme heat would open up crucial funding over both emergency and permanent work.

PA emergency protective measures are a valuable source of preemptive or immediate disaster response. FEMA’s emergency PA funding supports emergency protective measures “conducted before, during, and after an incident” if they “eliminate or lessen immediate threats to lives, public health, or safety.”¹⁶⁷ These measures include prepositioning resources before a hazard strikes, construction of temporary facilities to undertake sheltering, medical care, and other essential services for months after the threat has passed; funding for supplies and commodities; and transport.¹⁶⁸

Emergency PA funding before, during, or just after a heat event would allow state, local, and Tribal governments to take swift action to construct temporary cooling, water, and community resilience centers; transport residents to and from centers; ensure proper medical care for those at risk of heat illness or in need of power for medical devices; and deliver emergency solar generators and air conditioners to buildings and homes at risk. Similarly, emergency funding for smoke events would allow governments to erect clean air community centers; provide crucial supplies, like air filtration technology and masks; and supply medical services and related supplies for those harmed by the health effects of smoke. PA funds could also support the evacuation of communities from extreme heat and wildfire smoke events, as it was used for California wildfire evacuations.

¹⁶⁶ 42 U.S.C. § 5172(b).

¹⁶⁷ Authorized in Stafford Act Sections 402, 403, 418, 419, 502; PAPPG, *supra* note 165, at 110-111; 44 C.F.R. § 206.225(a)(3) and 206.208.

¹⁶⁸ PAPPG, *supra* note 165, at 110-11.

FEMA also has the opportunity to support permanent hazard mitigation work, provided measures are cost-effective and support facilities damaged by the incident.¹⁶⁹ A mitigation measure may be eligible if it reduces the potential of future damage to the damaged portion of the facility, though applicants may also propose measures that are distinct from the damaged portion if it would ultimately protect the damaged portion.¹⁷⁰ Mitigation measures are required to be cost-effective pursuant to FEMA’s benefit-cost analysis methodology, and federal mitigation assistance here may not exceed 15 percent of the total eligible repair cost.¹⁷¹

A public entity or qualifying private nonprofit (which provide critical and essential services) that owns buildings experiencing power shutoffs during an extreme heat event could use mitigation funding to support cost-effective investments in long-term resilience measures, like installing rooftop solar and storage or upgrading electrical panels to support distributed energy resource investment. Similarly, that same facility could use mitigation funding to install building-wide air filtration systems, as well as install high-efficiency windows, building insulation, and other building envelope tightening technologies to reduce penetration of toxic smoke for the future.

PA awards are provided through the Disaster Relief Fund (“DRF”), where the PA share has grown to an average of 60 percent of all DRF obligations between FY 2011 and FY 2020—more than twice the share of the next largest program, Individual Assistance.¹⁷² PA obligations in FY2020 totaled more than \$20 billion even when

¹⁶⁹ *Id.* at 153, 155; 42 U.S.C. § 5172.

¹⁷⁰ PAPPG, *supra* note 165, at 155.

¹⁷¹ *Id.* at 155–56.

¹⁷² Cong. Rsch. Serv., R46749, *FEMA’s Public Assistance Program: A Primer and Considerations for Congress* 24 (2021).

excluding COVID-19 costs and continue to rise.¹⁷³ Neither the Stafford Act nor federal regulations restrict the size of PA rewards.

2. Individual Assistance funds can provide direct relief for extreme heat and smoke for individuals and households.

FEMA's Individual Assistance ("IA") program offers a significant opportunity for FEMA to retrofit individual residential homes to better withstand the effects of extreme heat and wildfire smoke.¹⁷⁴ Through its Individuals and Households Program ("IHP")—IA's primary financial and direct assistance program—FEMA can fund repairs of a number of components of a residence, including, most relevantly, windows, doors, heating, ventilation, air conditioning, electrical, and water systems.¹⁷⁵ Every year, the IHP serves as a crucial lifeline for disaster-stricken residents. In 2019, for example, the IHP funded \$645 million for disaster survivors, supporting more than 136,000 disaster survivors with needs like home repair and crisis counseling and more than 220,000 with housing inspections.¹⁷⁶

Heat- and smoke-related assistance is in line with the IHP statutory provisions. The Stafford Act created the IHP to provide "financial assistance . . . to individuals and households . . . who, as a direct result of a major disaster, have necessary expenses and serious needs" they cannot meet alone or through other means.¹⁷⁷ Under the IHP, the President "may provide financial or other assistance . . . to respond to the disaster-related housing needs of individuals and households who are displaced from their pre-

¹⁷³ *Id.* at 26.

¹⁷⁴ 42 U.S.C. § 5174.

¹⁷⁵ 44 C.F.R. § 206.117(b)(2)(ii); see generally Fed. Emerg. Mgt. Agency, *Individual Assistance Program and Policy Guide* (2021), https://www.fema.gov/sites/default/files/documents/fema_iappg-1.1.pdf (hereinafter, "IAPPG").

¹⁷⁶ Dept. Homeland Security, *FY 2021 Budget-in-Brief* 57 (2021), https://www.dhs.gov/sites/default/files/publications/fy_2021_dhs_bib_o.pdf.

¹⁷⁷ 42 U.S.C. § 5174(a)(1).

disaster primary residences.”¹⁷⁸ This includes financial assistance for the “repair of owner-occupied private residences . . . damaged by a major disaster to a safe and sanitary living or functioning condition” and “eligible hazard mitigation measures that reduce the likelihood of future damage to such residences”¹⁷⁹ Extreme heat and smoke cause serious disaster-related needs for households, many of which are displaced by their residences due to heat-related power outages, insufficient cooling or back-up power during heat events, and poor insulation and lack of indoor air filtration technology during smoke events. The improvements described here would reduce the likelihood of future damage from these events.

Specifically, the IHP includes funding for certain eligible hazard mitigation measures through its home repair assistance programs. Home repair assistance funding is intended to make the home “safe, sanitary, [and] functional.”¹⁸⁰ Eligible hazard mitigation measures are defined as “home improvements that an applicant can accomplish in order to reduce or prevent future disaster damage.”¹⁸¹ In the past, FEMA would only perform hazard mitigation that improved upon pre-disaster conditions if they support “real property components that existed, and were functional, prior to the disaster.”¹⁸² This Administration, however, has taken strides toward expanding hazard mitigation funding. In recent years, it expanded funding to roof repair, water heater elevations, and electrical panel elevations to make buildings more resilient to flood or

¹⁷⁸ *Id.* § 5174(b)(1).

¹⁷⁹ *Id.* § 5174(c)(2)(A).

¹⁸⁰ Fed. Emerg. Mgmt. Agency, *Individual Assistance Program and Policy Guide (IAPPG)*, FP 104-009-03, at 85 (May 2021), https://www.fema.gov/sites/default/files/documents/fema_iappg-1.1.pdf (hereinafter “IAPPG”).

¹⁸¹ 44 C.F.R. § 206.111 (2024).

¹⁸² IAPPG, *supra* note 175, at 87.

high-wind risk.¹⁸³ In January 2024, FEMA announced its intention to further expand hazard mitigation funding under the home repair assistance program to any disaster-damaged area of the residence.¹⁸⁴

If leveraged in accordance with the statute and the needs of heat- and smoke-stricken communities, the IHP would be a valuable source of financial assistance to individuals and households to effectively mitigate the risks of extreme heat and smoke—both in the short and long-term. The maximum total assistance that FEMA can provide through the IHP for most programs is \$42,500 for housing assistance and \$42,500 for other needs assistance, adjusted each year based on changes in the consumer price index.¹⁸⁵ In addition, a few programs—most notably funding for home repair assistance accessibility items and personal property accessibility items—are not subject to a regulatory maximum award amount.¹⁸⁶ Most IHP programs are funded fully by the federal government without a state cost-share.¹⁸⁷

The IHP could cover heat-related assistance in a variety of ways. Many households are particularly vulnerable to power shutoffs during heat waves, which worsens the impact of extreme heat by cutting off the opportunity for cooling within the home and disproportionately affects at-risk populations, including low-income communities, people of color, children, the elderly, and those with pre-existing medical conditions. Battery and rooftop solar systems, solar microgrids, and other distributed

¹⁸³ Fed. Emerg. Mgmt. Agency, *Hazard Mitigation Under the Individuals and Households Program—Wildfire Measures* (June 20, 2023), <https://www.fema.gov/fact-sheet/hazard-mitigation-under-individuals-and-households-program-wildfire-measures>.

¹⁸⁴ Press Release, Fed. Emerg. Mgmt. Agency, *Biden-Harris Administration Reforms Disaster Assistance Program to Help Survivors Recover Faster*, (Jan. 19, 2024), <https://www.fema.gov/press-release/20240119/biden-harris-administration-reforms-disaster-assistance-program-help>.

¹⁸⁵ See Notice of Maximum Amount of Assistance Under the Individuals and Households Program, 88 Fed. Reg. 72,520 (Oct. 20, 2023).

¹⁸⁶ IAPPG, *supra* note 175, at 41, 42 (Figure 4).

¹⁸⁷ 42 U.S.C. § 5174(g).

energy resources would make households more resilient to extreme heat events all while furthering the Administration’s climate and equity goals. In addition, extreme demand for cooling during a heat wave can threaten the stability of the grid and forebode power shutoffs, threatening life and safety on hot days. Because heat pumps are significantly more energy efficient than central air conditioning, heat pump installations will reduce the risk of extreme heat events for individuals and the community.¹⁸⁸ Further, implementing weatherization technologies—like high-efficiency windows and insulation that seal up a structure’s envelope—are low-cost, commonsense ways to reduce a home’s electricity demand need for cooling by keeping cool air inside.

The IHP could also support valuable smoke-related improvements. EPA recommends a variety of steps that households at risk of smoke should make to protect indoor air quality, like purchasing a portable air cleaner or high-efficiency HVAC filter,

¹⁸⁸ *Why Cooling is Key: How to Decarbonize Buildings with One Weird Trick*, Building Decarbonization Coalition 2, 4 (June 2023), https://buildingdecarb.org/wp-content/uploads/Heat-Pump-Shipments-Report-Spring-2023_V4.pdf. As the report describes:

At the same time as central AC sales are surging across the country, policymakers at the state, local, and national level are pursuing strategies to cut greenhouse gas emissions from homes and buildings by displacing fossil fuel heating systems through increased adoption of a technology that provides both heating and cooling: the electric heat pump.

Heat pumps are available at a similar price point to central AC units and have similar installation requirements. This means that if a household is planning to install a central AC system, they can just as easily install a heat pump, as the installation requirements and electrical system demands for the home are comparable.

Opting for a heat pump instead of a central AC brings enormous co-benefits. For about the same price as central AC in mild climate zones—and just slightly higher cost in cold climate zones—heat pumps can provide more efficient cooling, which can lower operating costs while also lowering overall energy demand, particularly in times of high heat which leads to power supply strains. What’s more, the home with a heat pump is gaining fossil fuel-free heating. The next time the furnace breaks, this home will not need to replace it, saving on future tech and installation costs—and cutting climate and local air pollution in the process.

which the IHP can support.¹⁸⁹ And as described above, these technologies reduce energy usage while protecting indoor air quality.¹⁹⁰

Finally, the IHP can serve as a critical funding source for households needing financial help with accessing life-sustaining services like medical help, rental assistance and utility payments.¹⁹¹ As described above, both extreme heat and wildfire smoke result in major health impacts, as well as increased electricity bills for cooling and air filtration. Separately, other Individual Assistance programs are available to fund wrap-around services, such as mental health services from the Crisis Counseling Assistance and Training Program and unemployment benefits under the Disaster Unemployment Assistance program. IHP and IA activities are funded from the Disaster Relief Fund.

3. Hazard Mitigation funds can support extreme heat and smoke mitigation measures.

The Hazard Mitigation Grant Program (“HMGP”) is a final source of funding that FEMA can use to prevent the worst consequences of extreme heat and smoke. The HMGP exists to ensure that communities in recovery have the financial resources necessary to deploy mitigation measures that will reduce future risks—and to leverage the opportunity to take critical mitigation measures during the reconstruction process following a disaster.¹⁹²

¹⁸⁹ U.S. Env’t Prot. Agency, *Wildfires and Indoor Air Quality*, <https://www.epa.gov/indoor-air-quality-iaq/wildfires-and-indoor-air-quality-iaq> (last updated Jan. 24, 2024).

¹⁹⁰ Daisy Simmons, *How to Protect Yourself From Wildfire Smoke*, Yale Climate Connections, Aug. 24, 2020, <https://yaleclimateconnections.org/2020/08/how-to-protect-yourself-from-wildfire-smoke/>.

¹⁹¹ 44 C.F.R. 206.117(b)(1)(i); 44 C.F.R. 206.117(b)(1)(ii)(utility costs only covered by IHP when part of rental charge). FEMA should consider revising regulations to cover all utility costs for low-income communities particularly in light of cooling costs in extreme heat conditions.

¹⁹² See 42 U.S.C. § 5170c(a); Diane P. Horn, Cong. Rsch. Serv., R46989, *FEMA Hazard Mitigation: A First Step Toward Climate Adaptation* 4 (2022).

The program is intended to be flexible and support a broad swath of mitigation efforts. Pursuant to current HMGP regulations, eligible activities for funding are projects “of any nature that will result in protection to public or private property” and “include, but are not limited to” “structural hazard control or protection projects,” “construction activities that will result in protection from hazards,” “retrofitting of facilities,” and “property acquisition or relocation.”¹⁹³ The development of state, Tribal, and/or local mitigation plans are also eligible for HMGP funding, amounting up to 7 percent of the award.¹⁹⁴ As explained above, both extreme heat and wildfire smoke pose threats to critical energy and transportation infrastructure, as well as the habitability and usability of buildings, homes, and public and private spaces. HMGP funding can be directed toward the range of short-term and long-term mitigation measures that will result in the ultimate protection of property and their usability—and the communities impacted by disaster.

Once a wildfire disaster is declared, eligible state, local, Tribal, and nonprofit applicants could move swiftly to access funding for immediate wildfire smoke mitigation measures like providing air filtration systems for homes, schools, and healthcare facilities. Likewise, for short-term extreme heat mitigation measures, HMGP funding could be directed toward constructing cooling and water stations and shade structures at outdoor work locations (like farms and construction sites) and key public community centers. These crucial near-term solutions would serve to protect both the usability of property and disaster-stricken communities from the most immediate harm.

¹⁹³ 44 C.F.R. § 206.434(d)(2).

¹⁹⁴ 44 C.F.R. § 206.434(d)(1).

Under the most expansive approach to HMGP funding, these same subnational governments could also use the HMGP to invest in long-term heat and smoke mitigation measures. Common projects eligible for HMGP funding include structural retrofitting of existing buildings and mitigation reconstruction.¹⁹⁵ In the context of extreme heat and wildfire smoke, HMGP funds could be directed toward the construction of rooftop and community solar systems, storage, and microgrids, to protect the usability of buildings and homes to withstand extreme heat and smoke with consistent access to electricity for cooling and air filtration. This also could include retrofitting existing buildings to become community resilience hubs that maintain cooled temperatures and clean air through these disasters. It could also serve to construct green roofs and create green canopies in urban heat islands to protect those properties and communities most at risk of extreme heat. For example, greening highly urbanized neighborhoods by creating parks and planting appropriate vegetation would have a cooling effect in communities.

Finally, HMGP investments can also aid with the development of technical mitigation planning for subnational governments to identify at-risk populations and propose targeted plans to alleviate heat and smoke harms for those most vulnerable. This could support the strategic placement of clean energy systems and storage, community resilience hubs, and elimination of urban heat islands in low-income communities, communities of color, worker centers, and neighborhoods of other at-risk populations like the elderly, children, and people with pre-disposed illnesses.¹⁹⁶

¹⁹⁵ See, e.g., Fed. Emerg. Mgmt. Agency, *Homeowner's Guide to the Hazard Mitigation Grant Program*, <https://s29422.pcdn.co/wp-content/uploads/2018/12/Homeowners-Guide-to-the-Hazard-Mitigation-Grant-Program.pdf> (last visited May 8, 2024).

¹⁹⁶ See, e.g., Nino Kunzli et al., *Health Effects of the 2003 Southern California Wildfires on Children*, 174 *Am. J. Respiratory & Critical Care Med.* 1221 (2006), <https://www.atsjournals.org/doi/pdf/10.1164/rccm.200604-519OC>; Ralph J. Delfino et al., *The*

HMGP funding is awarded as a percentage of the total federal assistance provided for a given declaration on a sliding scale—generally, around 7.5 to 20 percent, depending on the amount of assistance and whether a state has a prior mitigation plan in place—and is typically subject to a 75-25 percent federal-subnational government cost share.¹⁹⁷ State, local, and Tribal governments may apply for HMGP funding, as may nonprofit organizations that operate educational, utility, emergency, medical, custodial or other essential government-type facilities.¹⁹⁸ HMGP activities are funded from the Disaster Relief Fund.

d. FMAG should also support subnational government response to wildfire smoke.

As a logical extension of the above arguments for wildfire smoke’s qualification as a major disaster, FMAG regulations should also be amended to explicitly authorize funding to address wildfire smoke threats. In addition to major disaster declarations, Section 420 of the Stafford Act created the FMAG program as an unique quasi-declaration “for the mitigation, management, and control of any fire on public or private forest land or grassland *that threatens such destruction as would constitute a major disaster*”¹⁹⁹ (emphasis added). As explained above, wildfire destruction extends beyond damage directly from flames to the extreme health effects, fatalities, property and other impacts of wildfire smoke. The statutory term “destruction” emanating from a fire is broad enough to include wildfire smoke impacts. Further, when paired with the above amendment to add wildfire smoke as a major disaster, the phrase “destruction as would

relationship of respiratory and cardiovascular hospital admissions to the southern California wildfires of 2003, 66 Occup. Env’t Med. 189 (2009).

¹⁹⁷ See 42 U.S.C. § 5170c(a); Horn, *supra* note 192, at 4–5.

¹⁹⁸ 44 C.F.R. §§ 206.434(a), 206.221(e) (defining the types of non-profit entities eligible for HMGP funding).

¹⁹⁹ 42 U.S.C. § 5187.

constitute a major disaster” logically encompasses wildfire smoke events. Further, FMAG regulations enumerate the management and mitigation activities that should be undertaken in response to a wildfire to “minimize the immediate adverse effects” of that fire.²⁰⁰ Wildfire smoke clearly qualifies as such an “immediate adverse effect.”

This Petition’s suggested amendments to FMAG regulations can explicitly clarify the FMAG funds are authorized to address wildfire smoke impacts. Local governments need comprehensive funding to address the full fatal consequences of a wildfire, extending to wildfire smoke both within a state where a wildfire originates and those communities beyond state boundaries, as the Northeast experienced in 2023 from Canadian wildfires and the Midwest already in 2024.

As discussed above, FMAG funding can be directed toward short- and long-term measures including air filtration systems and N95 masks in residences, community centers, and public buildings, as well as long-term retrofits like insulation and window sealings to tighten building envelopes from smoke infiltration. FMAG funding should also finance wrap-around services, including medical services on the most impacted communities. Federal assistance requires a 75-25 percent federal-subnational government cost share.²⁰¹ FMAG activities are funded from the Disaster Relief Fund.

e. FEMA Should Also Use Stafford Act Funding Incentives To Commit Subnational Governments to Strong Heat and Wildfire Smoke Worker Protections

The Stafford Act rewards subnational governments that pro-actively undertake hazard mitigation planning. State, local, and Tribal governments that complete a sufficient hazard mitigation plan receive increased federal cost shares for hazard

²⁰⁰ 44 C.F.R. § 204.3.

²⁰¹ 44 C.F.R. § 204.61.

mitigation measures.²⁰² FEMA provides technical and financial assistance to subnational governments that have “demonstrated the ability to form effective public-private natural disaster hazard mitigation measures” “that are cost-effective and are designed to reduce injuries [and] loss of life”²⁰³

These provisions give the federal government power to reward subnational governments that are proactive in protecting residents from disasters. Indeed, FEMA already advises subnational governments to prepare for extreme temperatures, including creating a response plan for heat events.²⁰⁴ In this case, FEMA should consider prioritizing major disaster funding for heat and wildfire smoke to subnational governments which commit to setting consistent, strong worker protection standards with which employers must comply. These standards should include the short- and long-term measures to protect workers from extreme heat and wildfire smoke, such as those contained in the Asunción Valdivia Heat Illness, Injury, and Fatality Prevention Act for extreme heat and a recent proposed emergency rule from nearly a dozen attorneys general for emergency heat worker standards triggered at 80°F.²⁰⁵

As this Petition has displayed, few people are at greater risk of injury and loss of life than workers forced to sweat through heat waves and breathe through smoke plumes. California, Colorado, Minnesota, Oregon, and Washington have established

²⁰² 42 U.S.C. § 5165(e).

²⁰³ 42 U.S.C. § 5133(b)–(c).

²⁰⁴ Fed. Emerg. Mgmt. Agency, *Guidance on Extreme Temperatures for State, Local, Tribal and Territorial Leaders* 1–2 (Aug. 2023), https://www.fema.gov/sites/default/files/documents/fema_guidance-extreme-temperatures-state-local-tribal-territorial-leaders.pdf.

²⁰⁵ Asunción Valdivia Heat Illness, Injury, and Fatality Prevention Act of 2023, H.R. 4897/S. 2501, 118th Cong. (2023); *see also* Attorneys General of New York, Arizona, Colorado, Connecticut, Illinois, Maine, Maryland, Massachusetts, New Jersey, Pennsylvania, and the District of Columbia, *Petition for an Emergency Temporary Standard for Occupational Heat Exposure for Farmworkers and Construction Workers* (Feb. 9, 2024), <https://ag.ny.gov/sites/default/files/2024-02/osha-multistate-petition.pdf>.

heat standards for indoor workers, and Minnesota and Oregon have expanded protections to indoor workers.²⁰⁶ For FEMA funding to maximize protections for occupational work, strong worker protection standards should be tied to major disaster funding for heat and wildfire smoke events.

VII. Conclusion

These may be the coolest days and the cleanest air of the 21st century—and it is already unbearably hot and unsafe for too many Americans. FEMA and the President have the legal authority to act now to save lives, reduce workplace risks, revolutionize our energy systems, and preserve access to the delicate temperature and air quality bands in which Americans can survive and thrive.

For the foregoing reasons, Petitioners request that FEMA initiate a rulemaking to promulgate regulations that will name extreme heat and wildfire smoke as eligible for major disaster declarations.

²⁰⁶ Occ. Safety and Health Admin., *Heat: Standards*, <https://www.osha.gov/heat-exposure/standards> (last visited May 8, 2024); Samantha Young, *California Is Poised to Protect Workers From Extreme Heat — Indoors*, KFF Health News, Jan. 3, 2024, <https://kffhealthnews.org/news/article/california-indoor-heat-regulations-worker-protection/>.

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Addendum 1: Proposed Regulations

FEMA Extreme Heat and Smoke Relief Rules

Amendment to 44 C.F.R. § 206.2(a)(17) in bolded text:

“Major disaster: Any natural catastrophe (including any hurricane, tornado, storm, high water, winddriven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, ☐ drought, **extreme heat event, or wildfire smoke event**), or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this Act to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby.”

Amendment to 44 C.F.R. § 204.21(a) in bolded text:

Determinations. FEMA will approve declarations for fire management assistance when the Administrator determines that a fire or fire complex on public or private forest land or grassland threatens such destruction, **including wildfire smoke resulting from such fire or fire complex**, as would constitute a major disaster.

Addendum 2: Petitioners' Interests

Alliance of Nurses for Healthy Environments

The Alliance of Nurses for Healthy Environments (“ANHE”) is the only national nursing organization whose primary focus is on the intersection of health and the environment. Currently, ANHE has over 9000 members in 50 states. ANHE’s mission is to promote healthy people and healthy environments by educating and leading the nursing profession, advancing research, incorporating evidence-based practice, and influencing policy. We believe that clean air, a stable climate, access to safe and clean drinking water, adequate sanitation and hygiene, safer chemicals, healthy workplaces, resilient and sustainable cities and built environments, sustainable agriculture practices and food systems, and access to green spaces and nature are all necessary for good health and a healthy planet.

In adhering to our mission of promoting healthy people and environments, we recognize that some communities and populations bear a disproportionately larger burden of climate change, pollution, and environmental risk due to historic structural and systematic barriers and these existing inequities influence overall health, well-being, and quality of life. These communities often face many barriers to adequately responding to the climate related events that are becoming more severe and more frequent, including heat and wildfires. The expansion of FEMA assistance to communities hit with these damaging events is in line with ANHE’s work in support of frontline communities and will lift up efforts to prevent disease and create more resilient communities.

The Amalgamated Transit Union

The Amalgamated Transit Union (“ATU”) is the largest labor union representing transit and allied workers in the U.S. Our 150,000+ American members provide vital links to work, school, and medical care – in all weather and under all environmental conditions. As extreme heat episodes worsen and wildfires become more common, ATU members face increased safety and health risks from inadequate climate control and poor air quality in vehicles and maintenance facilities. Transit systems often fail to prioritize these hazards, and funding to address them is scarce. Therefore, ATU supports the rulemaking petition to FEMA regarding major disaster declarations for extreme heat and wildfire smoke, both so that the communities where ATU members work can protect against these dangers and so that heat- and wildfire-related FEMA funding is dependent on state and local governments implementing effective workplace protections from heat and smoke. ATU members, and their passengers, need and deserve safe and smoke-free environments.

American Federation of Labor and Congress of Industrial Organizations

The American Federation of Labor and Congress of Industrial Organizations (“AFL-CIO”) is an unincorporated association of 60 national and international labor unions representing more than 12.5 million working people in every sector of the economy, including indoor and outdoor workers, in public and private sector workplaces, many affected by the dangers of heat and wildfire smoke exposures. AFL-CIO unions have diverse memberships, including workers in the construction, warehousing, manufacturing, education, transportation, and public transit, utility,

corrections, postal, hospitality, agriculture, food processing and production, and health care industries. High temperatures and wildfire smoke is dangerous to those workers. The AFL-CIO and its affiliates unions have been actively working to protect workers from these exposures through passage of state and local worker protection standards, development of a national standard, and adoption of other protective measures.

The Arizona Public Health Association

The Arizona Public Health Association is a member-driven nonprofit organization in Arizona dedicated to fostering evidence-based public health policies that improve the health and wellness in Arizona communities. With over 900 members, we are widely recognized as Arizona's independent voice for public health policies through legislative and administrative advocacy.

The Arizona Public Health Association is supportive of this petition to urge FEMA to classify heat and wildfire smoke as disasters under the Stafford Act. Currently FEMA does not, and this simple fix would allow Arizona state and local governments and communities to receive federal funds to address these disasters and better protect workers and overburdened communities.

Climate change is making large wildland fires and heat emergencies more frequent in Arizona. While wildland fires have posed a smoke threat during fire season for many decades, urbanization, land management and climate change are making these fires larger and because of population growth impacting more persons. Likewise, extreme heat is posing an increasing health burden in Arizona. Last summer there were more than 650 heat related deaths in Maricopa County alone. In fact, heat related deaths were the 10th leading cause of death in Arizona in 2023.

State and local communities have been stepping up their preparation to deal with these summertime health threats, but as time passes we expect climate change to make both of these health threats worse. We expect that some seasons will outstrip the state and local government's ability to deal with the threat. Adding heat and wildland fire smoke emergencies to the list of FEMA covered declared disasters under Stafford Act will help Arizona communities better plan for these rare, but we expect increasingly less rare, events.

Center for Biological Diversity

The Center for Biological Diversity (“the Center”) is a national non-profit organization with more than 1.7 million members and online activists who care about the country’s urgent need to expedite the renewable energy transition and protect human health, the natural environment, and species from the ravages of the climate emergency, extinction crisis, and environmental degradation. As part of that mission, the Center strives to reduce the environmental impacts of energy policy and development, including greenhouse gas emissions and harm to imperiled plants and wildlife.

The Center’s Energy Justice Program advocates for the urgently needed transition away from fossil fuels to just and resilient renewable energy, including maximizing distributed energy resources as a pathway to providing long-term adaptation and mitigation measures for climate change. This work encompasses projects urging FEMA to provide federal assistance to frontline

communities bearing the consequences of the climate crisis and who want to move to this distributed clean energy future.

Center for Popular Democracy

The Center for Popular Democracy (“CPD”) is a national organization committed to advancing equity, opportunity, and inclusive democracy in partnership with grassroots organizations, local organizing groups, and progressive unions. CPD’s vast membership is composed of working class, communities of color who face the brunt of the climate crisis by increasingly dangerous super storms, extreme flooding, wildfires, record breaking heat waves and many more devastating impacts. CPD’s combined membership of over a million people, many already living in cities and neighborhoods that have experienced decades of environmental racism, are amongst the most vulnerable to impacts scientist say will continue to intensify. CPD’s communities organize on a wide array of social justice issues like affordable housing, healthcare access, immigration, economic and worker justice — all of which the climate crisis serves as a threat multiplier.

As part of our mission the center for popular democracy advocates for policies that address the immediate needs of our communities while also seeking to address the root cause of issues. In the case of climate change this includes advocating for the urgently needed transition away from fossil fuels to just and resilient renewable energy, including maximizing distributed energy resources as a pathway to providing long-term adaptation and mitigation measures for climate change. This work encompasses projects urging FEMA to provide federal assistance to frontline communities bearing the consequences of the climate crisis and who want to move to this distributed clean energy future.

Climate Justice Alliance

The Climate Justice Alliance (“CJA”) is a member-based organization with 88 members represented across the United States, including Guam, Puerto Rico and Indigenous territories. Our translocal organizing strategy and mobilizing capacity is building a Just Transition away from an extractive fossil fuel based economy towards resilient, regenerative, and equitable economies reliant on community led-renewable, distributed, and climate-resilient energy infrastructure.

Part of CJA’s Just Transition strategy is also engaging in Just Recovery work. When disasters like extreme heat and wildfire smoke overburden communities, our alliance directs rapid response mutual aid to ensure that identified needs can be met to address fatal consequences. By offering financial support, we are also working to build better, more just, and resilient communities. We believe that FEMA should lead with ambition and provide long-term adaptation and mitigation strategies for frontline communities to rebuild without the need for fossil fuel infrastructure. Those funds could then be put into community controlled renewable energy sources and sound strategies that have been proven to address the impact of the climate crisis without adding to historical harm for those on the frontlines.

Communication Workers of America

Members of the Communications Workers of America (“CWA”) are part of one of America’s largest and most diverse unions. CWA represents workers in private and public sector employment in over 1,200 chartered CWA local unions. CWA members work in the communications and information industries, the news media, the airlines, broadcast and cable television, public service, higher education, health care, manufacturing, high tech, the gaming industry, banking and more. Both extreme heat and wildfire smoke are serious health and safety issues affecting hundreds of thousands of CWA members across the country. CWA has long advocated for comprehensive workplace protections and for systemic changes to prevent and minimize the negative impacts of extreme heat and wildfire conditions.

CWA has had members who have died from preventable heat-related illness on-the-job and each year there are members who experience preventable cases of heat exhaustion and other heat-related illnesses. At particular risk are our outside plant technicians in telecommunications who build, maintain and repair the communications infrastructure; airlines passenger service agents working on the ramp engaged in heavy physical work loading and unloading baggage from aircraft and servicing planes; workers in poorly ventilated work locations without air conditioning in manufacturing plants; traffic enforcement agents directing traffic on streets in direct sun; news crews covering the news...including circumstances of extreme temperatures and high heat indices...carrying camera and other equipment; and public service workers for state and municipal agencies in a variety of job titles in motor vehicles, public health, protective services and others.

Acute and chronic exposures to wildfire smoke are an on-going and growing problem. The ‘seasons’ for wildfires have expanded, as have the geographic areas affected. Wildfire smoke affects CWA members on the job as well as in the communities where they live. CWA members in telecommunications working outdoors have repeatedly and increasingly had to work in areas affected by wildfires, sometimes working in environments where the wildfires are still smoldering. The toll on workers health continues to mount.

Farmworkers Association of Florida

The Farmworker Association of Florida (“FWAF”) is a 40-year old, statewide, non-profit, grassroots farmworker membership organization with five offices in Central and South Florida and a membership of over 20,000 Haitian, Hispanic and African American families and includes farmworkers who work in the vegetable, citrus, sod, tropical fruit, berry, fern and foliage industries in the state. The mission of the organization is to build power among farmworker and rural, low- income communities to respond to and gain control over the social, political, economic, workplace, health and environmental justice issue that impact their lives. The organization’s guiding vision is a social environment where farmworkers’ contribution, dignity, and worth are acknowledged, appreciated, and respected through economic, social, environmental and climate justice. This vision includes farmworkers being treated as equals, and not exploited and discriminated against based on race, ethnicity, immigrant status, gender, or socioeconomic status.

Fe y Justicia Worker Center

At Fe y Justicia Worker Center we believe every worker should have a safe and healthy workplace. We believe in a collective power to create change, which is why we are pleased to support and participate in the petition to modify the regulations of the Federal Emergency Management Agency. In an effort to protect workers, this measure would allow governments and communities to effectively manage and mitigate the devastating impacts of heat and smoke in a world where these weather events are increasing in frequency and severity, affecting millions of people as well as workers.

The urgency of this request becomes evident when considering last year's records; 2023 was marked as the hottest year on record, and heat waves are expected to be even more severe in 2024. These events not only pose a threat to the health and safety of workers but also to entire communities, especially those of color who suffer disproportionately in heat-affected urban areas. Additionally, increased wildfires due to warmer, drier conditions are generating toxic smoke that spreads beyond affected areas, impacting populations in multiple states and communities. It is essential to act now to address these challenges that not only have immediate consequences on people's health and well-being but also the economy and the health system as a whole. That is why Fe y Justicia Worker Center supports and supports this petition.

Food & Water Watch

Food & Water Watch (“FWW”) is a national non-profit membership organization headquartered in Washington, D.C., with approximately 1.4 million members nationwide. It was founded in 2005 to ensure access to clean drinking water, safe and sustainable food, and a livable climate. FWW uses grassroots organizing, policy advocacy, research, communications, and litigation to further its mission.

Fridays for Future NYC

Fridays For Future NYC is a youth-led grassroots organization in New York City advocating for climate justice and an end to the fossil fuel era. In June of last year, all of our members and classmates remember pausing classes because the air from wildfire smoke was unbreathable. Our classmates faced severe sicknesses, some hospitalized due to this smoke. We faced the hottest summer on record last year, and it will be the coolest one for the rest of our lives. It's time for FEMA to match the seriousness of these disasters with the appropriate classification.

Fridays for Future USA

Fridays For Future USA is a network of youth-led Fridays For Future chapters across the so-called U.S. and advocates for an end to the era of fossil fuel and for justice for our communities. It's time FEMA match the direness of extreme heat and wildfire smoke with the disaster classification they warrant.

Friends of the Earth

Friends of the Earth (“Friends”) is a tax-exempt organization as described in section 501(c)(3) of the Internal Revenue Code of 1986 and a not-for-profit corporation existing under the laws of the District of Columbia. Its national headquarters is in Washington, DC. Friends is a membership organization consisting of over 226,000 members, and more than 8.7 million activists nationwide. Friends is also a member of Friends of the Earth-International, which is a network of grassroots groups in 74 countries worldwide.

Its mission is to protect our natural environment, including air, water, and land, and to create a more healthy and just world. Friends utilizes public education, advocacy, legislative processes, and litigation to achieve its organizational goals. Its Climate and Energy Justice and Food and Agriculture programs are working to advance energy and food systems that center ecological integrity, environmental justice, and human rights. Friends has long advocated for climate mitigation and adaptation measures that hold polluters accountable, and protect communities hit first and worst by climate impacts, including severe heat.

GreenLatinos

GreenLatinos is a national non-profit that convenes an active comunidad of Latino/a/e leaders, emboldened by the power and wisdom of our culture, united to demand equity and dismantle racism, resourced to win our environmental, conservation, and climate justice battles, and driven to secure our political, economic, cultural, and environmental liberation. Founded in 2008, with over 600 members, we provide an inclusive table where our members can establish collaborative partnerships and networks to improve the environment and the well being of our communities. We envision a healthy and equitable society where communities of color are liberated from disproportionate environmental burdens, free to breathe fresh air, drink pure water, access clean transportation and enjoy our majestic public lands, ocean, and waters. We develop and advocate for policies and programs to advance this mission.

The Latino Climate Justice Framework (LCJF) was developed in 2022 by a coalition of 22 Latino/a/e organizations nationwide, and provides a comprehensive set of principles and policy recommendations for advancing environmental, economic, and racial justice in the face of the climate crisis. The LCJF centers the unique perspectives, needs, and priorities of Latino/a/e communities, who are often on the frontlines of environmental hazards and climate impacts, yet historically excluded from decision-making processes and the benefits of public investments. The rulemaking petition to FEMA aligns with the LCJF by pushing for federal resources to protect overburdened communities from climate impacts. Specifically, it advocates for applying an equity lens to FEMA and creating an “equity standard” to judge if grants increase equity. This petition directly supports the LCJF recommendation that FEMA revise policies to produce more equitable mitigation and preparedness fund distribution.

Green Workers Alliance

The Green Workers Alliance (“GWA”) is a national organization with more than 1,400 members who work in the renewable energy field, primarily on utility-scale solar and wind projects. These members travel across the country building projects and experience first-hand the impact of heat and wildfire smoke. They are outdoors all day, often in extreme conditions.

With the increase of extreme weather events, it is vital that FEMA recognize extreme heat and wildfire smoke as major disasters. This would unlock federal funding to protect front-line workers and the communities. This would have a major impact in protecting the health of front-line workers like GWA members who are building the nation’s clean energy future.

GRID Alternatives

GRID Alternatives (“GRID”) is the nation's largest nonprofit builder of community-powered solutions to advance economic and environmental justice through renewable energy. GRID partners with communities, utilities, industry, governments and public entities at federal, state, and local levels to design, administer, and implement distributed solar, battery storage, and clean mobility programs serving low-income, environmental justice, and tribal communities. For 20 years and across 18 states, and recently expanding into Puerto Rico, GRID’s communities-first approach has maximized benefits including resilience and local wealth-building for underserved communities who need and deserve clean, affordable energy. GRID achieves these results through direct installation, program administration, hands-on job training, entrepreneurship and capacity-building support, policy analysis and advocacy, and more.

The communities that GRID partners with are often hit first and worst with the impacts of natural and climate-driven disasters. GRID’s renewable energy work therefore increasingly prioritizes resilience measures for households, multifamily affordable housing facilities, and community hubs. GRID works with these communities and the nonprofits and public entities that serve them to develop, build, and maintain solar and storage projects, alongside aligned efficiency and beneficial electrification measures and workforce development, that can keep essential services running during outages or power shutoffs. GRID’s workforce development and entrepreneurship support initiatives strongly support safety and worker protections, including air quality and heat protections.

Labor Network for Sustainability

The Labor Network for Sustainability is a non-profit advocacy organization whose mission is to be a relentless force for urgent, science-based climate action by building a powerful labor-climate movement to secure an ecologically sustainable and economically just future where everyone can make a living on a living planet. We work with a wide community of allies from the labor, environmental, and climate justice movements to build a common understanding and common action on climate change. We have been frequently reported on the impact of climate-

change induced excess heat on working people and have supported many efforts by workers to protect themselves from excessive heat by union action.

Migrant Clinicians Network

Migrant Clinicians Network (“MCN”) is a national non-profit with the mission to create practical solutions at the intersection of vulnerability, migration, and health. MCN addresses health injustice and structural barriers to care by providing training, technical assistance, resources, and other support to clinicians who serve migrants, immigrants, and other marginalized communities. MCN has a 40-year history serving clinicians who provide safety-net primary care and widespread outreach to the most vulnerable in our communities including farmworkers. MCN also provides virtual case management directly to migrant patients who otherwise struggle to access care when they need it. As climate change exacerbates health inequities, MCN works with communities to bolster climate and disaster resilience with the most vulnerable members of the community in mind. MCN advocates for safety and health measures to protect immigrant workers who often have few regulatory protections despite exposure to environmental hazards and other inherent dangers of their occupations and the increased risks they face due to climate change.

National Council for Occupational Safety and Health

The National Council for Occupational Safety and Health is a national nonprofit federation of 26 community-based coalitions, representing over 3 million workers and families with a shared mission of ensuring that all workers can earn their living and return home safe and sound. While the central focus of our work is to prevent harm, we also deeply believe in resources and support for those who have been impacted by harmful working conditions - including suffering as a result of the climate crisis. Illness and death are becoming increasingly common as workers labor in triple digit temperatures and are exposed to fire and smoke. Workers and their communities need FEMA resources to protect communities from these disasters and help them recover in the aftermath of a disaster.

National Nurses United

National Nurses United (“NNU”), with 225,000 members nation-wide, is the largest union and professional association of registered nurses in the country. NNU members work as bedside health care professionals in hospitals and clinics across the country. As part of our mission as patient advocates, NNU recognizes that urgent action is needed to address the catastrophic health impacts of the climate crisis, including illnesses directly attributable to air pollution.

New York Communities for Change

New York Communities for Change (“NYCC”) is a non-profit community-based organization with 20,000 low- and moderate-income Black and Latinx members in New York City and Long Island, NY. NYCC advocates for safe and healthy communities for all – regardless of race or income level. Exposure to extreme heat and wildfire smoke, and compounding factors such as

instances of respiratory illness that exacerbate health impacts of extreme heat and wildfire smoke, disproportionately harm the NYCC membership base and other low-income communities of color. As a result, NYCC stresses the need for FEMA to classify extreme heat and wildfire smoke as disasters, so as to lessen the disproportionate health burdens experienced by the NYCC membership base.

Physicians for Social Responsibility

Physicians for Social Responsibility (“PSR”) is a national non-profit organization that works to protect human life from the gravest threats to health and survival, climate change and nuclear war. 24,000 members and e-activists and over 20 chapters nationwide contribute a health perspective to energy, environmental health, and nuclear weapons policy at the local, federal and international levels.

PSR’s Environment and Health Program strives to mitigate the worst of climate change by promoting investment in renewable energy and energy efficiency and advocating for federal policies that safeguard clean air and our climate. Extreme heat events contribute to poor health outcomes, such as heat exhaustion, heat stroke, and death, while smoke inhalation can cause symptoms such as headache, nausea, confusion, and loss of consciousness. These events will increase in frequency as climate change worsens and it should be FEMA’s duty to provide necessary aid for these emergencies.

The Service Employees International Union

The Service Employees International Union (“SEIU”) is a labor union of more than two million people in the United States (including in Puerto Rico) and Canada, and is the largest union of healthcare workers in the United States. More than half of SEIU’s two million members work in the healthcare industry, including as doctors, nurses, nursing assistants, technicians, therapists, home care providers, administrative staff, janitorial workers, and food service staff. SEIU is also one of the largest unions of public service employees, with more than one million local and state government workers, public school employees, bus drivers, and child care providers. SEIU also represents workers in the property service industries. Approximately 250,000 SEIU property service workers nationwide clean, maintain, and provide security for commercial office buildings, co-ops, and apartment buildings, as well as public facilities like theaters, stadiums, and airports.

Solar United Neighbors

With more than 800,000 members and supporters throughout the U.S., Solar United Neighbors (“SUN”) is a national 501(c)3 nonprofit organization formed in 2007 to represent the interests and needs of solar owners and those who would like to go solar. SUN provides objective, vendor-neutral consumer education to assist individuals and small businesses to install rooftop solar systems or to participate in a local community solar project. SUN’s advocacy is rooted in the premise that distributed solar (and storage) rooftop will drive down the costs of electricity for ratepayers, create thousands of good-paying local jobs, keep energy dollars local, strengthen

communities, benefit the environment, and help build a cost-effective, safe, and resilient electric grid for everyone.

Sunrise Movement

The Sunrise Movement is a youth movement to stop climate change and create millions of good jobs in the process. We unite to make climate change an urgent priority across America, end the corrupting influence of fossil fuel executives on our politics, and elect leaders who stand up for the health and wellbeing of all people.

Sunrise campaigns for a government-wide mobilization to build renewable energy, create green union jobs, and make communities more resilient to climate disaster. Revamping FEMA rules to include heat and wildfire smoke as disasters is an important tactic towards achieving that goal and saving lives, especially in communities on the frontlines of the crisis.

Transport Workers Union

The Transport Workers Union (“TWU”) represents more than 155,000 workers across the airline, railroad, transit, universities, utilities and services sectors. TWU members work as flight attendants, bus operators & mechanics, subway conductors, aircraft mechanics, school bus workers, aircraft ground crews, carmen, rail mechanics, Amtrak onboard service workers, bikeshare workers, and others. Many of these workers are required, by the nature of their jobs, to be outside or within non-climate controlled environments for long periods of time. They are also essential workers who are among the very last people sent home during emergencies. As a result, TWU members are often subject to extreme heat and wildfire smoke in the course of their work.

United Farmworkers Foundation

Since 2006, the United Farmworkers Foundation (“UFW Foundation”) has mobilized farm workers across the country to advocate for more equitable policies, such as immigration reform, pesticide protections, heat standards, wildfire standards, hazard pay and other worker protections. We engage constituents in systemic change to break the cycle of poverty while also providing critical services.

The UFW Foundation has successfully advocated for overtime pay in California, helped strengthen that state’s heat protection laws, and implemented emergency relief programs that resulted in the distribution of \$23 million in direct emergency relief assistance payments to farm workers from 2020 to 2022. In 2023, the UFW Foundation directly served at least 211,000 farm workers through immigration legal services, COVID-19 pandemic disaster relief, storm recovery services, and a call center for farm workers to call if their employers violated employment-related laws, among other services. Most recently, the UFW Foundation’s advocacy led to the passage of federal legislation that provided pandemic relief for farm workers nationwide and so far, has distributed over 60 million in relief assistance. As part of our mission to help protect farm workers throughout the country, the UFW Foundation advocates for policies that would help reduce the impact of climate change.

The UFW Foundation has long called for increased protections for outside workers, who are disproportionately affected by climate change. From unprecedented high temperatures, to a rise in the frequency and intensity of natural disasters, those most directly affected by climate change are farm workers, and their safety and our food security are at risk. Due to the physically demanding nature of agricultural work, farm workers laboring in the fields are extremely vulnerable to extreme heat and wildfires, facing health issues such as asthma, increased allergy symptoms, headaches, shortness of breath, chest pain, heart issues, heat exhaustion, heat stroke, and even death. This is why farm workers are particularly in need of federal disaster relief.

United Food and Commercial Workers International Union

The United Food and Commercial Workers International Union (“UFCW”) stands as a collective voice for over 1.2 million members across the retail (food/nonfood), meatpacking and food processing, healthcare, cannabis, distillery, and chemical industries. UFCW members across industries are exposed to extreme heat and smoke and that is why UFCW supports the inclusion of extreme heat and smoke as eligible major natural disaster under the Stafford Act.

Wildfire smoke and extreme heat are not new threats to the health and welfare of our members, but climate change and global warming have accelerated the harm to workers. UFCW’s interest and support for the Final Rulemaking Petition stem from the challenging conditions our members encounter while performing their job duties. A significant number of them are required to work outdoors during peak heat hours or in indoor settings ill-equipped to withstand extreme temperatures. Consequently, they often suffer from heat-related illnesses and a heightened risk of injuries.

The ramifications of extreme heat and wildfires extend beyond environmental degradation, profoundly affecting the livelihoods and well-being of union members. As temperatures rise to unprecedented levels, indoor and outdoor workers bear the brunt of enduring life-threatening heat-related illnesses. Likewise, the increasing frequency and intensity of wildfire place members at a heightened risk of respiratory ailments, and economic instability, as disruption to supply chains and infrastructure exacerbate financial hardships. The recognition of extreme heat and smoke as natural disasters holds significant implications for UFCW members across all represented sectors.

Utility Workers Union of America

The Utility Workers Union of America (“UWUA AFL-CIO”) commends the efforts to include Extreme Heat and Wildfire Smoke in FEMA’s Major Disaster Declarations through the Rulemaking Petition. Our members, who play a vital role in maintaining essential utility services, often face heightened risks and challenges during extreme weather events, including prolonged periods of extreme heat and exposure to hazardous wildfire smoke. By expanding the scope of major disaster declarations to encompass these events, FEMA can provide critical support and resources to affected communities, including assistance for utility restoration efforts, worker safety measures, and public health interventions. This proactive approach will help mitigate the impacts of extreme weather on utility workers and ensure the continued reliability of our nation’s utility infrastructure.

Workers Defense Project

Workers Defense Project is a statewide, member-led organization devoted to workers' rights and advocacy, chiefly aiming to build power among Texas construction workers. Its mission is to empower working migrants in Texas to achieve fair employment through education, direct services, organizing, and strategic partnerships. The abuse and discrimination that working migrants experience is not unique to the workplace and expands to virtually every facet of their lives, including the detrimental impact of natural disasters like wildfire and increased extreme temperatures caused by climate change. Working migrants face greater levels of vulnerability due to socioeconomic barriers which makes it harder for these communities to recover after disaster strikes. We have seen this happen too many times in Texas where vulnerable communities are still recovering from Winter Storm Uri, Hurricane Harvey, the Bastrop wildfires, and record-breaking triple-degree temperatures. It's time for change and we are proud to partner with The Center for Biological Diversity to compel FEMA to recognize heat and wildfire smoke as major disasters as a necessary first step to save lives.