September 28, 2021

ATTORNEY GENERAL RAOUL URGES EPA TO ADOPT MORE STRINGENT EMISSION STANDARDS FOR VEHICLES

Chicago — Attorney General Kwame Raoul, as part of a multistate coalition, urged the U.S. Environmental Protection Agency (EPA) to adopt more stringent greenhouse gas emission (GHG) standards for passenger cars and light trucks. The transportation sector accounts for nearly one-third of all GHG emissions in the United States. Reducing emissions from this sector is essential to stave off the worst effects of the climate crisis and to confront the inequitable distribution of climate change impacts, which have a disproportionate effect on low-income communities and communities of color. More stringent standards will also decrease fine particulate air pollution and ozone – two pollutants which cause significant adverse health impacts. According to EPA estimates, the proposed standards would – conservatively – result in between $86 billion and $140 billion of total net benefits.

"Greenhouse gas standards for passenger vehicles play a vital role in improving air quality and limiting the devastating effects of climate change," Raoul said. "I urge the EPA to adopt stronger emission standards, which will save consumers money and protect public health and the environment."

Already, Americans are witnessing the catastrophic results of climate change, whether it be wildfires and heat waves; extreme weather events and dramatic precipitation changes; or other changes that affect agriculture and food production. In 2020 alone, there were 22 billion-dollar weather events, the most recorded since the National Oceanic and Atmospheric Administration began tracking the cost of these disasters. The average annual number of billion-dollar events since 1980 is seven; the average number since 2015 is more than double at 15.1. More stringent vehicle emission standards like those proposed by the EPA also can directly improve health outcomes. Long-term exposure to particulate matter pollution is associated with up to 45,000 deaths annually. Recent studies show that air pollution may increase the vulnerability of individuals to contracting COVID-19 and may increase the severity and mortality risk from the virus.

GHG standards for passenger cars and light trucks are one of the best tools to reduce emissions, fight climate change, and protect public health. In the comment letter, Raoul and the coalition argue that:

- More stringent standards advance the objective of Section 202(A) of the Clean Air Act, which requires the EPA to reduce threats to public health and welfare from harmful air pollution.
- Automakers are well-positioned to meet the more stringent standards, as early as model year 2023, and the lead time is more than ample.
- The EPA's analysis, and the full record, supports the finalization of more stringent standards.

Joining Raoul in filing the comment letter are the attorneys general of California, Colorado, Delaware, the District of Columbia, Hawaii, Maine, Maryland, Massachusetts, Minnesota, Nevada, New Jersey, New Mexico, North Carolina, Oregon, Pennsylvania, Rhode Island, Vermont and Wisconsin; the cities of Denver, Los Angeles, New York, Oakland, California, San Francisco, and San Jose, California; and Denver County, Colorado.

COMMENTS OF STATES AND CITIES SUPPORTING EPA'S PROPOSAL TO STRENGTHEN ITS GREENHOUSE GAS EMISSION STANDARDS FOR NEW LIGHT-DUTY VEHICLES

September 27, 2021

Docket ID: EPA–HQ–OAR–2021–0208
via regulations.gov

INTRODUCTION

Our States and Cities[1] hereby submit these comments in response to the United States Environmental Protection Agency's ("EPA") notice of proposed rulemaking: Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards, 86 Fed. Reg. 43,726 ("Proposal"). We welcome EPA's reconsideration of its Safer Affordable Fuel-Efficient Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks ("SAFE 2") (85 Fed. Reg. 24,174 (April 30, 2020)), and we strongly support increasing the stringency of EPA's greenhouse gas ("GHG") emissions standards.

Strong standards are necessary now to stave off the worst effects of human-induced climate change and to confront inequitably distributed threats to public health and the environment from climate change as well as other pollution. From droughts to floods and from wildfires to hurricanes, our States and Cities are already experiencing the devastating impacts of climate change, which will continue to mount and compound with rising concentrations of GHGs in the atmosphere. EPA has long recognized that GHG emissions from new motor vehicles and new motor vehicle engines endanger public health and welfare, and, under Section 202(a) of the Clean Air Act, this recognition triggers a mandatory duty to reduce such emissions. The technologies necessary to reduce GHGs from new motor vehicles already exist and, in fact, are in wide use in the market today. The costs of these technologies are reasonable (and, in some cases, are declining), and the application of these technologies generally results in consumers saving money over the life of a new vehicle because the fuel savings substantially exceed the costs to consumers of the applied technology. Moreover, the societal benefits of more stringent standards significantly exceed the costs of those standards. There is, thus, every reason for EPA to act quickly to replace the unlawful and woefully inadequate SAFE 2 standards with more stringent ones that satisfy the agency's statutory mandate to reduce emissions of harmful air pollution.

[1] The States of California, Colorado, Connecticut, Delaware, Hawaii, Illinois, Maine, Maryland, Minnesota, Nevada, New Jersey, New Mexico, New York, North Carolina, Oregon, Rhode Island, Vermont, Washington, and Wisconsin; the Commonwealths of Massachusetts and Pennsylvania; the District of Columbia; the Cities and Counties of Denver and San Francisco; and the Cities of Los Angeles, New York, Oakland, and San Jose.

In the Proposal, EPA set forth three alternative sets of standards—a preferred alternative, a less stringent alternative (Alternative 1), and a more stringent alternative (Alternative 2). We urge EPA to adopt the most stringent standards for which the statutory requirement to provide adequate lead time is satisfied. EPA must give due regard to the facts that the necessary technologies have already been developed and brought to market and that automakers have had to plan for substantially more stringent standards in large portions of the global market as well as in the United States. In addition, many automakers already have substantial credit banks and the opportunity to add to those credit balances under the unlawfully weak SAFE 2 standards through model year (MY) 2022. The crediting flexibilities already built into the program—including the ability to trade, carry-forward, and carry-back—place automakers in even better positions to craft strategies to comply with more stringent standards.

For MY2023, automakers can comply with standards at least as stringent as EPA's preferred alternative without the use of the credit banks they will likely hold coming into that year. Those banks, including the windfall credits available under the SAFE 2 standards, support EPA's consideration of its Alternative 2 standards for MY2023 and underscore that EPA should not finalize standards less stringent than its preferred alternative for that model year. For MYs 2024 and later, there is adequate lead time for the Alternative 2 standards and for the proposed additional 10 grams/mile of stringency in MY2026. EPA should thus finalize those standards—the most stringent it proposed—for MYs 2024-2026.

As discussed in more detail below, the need for standards far more stringent than SAFE 2 is critically urgent. And the industry's ability to meet such standards and to cost-effectively reduce dangerous pollution is clear. We urge EPA to quickly adopt the rigorous standards that the circumstances, its statutory mandate, and the record demand.

BACKGROUND

A. Our States and Cities Confront a Growing Climate Crisis

Our States and Cities are currently experiencing the devastating effects of climate change. Just this summer, multiple deadly[2] heatwaves with record-breaking high temperatures ravaged the western United States. The West is also experiencing extreme drought conditions that threaten water security and fuel wildfires that have displaced thousands.[3] Meanwhile hurricanes of historic force swept across the southern and eastern United States—testing energy resilience and

[2] Sergio Olmos and Shawn Hubler, *Heat-Related Deaths Increase as Temperatures Rise in the West*, New York Times (July 9, 2021, updated July 28, 2021), https://www.nytimes.com/2021/07/09/us/heat-wave-deaths.html; Thomas Frank, *Heat Wave Death Toll Will rise with Thorough Count*, E&E News (July 23, 2021), https://www.scientificamerican.com/article/heat-wave-death-toll-will-rise-with-thorough-count/; Victoria Bekiempis, *Record-breaking US Pacific north-west heatwave killed almost 200 people*, The Guardian (July 8, 2021), https://www.theguardian.com/us-news/2021/jul/08/pacific-northwest-heatwave-deaths.

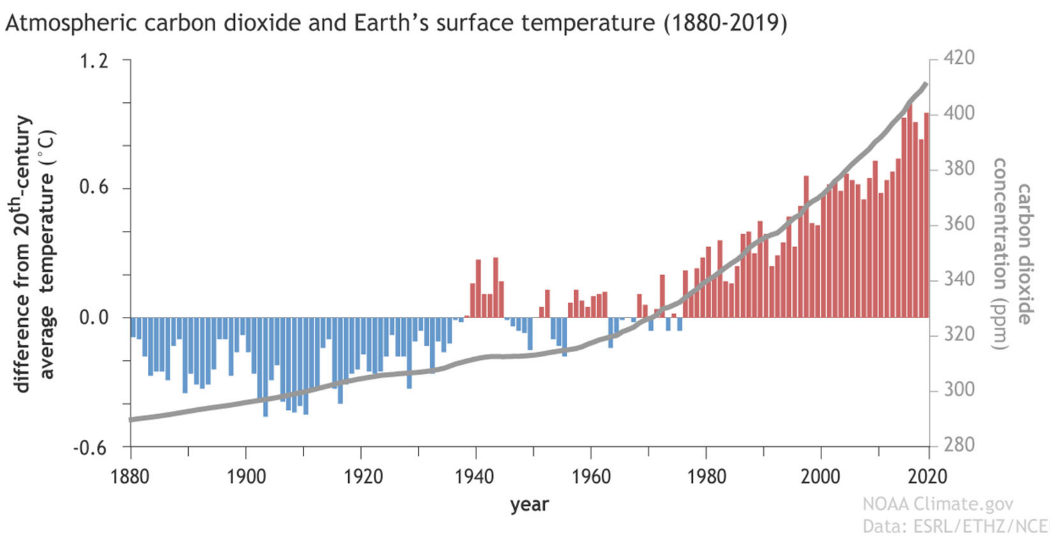
[3] *See e.g.*, Caroline Vakil, *2,000 people displaced in southern Oregon as wildfires ravage West*, The Hill (July 15, 2021), https://thehill.com/policy/energy-environment/563312-2000-people-displaced-in-southern-oregon-as-wildfires-ravage-west.

producing record-breaking rainfall and fatal flash floods.[4] These types of impacts have been linked to climate change caused by anthropogenic emissions of GHGs,[5] and they are projected to worsen.[6] As average surface temperatures rise and the intensity and frequency of these types of extreme weather events increases,[7] our States and Cities face direct and compounding challenges to protect the health and welfare of our residents, our economies, and our natural resources.

1. Temperature Increases

"The past six years, including 2020, have been the six warmest years on record,"[8] an already concerning statement only amplified by the Intergovernmental Panel on Climate Change's (IPCC) warning that "[g]lobal warming of 1.5°C and 2°C [above pre-industrial averages] will be exceeded during the 21st century unless deep reductions in CO_2 and other greenhouse gas emissions occur in the coming decades."[9] *See* Figure 1. The IPCC has found that GHG emissions from human activities are already responsible for about 1.1°C of warming since 1850-

Figure 1 (NOAA Climate.gov)



[4] *See e.g.*, Jesse McKinley, et al., *Flooding From Ida Kills Dozens of People in Four States*, The New York Times (Sept. 2, 2021, updated Sept. 15, 2021), https://www.nytimes.com/live/2021/09/02/nyregion/nyc-storm.

[5] *See e.g.*, Tom Di Liberto, *Record-breaking June 2021 heatwave impacts the U.S. West*, Climate.gov (June 23, 2021), https://climate.gov/print/838931; Sarah Kaplan, *How climate change helped make Hurricane Ida one of Louisiana's worst*, The Washington Post (Aug. 30, 2021), https://www.washingtonpost.com/climate-environment/2021/08/29/how-climate-change-helped-make-hurricane-ida-one-louisianas-worst/; Rebecca Lindsey, *Preliminary analysis concludes Pacific Northwest heat wave was a 1,000-year event…hopefully*, Climate.gov (July 20, 2021), https://www.climate.gov/news-features/event-tracker/preliminary-analysis-concludes-pacific-northwest-heat-wave-was-1000-year.

[6] *See* Richard P. Allan et al., *Climate Change 2021: The Physical Science Basis, Summary for Policymakers, Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (V. Masson-Delmotte et al., eds. 2021) ("IPCC, *Summary for Policymakers*").

[7] *Id.* at SPM-10-11.

[8] World Meteorological Organization, *State of the Global Climate 2020* 5 (2021).

[9] IPCC, *Summary for Policymakers*, *supra* note 6, at SPM-17.

1900[10] and that "[h]uman influence has warmed the climate at a rate that is unprecedented in at least the last 2000 years."[11] In other words, the world is getting hotter due to increased concentrations of GHGs in the atmosphere that are "unequivocally caused by human activities."[12]

As temperatures rise, threats to public health and the environment in our States and Cities continue to mount. For example, "[w]ith higher temperatures, [hospital] admissions for acute renal failure, appendicitis, dehydration, ischemic stroke, mental health, noninfectious enteritis, and primary diabetes were significantly increased."[13] And "[m]ortality effects are observed even for small differences from seasonal average temperatures."[14] These types of heat-related health and mortality risks are not equally distributed. Socially-vulnerable populations—including children, the elderly, low income, and minority populations—experience greater impacts from higher temperatures.[15] For instance, "the average person of color lives in a census tract with higher summer daytime surface urban heat island (SUHI) intensity than non-Hispanic whites in all but 6 of the 175 largest urbanized areas in the continental United States."[16]

"Warmer temperatures [also] contribute to the severity of drought conditions by leading to more precipitation falling as rain rather than snow, faster melting of winter snowpack, greater rates of evaporation, and drier soils."[17] This can result in, among other impacts, the degradation of water security[18] and ecological vulnerabilities.[19] As shown in Figure 2, a significant portion of the western U.S. is currently experiencing extreme or exceptional drought. Drought conditions are particularly severe in California, where nearly 90% of the State is facing at least extreme drought

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[10] *Id.* at SPM-6.
[11] *Id.* at SPM-7.
[12] *Id.* at SPM-5.
[13] Toki Sherbakov, et al., *Ambient temperature and added heat wave effects on hospitalizations in California from 1999 to 2009*, 160 Environmental Research 83, 83 (2018); *see also* Louise Bedsworth et al., California Governor's Office of Planning and Research, *Statewide Summary Report. California's Fourth Climate Change Assessment* 38 (2018) ("High ambient temperatures have been shown to adversely affect public health via early death (mortality) and illness (morbidity).").
[14] Marcus C. Sarofim et al., U.S. Global Change Research Program, *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment, Chp. 2* 44 (2016).
[15] *See* U.S. Environmental Protection Agency, *Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts* 32-36 (2021), available at www.epa.gov/cira/social-vulnerability-report; U.S. Global Change Research Program, *supra* note 14, at 45; Angel Hsu et al., *Disproportionate exposure to urban heat island intensity across major U.S. cities*, Nature Communications 8 (2021), available at https://doi.org/10.1038/s41467-021-22799-5 ("Currently disadvantaged groups suffer more from greater heat exposure that can further exacerbate existing inequities in health outcomes and associated economic burdens, leaving them with fewer resources to adapt to increasing temperature.").
[16] Hsu, et al., *supra* note 15, at 2.
[17] Gabriel Petek, California Legislative Analyst's Office, *What Can We Learn From How the State Responded to the Last Major Drought?* 2 (May 2021).
[18] *Public Health*, Drought.gov, https://www.drought.gov/sectors/public-health (last visited Sept. 19, 2021).
[19] Shelley D. Crausbay et al., American Meteorological Society, *Defining Ecological Drought for the Twenty-First Century* 2545 (December 2017).

and about 45% of the State is experiencing exceptional drought.[20] The 2021 year-to-date statewide average temperature in California is almost the warmest on record,[21] and precipitation and snowpack levels in the State are well below average.[22] These conditions are impacting the State's water supply at major reservoirs, nearly all of which have far less water than the historical average as of September 2021.[23] Moreover, "[f]orests are especially vulnerable to drought in a warming world."[24] For example, California's 2012-2015 drought killed more than 100 million trees, mainly in the Sierra Nevada forest.[25] The forest density and warmer temperatures "compound[ed] die-off by an estimated 55%," and "climate change is expected to . . . increas[e] Sierran tree death during drought by 15-20%" for each additional degree of warming.[26] And "[w]hen a drought drives changes within ecosystems, there can be a ripple effect through human communities that depend on those ecosystems for critical goods and services."[27]

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[20] David Simeral, Western Regional Climate Center, *U.S. Drought Monitor, California (September 7, 2021)*, (Sept. 9, 2021), available at https://droughtmonitor.unl.edu/data/png/20210907/20210907_ca_trd.png.

[21] Nat'l Oceanic and Atmospheric Admin., *Climate at a Glance: Statewide Time Series* (Sept. 2021), available at https://www.ncdc.noaa.gov/cag/statewide/rankings/4/tavg/202108.

[22] Nat'l Oceanic and Atmospheric Admin., *Percent of Average Precipitation 10/1/2020 – 9/18/2021*, https://wrcc.dri.edu/cgi-bin/anomimage.pl?wrcOctPpct.png (last visited Sept. 9, 2021); Cal. Dept. of Water Resources, *Statewide Snowpack Well Below Normal as Wet Season Winds Down* (Apr. 1, 2021), https://water.ca.gov/News/News-Releases/2021/April-21/Statewide-Snowpack-Well-Below-Normal-as-Wet-Season-Winds-Down.

[23] Cal. Dept. of Water Resources, *Current Reservoir Conditions*, https://cdec.water.ca.gov/cgi-progs/products/rescond.pdf (last visited Sept. 19, 2021).

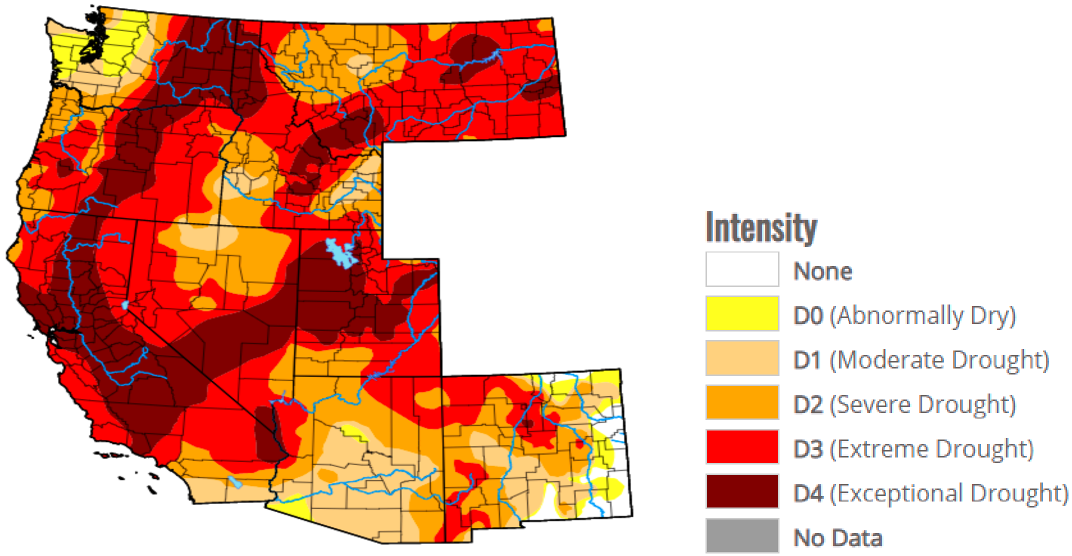
[24] Gavin D. Madakumbura et al., *Recent California tree mortality portends future increase in drought-driven forest die-off*, 15 ENVIRON. RES. LETT. 1 (2020).

[25] Associated Press, *California drought kills more than 102 million trees, raising risk of wildfires*, Washington Post (Nov. 18, 2016), available at https://www.washingtonpost.com/national/california-drought-kills-more-than-102-million-trees-raising-risk-of-wildfires/2016/11/18/03a37e68-adaf-11e6-977a-1030f822fc35_story.html.

[26] M.L. Goulden and R.C. Bales, *California forest die-off linked to multi-year deep soil drying in 2012-2015 drought*, 12 NATURE GEOSCIENCE 632, 632 (Aug. 2019).

[27] Crausbay, et al., *supra* note 19, at 2543.

Figure 2 (U.S. Drought Monitor, map of U.S. West as of August 26, 2021)



2. <u>Wildfires</u>

Rising temperatures combined with drier conditions are also increasing the risk of wildfires.[28] "[T]he number of hot days is climbing; forests and grasslands are dried out by increased evaporation; the growing season is lengthening (providing available fuel for longer periods); and snowpack is melting earlier."[29] These conditions have significantly enhanced the size of wildfires and length of the wildfire season. "[S]ince 1984, human-induced climate change is responsible for doubling the cumulative area of forest fires across the western United States."[30] "Since the 1970s, the annual average wildfire season in the Western United States has expanded from five months to 8.5 months long."[31] "It now burns six times as many acres and consists of three times as many large fires—those defined as more than 1,000 acres."[32] And "[c]limate models project a continued increase in the frequency and intensity of wildfires with rising temperatures."[33]

Consistent with this projection, the 2020 wildfire season was unprecedented. For example, wildfires in Colorado burned more than 665,000 acres—more than in any previous year—and the

[28] IPCC, *Summary for Policymakers*, *supra* note 6, at SPM-33-34; U.S. Global Change Research Program, *Fourth National Climate Assessment, Volume II: Impacts, Risks, and Adaptation in the United States* 241 (D.R. Reidmiller et al. eds., 2018); Zachary A. Holden, et al., *Decreasing fire season precipitation increased recent western US forest wildfire activity*, 115 PNAS E8349, E8349 (Sept. 4, 2018) ("[D]eclines in summer precipitation and wetting rain days have likely been a primary driver of increases in wildfire area burned.").
[29] Marcy Lowe and Rebecca Marx, Datu Research, *Climate Change-Fueled Weather Disasters: Costs to State and Local Economies* 53 (July 2020).
[30] *Id*.
[31] *Id*.
[32] *Id*.
[33] *Id*. at 54.

State's record for largest wildfire was broken twice.[34] Historic wildfires also burned 10.2 million acres across California, Oregon, and Washington.[35] With 4.1 million acres blazed, California more than doubled its previous annual record for area burned.[36] The State also experienced five of the top six largest wildfires on record in 2020[37]—a record already broken in 2021.[38]

These massive wildfires have broad impacts across our States and Cities. The 2020 wildfires—which conservatively cost an estimated $16.5 billion[39]—put 500,000 Oregonians (more than 10% of the state's population) under evacuation warnings or orders,[40] led to the displacement of about 100,000 people in California,[41] and killed 46 people in California, Oregon, and Washington.[42] In the Pacific Northwest, more than 17 million people experienced air quality deemed 'very unhealthy' or 'hazardous' for an average of 4 days,[43] a worrisome statistic given that "wildfire-specific PM2.5 is up to 10 times more harmful on human health than PM2.5 from other sources."[44,45] This public health concern grows as the frequency and intensity of wildfires increase and is not limited to States where the wildfires are burning. The rising heat from the wildfires takes particulate matter and toxic gases in the smoke into the jet stream, which can carry those hazardous substances thousands of miles and cause harmful air pollution across the country. This happened during the 2020 wildfire season and again in July of 2021, when smoke

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[34] John Ingold, *Five charts that show where 2020 ranks in Colorado wildfire history*, The Colorado Sun (Oct. 20, 2020), https://coloradosun.com/2020/10/20/colorado-largest-wildfire-history/.
[35] Smith, *supra* note 35.
[36] *Id*.
[37] *Id*.
[38] Hayley Smith, *California hit by record-breaking fire destruction: 'Climate change is real, it's bad,'* Los Angeles Times (July 12, 2021), https://www.latimes.com/california/story/2021-07-12/california-wildfires-outpacing-2020-worst-on-record.
[39] *Id*.; *Billion-Dollar Disasters: Calculating the Costs*, Nat'l Oceanic and Atmospheric Admin., https://www.ncdc.noaa.gov/monitoring-references/dyk/billions-calculations (last visited Sept. 20, 2021).
[40] Associated Press, *Oregon wildfires: 1 million acres burned; 500,000 people under some level of evacuation order*, KPTV (Sept. 11, 2020), https://www.kptv.com/news/oregon-wildfires-1-million-acres-burned-500-000-people-under-some-level-of-evacuation-order/article_e355b7ae-f3cb-11ea-a6ce-93011907052d.html.
[41] World Meteorological Organization, *supra* note 8, at 36.
[42] Adam B. Smith, *2020 U.S. billion-dollar weather and climate disasters in historical context*, Climate.gov (Jan. 8, 2021), https://www.climate.gov/print/837056.
[43] Audrey Carlsen et al., *1 in 7 Americans Have Experienced Dangerous Air Quality Due to Wildfires This Year*, NPR (Sept. 23, 2020), https://www.npr.org/2020/09/23/915723316/1-in-7-americans-have-experienced-dangerous-air-quality-due-to-wildfires-this-ye#:~:text=Environment-,1%20In%207%20Americans%20Have%20Experienced%20Dangerous,Due%20To%20Wildfires%20This%20Year&text=Colorado%20State%20University-,A%20satellite%20image%20shows%20smoke%20and%20some%20of%20the,in%20Western%20states%20on%20Sept.
[44] Rosana Aguilera, et al., *Wildfire smoke impacts respiratory health more than fine particles from other sources: observational evidence from Southern California*, NATURE COMMUNICATIONS, Mar. 5, 2021, at 3, available at https://doi.org/10.1038/s41467-021-21708-0.
[45] Smoke from wildfires has also been found to exacerbate risks associated with the COVID-19 virus, and one study found that "[t]housands of COVID-19 cases and deaths in California, Oregon, and Washington between March and December 2020 may be attributable to increases in fine particulate air pollution (PM2.5) from wildfire smoke." Karen Feldscher, *Link Between Wildfires and COVID cases established*, The Harvard Gazette (Aug. 13, 2021), https://news.harvard.edu/gazette/story/2021/08/wildfire-smoke-linked-to-increase-in-covid-19-cases-and-deaths/.

from wildfires burning on the West Coast caused New York City to experience some of the worst air quality in the world.[46]

3. Extreme Weather Events

Extreme weather events pose innumerable threats to our States and Cities—from increased health risks and death, damage to infrastructure, and water scarcity,[47] to economic damage and impacts to the energy system that "threaten[] more frequent and longer-lasting power outages and fuel shortages."[48] And "[w]ith every additional increment of global warming, changes in extremes continue to become larger."[49] "For example, every additional 0.5°C of global warming causes clearly discernible increases in the intensity and frequency of hot extremes, including heat waves (*very likely*), and heavy precipitation (*high confidence*), as well as agricultural and ecological droughts in some regions (*high confidence*)."[50] "The proportion of intense tropical cyclones (categories 4-5) and peak wind speeds of the most intense tropical cyclones are projected to increase at the global scale with increasing global warming (*high confidence*)."[51]

Not only are the frequency and intensity of extreme weather events increasing, but so too are the costs. *See* Figure 3. On average, there were 7 billion-dollar extreme weather events per year in the United States between 1980-2020 with an average annual cost of $45.7 billion; however, over the past 5 years, the average number of events per year increased to 16, with an average annual cost of $121 billion.[52] In 2020—"a historic year of extremes"[53]—"[t]here were 22 separate billion-dollar weather and climate disasters across the United States, shattering the previous annual record of 16 events" and "cost[ing] the nation a combined $95 billion in damages."[54] And these costs "do not take into account losses to natural capital or assets, health care related losses, or values associated with loss of life,"[55] meaning these estimates "should be considered conservative."[56]

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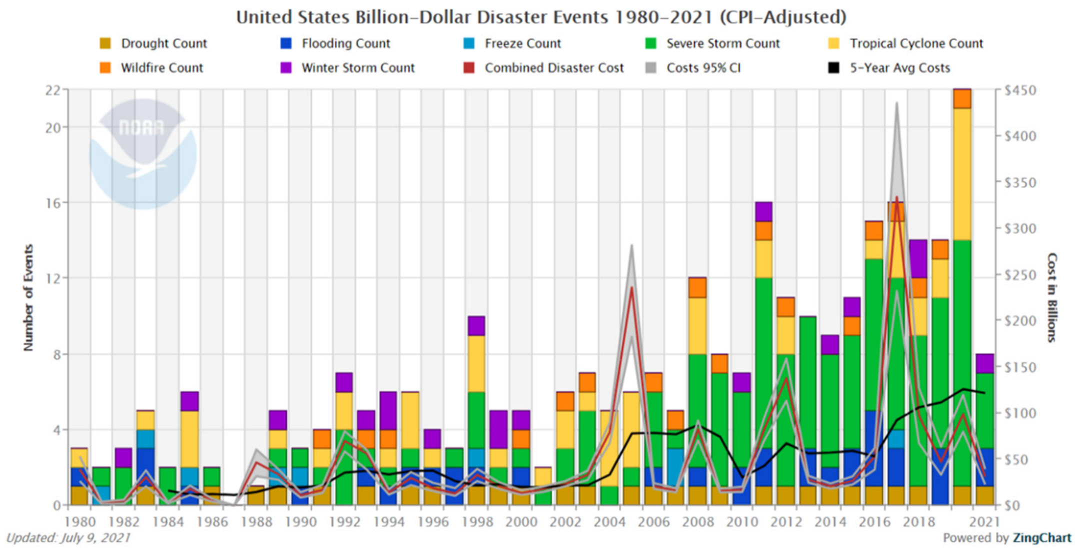
[46] Oliver Milman, *New York air quality among worst in world as haze from western wildfires shrouds city*, The Guardian (July 21, 2021), https://www.theguardian.com/us-news/2021/jul/21/new-york-air-quality-plunges-smoke-west-coast-wildfires.
[47] World Meteorological Organization, *supra* note 8, at 31.
[48] U.S. Global Change Research Program, *supra* note 28, at 176.
[49] IPCC, *Summary for Policymakers*, *supra* note 6, at SPM-19.
[50] *Id*. at SPM-19.
[51] *Id*. at SPM-20.
[52] Smith, *supra* note 35.
[53] *Id*.
[54] *Id*.
[55] Nat'l Oceanic and Atmospheric Admin., *supra* note 39. The estimated costs include physical damage to residential, commercial, and government or municipal buildings; material assets within a building; time element losses like interruption; vehicles and boats; offshore energy platforms; public infrastructure like roads, bridges, and buildings; agricultural assets like crops, livestock, and timber; and disaster restoration and wildfire suppression costs.
[56] *Id*.

Figure 3 (*NOAA National Centers for Environmental Information, chart updated July 9, 2021 (costs do not include June 2021 Western Drought and Heatwave*).



These costs, which are partially borne by our affected States and Cities, reflect the breadth of impacts and rippling effects of extreme weather events. For example, in 2020, Hurricane Isaias made landfall in North Carolina, producing storm surge inundation levels of 3 to 6 feet above ground level along the southern coast of North Carolina[57] before accelerating up the East Coast. After unleashing 5-8 inches of rainfall across Virginia, Maryland, Delaware, and western New Jersey, causing flooding across those states,[58] the storm's winds cut power to nearly 3.5 million customers—affecting roughly 1.4 million customers in New Jersey, 512,000 in New York, 380,000 in Pennsylvania, 264,000 in Connecticut, 218,000 in Virginia, 134,000 in North Carolina, 76,000 in Maryland, 51,000 in Delaware, 12,000 in Massachusetts, 6,000 in Vermont, and 4,000 in Rhode Island.[59] Hurricane Isaias also spawned 39 confirmed tornadoes from North Carolina to New Jersey[60] and killed a total of 9 people.[61] More recently, in June 2021, a heat dome described as "virtually impossible without human-caused climate change"[62] descended upon the Pacific Northwest and brought record-shattering temperatures as high as 108°F in Seattle, Washington, 116°F in Portland, Oregon, and 118°F in Dallesport, Washington—the

[57] Andy Latto, et al., *Hurricane Isaias*, NOAA National Hurricane Center 8 (June 11, 2021), available at https://www.nhc.noaa.gov/data/tcr/AL092020_Isaias.pdf.
[58] *Id*.
[59] PowerOutage.us (@PowerOutage_us), Twitter (Aug. 4, 2020 1:19 PM), https://twitter.com/PowerOutage_us/status/1290744180956901379.
[60] Latto, *supra* note 57, at 10.
[61] Jason Samenow, *Millions left in the dark and historic floods: Isaias by the numbers*, The Washington Post (Aug. 5, 2020), https://www.washingtonpost.com/weather/2020/08/05/isaias-power-outages/.
[62] *Western North American extreme heat virtually impossible without human-caused climate change*, World Weather Attribution (July 7, 2021), https://www.worldweatherattribution.org/western-north-american-extreme-heat-virtually-impossible-without-human-caused-climate-change/.

highest temperature ever recorded in Washington.[63] The extreme heat not only killed billions of intertidal species along the Pacific Northwest coast,[64] but it also resulted in the confirmed deaths of at least 96 people in Oregon[65] and 112 people in Washington.[66] "Extreme heat is already a leading cause of mortality in the United States, but without adaptation, deaths could increase more than sixfold."[67] And, as with rising average temperatures, the effects of extreme heat are not evenly distributed: "Black and African American individuals are 40% more likely than non-Black and non-African American individuals to live in areas with the highest projected increases in extreme temperature related mortality with 2°C of global warming."[68] "With 4°C of global warming, this estimate increases to 59%."[69]

Our States and Cities face mounting threats from a climate crisis that is primarily caused by anthropogenic emissions of GHGs. As the transportation sector accounts for about 29% of the GHG emissions in the United States,[70] that sector must be rigorously addressed. We, thus, welcome EPA's proposal to implement more stringent GHG emissions standards for light-duty vehicles and urge the agency to continue actions to reduce these emissions from this sector.

B. Our States and Cities Continue to Confront Challenges to Protect Public Health from Poor Air Quality

Reducing other forms of pollution—including criteria air pollution (such as fine particulate matter (PM2.5) and ozone) and emissions of toxic air pollutants—is also critical.[71] Our States and Cities are committed to those reductions,[72] but federal involvement is necessary to help

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[63] Jason Samenow and Ian Livingston, *Canada sets new all-time heat record of 121 degrees amid unprecedented heat wave*, The Washington Post (June 29, 2021), https://www.washingtonpost.com/weather/2021/06/27/heat-records-pacific-northwest/.

[64] Stephen Leahy, *The Billions of Victims of the Heat Dome*, The Atlantic (July 31, 2021), https://www.theatlantic.com/ideas/archive/2021/07/billions-victims-heat-dome/619604/.

[65] Amelia Templeton and Monica Samayoa, *Oregon medical examiner releases names of June heat wave victims*, OPB (Aug. 6, 2021), https://www.opb.org/article/2021/08/06/oregon-june-heat-wave-deaths-names-revealed-medical-examiner/.

[66] John Ryan, *2021 heat wave is now the deadliest weather-related event in Washington history*, NPR (July 19, 2021), https://www.kuow.org/stories/heat-wave-death-toll-in-washington-state-jumps-to-112-people.

[67] Atlantic Council, *Extreme Heat: The Economic and Social Consequences for the United States* 8 (Aug. 2021).

[68] EPA, *supra* note 15, at 35.

[69] *Id*.

[70] *Sources of Greenhouse Gas Emissions*, U.S. Environmental Protection Agency, (last updated July 27, 2021), https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#:~:text=Transportation%20(29%20percent%20of%202019,ships%2C%20trains%2C%20and%20planes.

[71] EPA does not quantify the PM2.5 and ozone-related health impacts of the Proposal and does not estimate the monetary value of changes in incidence of health and welfare effects, such as premature mortality, hospital admissions for respiratory and cardiovascular causes, emergency room visits for asthma, etc. The expected quantified benefits provided in previous rulemakings support the need for the standards EPA is proposing here. *See, e.g.*, 77 Fed. Reg. 62,624, 62,931–62,938 (Oct. 15, 2012); 75 Fed. Reg. 25,324, 25,525–25,531 (May 7, 2010).

[72] As one example, Washington's recently passed Climate Commitment Act requires actions be taken to reduce criteria pollutants and GHG emissions and seeks "to identify overburdened communities where the highest concentrations of criteria pollutants occur, determine the sources of those emissions and pollutants, and pursue significant reductions of emissions and pollutants in those communities." Wash. Rev. Code Ann. § 70A.002.001(7) (West 2021).

States attain the National Ambient Air Quality Standards (NAAQS)[73] and to reduce emissions that are outside our control. As EPA projects, more stringent standards will decrease criteria pollutant and air toxic emissions, as well as GHG emissions, and these reductions are critical to meeting our States' and Cities' public health and environmental justice goals and protecting our residents.[74]

1. <u>Particulate matter and ozone pollution negatively impact human health</u>

EPA projects overall reductions in PM2.5 and reductions in upstream nitrogen oxides (NOx) (an ozone precursor) beginning in 2023, and overall (net) reductions in NOx from 2028 on. 86 Fed. Reg. at 43,779–43,780. All of these reductions are crucial to avoid adverse health consequences, including premature mortalities.[75] Short- and long-term PM2.5 exposures result in mortality risk, cardiovascular harms and adverse respiratory effects.[76] In California alone, over 5,000 premature deaths and hundreds of illnesses and emergency room visits for respiratory and cardiovascular disease are linked to PM2.5 pollution.[77] Even in areas presently attaining the NAAQS, two studies showed that long-term PM2.5 exposures are associated annually with up to 45,000 deaths, and 14,600 ischemic heart disease deaths, respectively,[78] and thus, even a modest reduction of PM2.5 pollution will have beneficial impacts. For example, decreases in PM2.5 are significantly associated with lower asthma incidence.[79] Recent studies also show that air pollution, including long-term PM2.5 exposure, may increase the vulnerability of individuals to

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[73] For example, California's South Coast Air Basin ability to attain the ozone standard in 2023 will require reductions from federal measures. CARB, *Revised Draft 2020 Mobile Source Strategy* 14, 68 (Apr. 23, 2021), available at https://ww2.arb.ca.gov/sites/default/files/2021-04/Revised_Draft_2020_Mobile_Source_Strategy.pdf.

[74] EPA, *Revised 2023 and Later Model Year Light-Duty Vehicle GHG Emissions Standards, Regulatory Impact Analysis* 7-2 (Aug. 2021), https://www.epa.gov/system/files/documents/2021-08/420r21018.pdf.

[75] Ozone Transport Commission, OTC Modeling Committee, *Analysis of the Potential Health Impacts of Reducing Ozone Levels in the OTR Using BenMAP – 2020 Edition* (Sept. 16, 2019); Office of Massachusetts Attorney General Maura Healey, *COVID-19's Unequal Effects in Massachusetts* 6 (2020) (describing that eliminating human-generated emissions from the City of Boston would reduce PM2.5 and ozone concentrations throughout the region, leading to a decrease in morbidity and mortality and saving the region billions of dollars); Leah Burrows, *Deaths from fossil fuel emissions higher than previously thought*, Harvard John A. Paulson School of Engineering and Applied Sciences (Feb. 9, 2021), https://www.seas.harvard.edu/news/2021/02/deaths-fossil-fuel-emissions-higher-previously-thought (reporting on recent study finding that more than 8 million people died in 2018 from fossil fuel pollution).

[76] EPA, *Policy Assessment for the Review of the National Ambient Air Quality Standards for Particulate Matter* 3-18 – 3-19, 3-101, 3-104, 3-113 (Jan. 2020) (discussing studies finding statistically significant associations between harm to health and annual exposures below 12 µg/m3).

[77] CARB, *supra* note 73, at 18.

[78] EPA, *supra* note 76, at 3-93.

[79] Erika Garcia, et al., *Association of Changes in Air Quality with Incident Asthma in Children in California, 1993-2014*, 321 JAMA 19:1906-1915 (2019).

contracting COVID-19 and may increase the severity and mortality risk from the virus.[80] Ozone pollution leads to similar negative health effects, especially for respiratory health.[81]

The mobile source sector is a major cause of these health impacts because it is one of the largest contributors of PM2.5 and ozone-forming emissions in the United States.[82] In some urban areas, mobile sources account for 13 to 30% of the total primary PM2.5 emissions.[83] In California, more than half of the PM2.5 pollution is produced by mobile sources.[84] Mobile sources are also the number one contributor to high ozone levels in the Ozone Transport Region.[85] The mobile source pollution concentrated near major roadways exposes nearby communities to additional health risks, including by contributing to and exacerbating asthma, impairing lung function, and increasing cardiovascular mortality.[86] In Philadelphia, for example, some of the most polluted areas are along major highways or zones with heavy traffic, and the most polluted zip codes also have the largest number of lung cancer patients.[87]

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[80] Michael Petroni, et al., *Hazardous air pollutant exposure as a contributing factor to COVID-19 mortality in the United States*, ENVIRON. RES. LETT. 15 0940a9 (2020) (analysis indicating that chronic, cumulative exposure to hazardous air pollutants at below reference concentration levels may increase vulnerability to COVID-19 mortality); Donghai Liang, et al., *Urban Air Pollution May Enhance COVID-19 Case-Fatality and Mortality Rates in the United States* (2020) (finding significant associations between NO2 and COVID-19 case-fatality and mortality rates); X. Wu, et al., *Air pollution and COVID-19 mortality in the United States: Strengths and limitations of an ecological regression analysis*, 6 SCI. ADV. eabd4049 (2020) (investigating the impact of long-term PM2.5 exposure on COVID-19 mortality rates); Yaron Ogen, *Assessing Nitrogen Dioxide (NO2) Levels As A Contributing Factor To Coronavirus (COVID-19) Fatality* 726 Sci. Total Environ. (Jul. 2020), accessed at https://www.sciencedirect.com/science/article/pii/S0048969720321215?via%3Dihub (finding that long-term exposure to NO2 may be an important contributor to the high COVID-19 fatality rates observed in five European regions).

[81] EPA, *Integrated Science Assessment for Ozone and Related Photochemical Oxidants, Executive Summary* ES-6–ES-8, ES-17 (Apr. 2020).

[82] Calvin A. Arter, et al., *Mortality-based damages per ton due to the on-road mobile sector in the Northeastern and Mid-Atlantic U.S. by region, vehicle class and precursor*, 16 ENVIRON. RES. LETT. 2–3 (June 2021), available at https://doi.org/10.1088/1748-9326/abf60b. Mobile sources emit primary particulate matter and particulate matter precursors that contribute to secondary formation of particulate matter in the atmosphere. EPA, *supra* note 76, at 2-3.

[83] EPA, *supra* note 76, at 2-5.

[84] CARB, *supra* note 73, at 18.

[85] Ozone Transport Commission, *Mobile Sources Committee Annual Report 2020* 2 (2020). The Ozone Transport Region includes Connecticut, Delaware, the District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Virginia.

[86] CARB, *supra* note 73, at 24–26 (citing multiple studies); California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *Update to the California Communities Environmental Health Screening Tool: CalEnviroScreen 4.0 Public Review Draft* 93 (Feb. 2021) ("[C]hildren who live or attend schools near busy roads are more likely to suffer from asthma and bronchitis than children in areas with lower traffic density.").

[87] Thomas P. McKeon, et al., *Environmental exposomics and lung cancer risk assessment in the Philadelphia metropolitan area using ZIP code–level hazard indices* Environ Sci Pollut Res 28:31758–31769, 31764 (2021); Stephanie Stahl, *Earth Week: New Research Links Lung Cancer to Air Pollution in Philadelphia*, CBS Philly (Apr. 20, 2021), https://philadelphia.cbslocal.com/2021/04/20/earth-new-research-links-lung-cancer-to-air-pollution-in-philadelphia/.

2. Air toxics also threaten public health

EPA also projects that its proposed standards would result in the reduction of emissions of air toxics. 86 Fed. Reg. at 43,729, 43,781, 43,785. These reductions will benefit public health and welfare, in part because toxic air pollutants cause cancer and other serious health effects. *Id*. at 43,781; 72 Fed. Reg. 8,428, 8,430 (Feb. 26, 2007). Of all the outdoor air toxics, benzene contributes the most to nationwide cancer risk, and most of the nation's benzene emissions come from mobile sources. *Id*. at 8,432. In New Jersey, mobile sources are the largest contributors of air toxic emissions.[88] In Allegheny County in Pennsylvania, mobile sources account for over 9% of the estimated cancer risk from hazardous air pollutants, mostly due to gasoline-powered cars.[89]

3. Poor air quality disproportionately impacts environmental justice communities

The projected short- and long-term impacts of EPA's proposed standards are likely to be magnified in communities with higher percentages of Black, Asian American, and Latinx residents because refineries and other upstream sources of emissions, as well as major roadways, are often located in those communities.[90] In the Northeast and Mid-Atlantic Region, average concentrations of exposures to PM2.5 are 75%, 73%, and 61% higher for Latinx residents, Asian-American residents, and African American residents, respectively, than they are for white residents.[91] PM2.5 and NO2 concentrations are also highest for Black and Latinx communities in Massachusetts, in part because of their proximity to industrial facilities and highways, and these concentrations have increased over time even though overall exposure to those pollutants has decreased in the Commonwealth.[92]

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[88] New Jersey Department of Environmental Protection, *2019 New Jersey Air Quality Report* 10-1 (Nov. 23, 2020).

[89] Cancer & Environment Network of Southwestern Pennsylvania, *National Air Toxics Assessment and Cancer Risk in Allegheny County Pennsylvania* (updated May 2021), https://www.catf.us/wp-content/uploads/2021/07/NATA-Factsheet-Final-May-2021.pdf.

[90] CARB, *supra* note 73, at 24 (mobile sources account for 45% of PM2.5 exposure disparity for the Black population and 37% of exposure disparity for people in disadvantaged communities); Joshua S. Apte, et al., *A Method to Prioritize Sources for Reducing High PM2.5 Exposures in Environmental Justice Communities in California* at xii, 1 (Nov. 21, 2019) ("On average, white populations experience 18% lower PM2.5 exposure concentrations than the population average, while Hispanic, black, and Asian populations experience and 17%, 15%, and 6% higher-than-average exposure concentrations, respectively. Exposure concentration in the lowest income group is 15% higher than in the highest income group."); American Lung Association, *State of the Air 2021, Key Findings*, https://www.lung.org/research/sota/key-findings (last visited Aug. 25, 2021); American Lung Association, *State of the Air 2021, People At Risk*, https://www.lung.org/research/sota/key-findings/people-at-risk (last visited Aug. 25, 2021).

[91] Union of Concerned Scientists, *Inequitable Exposure to Air Pollution from Vehicles in the Northeast and Mid-Atlantic* (June 2019), https://www.ucsusa.org/sites/default/files/attach/2019/06/Inequitable-Exposure-to-Vehicle-Pollution-Northeast-Mid-Atlantic-Region.pdf.

[92] Office of Massachusetts Attorney General Maura Healey, *supra* note 75, at 5.

C. History of Regulation of GHG Emissions from Light-Duty Vehicles

The Nation's motor vehicles have been and continue to be a substantial source of harmful air pollution. More than half a century ago, Congress established a regulatory regime to reduce motor vehicle emissions. *See* Pub. L. 89-272 § 201, 79 Stat. 992, 992-93 (1965). Under this regime, EPA must promulgate "standards applicable to the emission of any air pollutant from" new motor vehicles that "cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7521(a)(1). States are generally preempted from regulating new motor vehicle emissions. *Id.* § 7543(a). But because California had been regulating vehicular emissions long before Congress established and authorized federal standards, and because Congress recognized the value of California's leadership in this field, Congress directed EPA to waive preemption for California's new motor vehicle emission standards unless one of three, limited statutory bases for denying such a waiver are satisfied. *Id.* § 7543(b)(1). Other States may choose to adopt and enforce California's standards under certain conditions pursuant to Section 177 of the Clean Air Act. *Id.* § 7507.

1. The First GHG Standards for New Motor Vehicles and the First National Program

Consistent with this history and statutory scheme, California began regulating GHG emissions from new motor vehicles before EPA. In 2002, the California Legislature enacted a statute requiring the California Air Resources Board (CARB) to promulgate GHG standards for motor vehicles that, beginning with model year 2009, would "achieve the maximum feasible and cost-effective reduction" in these emissions. Cal. Health & Safety Code § 43018.5(a), (b). The Legislature recognized both that light-duty vehicles (passenger cars and light-duty trucks) were responsible for 40% of the State's GHG emissions, A.B. 1493 § 1(e), and that the reduction of these (and other) GHG emissions was necessary to mitigate the extraordinary impacts of climate change in California, including threats to the State's water supply and food production, as well as increasing risks from catastrophic wildfires, *id.* § 1(c), (d)(1), (d)(4). In 2005, CARB finalized the first GHG standards for new motor vehicles in the United States, beginning with model year 2009. Cal. Code Regs. tit. 13, § 1961.1. CARB requested a waiver of preemption from EPA, and other States adopted California's GHG standards pursuant to Section 177.

Meanwhile, in 2003, EPA had denied a petition asking it to determine that GHG emissions from new motor vehicles endanger public health and welfare and to establish standards to reduce those emissions as required by Section 202(a). *Massachusetts v. EPA*, 549 U.S. 497, 511 (2007). In 2007, however, the Supreme Court invalidated EPA's denial of the petition, holding that GHGs are within the scope of air pollution covered by Section 202(a) and that EPA could not avoid regulation of those emissions by declining to determine whether they endanger public health and welfare. *Id.* at 528-534. Despite that decision, in 2008, EPA took the unprecedented step of denying California's request for a preemption waiver for its GHG emission standards. 73 Fed. Reg. 12,156 (March 6, 2008). California and others challenged that denial.

In response to *Massachusetts*, in 2009, EPA published its "endangerment finding," concluding "that greenhouse gases in the atmosphere may reasonably be anticipated both to endanger public health and to endanger public welfare." 74 Fed. Reg. 66,496, 66,497 (Dec. 15, 2009). EPA recognized public health risks, including changes in air quality, more frequent heat waves and other extreme weather events, and increases in food- and water-borne pathogens, *id.*, as well as harms to public welfare, including threats to water supplies and water quality, *id*. at 66,497-98. EPA found that "new motor vehicles and new motor vehicle engines contribute to the greenhouse gas air pollution" that gives rise to these threats. *Id.* at 66,496. This endangerment finding—which EPA has affirmed several times since 2009—requires EPA to regulate GHGs from new motor vehicles. 42 U.S.C. § 7521(a); *see also Coal. for Responsible Regulation, Inc. v. EPA*, 684 F.3d 102, 126-27 (D.C. Cir. 2012), *rev'd in (unrelated) part by Util. Air Regul. Grp. v. EPA*, 573 U.S. 302 (2014).

Also in 2009, EPA reversed its denial of California's preemption waiver for the State's GHG emission standards, permitting California and the Section 177 States to enforce those standards. 74 Fed. Reg. 32,744 (July 8, 2009). Thus, in 2009, some States were already regulating GHG emissions from new motor vehicles sold in their States, and nationwide federal regulation of those emissions was imminent.

The federal government then negotiated an agreement with California and major automakers that resulted in a "National Program" of harmonized standards for vehicular GHG emissions and fuel economy. *Chamber of Commerce v. EPA*, 642 F.3d 192, 198 (D.C. Cir. 2011). Under this agreement, EPA and NHTSA conducted a joint rulemaking in which EPA promulgated the first federal GHG standards for new motor vehicles and NHTSA promulgated fuel-economy standards. 75 Fed. Reg. 25,324 (May 7, 2010). The standards covered model years 2012 through 2016. *Id.* at 25,324. California and EPA also aligned their respective GHG standards, and California agreed to allow automakers to comply with its state standards by complying with EPA's. *Id.* at 25,327-28.

2. The Extension of the National Program

EPA, NHTSA, California, and major automakers later agreed to extend the National Program. In a 2012 joint rulemaking with NHTSA, EPA promulgated GHG standards for model years 2017-2025. 77 Fed. Reg. 62,624 (Oct. 15, 2012). Because NHTSA is limited to promulgating no more than five years of fuel economy standards at a time, 49 U.S.C. § 32902(b)(3)(B), NHTSA promulgated fuel-economy standards only for model years 2017-2021, 77 Fed. Reg. at 62,627. However, it announced "augural" standards—harmonized with EPA's—for model years 2022-2025, finding they reflected "NHTSA's current best estimate … of what levels of stringency might be maximum feasible in those model years." *Id.* In 2013, EPA also granted California a preemption waiver for its Advanced Clean Cars program, which included, among other things, GHG standards for model years 2017-2025 that were similar to EPA's. 78 Fed. Reg. 2,112 (Jan. 9, 2013).[93]

In the 2012 final rule, EPA explained it was responding "to the country's critical need to address global climate change," *id.* at 62,626-27, estimating the standards would prevent "approximately 2 billion metric tons" of GHG emissions. *Id.* at 62,627. EPA found that "a wide range of technologies" was already available for compliance, with further advancements and deployments anticipated. *Id.* at 62,631. Although the standards might add, on average, $1,800 to the cost of a new light-duty vehicle in MY2025, that cost would be dwarfed by fuel savings of $5,700 to $7,400 "for a net [vehicle] lifetime savings of $3,400 to $5,000." *Id.* at 62,627. EPA and NHTSA projected "net benefits to society … in the range of $326 billion to $451 billion." *Id.*

3. The Mid-Term Evaluation

Automakers generally supported the standards but requested a mid-program review of the standards EPA set for model years 2022-2025. 77 Fed. Reg. at 62,636. EPA agreed, committing to conduct a "Mid-Term Evaluation," by April 2018, of the appropriateness of those later-year standards. *Id.* at 62,652. That evaluation was to be "a collaborative, robust and transparent process, including public notice and comment" and would begin with, and be based on, a rigorous Technical Assessment Report (TAR) to be prepared jointly by EPA, NHTSA, and CARB. *Id.* at 62,784. EPA codified these commitments in its Mid-Term Evaluation regulation, identifying eight specific factors it would assess before determining whether the standards remained appropriate. 40 C.F.R. § 86.1818–12(h).

In July 2016, EPA, NHTSA, and CARB published their 1,217-page TAR. 81 Fed. Reg. 49,217 (July 27, 2016). They found that a "wider range of [compliance] technologies" had become available at costs "similar or lower, than those projected" when the standards were promulgated in 2012. *California v. EPA*, 940 F.3d 1342, 1347 (D.C. Cir. 2019) (cleaned up). Based in large part on the TAR and extensive public comments, EPA issued a 268-page Proposed Determination. *Id.* That Proposed Determination assessed the eight regulatory factors and concluded that the standards for model years 2022-2025 remained appropriate. 81 Fed. Reg. 87,927 (Dec. 6, 2016). EPA finalized that determination in January 2017. Final Determination on the Appropriateness of the Model Year 2022-2025 Light-Duty Vehicle Greenhouse Gas Emissions Standards under the Midterm Evaluation (January 2017)[94]; *see also California*, 940 F.3d at 1347.

[93] California's Advanced Clean Cars program also contained a provision that continued to allow automakers to comply with California's GHG standards by complying with EPA's, assuming EPA's standards were "substantially as described" in a July 2011 Notice of Intent EPA had issued. Letter from CARB Chair Mary Nichols (July 28, 2011) at 2; *see also* CARB Board Resolution 12-11 at 19, 20; CARB Board Resolution 12-21 at 8; CARB Staff Report: Initial Statement of Reasons for Rulemaking – Proposed Amendments to New Passenger Motor Vehicle Greenhouse Gas Emissions Standards for Model Years 2017-2025 (Sept. 14, 2012) at 4.

[94] Available at https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100QQ91.pdf.

"Following the transition in presidential administrations, EPA changed lanes." *California*, 940 F.3d at 1348. In March 2017, EPA announced that it would reconsider the final determination issued just two months earlier. 82 Fed. Reg. 14,671, 14,672 (March 22, 2017). In April 2018, EPA published an eleven-page Revised Determination concluding that the standards set in 2012 were no longer appropriate. 83 Fed. Reg. 16,077 (Apr. 13, 2018). The Administrator claimed, without support, that "uncertainty" existed about the availability of compliance technologies, *id.* at 16,082, and asserted brand new, and unfounded, concerns about consumer costs, *id.* at 16,084. The Revised Determination contained only fleeting references to the TAR and failed to provide the detailed assessments of the eight factors required by 40 C.F.R. § 86.1818–12(h). *E.g.,* 83 Fed. Reg. at 16,081-82, 16,085.

A number of parties (including many of the undersigned) challenged the Revised Determination. *California*, 940 F.3d at 1345. The Court held that the decision was not "final action," 42 U.S.C. § 7607(b)(1), and dismissed the petitions, *California*, 940 F.3d at 1353. Recognizing that EPA might revise its standards, and, in fact, had proposed to do so during the litigation, the D.C. Circuit and EPA's counsel confirmed that EPA's withdrawal of its 2017 Final Determination did not "eliminate any part of the existing administrative record"—including the TAR. *California*, 940 F.3d. at 1351.

4. The SAFE Rulemaking

In 2018, EPA and NHTSA ("the Agencies") proposed to freeze their respective standards at model year 2020 levels for six years, meaning no increase in stringency would be required in model years 2021-2026 (although model year 2021 had not been part of the Mid-Term Evaluation). 83 Fed. Reg. 42,986 (Aug. 24, 2018). In April 2020, the Agencies published final SAFE 2 standards that increase in stringency by approximately 1.5% each year, 85 Fed. Reg. 24,174 (April 30, 2020), a rate far lower than the annual increase (approximately 5%) required by the standards promulgated in 2012. *Id.* at 25,106. The Agencies' analysis projected that EPA's SAFE 2 standards will increase GHG emissions by up to 923 million metric tons, *id.* at 24,176, and will cause up to 1,000 premature deaths, and other adverse health impacts, due to increases in criteria pollutant emissions, *id.* at 25,119. Notably, the Agencies also acknowledged and reaffirmed that technologies sufficient to comply with the more stringent standards promulgated in 2012 had "already been developed, have been commercialized, and are in-use on vehicles today." *Id.* at 25,107. The Agencies also confirmed that the SAFE 2 standards will cost consumers money overall, because increases in fuel expenditures will exceed estimated decreases in vehicle prices. *Id.* at 24,180-81.[95]

[95] Indeed, the Agencies' analysis showed EPA's SAFE 2 standards were net *costly* at a 3% discount rate. 85 Fed. Reg. at 24,176-77, 24,181. Moreover, the Agencies' cost benefit analysis was riddled with significant errors, and correcting only some of those errors demonstrated that the SAFE 2 standards were, in fact, substantially net costly to society even under a 7% discount rate. D.C. Circuit Case No. 20-1145, Proof Brief of State and Local Gov't

Many of the undersigned (and other parties) challenged the SAFE 2 standards in the D.C. Circuit Court of Appeals. Although briefing had commenced, those cases were placed in abeyance after President Biden's January 20, 2021 Executive Order directed EPA and NHTSA to reconsider the standards.

EPA SHOULD REPLACE ITS SAFE 2 STANDARDS WITH MORE STRINGENT ONES AS PROPOSED

I. THE PROPOSED STANDARDS ADVANCE THE OBJECTIVES OF SECTION 202(A) OF THE CLEAN AIR ACT

As discussed in more detail below in Section II, we support EPA's adoption of standards for MY2023 that are at least as stringent as the preferred alternative and urge EPA to consider the more stringent Alternative 2 standards for that year, in the context of the full record (including these comments). We also support adoption of the most stringent standards in the proposal for MYs 2024-2026—in other words, the Alternative 2 standards for MYs 2024-2025 and the Alternative 2 standards strengthened by 10 grams/mile for MY2026. EPA must begin now to address the devastating risks of climate change and the on-going harms facing communities over-burdened by harmful pollution, and EPA must do so with the gravity these threats require. Section 202(a) of the Clean Air Act demands nothing less. We urge EPA to adopt the most stringent standards it concludes are feasible, commensurate with the undeniable need for urgent and rigorous action.

A. Section 202(a) Requires EPA to Reduce Threats to Public Health and Welfare from Harmful Air Pollution

Under Section 202(a)(1) of the Clean Air Act, EPA "shall by regulation prescribe . . . standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles . . ., which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7521(a)(1). "By employing the verb 'shall,' Congress vested a non-discretionary duty in EPA," *Coalition for Responsible Regulation, Inc. v. EPA*, 684 F.3d 102, 126 (D.C. Cir. 2012), rev'd in part on alternative grounds, the purpose of which is clear: reduce or eliminate the threats to public health and welfare of deleterious air pollutants. *See* 42 U.S.C. § 7401(b)(1) (declaring a goal of the Clean Air Act "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population"); *Massachusetts*, 549 U.S. at 532 (explaining that "EPA has been charged with protecting the public's 'health' and 'welfare'" in Section 202(a)).

In SAFE 2, EPA disregarded its statutory mandate and Congress's objective of reducing harmful emissions. The agency adopted standards that, by its own estimate, would increase GHG

Petitioners (Doc. 1880213) at 87-95, Proof Brief of Public Interest Organization Petitioners (Doc. 1880214) at 26-36.

emissions by 923 million metric tons, 85 Fed. Reg. at 24,176, and thereby exacerbate the long-recognized and well-documented threats to public health and welfare posed by the climate crisis.[96] [97] EPA also projected that its SAFE 2 standards would increase criteria pollution, 85 Fed. Reg. at 25,059-60, and result in adverse public health impacts such as premature deaths, asthma exacerbation, and non-fatal heart attacks, *id.* at 25,112-13. These preventable increases in harmful air pollution needlessly enhanced known threats to public health and welfare, and the Administrator failed to "square[] [this] with the statutory objectives that Congress specified." *See Independent U.S. Tanker Owners Comm. v. Dole*, 809 F.2d 847, 854 (D.C. Cir. 1987). Rather, the Administrator improperly prioritized "reducing the cost of compliance on the regulated industry and the upfront (but not total) cost to consumers," 86 Fed. Reg. at 43,786, over the reduction in harmful air pollution that Section 202(a) expressly demands.[98] *See Independent U.S. Tanker Owners Comm.*, 809 F.2d at 854 (Administrator "is not free to substitute new goals in place of the statutory objectives without explaining how these actions are consistent with [his] authority under the statute"). *See also* Proof Brief of State and Local Government Petitioners at 43-45, *Competitive Enterprise Institute, et al. v. NHTSA*, No. 20-1145 (D.C. Cir. Jan. 14, 2021).

Unlike the SAFE 2 standards, EPA's Proposal comports with its congressional mandate in Section 202(a). EPA properly recognizes that it is required to reduce harmful air pollution. The Proposal, and particularly the more stringent alternatives included therein, will further the statutory objective and reduce, rather than exacerbate, threats to public health and welfare. EPA projects that the proposed standards will reduce GHG emissions by more than 2,200 million metric tons of CO_2, 2.7 million metric tons of CH_4, and 71,000 metric tons of N_2O through 2050, in addition to reductions in criteria pollutant emissions. 86 Fed. Reg. at 43,785. And the more stringent standards in Alternative 2 would reduce harmful emissions even more. *Id*. at 43,739 (Table 8). EPA correctly describes these emissions reductions as an "essential factor" in its determination of the appropriate level of the proposed standards, *id*., and properly places greater weight than in its SAFE 2 rule on the statutory goal of reducing harmful pollution, *id*. at 43,786. We support EPA's return to a proper balancing of factors in setting vehicle emission standards—

[96] *See* 74 Fed. Reg. at 66,497-98; U.S. Global Change Research Program, *supra* note 28*,* at 39-40 ("Greenhouse gas emissions from human activities are the only factors that can account for the observed warming over the last century . . ."), 541 ("Climate-related changes in weather patterns and associated changes in air, water, food, and the environment are affecting the health and well-being of the American people, causing injuries, illnesses, and death.").
[97] *See also e.g.*, U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Vol. I* 10 (D.J. Webbles et al., eds., 2017) ("[H]uman activities, especially emissions of greenhouse gases, are the dominant cause of the observed warming since the mid-20th century" and "there is no convincing alternative explanation."), *id*. at 18 ("Temperature and precipitation extremes can affect water quality and availability, agricultural productivity, human health, vital infrastructure, iconic ecosystems and species, and the likelihood of disasters.").
[98] These prioritized factors are not statutory ones. Section 202(a) makes no reference to consumer costs, let alone to *certain* consumer costs and instructs EPA to consider compliance costs in the context of necessary lead time, not as a standalone factor. EPA did not make, and could not have made, a finding that automakers needed more lead time to reduce their costs of compliance. Proof Brief of State and Local Government Petitioners at 40-42, *Competitive Enterprise Institute, et al. v. NHTSA*, D.C. Circuit No. 20-1145 (Jan. 14, 2021).

including the proper emphasis on reducing harmful air pollution and mitigating threats to public health and welfare.

B. GHG Reductions from Light Duty Vehicles are Particularly Necessary Now

It is critically important to reduce GHGs from light-duty vehicles and to do so now. Transportation is the single leading source of GHG emissions in the country, accounting for approximately 29% of total GHG emissions. 86 Fed. Reg. at 43,746 (citing U.S. GHG Emissions Inventory), 43,779 (same). Light-duty vehicles account for nearly 60% of those transportation sector emissions, or approximately 17% of total U.S. GHG emissions. *Id.* Reductions of these emissions from light-duty vehicles are crucial for the United States to take meaningful steps to keep the rise in global mean temperatures below 1.5°C to 2°C.[99]

Immediate emissions reductions are necessary because GHGs can remain in the atmosphere for long time periods. Carbon dioxide in particular remains in the atmosphere longer than the other major GHGs emitted as a result of human activities: once emitted, 40% will remain in the atmosphere after 100 years and 20% will reside after 1000 years; only after about 10,000 years will the remainder break down.[100] As explained in the Fourth National Climate Assessment, "[w]aiting to begin reducing emissions is likely to increase the damages from climate-related extreme events (such as heat waves, droughts, wildfires, flash floods, and stronger storm surges due to higher sea levels and more powerful hurricanes)."[101]

One of the ways in which scientists calculate and express what it will take to hold the increase in temperatures to a certain level is by using a "carbon budget." The carbon budget calculates the amount of cumulative GHG emissions from human activity (starting in late 1800s) that models show will result in a specified likelihood of not exceeding a particular increase in global mean temperatures. The budget is expressed either in billions of tons or "gigatons" of carbon (GtCO2).[102] Between 1850 and 2019, a total of approximately 2,390 GtCO2 of anthropogenic CO2 was emitted, resulting in a global surface temperature increase of approximately 1.1°C.[103] The IPCC recently calculated that only 400 GtCO2 of the world's carbon budget remains, if we are to retain a two-thirds chance of limiting the global average temperature increase to 1.5°C.[104] The IPCC further estimated that the carbon budget is being depleted by approximately 42 GtCO2

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[99] United States, *The United States of America Nationally Determined Contribution, Reducing Greenhouse Gases in the United States: A 2030 Emissions Target* (2021), available at https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/United%20States%20NDC%20April%2021%202021%20Final.pdf.

[100] *Ask the Experts: The IPCC Fifth Assessment Report*, 5 Carbon Management 17, 24 (2014), available at https://www.tandfonline.com/doi/pdf/10.4155/cmt.13.80.

[101] U.S. Global Change Research Program, *supra* note 28, at 1488.

[102] IPCC, *Summary for Policymakers*, *supra* note 6, at 36.

[103] *Id.* at 38.

[104] *Id.*

per year.[105] Thus, if global emissions continue at the current pace, the carbon budget will be exhausted in less than 10 years. And that timeframe could be optimistic because, as cumulative emissions increase, the portion of those emissions in the atmosphere also increases due to ocean and land carbon sinks becoming less effective at absorbing carbon dioxide.[106]

There may be "tipping points" in the climate system such that even a small incremental change in temperature could push Earth's climate into catastrophic runaway global warming.[107] Indeed, a recent commentary in the journal *Nature* warned that nine major climate tipping points (including the accelerating ice loss from the West Antarctic ice sheet) are "dangerously close" to being triggered.[108] Therefore, serious efforts to reduce GHG emissions are needed now to avoid scenarios where steeper (and vastly more expensive) emission reductions are needed later. Delaying efforts to mitigate carbon dioxide emissions will have negative—and potentially irreversible—consequences for global warming and its impacts, including more extreme wildfires, rising sea levels, greater ocean acidification, and increased risks to food security and public health. Moreover, the uneven distribution of these impacts demands urgent action to protect our most vulnerable populations from additional climate harms and to prevent the exacerbation of existing climate injustices.[109]

The States and Cities agree that, in light of the "increased urgency of the climate crisis," the United States needs "to achieve far deeper GHG reductions from the light-duty sector in future years." 86 Fed. Reg. at 43,785. EPA's proposal is an important step toward those deeper reductions. By incentivizing production and deployment of lower-emitting and zero-emission vehicles, EPA's proposal will promote longer-term deeper emissions reductions critical to avoiding catastrophic impacts of climate change.

C. Reductions in Other Pollution Are Also Urgently Needed to Protect Public Health

EPA's proposal will also advance another important and urgent objective of our States and Cities and of Congress: reductions in criteria and toxic air pollution. *See* Background, Section B. It will do so by reducing GHG emissions, and laying the groundwork for deeper reductions to come, which is important for the reasons outlined above and because the effects of climate

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[105] Josep G. Canadell et al., Intergovernmental Panel on Climate Change, *Climate Change 2021: The Physical Science Basis, Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* 5-96 (Victor Brovkin and Richard A. Feely eds., August 2021).
[106] IPCC, *Summary for Policymakers*, *supra* note 6, at SPM-25-27.
[107] *Id*., at SPM-28.
[108] Timothy M. Lenton, et al., *Comment: Climate Tipping Points - Too Risky to Bet Against*, NATURE (Apr. 9, 2020), https://www.nature.com/articles/d41586-019-03595-0; *see e.g.*, Sarah Kaplan, *A critical ocean system may be heading for collapse due to climate change, study finds*, The Washington Post (Aug. 5, 2021), https://www.washingtonpost.com/climate-environment/2021/08/05/change-ocean-collapse-atlantic-meridional/.
[109] *See* Janet L. Gamble et al., U.S. Global Change Research Program, *The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment, Chp. 9* 247-86 (2016); *see e.g.*, U.S. EPA, *supra* note 15, at 35.

change will result in worse air quality even if criteria emissions remain the same.[110] More stringent standards will also directly reduce criteria and toxic pollution, and even small reductions will have a significant impact, especially in nonattainment areas and communities living near refineries or near roadways.[111]

1. More stringent standards will help protect public health and support NAAQS attainment

Various locations throughout our States and Cities have been unable to attain, or face difficulty maintaining, the NAAQS—designed to protect public health—for ozone and PM2.5.[112] 42 U.S.C. § 7409(b). For example, multiple counties in California are registering severe, serious, or extreme nonattainment with the 8-Hour Ozone NAAQS. Reductions in ozone due to the proposed standards would provide critical clean air benefits to these locations. Nonattainment areas outside of California will experience similar benefits. For example, more stringent standards may result in a reduction of ozone precursors in Colorado's Denver Metro/North Front Range, which includes a major transportation corridor and a refinery. Based on 2018–2020 ozone monitoring data, this area is expected to shift from serious to severe nonattainment for the 2008 8-Hour Ozone NAAQS, and, thus, any and all reductions in ozone precursors are needed. Likewise, counties in Connecticut and New York are in serious nonattainment with the 2008 8-Hour Ozone NAAQS and are in moderate nonattainment with the 2015 8-Hour Ozone NAAQS, and their challenges in attaining the NAAQS are due in part to ozone-forming pollution from out-of-state upwind sources which EPA's standards could help reduce.[113] 84 Fed. Reg. 44,223, 44,248, 44,251–44,252 (Aug. 23, 2019) ("EPA acknowledges the role interstate transport of precursors to ozone pollution plays in the efforts of downwind areas to attain and maintain the NAAQS.") New Jersey has taken action to reduce NOx and VOC emissions from mobile sources and from stationary sources, including power plants and refineries, in an attempt to attain the NAAQS.[114] But New Jersey and other States cannot attain or maintain the NAAQS alone,[115] and EPA's standards may provide important emissions reductions in upwind states and across the country.[116]

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[110] Nat'l Research Council, *Advancing the Science of Climate Change* 326 (2010), accessible at http://nap.edu/12782 ("In a warmer future world, stagnant air, coupled with higher temperatures and absolute humidity, will lead to worse air quality even if air pollution emissions remain the same.").

[111] The health benefits associated with the reduction in PM2.5 pollution from EPA's proposed standards are likely greater than EPA anticipates. CARB Comments at 13.

[112] EPA, Current Nonattainment Counties for Criteria Pollutants (data current as of Aug. 31, 2021), https://www3.epa.gov/airquality/greenbook/ancl.html (providing NAAQS compliance status of all counties); CARB, *Criteria Pollutant Emission Reductions from California's Zero-Emission Vehicle Standards for Model Years 2017-2025* 5 (Jul. 6, 2021), App. A to Comments of States and Cities in Support of EPA Reversing Its SAFE 1 Actions.

[113] EPA, Current Nonattainment Counties for Criteria Pollutants, *supra* note 112.

[114] State of New Jersey Department of Environmental Protection, *New Jersey SIP Revision for the Attainment and Maintenance of the Ozone NAAQS* at x, 4-14 (Dec. 2017).

[115] *Id.* at xii.

[116] EPA, Current Nonattainment Counties for Criteria Pollutants, *supra* note 112.

In addition, PM2.5 exposure *at any level* is associated with adverse health impacts, so reductions in PM2.5 emissions will bring public health benefits to our States and Cities regardless of whether our regions have attained the NAAQS.[117] Indeed, because PM2.5 exposure below the current NAAQS is clearly harmful, a multi-state coalition, which includes many of the signatories to this comment, petitioned EPA to reconsider its 2020 decision not to strengthen the current NAAQS for Particulate Matter. On June 10, 2021, EPA acknowledged that the current standards may not be adequate to protect public health and welfare, and announced its decision to reconsider its prior decision.[118]

2. <u>More stringent standards will reduce the air pollution dangers faced by communities near refineries and roadways</u>

Decreasing the criteria pollution and benzene and other hazardous air emissions associated with refining—as more stringent standards will do, 86 Fed. Reg. at 43,779, 43,790-91, 43,802—will benefit communities proximate to refineries. Nearly 700,000 people live within three miles of the seventeen refineries that reported actual annual benzene fenceline concentrations in 2020 above the level set by EPA that requires the refinery to take action to clean up emissions. Of these 700,000 people, 62% are African-American, Hispanic, Asian/Pacific Islander, or American Indian residents, and nearly 45% have incomes below the poverty level.[119] The City of Richmond, California, with five petroleum refineries nearby and residents facing disproportionately high rates of cancer and other health impacts from air pollution, serves as a localized example of these national trends. *See* CARB Comments at 22-23.

Communities near major roadways will also benefit greatly from even slight improvements in air quality. EPA has long acknowledged that people living, working, and attending school near major roadways face greater air pollution exposure. 77 Fed. Reg. 62,624, 62,907 (Oct. 15, 2012); 75 Fed. Reg. 25,324, 25,504 (May 7, 2010). The pollution and public health impacts from on-road vehicle emissions are especially significant and greater in disadvantaged communities.[120] For example, the community of Wilmington, Carson, and West Long Beach in Los Angeles, California is affected by six major freeway junctions, as well as freight, port, and rail operations, oil and gas production, and five petroleum refineries. CARB Comments at 15. A majority of this community is considered disadvantaged under California law, scoring higher

[117] EPA, *supra* note 76, at 3-103 ("Studies that examine the shapes of concentration-response functions over the full distribution of ambient PM2.5 concentrations have not identified a threshold concentration[ ] below which associations no longer exist").

[118] EPA, *EPA to Reexamine Health Standards for Harmful Soot that Previous Administration Left Unchanged* (June 10, 2021), https://www.epa.gov/newsreleases/epa-reexamine-health-standards-harmful-soot-previous-administration-left-unchanged.

[119] Environmental Integrity Project, *Environmental Justice and Refinery Pollution: Benzene Monitoring Around Oil Refineries Showed More Communities at Risk in 2020* at 7, n.6 (Apr. 28, 2021), available at https://environmentalintegrity.org/wp-content/uploads/2021/04/Benzene-report-4.28.21.pdf.

[120] CARB, *Benefits of California's Zero-Emission Vehicle Standards on Community-Scale Emission Impacts* (Jul. 6, 2021), App. B to Comments of States and Cities in Support of EPA Reversing Its SAFE 1 Actions.

than the state average on key indicators of vulnerability, including criteria pollutant exposure, health status, and socio-economic criteria. *Id*. at 15-20. Measures—such as the standards in EPA's proposal—that reduce pollution in these communities are urgently needed, and addressing that need (and others described above) is mandatory under Section 202(a).

II. LEAD-TIME IS SUFFICIENT FOR ALL OF THE STANDARDS IN EPA'S PROPOSAL

The only express statutory constraint on EPA's mandate to control harmful air pollution is the requirement that EPA determine there is sufficient lead time for the standards it promulgates—that the standards provide "such period as the Administrator finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period." 42 U.S.C. § 7521(a)(2). As the D.C. Circuit held not long after this section was enacted, this requires EPA to "provide the requisite lead time to allow technological developments" while avoiding "undue economic disruption" in the auto industry, such as the "doubling or tripling the cost of motor vehicles." *Motor & Equip. Mfrs. Ass'n, Inc. v. EPA* (*MEMA I*), 627 F.2d 1095, 1118 (D.C. Cir. 1979). EPA may find that lead time is sufficient where there are "plausible reasons for [EPA's] belief that the industry will be able to solve … problems in the time remaining." *NRDC v. EPA*, 655 F.2d 318, 333–34 (D.C. Cir. 1981). EPA can more than plausibly find that lead time would be sufficient for each of the model-year standards it is considering here (including Alternative 2 and an additional 10 grams/mile of stringency in MY2026), and there is no reason to conclude that any of these standards would cause undue economic disruption.

Because lead-time considerations can vary by model year, we address each year (or small group of similar years) separately below. And, as discussed in more detail below in Subsection D, we urge EPA to do the same in its final rule both because of variability in the facts associated with different model years and to support severability should one or more model-year standards be stayed or vacated.

However, two key threshold points are relevant to all model years. First, the cost of compliance for all of the standards included in EPA's Proposal—including the most stringent ones—is modest and very reasonable. EPA projects average, per-vehicle costs of its preferred alternative to be approximately \$500 in MY2023 and \$1,000 in MY2026, Draft Regulatory Impact Analysis ("DRIA") 4-14 (Table 4-16), and those costs are similar for the more stringent Alternative 2, *id.* at 4-16 (Table 4-20). These per-vehicle costs for MY2026 are similar to the per-vehicle costs EPA estimated for the MY2025 standards it promulgated in 2012 and to the costs EPA determined remained appropriate in 2017. DRIA 1-10 (Figure 1-4). Indeed, the projected per-vehicle costs are now similar to, and even lower than, they were in 2012. *Compare id.* (2012 estimate for MY2025) *with id.* at 4-16 (more stringent MY2026). The per-vehicle costs EPA estimates here for the outer model years are also in line with EPA's earlier (2010) projections for its MY2016 GHG standards. 75 Fed. Reg. at 25,348. EPA's 2010 actions were challenged by numerous parties in the D.C. Circuit, but none of those challengers alleged the standards were too costly or required more lead time to address compliance costs.[121] Put simply, EPA correctly concluded, in 2010, 2012 and 2017, that per-vehicle compliance costs like these are reasonable and would not cause undue disruption, and there is no basis for any other conclusion here.[122] No additional lead time, for any model year, can be justified on the basis of compliance costs.

Second, as the records for the MTE, the SAFE standards, and this proceeding consistently show, none of the standards in EPA's current proposal requires the *development* of new technologies or raises questions about whether existing technologies can be *applied* to vehicles. The technologies necessary to meet even the most stringent standards included in this proposal have already been developed and are widely deployed in vehicles on the market today. *E.g.*, 86 Fed. Reg. at 43,728 ("Auto manufacturers are currently implementing an increasing array of advanced gasoline vehicle GHG emission-reducing technologies at a rapid pace throughout their vehicle fleets."); *id.* at 43,731 ("The technological achievements already developed and applied to vehicles within the current new vehicle fleet will enable the industry to achieve the proposed standards even without the development of new technologies beyond those already widely available."). Thus, here, the only lead time question is whether automakers have sufficient time to develop and implement a compliance strategy for each of the model years at issue. And, under the longstanding design of this regulatory program (which EPA is not proposing to change), compliance strategies involve not only the fleet an automaker plans to sell in a given model year but also strategic decisions concerning whether and when to earn, purchase, bank, and use credits. *See* 86 Fed. Reg. at 43,733. Consideration of both of these aspects of automaker compliance strategies leads to only one conclusion: there is sufficient lead time for all the standards included in EPA's proposal.

As we explain further below, EPA should consider adopting its Alternative 2 standards for MY2023 and should not finalize standards for that year that are less stringent than its preferred alternative. Regardless of where EPA sets the standards for MY2023, it should finalize Alternative 2's standards for MYs 2024-2026 with the proposed additional 10 grams/mile of stringency in MY2026. Finally, EPA should also make separate lead-time findings for each model year (or group of similar model years) to support severability of the model-year standards should that be necessary.

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[121] The only cost issue raised by these challengers was the claim that EPA had erred by "failing to justify and consider the cost impacts of its conclusion that [its GHG standards] trigger[ed] stationary-source regulation under [other provisions of the Clean Air Act]." *Coal. for Responsible Regul., Inc.*, 684 F.3d at 126. Notably, no one "challenge[d] the substantive standards" themselves. *Id.*

[122] EPA's decision in the SAFE 2 rulemaking to weaken its GHG standards was not based on a finding that additional lead time was required in light of compliance costs. Indeed, EPA failed to explain why any additional lead time was necessary to meet the standards promulgated in 2012. *See* Proof Brief of State and Local Gov't Petitioners, *supra* note 95, at 40-42. Instead, as EPA notes here, the agency purported to justify its SAFE 2 standards on other bases, including claims related to rebound driving and upfront (versus vehicle-life) consumer costs. *Id.* at 52, 58-61; 86 Fed. Reg. at 43,785.

A. There Is Adequate Lead Time for Standards at Least as Stringent as EPA's Preferred Alternative for MY2023, and EPA Should Consider Finalizing Alternative 2's Standards for that Model Year

While the amount of lead time provided for MY2023 is not unprecedented for Section 202(a) standards,[123] we recognize that lead time for that year is more limited than for other years covered by the proposal. Lead time is nonetheless sufficient for the industry to meet EPA's preferred alternative standards for MY2023 without substantial use of credits from prior model years.[124] And because, *inter alia*, there will likely be significant prior-year credits available for use in MY2023, the industry has adequate lead time for standards more stringent than the preferred alternative, including Alternative 2.[125] EPA should, thus, consider finalizing the Alternative 2 standards for MY 2023, based on the full record before it, including any new information EPA receives or develops concerning automaker plans and anticipated credit balances at the start of MY2023. If EPA concludes lead time is insufficient for the Alternative 2 standards for MY2023, EPA should finalize standards at least as stringent as the preferred alternative for that model year and should adopt the more stringent Alternative 2 standards for subsequent model years (see below). That latter option would produce most of the benefits of Alternative 2—returning to the more stringent standards promulgated in 2012 more quickly—but would obviate arguments some automakers may make that lead time for Alternative 2's MY2023 standards is inadequate. It is also entirely within the scope of EPA's Proposal. 86 Fed. Reg. at 43,739 ("EPA requests comments on … other alternatives roughly within the stringency range of the proposal and the Alternatives.").

1. Automakers Are Well-Positioned to Sell Fleets that Comply at Least with the Preferred Alternative for MY2023

There are a number of reasons automakers are well-positioned to meet standards at least as stringent as the preferred alternative as early as MY2023. First, as EPA noted in the Proposal, automakers had long planned to meet the MY2023 standards promulgated in 2012. It would be reasonable, then, to reinstate those standards as proposed in Alternative 2. Indeed, any changes in plans automakers made in reliance on the SAFE 2 standards remaining in place for MY2023 would have been unreasonable. There was only a very "limited period" between when SAFE 2

[123] *E.g.*, 38 Fed. Reg. 21,362 (Aug. 7, 1973) (establishing standards for MY1975); 44 Fed. Reg. 53,408 (Sept. 13, 1979) (establishing standards for MY1981); 48 Fed. Reg. 52,170 (Nov. 16, 1983) (establishing standards for MY1985).

[124] Comments from Gary Rogers, Vice President, Advanced Technology, Roush Industries ("Roush Report") at 3 (submitted with CARB's comments). We note that, under the existing rule's carry-back provisions regarding over-compliance credits (which EPA has not proposed to change), automakers also have up to three years to cover any deficits they incur in MY2023, meaning automakers could plan to generate sufficient credits as far out as MY2026 (when many automakers plan to offer an even larger array of EVs) to cover any MY2023 deficit they choose to incur.

[125] *See* Comments of Dr. David Cooke on behalf of Union of Concerned Scientists and Comments of Environmental Defense Fund submitted separately in this docket.

was finalized and President Biden's direction to reconsider, and the SAFE 2 standards have been vigorously challenged since their adoption. *See Mozilla Corp. v. FCC*, 940 F.3d 1, 64 (D.C. Cir. 2019) (holding reliance interests unreasonable where rule was in effect for "barely two years" and "faced persistent legal challenges"). In those challenges, vacatur of SAFE 2 and reinstatement of the standards promulgated in 2012 was an available remedy. *See, e.g.*, *Nat'l Parks Conservation Ass'n v. Semonite*, 925 F.3d 500, 501 (D.C. Cir. 2019) (describing vacatur as "default remedy to correct defective agency action"); *Sugar Cane Growers Co-op. of Fla. v. Veneman*, 289 F.3d 89, 97 (D.C. Cir. 2002) (characterizing vacatur as "restor[ing][the status quo ante"). Where, as here, "agency orders on which the [parties] claim to have relied not only had never been judicially confirmed, but were under unceasing challenge," "reliance is typically not reasonable." *Verizon Tel. Companies v. FCC*, 269 F.3d 1098, 1110 (D.C. Cir. 2001).

Second, with more stringent regulations covering large segments of the global market in which automakers operate, the industry has continued to expand the application of GHG-reducing technologies in those market segments.[126] There is a long history of automakers transferring those applications across market segments, and those transfers (and plans for transfers) have continued even in the face of the SAFE 2 standards.[127] Thus, automakers are well-positioned to quickly comply with increases in stringency due to the ability to continue and/or speed up the transfer of technologies deployed in other market segments to the vehicles they offer here.

Third, automakers have expanded the hybrid, plug-in hybrid ("PHEV") and battery electric vehicles ("BEV") they are offering in the United States and have plans to further expand those offerings between now and MY2023.[128] Many of these offerings have been extraordinarily successful, with some models even completely selling out.[129] These successes can be attributed, at least in part, to consumer demand for features of these vehicles that are unrelated to their GHG-reducing attributes, such as rapid acceleration, electric power output for use at remote sites or in emergencies, and increased horsepower.[130] They can also be attributed, again in part, to shareholder demands.[131] Automakers can, and to some extent must, continue to expand these offerings to respond to those demands, and these offerings (and their popularity) support more

[126] Roush Report at 3-6, 9-10; *see also* DRIA 2-11 (Tables 2-6 and 2-7) (showing clear trend in continued expansion of GHG-reducing technologies from 2015 to 2020); 86 Fed. Reg. at 43,471 (noting auto industry has made "technological investments … beyond what would be required to meet the SAFE rule revised standards")
[127] *Id.* at 3-5.
[128] Roush Report at 6 (Table 2),10-12; DRIA 2-14 (noting that automaker model announcements indicate more than 80 BEV or PHEV models will be offered by MY2023).
[129] Roush Report at 11-12; Arianna Skibell, *Summer Saw Record EV Sales*, Climatewire (Sept. 24, 2021) (noting that electric vehicles accounted for nearly 5% of all light-duty sales, and more than 20% of passenger vehicle sales in July 2021; that more manufacturers are selling these vehicles; and that consumer demand, including for models not available until MY2023, is high); Brendan McDermid*, Ford doubles Lightning production target on strong pre-launch demand*, Reuters (Aug. 23, 2021).
[130] Roush Report at 11-12.
[131] *Id.* at 10.

stringent standards as early as MY2023. Notably, sales of these vehicles have outpaced EPA's projections.[132] And there are good reasons to expect these trends to continue.[133]

Fourth, and finally, automakers can reduce fleetwide emissions by marketing and incentivizing the purchase of certain vehicles *they already produce*. For example, even in their current (MY2021) fleets, automakers offer a range of packages for many models.[134] GHG emissions can vary, for a single model, by as much as 30% (and sometimes more) across these packages, even where, in most applications, the differently packaged vehicles will perform similarly.[135] For example, in MY2021, Ford offers six versions of its popular Explorer sport utility vehicle (SUV), and the lowest-emitting Explorer has GHG emissions 27.2% below the highest-emitting one.[136] And Ford's range of Escape SUVs varies even more—by 35.7% from the highest- to lowest-emitting.[137] Ford can, thus, reduce its fleetwide average emissions by leveraging its marketing, pricing, and other incentives to encourage consumers looking to buy an Explorer or an Escape to buy a lower-emitting one. And it (and other automakers) can do that with next-to-no lead time, since all of these packages are already being manufactured.

In addition, as EPA found in the Proposal, a sizable number of vehicles being sold today (in MY2021) would support compliance with EPA's proposed MY2023 standards.[138] For example, in the vehicle category with the highest sales in MY2021 (small SUVs, which make up 28% of the market), 23% of the models would generate credits under EPA's preferred alternative MY2023 standards.[139] Similarly, 24% of the MY2021 standard-pick-up and large-car models (which, together, account for another 18% of the market) would generate credits under the preferred alternative MY2023 standards.[140] In fact, there is no major vehicle category in MY2021 for which less than 12% of the models would generate credits under those standards.

In sum, automakers are already producing a wide array of vehicles that would facilitate compliance with standards significantly more stringent than SAFE 2 as early as MY2023. That, combined with the additional fleet improvements that can be reasonably expected between MYs 2021 and 2023, establish automakers' ability to meet at least the preferred alternative standards in MY2023.

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[132] *Compare* Regulatory Impact Analysis: Final Rulemaking for 2017-2025 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards (August 2012) at 3-51 (projecting 1% combined for EVs and PHEVs for MY2021) *with* DRIA at 2-11 (showing 4%, combined, for MY2020); *see also* Roush Report at 10.
[133] Roush Report at 6 (Table 2), 10-12; Skibell, *supra* note 129, at 2-3.
[134] *Id.* at 7.
[135] *Id.* at 7-8.
[136] *Id.* at 8 (Table 3).
[137] *Id.*
[138] DRIA 2-16 (Table 2-8) (indicating how many MY2021 models would generate credits under EPA's proposed MY2023 standards).
[139] *Id.*
[140] *Id.*

2. Anticipated Prior-Year Credit Balances Indicate Adequate Lead Time for Even More Stringent Standards

Automakers can also utilize the well-established flexibilities built into EPA's GHG regulatory regime since its beginning, including the credit carry-forward mechanism that allows automakers to bank credits from one model year and use them up to five model years later. The credit banks the industry will likely bring into MY2023 position automakers to comply with even more stringent standards, including Alternative 2, in MY2023, especially given the low-stringency SAFE 2 standards for MY2021-2022.[141] EPA's 2020 Automotive Trends Report shows that, as of the end of MY2019, automakers, collectively, held more than 55 million credits that would not expire before MY2023. Moreover, credit modeling performed by several non-governmental organizations demonstrates that, even assuming only limited improvement in the fleets, automakers can be expected to have sizable credit banks available in MY2023 that could be used to comply with Alternative 2's standards (and, of course, with the preferred alternative's standards).[142] That underscores that additional lead time for any of those standards is not required. *Nat'l Petrochemical & Refiners Ass'n v. EPA*, 630 F.3d 145, 165 (D.C. Cir. 2010) (affirming EPA's decision to provide limited lead time under similar circumstances where credit program was well-established and regulated parties would not need to invest in construction or technology development). Notably, if, as can reasonably be anticipated (see *supra* at 26-28), automakers make more improvements in fleetwide GHG emissions than the conservative assumptions underlying these analyses, automakers will not only earn more credits under the weak SAFE 2 standards in MYs 2021-2022 but will also require fewer credits for compliance in MY2023. Finally, we encourage EPA to adopt some form of multipliers (with a cap) for EVs, fuel cell vehicles (FCVs), and PHEVs in MYs 2023-2025.[143] And, if EPA makes such multipliers available for MY2023 that will further reduce the need for additional lead time for that model year, especially given the anticipated expansion in sales of these vehicles (see *supra* at 27-28).

The evidence demonstrates that there is sufficient lead time for automakers to develop compliance strategies for MY2023 standards including both the preferred alternative and Alternative 2. We urge EPA to consider standards as stringent as Alternative 2 for this model

[141] If EPA were to adopt MY2023 standards weaker than its preferred alternative (i.e., the Alternative 1 standards), we would support some form of discounting for these windfall credits generated during MY2021 and MY2022. Additionally, we oppose EPA's proposal to extend the carry-forward period for certain model-year credits, unless EPA determines those extensions are necessary to provide sufficient lead time for the Alternative 2 standards for MY2023. Extending these periods for standards weaker than Alternative 2 could further delay the emissions reductions that are urgently needed as described above.

[142] *See* Comments of Dr. David Cooke on behalf of Union of Concerned Scientists and Comments of Environmental Defense Fund submitted separately in this docket.

[143] Please see CARB's Comments at 36-37 for changes to EPA's proposed multipliers that we support.

year, and to adopt the most stringent standards—but at least the preferred alternative—for which it determines lead time is adequate, based on the full record before it.

B. There Is Adequate Lead Time for the Alternative 2 Standards for MY2024

There is sufficient lead time for automakers to comply with the Alternative 2 standards for MY2024.[144] Assuming EPA finalizes new standards relatively quickly, automakers will have more than a year to make adjustments for MY2024. That is more than sufficient lead time where, as here, compliance is a matter of designing a cost-effective strategy that combines decisions about which vehicles to manufacture and market (including by way of sales incentives) *and* decisions about credit acquisition, banking, and use. As noted above, automakers are already producing vehicles in all major vehicle categories that can satisfy more stringent standards and have been steadily increasing their use of GHG-reducing technologies across their fleets (in conventional vehicles, hybrids, and BEVs). Again, there is no reason to think these trends will stop; and many reasons—including global trends, technological availability, and consumer and shareholder demands—to believe they will continue. For example, the further expansion of mild hybrids—which have been broadly adopted in Europe and Japan and can achieve emission reductions of 10% or more—can be expected in the United States market beginning in MY2024, especially given their already demonstrated cost-effectiveness and performance advantages.[145]

The increasing production and sale of BEVs and PHEVs also supports the promulgation of Alternative 2's MY2024 standards. EPA projects that automakers would comply with these standards if only 7.4% of their MY2024 fleets comprised BEVs and PHEVs.[146] The industry is on track to meet, or even exceed, that figure.[147] Neither those sales nor the fleetwide sales of internal combustion engine vehicles needed to meet the Alternative 2 MY2024 standards requires the development of new technology, and, as discussed above, automakers have continued to plan to expand applications of these technologies, even after the promulgation of the SAFE 2 standards. Compliance with the Alternative 2 MY2024 standards is, thus, mostly, if not entirely, a matter of automaker strategy—of which vehicles to incentivize and market heavily and of planning whether and how to utilize the flexibility provided by the credit provisions. It requires modest, if any, changes to production plans (e.g., automakers could choose to speed up technology transfers from other markets). None of that requires more than a year's lead time.[148]

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[144] Roush Report at 3.
[145] *Id.* at 9.
[146] DRIA 4-20.
[147] Roush Report at 10-11.
[148] Of course, all of these arguments apply with even more force to EPA's preferred alternative standards for MY2024 because those standards would require even less of automakers.

C. There Is Also Adequate Lead Time for the Alternative 2 Standards for MY2025 and MY2026, As Well As for Additional Stringency in MY2026

We urge EPA to adopt the Alternative 2 standards for MY2025 and to adopt the Alternative 2 standards plus the proposed additional 10 grams/mile of stringency for MY2026. There is no question that lead time is sufficient for these standards. There is ample time for automakers to apply available and proven GHG-reducing technologies in a broader array of vehicles, including, for example, substantially expanding the availability of mild hybrids which reduce emissions and provide other features consumers demand.[149] Of course, automakers would also have ample time to plan to manufacture and sell already-existing or already-planned vehicles that could support compliance of their fleets. Notably, by MY2025, the lead time automakers will have had to adjust to more stringent standards will equal, or exceed, the period during which the SAFE 2 standards were in effect. As shown above, reliance on SAFE 2 would never have been reasonable, but, in any event, by MY2025 any reliance on SAFE 2 should be irrelevant.

Moreover, EPA projects that the Alternative 2 standards would require 7.5 and 9.6% penetration of BEVs and PHEVs in MY2025 and MY2026, respectively. The market share for these vehicles is on track to exceed those figures, with market share of BEVs alone reaching 10% in MY2025 and growing from there.[150] Compliance will, thus, be easier than EPA anticipates. As EPA noted in the Proposal, multiple major automakers have projected that their fleets will be between 40 and 100% BEV by 2030.[151] Those automakers, at least, can be expected to have reached levels well above 10% by MY2025 and MY2026, meaning the industry as a whole should have sufficient credits for compliance even if one or more automakers' EV sales fall below the projected average.

D. Each Model Year's Standards Should Be Severable

Whatever standards EPA adopts, it should include a severability provision for each model year indicating that it would adopt each model year's standards even if other model-year standards are stayed or vacated.[152] EPA should also support severability by making independent lead-time (and any other necessary) findings for each model year. In other words, EPA should make it clear that "the agency would have adopted" each model year's standards on their own and that each model year's standards could function even if earlier model years' standards were stayed or vacated.[153] For example, EPA should find that the MY2024 and later-year standards it adopts would provide adequate lead time even if the MY2023 standards EPA finalizes are stayed or vacated. EPA should make similar findings for each year. These findings are well-supported by the existing record, as discussed above. Moreover, if one or more early model years were stayed,

[149] Roush Report at 3, 10.
[150] *Id.* at 11.
[151] DRIA at 2-14 (describing announcements from Ford, Honda, Volkswagen, Fiat, Volvo, and Mercedes-Benz).
[152] *See, e.g.,* 29 C.F.R. § 1910.505.
[153] *Am. Petroleum Inst. v. EPA*, 862 F.3d 50, 71 (D.C. Cir. 2017), *decision modified on reh'g,* 883 F.3d 918 (D.C. Cir. 2018) (internal quotation omitted).

automakers would have even greater opportunities to accumulate windfall credits in those years, further underscoring that more stringent standards in the outer years can and should remain in effect.

III. EPA's Analysis, and the Full Record, Supports the Finalization of More Stringent Standards

We are encouraged that EPA has drastically improved the analysis it relied on for the SAFE 2 standards, correcting multiple, serious errors as well as unrealistic input assumptions. *See, e.g.*, 86 Fed. Reg. at 43,769 Table 30. As discussed in more detail in SAFE 2 briefing, and in the comments and appendices submitted by CARB, we agree with, among other things, EPA's decisions to allow the modeling to apply high-compression ratio technologies to far more vehicles than the SAFE 2 modeling did and to return to the 10% rebound estimate it has previously employed.[154] After correcting these (and other) errors, the resulting analysis is reasonable and justified. We also support EPA's decision to use the Corporate Average Fuel Economy Compliance and Effects Modeling System (CCEMS). While EPA should continue to refine its modeling capabilities for future rulemakings, including developing OMEGA2, EPA's approach to analyzing net benefits for all its proposed standards allows for more direct comparison with the SAFE 2 Rule and clearly demonstrates the need and bases for standards more stringent than SAFE 2.

We also very much agree with EPA's conclusion that a properly conducted cost-benefit analysis, such as the one EPA has performed here, strongly supports more stringent standards—either EPA's preferred alternative or Alternative 2 (and the additional 10 grams/mile added to either for MY2026). As EPA notes, net benefits have consistently been clear for all increases in stringency to GHG standards—from the initial standards finalized in 2010 to the Phase 2 standards finalized in 2012 and to the 2016 TAR and 2017 Final Determination in the Mid-Term Evaluation process. *See* 86 Fed. Reg. at 43,734-35 (noting that "results of … earlier analyses, as well as the updated analysis … performed [here], have all produced very similar results in several key metrics"). As discussed in CARB's separate comments (including attached expert analyses), EPA should consider further revisions to its cost-benefit analysis, which would cumulatively show even greater net benefits to the proposed standards. CARB Comments at 33-40. For example, EPA should change its price elasticity figure from the -1.0 it used (erroneously) in SAFE 2 to one with an absolute value much closer to zero. *Id.* at 38-39 (citing expert analysis from Prof. Ken Gillingham). Without such changes, EPA's cost-benefit analysis underestimates the true net benefits, though the net benefits EPA calculates clearly support its proposed action(s).

Indeed, EPA's cost-benefit analysis establishes that the proposed standards would significantly benefit society, producing (as underestimated) between $86 billion and $140 billion of total net benefits. 86 Fed. Reg. at 43,735 (Table 4). EPA projects that consumers would save between

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[154] Proof Brief of State and Local Gov't Petitioners, *supra* note 95, at 50-96; CARB Comments at 33-40.

$120 billion and $250 billion on fuel costs. *Id*. Although many of these benefits remain unquantified, the proposed standards would generate between $22 billion and $280 billion in climate benefits from greenhouse gas reductions and at least $3.6 billion to $8.8 billion in benefits from reduction in fine particulate matter. *Id*. at 43,795 (Tables 54-55). Moreover, Alternative 2, which would require larger emissions reductions, would produce even greater net benefits. *See id*. at 43,742 (Table 12). The range of standards from the preferred alternative to the more stringent Alternative 2 (and the 10 grams/mile of additional stringency for MY2026) would not only faithfully execute EPA's statutory mandate to reduce emissions and protect public health, but their benefits would also significantly outweigh their costs.

As to the social cost of greenhouse gases ("SC-GHG") analysis in EPA's proposal, we: (1) applaud the use of a global rather than domestic analysis; (2) urge the use of a discount rate lower than 3%; and (3) recommend EPA explain that its analysis is based on its independent conclusions based on the best available science, including any additional updates that may further improve upon the interim SC-GHG values offered by the Interagency Working Group on Social Cost of Greenhouse Gases ("IWG").

We are encouraged that EPA's SC-GHG analysis, by accounting for global climate harms, has corrected serious errors in SAFE 2's social cost of carbon ("SCC") analysis that used a scientifically and legally indefensible domestic number. As CARB and the multi-state coalition have explained,[155] SAFE 2's domestic SCC ignored the best available science and failed to consider an important aspect of the problem. Indeed, agency reliance on an interim *domestic* SCC in lieu of the global SCC has been held arbitrary and capricious,[156] whereas agency reliance on the *global* SCC has been upheld.[157] We recommend EPA identify these errors in SAFE 2's SCC analysis and explain why EPA needed to correct them and return to its longstanding recognition—dating as far back as 2008, under the Administration of President George W. Bush—that "GHGs are global pollutants" that require a global analysis.[158]

While we applaud improvement over SAFE 2, we strongly urge EPA to use a lower discount rate in its SC-GHG analysis than the 3% discount rate in EPA's proposed reference case. Recalculating social costs using a lower discount rate can be implemented immediately, especially given that EPA's proposal offers a sensitivity study that uses a 2.5% discount rate.[159]

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[155] These SAFE 2 SCC errors are detailed in Proof Brief of State and Local Gov't Petitioners, *supra* note 95, at 89-90 and Brief of Professor Michael Greenstone as Amicus Curiae (Doc. 1880966), as well as in the October 2018 comments submitted in the SAFE proceeding by a multi-state coalition similar to this one (see pp. 104-106) and CARB (see pp. 309-314, attached Auffhammer report).
[156] *California v. Bernhardt*, 472 F.Supp.3d 573, 611-613 (N.D. Cal. 2020).
[157] *Zero Zone, Inc. v. U.S. Dep't of Energy*, 832 F.3d 654, 678-80 (7th Cir. 2016) (agency "acted reasonably" in using global estimates of the social cost of carbon, which were not arbitrary or capricious).
[158] See *Regulating Greenhouse Gas Emissions Under the Clean Air Act*, 73 Fed. Reg. 44,354, 44,415-16 (July 30, 2008).
[159] DRIA Table 10-6.

As explained in both the SAFE 2 litigation and rulemaking,[160] as well as multi-state comments[161] regarding the interim SC-GHG values offered by the IWG, state experience and recent economic evidence shows a lower discount rate better accounts for the long-term, intergenerational impacts of climate change.

In addition, and to the extent possible, EPA should update its SC-GHG models to include any significant climate change-related impacts that have become quantifiable since EPA released its proposed standards.[162] We also encourage EPA to identify some of the significant impacts it was unable to quantify in its SCC—including some impacts our States are experiencing this year, such as the combined effects of storm surges and rising sea levels and the human health costs of increased wildfires. While we recognize that EPA cannot quantify all climate impacts, and that EPA need not do so, we nonetheless believe it is important to acknowledge that the SCC figure used is almost certainly understated due to this constraint.

Finally, we urge EPA to explain that, while its SC-GHG analysis is consistent with the interim values offered by the IWG, EPA has reached its independent conclusions using the best available science, especially given that EPA's proposal uses SC-GHG analysis that reflects some updates from the IWG's analysis. Doing so would not diminish the SC-GHG analysis offered by the IWG, whose analysis is based on peer-reviewed literature and economic models.[163] Rather, any updates by EPA based on agency expertise merely recognizes that federal agencies must use the best available science—which includes SC-GHG—when setting vehicle standards.[164]

CONCLUSION

There is no time to lose in acting to avoid the catastrophic impacts of the climate crisis. We, therefore, urge EPA to expeditiously adopt rigorous GHG standards for model years 2023 through 2026. The technologies to achieve significant reductions are available, well-understood, and cost-effective, so there is no need to wait to require further deployment of these technologies or to delay the massive economic and public health benefits of reducing these emissions.

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160 *See supra* note 155.

161 June 21, 2021 multistate comments regarding 86 Fed. Reg. 24,669 (May 7, 2021).

162 *See Regulatory Planning and Review*, Exec. Order No. 12,866 §§ 1, 6(a)(3)(C), 58 Fed. Reg. 51,735 (Oct. 4, 1993) (requiring agencies to assess "all costs and benefits" of regulatory actions and alternatives, including "quantifiable measures []to the fullest extent that [they] can be usefully estimated")

163 Interagency Working Group on Social Cost of Greenhouse Gases, *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimate Under Executive Order 13,990* 1, 10-12 (Feb. 2021).

164 *Center for Biological Diversity v. National Highway Traffic Safety Administration*, 538 F.3d 1172, 1198-1203 (9th Cir. 2008); *High County Conservation Advocates v. U.S. Forest Serv.*, 52 F.Supp.3d 1174, 1189-92 (D. Col. 2014); *Montana Envt'l Info. Ctr. v. U.S. Office of Surface Mining*, 274 F.Supp.3d. 1074, 1095-99 (D. Mt. 2017).

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