Before the United States House Committee on Science, Space, and Technology
Subcommittee on Environment Hearing - State Perspectives on Regulating Background Ozone

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Chairman Biggs, Ranking Member Bonamici and Members of the Committee, thank you for the opportunity to testify regarding the National Ambient Air Quality Standards (NAAQS) for ground-level ozone.

My name is Elena Craft. I serve as a Senior Scientist at Environmental Defense Fund (EDF), a national nonpartisan science-based environmental organization, where I manage a team working to identify strategies and opportunities to reduce harmful air pollution such as ozone from pollution hotspots. EDF is a national environmental organization with over 2 million members that links science, economics, law, and private-sector partnerships to solve our most serious environmental challenges. In addition, I have an adjunct appointment at the University of Texas Health Sciences Center School of Public Health in Houston and I am also a Kinder Fellow at Rice University.

EDF and its members are deeply concerned about harmful air pollution, including ground-level ozone, and I greatly appreciate the opportunity to testify on these critical public health protections.

I. An Extensive Body of Scientific Evidence Demonstrates that Ozone Pollution Harms Human Health

Ground-level ozone, a component of smog, is a harmful air pollutant that irritates the lungs, exacerbates lung conditions like asthma, and is linked to a wide-array of serious heart and lung diseases. Scientific evidence spanning several decades shows that human exposure to ozone can cause a broad range of respiratory effects, including inflammation of the airways, asthma attacks, chronic obstructive pulmonary disease (COPD), and other health harms that can lead to increased use of medication, school absences, hospital admissions, and emergency room visits.[1]

EPA has estimated that the 2015 ozone standard will save hundreds of lives, prevent 230,000 asthma attacks in children, and prevent 160,000 missed school days for children each year.[2]

Between 2008 and 2015, there were more than 1,000 new studies that further confirmed the already well-documented health and environmental harms associated with ozone.[3] In particular, EPA concluded:

[1] EPA, *Integrated Science Assessment for Ozone and Related Photochemical Oxidants*, Executive Summary (2013), *available at* https://www.epa.gov/isa/integrated-science-assessment-isa-ozone-and-related-photochemical-oxidants (last visited Apr. 27, 2018).
[2] EPA, *Regulatory Impact Analysis of the Final Revisions to the National Ambient Air Quality Standards for Ground-Level Ozone*, EPA-452/R-15-007, at ES-16, tbl.ES-6 (2015).

> Scientific evidence shows that ozone can cause a number of harmful effects on the respiratory system, including difficulty breathing and inflammation of the airways. For people with lung diseases such as asthma and COPD (chronic obstructive pulmonary disease), these effects can aggravate their diseases, leading to increased medication use, emergency room visits and hospital admissions.
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> Evidence also indicates that long-term exposure to ozone is likely to be one of many causes of asthma development. In addition, studies show that ozone exposure is likely to cause premature death.[4]

Very recent evidence from studies published within the last year further solidifies the link between ozone exposure and an increased risk of death. One key study assessed ozone impacts in 61 million Medicare beneficiaries across thirteen years in the United States and found that the risk of death associated with ozone exposure continued below the current 8-hour NAAQS standard of 70 parts per billion (ppb).[5] The authors of this landmark study concluded that there was no threshold below which exposure to ozone did not produce adverse health consequences.[6] Another study found that long-term seasonal ozone was also associated with premature mortality and that reduction of just 5ppb of summertime average ozone across the country would save 9,537 lives per year.[7]

This body of scientific and technical literature also demonstrates that the risk of these harmful health effects is even more pronounced for people with asthma and other respiratory diseases, children, older adults, and people who work or are active outdoors. An estimated 20 million people over the age of 18 have asthma in the U.S. and an estimated 6.1 million children under the age of 18 have asthma.[8] Asthma disproportionately impacts communities of color and lower-income communities.[9]

Children, in particular, are considered the most at-risk group because they breathe more air per unit of body weight, are more active outdoors, are more likely to have asthma than adults, and are still developing their lungs and other organs. In fact, EPA's Children's Health Protection Advisory Committee (CHPAC)—a body of external experts that provides the Administrator with recommendations concerning children's health— recommended a substantially stronger standard

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[3] EPA, Fact Sheet, *Overview of EPA's Updates to the Air Quality Standards for Ground-Level Ozone* ("2015 Ozone Standard Fact Sheet"), *available at* https://www.epa.gov/sites/production/files/2015-10/documents/overview_of_2015_rule.pdf ; *see also* EPA, Integrated Science Assessment for Ozone and Related Photochemical Oxidants, Final Report (Feb. 2013), *available at* http://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=247492#Download.

[4] 2015 Ozone Standard Fact Sheet.

[5] Di Q, Dai L, Wang Y, Zanobetti A, Choirat C, Schwartz JD, Dominici F., *Association of Short-term Exposure to Air Pollution With Mortality in Older Adults*, 318 JAMA 2446–2456 (2017), doi:10.1001/jama.2017.17923

[6] *Id.*

[7] Di, Q., Wang, Y., Zanobetti, A., Wang, Y., Koutrakis, P., Choirat, C., Dominici, F. and Schwartz, J.D., *Air pollution and mortality in the Medicare population*. 376 NEW ENGLAND J. OF MED., 2513-2522 (2017), *available at* http://www.nejm.org/doi/full/10.1056/NEJMoa1702747.

[8] Centers for Disease Control and Prevention, National Center for Health Statistics, 2016 *available at* https://www.cdc.gov/nchs/fastats/asthma.htm

[9] *Id.*

to protect the health of children. CHPAC found that "[c]hildren suffer a disproportionate burden of ozone-related health impacts due to critical developmental periods of lung growth in childhood and adolescence that can result in permanent disability."[10]

Implementing the strengthened ozone health standard is essential to begin addressing the health harms that children, sensitive populations, and all Americans face due to ozone exposure.

II. Millions of Americans Are Exposed to Unhealthy Levels of Air Pollution

Nationwide, millions of Americans are exposed to unhealthy levels of air pollution. A recent report by the American Lung Association (ALA), *State of the Air 2018*, which looked at air quality from 2014 to 2016, found that ozone pollution "worsened significantly" compared to the prior year's report.[11] The American Lung Association notes that from 2014 to 2016 "more than 133.9 million people live in the 215 counties that had unhealthy ozone or particle pollution."[12] And of the report's top twenty-five areas for unhealthy levels of ozone pollution, some improved, but sixteen had worse ozone from 2014 to 2016,[13] which underscores the importance of implementing the more protective, 2015 ozone standard.

Figure 1, below, shows the American Lung Association's list of the twenty-five areas across the country that face the highest levels of ozone pollution, which demonstrates that these heavily-polluted areas are not limited to any specific geographic area.[14]

[10] Letter from Sheela Sathyanarayana MD MPH, Chair, Children's Health Protection Advisory Committee to Christopher Frey PhD, CASAC Review of the Health Risk and Exposure Assessment for Ozone and Policy Assessment for the Review of the Ozone NAAQS: Second External Review Drafts, (May 19, 2014), *available at* https://www.epa.gov/sites/production/files/2014-12/documents/2014.05.19_chpac_ozone_naaqs.pdf.
[11] American Lung Association, *State of the Air 2018*, Key Findings, *available at* http://www.lung.org/our-initiatives/healthy-air/sota/key-findings/
[12] *Id.*
[13] *Id*., Ozone, *available at* http://www.lung.org/our-initiatives/healthy-air/sota/key-findings/ozone-pollution.html.
[14] *Id*. at 20, *available at* http://www.lung.org/assets/documents/healthy-air/state-of-the-air/sota-2018-full.pdf.

FIGURE 1: People at Risk in 25 Most Ozone-Polluted Cities

RANKINGS

People at Risk In 25 Most Ozone-Polluted Cities

2018 Rank[1]	Metropolitan Statistical Areas	Total Population[2]	Under 18[3]	65 and Over[3]	Pediatric Asthma[4,6]	Adult Asthma[5,6]	COPD[7]	CV Disease[8]	Poverty[9]
1	Los Angeles-Long Beach, CA	18,688,022	4,353,354	2,444,450	334,698	1,119,385	628,200	7,942	1,433,318
2	Bakersfield, CA	884,788	258,054	91,719	19,840	48,388	25,731	377	57,988
3	Visalia-Porterville-Hanford, CA	610,222	184,746	64,889	14,204	32,845	17,612	260	39,595
4	Fresno-Madera, CA	1,134,612	323,032	136,983	24,836	62,984	34,873	482	78,731
5	Sacramento-Roseville, CA	2,567,451	595,320	389,039	45,770	155,308	91,493	1,090	209,852
6	San Diego-Carlsbad, CA	3,317,749	728,325	446,038	55,996	201,462	112,570	1,413	254,999
7	Modesto-Merced, CA	810,232	227,322	98,506	17,477	45,364	25,251	345	57,294
8	Phoenix-Mesa-Scottsdale, AZ	4,661,537	1,138,270	703,512	91,762	331,403	233,308	2,213	373,254
9	Redding-Red Bluff, CA	242,907	53,835	48,295	4,139	15,160	9,825	103	22,749
10	New York-Newark, NY-NJ-CT-PA	23,689,255	5,145,013	3,539,645	458,494	1,721,736	1,038,329	13,759	1,826,564
11	Houston-The Woodlands, TX	6,972,374	1,860,373	739,774	147,214	389,479	241,094	3,688	550,064
12	Las Vegas-Henderson, NV-AZ	2,404,336	551,082	374,922	36,391	150,570	129,535	1,242	205,979
13	San Jose-San Francisco-Oakland, CA	8,751,807	1,874,550	1,250,653	144,121	539,410	309,563	3,721	708,929
14	Denver-Aurora, CO	3,470,235	803,223	427,601	64,700	234,863	112,500	1,483	167,799
15	El Centro, CA	180,883	51,832	22,953	3,985	10,037	5,646	77	12,757
16	Dallas-Fort Worth, TX-OK	7,673,305	2,016,215	862,921	159,749	432,736	273,449	4,058	624,821
17	Washington-Baltimore-Arlington, DC-MD-VA-WV-PA	9,665,892	2,205,657	1,282,504	199,530	692,877	423,744	5,526	762,909
18	Salt Lake City-Provo-Orem, UT	2,514,748	765,804	241,347	44,770	145,432	66,492	654	122,337
19	Fort Collins, CO	339,993	68,025	50,096	5,479	23,835	11,703	145	17,434
20	Hartford-West Hartford, CT	1,476,637	301,063	243,852	33,160	123,604	69,574	887	115,420
21	Chico, CA	226,864	45,489	40,815	3,497	14,266	8,676	96	19,679
22	Chicago-Naperville, IL-IN-WI	9,882,634	2,300,124	1,348,267	170,477	683,560	473,577	6,620	775,469
23	Atlanta--Athens-Clarke County--Sandy Springs, GA	6,451,262	1,606,983	760,202	142,134	420,082	367,638	4,180	572,742
24	Philadelphia-Reading-Camden, PA-NJ-DE-MD	7,179,357	1,583,881	1,110,738	135,570	550,637	380,103	4,487	572,192
24	Sheboygan, WI	115,427	25,986	19,797	2,159	7,662	5,385	68	9,052

Notes:

1. Cities are ranked using the highest weighted average for any county within that Combined Metropolitan Statistical Area or Metropolitan Statistical Area.
2. **Total Population** represents the at-risk populations for all counties within the respective Combined Metropolitan Statistical Area or Metropolitan Statistical Area.
3. Those **under 18** and **65 and over** are vulnerable to $PM_{2.5}$ and are, therefore, included. They should not be used as population denominators for disease estimates.
4. **Pediatric asthma** estimates are for those under 18 years of age and represent the **estimated** number of people who had asthma in 2016 based on state rates (BRFSS) applied to population estimates (U.S. Census).
5. **Adult asthma** estimates are for those 18 years and older and represent the **estimated** number of people who had asthma in 2016 based on state rates (BRFSS) applied to population estimates (U.S. Census).
6. Adding across rows does not produce valid estimates. Adding the disease categories (asthma, COPD, etc.) will double-count people who have been diagnosed with more than one disease.
7. **COPD** estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
8. **CV disease** is cardiovascular disease, and estimates are for adults 18 and over who have been diagnosed within their lifetime, based on state rates (BRFSS) applied to population estimates (U.S. Census).
9. **Poverty** estimates come from the U.S. Census Bureau and are for all ages.

Source: American Lung Association, *State of the Air 2018*, *available at* http://www.lung.org/assets/documents/healthy-air/state-of-the-air/sota-2018-full.pdf

In my home state of Texas, *State of the Air 2018* found there were over 400 orange, red, or purple high ozone days (denoting specific ranges of severity for adverse health outcomes) in the counties examined in the report from 2014 to 2016. Fourteen counties received a grade of F in Texas for ozone pollution.[15]

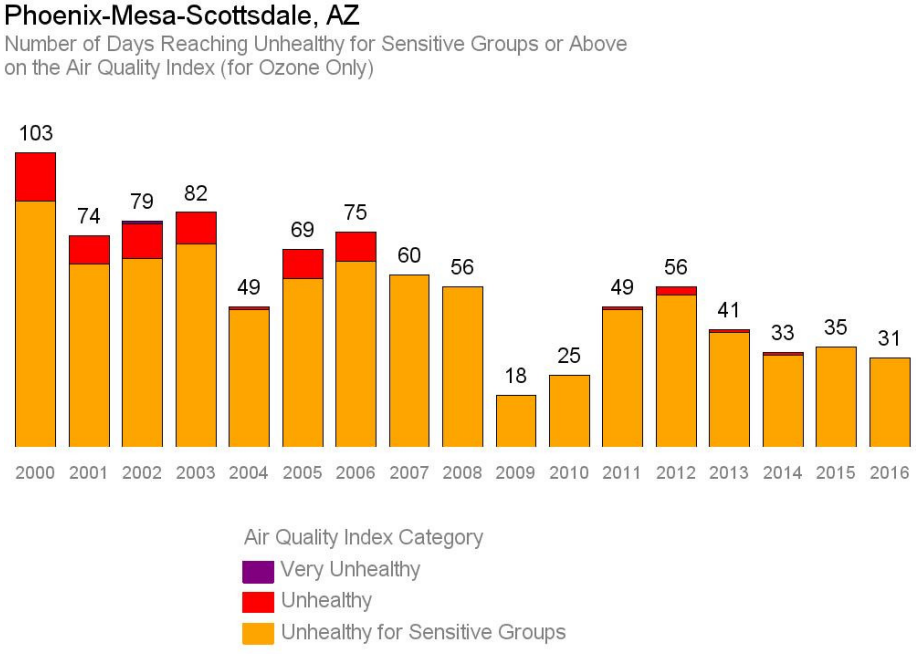
San Antonio, Texas is one of several areas in my home state that is particularly at risk. EPA has still not determined whether air quality in the San Antonio area meets the 2015 standard, despite the fact that monitors in the area have exceeded the 70ppb design value for many years. While EPA unlawfully delays, the citizens and children of San Antonio suffer the consequences as we

[15] *Id.* at 152.

move toward the height of summer ozone season. *State of the Air 2018* estimates the number of individuals from these sensitive populations living in the San Antonio area. Among other sensitive groups, the report estimated that over 58,767 children suffering from pediatric asthma and 168,266 adults suffering from asthma live in the eight counties in the San Antonio area.[16] The report projects that there are 109,113 individuals suffering from COPD, 171,929 individuals suffering from cardiovascular disease, and 1,524 suffering from lung cancer also live within those eight counties. The report ranked the San Antonio-New Braunfels area twenty-seventh for high ozone days out of 227 metropolitan areas. By failing in its duty to determine whether the San Antonio area meets the 2015 standard, EPA is unlawfully delaying needed air pollution protections for this region.

Other areas across the country, including in the Intermountain West suffer from elevated levels of ozone pollution. For instance, two areas in Arizona are on ALA's top 25 most ozone polluted areas. EPA reports the Phoenix-Mesa-Scottsdale area had thirty-one days of unhealthy ozone levels in 2016.[17]

FIGURE 2: Number of Days Reaching Unhealthy for Sensitive Groups in Phoenix-Mesa-Scottsdale, AZ



Source:
https://gispub.epa.gov/OAR_OAQPS/SeasonReview2016/index.html?appid=81efd40145584349a40b0869e20ffc3d

Indeed, though summer ozone season is just beginning across much of the country, there have already been a number of alerts for high ozone pollution, including in Arizona, Pennsylvania, and Texas (see the appendix of alerts issued or reported as of June 13, 2018).

[16] The eight Texas counties for which EPA has not made a final area designation include: Atascosa, Bandera, Bexar, Comal, Guadalupe, Kendall, Medina, and Wilson.

[17] US EPA, *A look back: Ozone in 2016*, *available at* https://gispub.epa.gov/OAR_OAQPS/SeasonReview2016/index.html?appid=81efd40145584349a40b0869e20ffc3d

III. Bipartisan, Time-Tested History of Clean Air Act's Health-based Standards

Fortunately, for almost 50 years, the Clean Air Act has provided bipartisan, time-tested solutions for reducing harmful pollution and protecting public health. National Ambient Air Quality Standards for deadly air pollutants like ground-level ozone form the foundation of the Clean Air Act's health-based protections. These bipartisan, consensus-backed standards save lives and protect American families.

The Clean Air Act establishes a carefully-calibrated structure which provides for two distinct phases for setting or updating these vital standards. First, EPA is charged with establishing a health-protective standard. These standards are informed by an extensive volume of peer-reviewed literature as well as by a panel of scientific advisors. Following the establishment of these standards, a separate implementation process rooted in cooperative federalism takes place, whereby EPA works to carry out the NAAQS program in conjunction with the states and local air quality regulators.

The language crafted by Congress in 1970 is straightforward. It instructs EPA's Administrator to, first, establish standards that "are requisite to protect the public health" with "an adequate margin of safety."[18] The statute is clear that the standards be set based exclusively on public health considerations and to be precautionary in safeguarding against adverse health effects. As a matter of Congressional design, the level at which the standards are set is to be based on public health considerations alone. The question of what factors may be considered in the standard-setting process has also been consistently answered by the decisions of prior EPA Administrators and numerous judicial decisions of the federal court of appeals in Washington, D.C., as well as by the U.S. Supreme Court.[19]

Ultimately, this question was emphatically answered by a unanimous Supreme Court. Justice Antonin Scalia, writing for the high Court, explained that the text of the Clean Air Act is clear in that only public health factors may be considered. Justice Scalia then set forth the inquiry the Administrator must make in establishing the nation's health-based air quality standards—one that is thoroughly anchored in protecting public health:

> The EPA, "based on" the information about health effects contained in the technical "criteria" documents compiled under § 108(a)(2), 42 U.S.C. § 7408(a)(2), is to identify the maximum airborne concentration of a pollutant that the public health can tolerate, decrease the concentration to provide an "adequate" margin of safety, and set the standard at that level. Nowhere are the costs of achieving such a standard made part of that initial calculation.[20]

After the health-based standard is established, the Clean Air Act then provides a prominent role for consideration of costs in national, state, and local decisions about the pollution control strategies deployed to achieve the standard. The statute provides for the consideration of costs in

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[18] Clean Air Act § 109(b)(1), 42 U.S.C. § 7409(b)(1).

[19] *See, e.g.*, *Am. Lung Ass'n v. EPA*, 134 F.3d 388 (D.C. Cir. 1998); *Natural Res. Def. Council v. Adm'r, EPA*, 902 F.2d 962 (D.C. Cir. 1990), vacated in part on other grounds, 921 F.2d 326 (D.C. Cir. 1991); *Am. Petroleum Inst. v. Costle*, 665 F.2d 1176 (D.C. Cir. 1981); *Lead Indus. Ass'n, Inc. v. EPA*, 647 F.2d 1130 (D.C. Cir. 1980); *Whitman v. Am. Trucking Ass'ns, Inc.*, 531 U.S. 457, 465 (2001).

[20] *Whitman*, 531 U.S. at 465.

setting emission limits for cars, SUVs, trucks, buses, construction equipment, aircraft, fuels, power plants, and industrial facilities.

States and local governments, in turn, are distinctly responsible for designing the air quality management plans for their communities and entrusted with determining how the burden is allocated to restore healthy air. As Justice Scalia succinctly explained, "[i]t is to the States that the Act assigns initial and primary responsibility for deciding what emissions reductions will be required from which sources."[21]

IV. EPA Strengthened the Health-based Standard for Ozone in 2015—An Action Grounded in an Extensive Body of Scientific Literature and that Enjoys Broad, Public Support

This time-tested and bipartisan framework has delivered significant pollution reductions, all while the U.S. economy has continued to grow. EPA's most recent action to update the nation's health-based ozone standards, finalized in 2015, resulted in a more protective standard of 70ppb. EPA's action was grounded in the extensive body of scientific literature, described above, documenting that the previous standard of 75ppb was not requisite to protect public health.

There is strong public support for the 2015 ozone standard. The American Lung Association conducted polling in April 2018 that demonstrated continued, cross-partisan, public support for the standard, noting:

> Three-quarters of voters support EPA enforcing these stricter limits on smog—with a majority of all respondents strongly supporting. In every demographic group polled, more voters supported than opposed enforcement of the standards.[22]

Leading health and medical associations, including the American Lung Association, American Academy of Pediatrics, American Public Health Association, American Thoracic Society, Trust for America's Health, Asthma and Allergy Foundation of America, Health Care Without Harm, and National Association of County and City Health Officials, supported strengthening the previous, 2008 ozone standard.[23] The American Academy of Pediatrics forcefully reiterated that "[o]zone pollution in the air disproportionately impacts children, whose unique health and developmental needs make them more susceptible to pollutants."[24] Community and environmental justice groups such as Voces Verdes and We ACT for Environmental Justice also supported lowering the standard.[25]

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[21] *Id.*

[22] American Lung Association Press Release, New Poll: Voters Overwhelmingly Support Stricter Limits on Smog, April 24, 2018, *available at* http://www.lung.org/about-us/media/press-releases/new-poll-smog.html

[23] Comments from American Academy of Pediatrics et al. to the US Environmental Protection Agency, March 17, 2015, *available at* http://www.lung.org/assets/documents/advocacy-archive/national-health-and-medical.pdf

[24] American Academy of Pediatrics Press Release, AAP Statement on New EPA Ozone Standards, October 1, 2015, available at: https://www.aap.org/en-us/about-the-aap/aap-press-room/Pages/EPAOzonefinalstd.aspx

[25] *See* Voces Verdes Press Release, Voces Praises New Proposed Limits On Ozone; Supports Health Protective Standard, November 26, 2014, available at: http://www.vocesverdes.org/voces-in-action/3636/voces-praises-new-proposed-limits-on-ozone-supports-health-protective-standard; WE ACT for Environmental Justice, "Why WE ACT and its Allies Sued EPA for Cleaner Air," *available at* https://www.weact.org/2017/12/act-allies-sued-epa-cleaner-air/.

The 2015 ozone standard also received broad support from elected officials at all levels, including a diverse coalition of seventy mayors representing communities from all across the nation. The mayors stated that the prior 75ppb standard was "widely acknowledged by the medical community as insufficient to protect public health."[26] The letter went on to underscore:

> As local elected officials representing big cities and small towns, we want to express our strong support for the Environmental Protection Agency's (EPA) work to update the ozone (or smog) standard. . . . As mayors, we are on the front lines of protecting the safety and well-being of our constituents and this long-overdue update will reap tremendous benefits for our communities. [27]

V. The NAAQS Work and Are Achievable with Made-in-America Technology Solutions

Many highly cost-effective, commonsense clean air measures are available to help secure pollution reductions needed to achieve the improved air quality standards. The 48-year history of the Clean Air Act shows that the nation's public health standards are achievable, through available technologies and innovation by states and businesses. The broad environmental technologies, goods, and services sector was a more than $1 trillion global market, with the U.S. providing exports of nearly $48 billion in 2015.[28]

Moreover, our nation has often worked to achieve greater reductions than required, sooner, and at lower costs than estimated. Indeed, there are many clean air measures already underway that will help protect states, communities, and families from ozone pollution. EPA noted in its recent Air Trends report that most counties (outside of California) would be in attainment with the 2015 ozone standard by 2025, stating that "[f]ederal rules, including the Cross-State Air Pollution Rule, Mercury and Air Toxics Standards, the Tier 3 Vehicle Emissions and Fuels Standards, and the Clean Power Plan, will help reduce ozone-forming pollution in the years ahead."[29]

Other examples of reductions that will help meet the 2015 ozone standard include the cost-effective standards to reduce emissions from the oil and gas sector. EPA's emissions standards for new and modified oil and gas sources are modeled after successful state programs in Colorado and Wyoming. In Colorado, for instance, state standards have helped to reduce equipment leaks by seventy-five percent, while oil and natural gas production has increased.

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[26] Mayors Smog Letter to President Obama, (Sept. 21, 2015) *available at* https://slcgreen.files.wordpress.com/2015/09/mayors-smog-letter-final-copy-9-21-2015.pdf

[27] *Id.*

[28] U.S. Department of Commerce International Trade Administration, *2017 Top Markets Report Environmental Technologies A Market Assessment Tool for U.S. Exporters (June 2017)* at 2, https://www.trade.gov/topmarkets/environmental-tech.asp (last visited: June 19, 2018). The United States is the single largest market for the sector, which provided about $330 billion in revenue in 2016. Indeed, environmental technology is a robust industry sector in the U.S., employing 1.6 million people. For instance, the national average ozone level has gone down 31% since 1980 and more than 90% of areas originally designated nonattainment for the 1997 ozone standards now meet those standards. *Compare* U.S. EPA, https://www.epa.gov/air-trends/ozone-trends *with* U.S. EPA, By the Numbers Fact Sheet (Oct. 2015), https://www.epa.gov/sites/production/files/2015-10/documents/20151001_bynumbers.pdf.

[29] U.S. EPA, https://gispub.epa.gov/air/trendsreport/2016/, (*last accessed* June, 12 2018).

Nationally, EPA estimated these standards for new sources would reduce volatile organic compound (VOC) emissions by 210,000 tons in 2025.

Additionally, there are numerous cost-effective, readily-available emission reductions yet to be implemented. For example, as evidenced in petitions to EPA from states like Maryland and Delaware, there are coal-fired power plants in several areas of the country that are not fully utilizing their already-installed pollution controls (e.g., selective catalytic reduction) to reduce ozone-precursor emissions of oxides of nitrogen (NOx). Left unaddressed, these units' emissions will continue to contribute to local and downwind ozone air pollution in places like Maryland and Delaware, creating challenges for communities to meet and maintain the NAAQS.[30]

Lastly, more protective NOx controls for heavy-duty trucks can deliver important and highly-cost effective pollution reductions from these vehicles. Heavy-duty manufacturers are developing new, effective solutions to reduce NOx emissions from trucks and buses. Advances in combustion and fuel injection systems, turbochargers, electronic controls, diesel particulate filters, and improved selective catalytic reduction (SCR) technologies are enabling reductions in NOx and other air pollutants.[31] In addition, the South Coast Air Quality Management District (SCAQMD) in California worked with heavy-duty engine manufacturer Cummins to develop an ultra-low NOx emission compressed natural gas engine for freight trucks.[32] Electric-drive trucks are also a new avenue opening up to further reduce NOx and particulate matter (PM) emissions from heavy-duty trucks. Standards to implement these and other advanced technologies would deliver vital health protections and benefit communities nationwide.

VI. The Trump Administration's Actions to Roll Back Clean Air Protections Threaten Human Health

When it finalized the 2015 ozone standard, EPA determined that highly-cost effective clean air policies that were already on the books would help many areas meet the more protective ozone standard. Despite these important pollution reductions and well-established benefits, EPA Administrator Scott Pruitt is attempting to rescind, weaken, or delay many of these clean air standards.

Standards Applicable to Major Stationary Sources of Pollution. Administrator Pruitt has sought to weaken protections applicable to major stationary sources of air pollution, including, for example, his proposal to repeal the Clean Power Plan. However, these critical standards will reduce carbon emissions from the power sector by thirty-two percent and will reduce NOx emissions by 278,000 tons in 2030. The combined ozone and particulate matter reductions the

[30] *See* State of Maryland Department of the Environment, Petition to the United States Environmental Protection Agency Pursuant to Section 126 of the Clean Air Act (Nov. 16, 2016), *available at* http://news.maryland.gov/mde/wp-content/uploads/sites/6/2016/11/MD_126_Petition_Final_111616.pdf.
[31] *See* California Air Resources Board, Draft Technology Assessment: Lower NOx Heavy-Duty Diesel Engines (September 2015) at ES-8, http://www.arb.ca.gov/msprog/tech/techreport/diesel_tech_report.pdf.
[32] *See* South Coast Air Quality Management District, *et. al.*, Petition to EPA for Rulemaking to Adopt Ultra-Low NOx Exhaust Emission Standards for On-Road Heavy-Duty Trucks and Engines (June 3, 2016), *available at* http://www.aqmd.gov/home/news-events/current-news/2016-news-archives/nox-petition-to-epa; *see also* CARB, Draft Technology Assessment: Lower NOx Heavy-Duty Diesel Engines (September 2015) at ES-9 ("Cummins believes a 0.1 g/bhp-hr NOx level is feasible with some improvements to the current SCR technology and the conventional diesel combustion process while still allowing for fuel economy optimization.") With further improvements, the company believes NOx emissions could be reduced to 0.02 to 0.05 g/bhp-hr levels.

Clean Power Plan will deliver will help to avoid 3,600 deaths, 90,000 asthma attacks, and 1,700 hospital visits in 2030.

In addition, the Administrator has taken action to create new and dangerous loopholes in the Clean Air Act's New Source Review program. Without seeking public input, EPA has sought to make it easier for major, industrial sources of dangerous air pollution to make changes that would increase pollution from their facilities while avoiding the longstanding requirement to simultaneously deploy state-of-the-art pollution control technologies.

The Administrator has likewise neglected his responsibility to ensure protections are in place for downwind states and communities. For example, the States of Connecticut, Delaware, and Maryland all submitted "good neighbor" petitions to EPA under section 126 of the Clean Air Act seeking relief from upwind emissions from coal-fired power plants that cause health-harming ozone pollution within their borders. Those petitions ask EPA to ensure that these upwind power plants install—or, in the case of Maryland's petition, simply run already-installed—modern and cost-effective pollution controls. The Administrator has failed to respond to those petitions in the timeframes provided for under the law. As a result, in a judicial decision issued just last week concerning the State of Maryland's pending "good neighbor" petition, the court stated that it was "troubled by EPA's apparent unwillingness or inability to comply with its mandatory statutory duties within the timeline set by Congress."[33] Unfortunately, EPA issued a proposed decision on June 8, 2018 indicating that it intends to deny the pending "good neighbor" petitions from Delaware and Maryland.[34]

Standards Applicable to Mobile Sources of Pollution. The Administrator has also proposed to weaken or rescind protections applicable to mobile sources. For instance, the Administrator has proposed to withdraw a rule for super-polluting heavy-duty, long-haul trucks, which would ensure that these "glider" vehicles deploy the same modern pollution controls as other new long-haul trucks.[35] Large freight trucks and buses are one of the largest sources of NOx emissions in the U.S., contributing to harmful pollution in communities across the nation.[36] Removing protections for super-polluting "glider" trucks would result in significant increases in NOx—accounting for more NOx emissions than all of the emissions generated as a result of the Volkswagen emissions cheating scandal.[37] These NOx emissions would lead to the formation of ozone as well as increased particulate matter. Furthermore, if the Administrator moves forward with this rollback, by 2025, these super-polluting freight trucks would make up just five percent of the nation's truck fleet, but they would cause *one third* of the air pollution attributable to the fleet.[38]

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[33] *Maryland v. EPA*, Dist. Ct. of MD Case No. 17-2873, June 13, 2018 Memorandum at 14.
[34] 83 Fed. Reg. 26,666 (June 8, 2018).
[35] U.S. EPA, Proposed Rule: *Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits*, 82 Fed. Reg. 53,444 (Nov. 16, 2017).
[36] U.S. EPA, 2013 Final Report: Integrated Science Assessment of Ozone and Related Photochemical Oxidants at 3-6, https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=247492.
[37] Comment of EDF, ELPC, & WE ACT for Environmental Justice on EPA's Proposed Rule, Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits, 82 Fed. Reg. 53,442 (Jan. 5, 2018), at 11-12, https://www.regulations.gov/document?D=EPA-HQ-OAR-2014-0827-4861.
[38] U.S. EPA, *Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2*; Final Rule, 81 Fed. Reg. 73,478, 73,943 (Oct. 25, 2016); *see also* HDP2 Response to Comments Section 14 Appendix A.

National Ambient Air Quality Standards. The Administrator has also taken actions designed directly to weaken the National Ambient Air Quality Standards, including, for example, unlawfully delaying implementation of the 2015 ozone standard. In response to a lawsuit filed by states and public health and environmental organizations, EPA has now moved forward to identify certain areas of the country that do not meet the 2015 standard. However the agency's action comes almost an entire year after it was due, meaning that communities with unhealthy levels of ozone will face another summer without solutions in place to clean up the air. In addition, EPA has yet to take any final action concerning the eight counties around San Antonio, resulting in delays of the health and air quality protections the Clean Air Act provides.

Moreover, Administrator Pruitt has determined that certain areas meet the national standards despite monitoring data to the contrary. The Administrator has disregarded some of these monitoring data on the grounds that the unhealthy levels of ozone pollution are the result of exceptional events. The Clean Air Act, however, provides only very narrow circumstances under which EPA may do so, animated by the Act's strong focus on the protection of public health. A recent Presidential Memorandum to Administrator Pruitt turns the exceptional events provision on its head by encouraging states to submit these demonstrations to EPA as a routine matter. In the wake of this memorandum, EPA has now relied on a series of purported exceptional events to remove counties from traditional area boundaries when setting the final nonattainment areas.

Finally, Administrator Pruitt has issued a memorandum broadly addressing implementation of the National Ambient Air Quality Standards program. Among other deficiencies, the memo implies that EPA might consider costs when setting the NAAQS, despite settled Supreme Court precedent that the standards must be based on public health considerations alone.

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These are just a few examples of highly cost-effective policies to reduce ozone pollution that are under threat by the Administrator's actions.

VII. Man-made Emissions Sources Continue to Play the Largest Role in Unhealthy Ozone Levels

Eliminating the above-described protections is deeply misguided and would result in additional, harmful air pollution in communities across the country, while removing important tools from state air quality planners who are working to restore healthy air. This is especially so because, as EPA recognized when adopting the 2015 ozone standard, the anthropogenic sources addressed by these clean air measures are the dominant contributors to unhealthy ozone levels.

Notwithstanding this finding, Administrator Pruitt has expressed an intent to reexamine the contribution of "background ozone" levels to violations of the NAAQS. However, EPA has already examined these issues in its Policy Assessment for the review of the 2015 ozone standard and again in a 2015 White Paper on *Issues Associated with Background Ozone*. Both times, the agency concluded that anthropogenic emissions sources are the dominant contributor to most modeled ozone exceedances of the NAAQS nationally and within individual regions across the

country.[39] In particular, when ozone levels are at their highest, anthropogenic sources are significant contributors, and these sources can be effectively addressed.

A recent peer-reviewed publication from the Cooperative Institute for Research in Environmental Sciences supports these findings. That study examined the oil and gas sector's contribution to ozone formation on Colorado's Front Range, focusing specifically on days that exceeded the ozone NAAQS. The study found that, on individual days, oil and gas ozone precursors could contribute in excess of 30 ppb to ozone concentrations and could be the primary driver of exceedances of the ozone NAAQS in that region.[40] Another study of the Colorado Front Range found that oil and gas VOC emissions contributed approximately twenty percent to regional ozone production.[41]

These findings underscore that, even in areas across the Intermountain West where background levels are sometimes incrementally higher, anthropogenic sources are substantial contributors to exceedances of health-based standards and that there are available solutions to reduce this harmful pollution. Furthermore, EPA has tools in place to address rare instances when truly exceptional events impact air quality, and western and southwestern states including Texas,[42] Arizona,[43] and Wyoming,[44] have previously sought to use these provisions.

VIII. Conclusion

This hearing is held under the auspices of the House Committee on Science, Space, and Technology. With that in mind, it is science that informs us on how to best manage the health harms of air pollutants like ozone. A rigorous and extensive body of science demonstrates the health harms that occur because of exposure to ozone pollution. Fortunately, as Americans, we have been able to rely upon the Clean Air Act, forged on a bedrock foundation of bipartisan collaboration for our nation, to protect against these health harms. But these protections are under threat. We need leadership and cooperation from our representatives and public officials in employing common sense solutions to ensure that our nation has a vibrant economy and a healthy environment. If we continue to work together building from this legacy of bipartisan

[39] Policy Assessment for the Review of the Ozone National Ambient Air Quality Standards (hereinafter Policy Assessment) Chapter 2 and Appendix 2A; EPA, *White Paper: Implementation of the 2015 Primary Ozone NAAQS: Issues Associated with Background Ozone White Paper for Discussion* (Dec. 30, 2015) *available at* https://www.epa.gov/sites/production/files/2016-03/documents/whitepaper-bgo3-final.pdf

[40] Cheadle, L.C., et al., (2017) "Surface Ozone in the Colorado Northern Front Range and the Influence of Oil and Gas Development During FRAPPE/DISCOVER AQ in Summer 2014," Elem. Dci. Anth. 5:61. doi:10.1525/elementa.254, available at https://www.elementascience.org/articles/10.1525/elementa.254/ .

[41] McDuffie, E., et al., (2016) "Influence of Oil and Gas Emissions on Summertime Ozone in the Colorado Northern Front Range," J. Geophys. Res. Atmos., 121, *available at* http://eprints.whiterose.ac.uk/103000/.

[42] Texas Commission on Environmental Quality, Ozone Data Exceptional Event Flag Demonstrations *available at* https://www.tceq.texas.gov/airquality/airmod/docs/ozone-data-exceptional-event-flag-demonstrations.

[43] Letter from Jared Blumenfeld, EPA Region IX, to Eric Massey, Director, Air Division Arizona Department of Environmental Quality (Sep. 6, 2012) *available at* https://www.epa.gov/sites/production/files/2015-05/documents/epa_resp_ltr_tsd_090612.pdf.

[44] Letter from Shaun L. McGrath, Regional Administrator, EPA Region 8, to Todd Parfitt, Director, Wyoming Department of Environmental Quality (May 28, 2014) *available at* https://www.epa.gov/sites/production/files/2015-05/documents/june_14_2012_strat_o3_concurrence_letter_28_march_2014.pdf.

collaboration forged in law, we will continue to chart a commonsense path forward in protecting the health of our children and communities, securing a stronger and more prosperous nation.

APPENDIX: Air Quality Exceedances by Region as of June 13, 2018

TOTAL DAYS BY REGION	
REGION 1:	48
REGION 2:	45
REGION 3:	47
REGION 4:	91
REGION 5:	273
REGION 6:	178
REGION 7:	48
REGION 8:	27
REGION 9:	205
REGION 10*:	0
TOTAL DAYS:	**962**

Data retreived from:
US EPA, *available at* https://www.epa.gov/outdoor-air-quality-data/air-data-ozone-exceedances.

Accessed June 13, 2018
EPA notes: "The data for the current year is from AirNow and is presented with baseline data from AQS for comparison only. The AirNow data are not fully verified and validated through the quality assurance procedures monitoring organizations use to officially submit and certify data on the EPA AQS (Air Quality System) and, therefore, cannot be used to formulate or support regulation, guidance or any other Agency decision or position."

***There was very little complete data for Region 10 therefore it is difficult to say what the true number is.**

Biography

Dr. Elena Craft is a Senior Health Scientist at Environmental Defense Fund. For a decade, she has strategized to identify, monitor, and mitigate risk from environmental pollution from the industrial sector as well as from within the transportation sector, most specifically around port areas and freight corridors. In addition, she has facilitated development of initiatives to support public health research, including helping to establish the Hurricane Harvey Environmental Health and Housing Registry in Houston, the first registry established after a major flood event. Dr. Craft's other scientific research focuses on understanding health disparities associated with living in pollution hotspots. She holds a B.S. degree in biology from UNC Chapel Hill, a M.S. degree in toxicology from NC State University, and a Ph.D. from Duke University. She also holds an adjunct assistant professorship at the University of Texas Health Sciences Center and is a Kinder Fellow at Rice University.