Good afternoon, and thank you for the opportunity to speak today. My name is Rosalie Winn and I’m a senior attorney at the Environmental Defense Fund.

EDF and our members are deeply concerned about EPA’s proposal to maintain the current, outdated National Ambient Air Quality Standards for ground-level ozone pollution in this review. We urge EPA to follow the science and set more protective standards for ozone pollution—to no higher than 60 parts per billion.

I live in Denver, Colorado, where we frequently experience harmful levels of ground-level ozone pollution. The American Lung Association has given Denver an “F” for ozone in its latest State of the Air report, ranking the metro area among the top ten worst for ozone in the country.¹

In State of the Air 2020, the American Lung Association found that like me, more than 137 million people lived in the 205 counties that received failing grades for unhealthy ozone pollution. In the Southwest, increased oil and gas extraction is partly to blame. Climate change is also a contributor – as hotter temperatures lead to increased ozone pollution formation. The years covered by the 2020 State of the Air report – 2016, 2017, and 2018 – were three of the five hottest years on record.

Ground level ozone, which is formed when harmful pollutants like nitrogen oxides (NOx) and volatile organic compounds (VOCs) react in the presence of sunlight, is harmful to breathe. A longstanding body of scientific research, including numerous EPA assessments, demonstrates that exposure to ground-level ozone harms human health. In its 2013 Integrated Science Assessment for Ozone (ISA), EPA concluded that “a very large amount of evidence spanning several decades supports a relationship between exposure to [ozone] and a broad range of respiratory effects.”² These effects range from decreases in lung function among healthy adults to increases in respiratory-related hospital admissions and emergency room visits, to premature death.³

Multiple studies across various states, counties and cities have found that changes in ozone concentrations were associated with higher asthma emergency room visits, most at concentrations below the current standard.⁴ It is estimated that up to 11% of all asthma emergency room visits in the United States are attributed to ozone.⁵ Ozone pollution is

³ Id. at 6-131 to 6-158, 6-162 to -163.
⁵ Susan C. Anenberg, Daven K. Henze, Veronica Tinney, Patrick L. Kinney, William Raich, Neal Fann, Chris S. Malley, Henry Roman, Lok Lamsal, Bryan Duncan, Randall V. Martin, Aaron van Donkelaar, Michael Brauer, Ruth Doherty, Jan Eiof Jonson, Yanko Davila, Kengo Sudo, Johan C.I. Kuylensiema, Estimates of the
particularly harmful for vulnerable populations, such as children, people with respiratory diseases or asthma, older adults, and people who are active outdoors, especially outdoor workers. Children with asthma also face heightened risks from ozone exposure. Many studies have demonstrated that children with asthma experience decrements in lung function and increases in respiratory symptoms when exposed to ozone pollution.

Both short- and long-term ozone exposure are linked to adverse health effects. Short-term exposure is defined as hours, days, or weeks, and long-term exposure is measured in months to years.

Short-term exposure to ozone can have critical health implications. For instance, there is evidence of an association between out-of-hospital cardiac arrests and short-term exposure to ozone. Other studies indicate higher rates of stroke in populations following higher exposures to ozone. A study in Allegheny County, Pennsylvania found that exposures to ozone on the current day increased the risk of total stroke hospitalization. Another study in Nunces County, Texas found elevated risk of having a first stroke with higher ozone concentrations in the preceding 2 days. Additional analyses support these conclusions. This evidence augments the long-standing body of literature demonstrating the serious impacts from short-term exposure to ozone pollution, including the increased risk of premature death.

Long-term exposure likewise has critical health implications. EPA has concluded that there is “likely to be a causal relationship between long-term exposure to [ozone] and respiratory effects.” Similarly, EPA notes that “recent evidence is suggestive of a causal relationship between long-term [ozone] exposures and total mortality.” Some longitudinal studies have further demonstrated that “long-term [ozone] exposure influences the risk of asthma development in children.”

A recent study of almost 61 million Medicare patients conducted nationwide indicates a significant association between short- and long-term ozone exposure and all-cause mortality.

Global Burden of Ambient PM2.5, Ozone, and NO2 on Asthma Incidence and Emergency Room Visits, Environmental Health Perspectives, 2018; 126 (10): 107004.

6 ISA at 1-8.

7 K. Mortimer et al., The Effect of Air Pollution on Inner-City Children with Asthma, 19 EUR. RESPIRATORY J. 699 (2002), ISA, 6-120-21, 6-160.

8 Id. at 1-4.


13 ISA at 1-14 (concluding that there is “likely to be a causal relationship between short-term exposures to [ozone] and total mortality”).

14 ISA at 1-8.

15 Id.

16 ISA at 7-2.
with effects strongest in minorities and those of low socio-economic status. These effects were seen at ozone concentrations well below the current standard of 70 parts per billion (ppb).\textsuperscript{17}

The science on ozone pollution strongly supports more protective standards. EDF urges EPA to fulfil its obligations under the Clean Air Act by setting a standard that protects public health with an adequate margin of safety in light of the extensive scientific evidence showing that an appropriate level is no higher than 60ppb.

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\textsuperscript{17} Di et al., \textit{Air Pollution and Mortality in the Medicare Population}, NEW ENGLAND J. OF MEDICINE (June 29, 2017); Di et al., \textit{Association of short-term exposure to air pollution with mortality in older adults}, JAMA (Dec. 26, 2017) 318(24):2446-56.