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Testimony of the American Thoracic Society
Before the House Energy and Commerce Committee, Subcommittee on Environment
Regarding Legislative Proposals to Weaken and Delay Implementation of the Clean Air Act
Presented by Rebecca Bascom MD MPH
On September 13, 2017

Mr. Chairman, Ranking member, my name is Dr. Rebecca Bascom. I am a pulmonologist in the Division of Pulmonary and Critical Care Medicine at Penn State University Milton S. Hersey medical center in Hersey PA. On behalf of the American Thoracic Society I want to thank the Committee for the opportunity to testify regarding legislation that would grant selected industries exemptions from meeting air pollution emission standards set under the Clean Air act. The American Thoracic Society strongly urges the committee to reject these misguided attempts to roll back progress made under the Clean Air act.

The American Thoracic Society is a medical professional organization with over 15,000 professionals and patients who are dedicated to the prevention, detection, treatment and cure of respiratory disease, critical care illnesses and sleep-disordered breathing. We pursue our mission through research, clinical care, education and advocacy.
Why does the ATS care about air pollution? The ATS cares because air pollution has a direct impact on the short-term and long-term health of the patients we serve. Pollutants like ozone, particulate matter, sulfur dioxide and other hazardous air pollutants have life and death consequence to my patients. Today the committee is considering 4 separate bills that would grant industry specific exemptions to EPA Clean Air Act standards. While each industry is seeking its own exemption, the unifying theme is each of the bills would allow more pollution. I'd like to share with you information on why these bills are bad for the health of the patients I serve.

Ozone Pollution

Several of the bills under discussion today would increase the risk of higher ozone pollution, so I would like to share some important information about ozone's serious health risks. Ozone (O3) is a potent oxidant that damages the airways and lungs. There are literally hundreds of high quality peer reviewed studies that document the adverse health effects that exposure to ozone pollution has on the lungs and other organ systems. Recent studies provide several lines of evidence demonstrating dose-response relationships between ozone exposure in the 60 to 80 ppb range and adverse health effects. These effects include hospital admissions and emergency room visits for children with asthma.

A growing body of evidence suggests that exposure to ozone may also induce the development of asthma in children, in addition to provoking attacks in children who already have the condition. Taken together, the data are persuasive that ozone pollution – at levels currently experienced in the United States – makes children sick.

But it's not just children - adults are also at risk. Research studies of adults have also shown that as ozone levels increase, so do, severe asthma exacerbations, emergency room visits, and hospitalizations for asthma. Similar associations have been found for adult admissions for chronic obstructive pulmonary disease and pneumonia. Perhaps of greatest concern, there is now stronger evidence of increased mortality in association with higher ozone levels, particularly among the elderly and those with chronic disease. Large, multi-city studies found strong and consistent associations with increased risk of premature death, particularly in the warmer months when ozone levels are higher. Ozone and nitrogen dioxide exposure over the preceding 6 weeks was associated with an increased risk of acute exacerbation of idiopathic *pulmonary fibrosis*, suggesting that *air pollution* may contribute to the development of this clinically meaningful event in patients with pulmonary fibrosis. In sum, there is accumulating evidence that ozone pollution damages human lungs and contributes to disease. The EPA has the authority and obligation to adopt and take steps—including reducing emissions from racing cars-- to protect children and adults from the adverse health effects of ozone exposure.

Sulfur dioxide
The SENSE Act would allow power plants to emit more sulfur dioxide into the air. Sulfur dioxide is a gas that causes a range of harmful effects on the lungs, including:

- Bronchoconstriction, a narrowing of the airways that causes difficulty breathing;
- Increased asthma symptoms;
- Increased visits to emergency departments for breathing problems; and
- Increased hospital admissions for respiratory illnesses.

Sulfur dioxide has been shown to harm health directly, and in combination with other pollutants. For example, in a study of asthmatic children in 7 cities, researchers reported that increased asthma symptoms were associated with SO2 alone, as well as SO2 in combination with other pollutants.

Sulfur dioxide does not just harm people who live near these plants who would be breathing the sulfur dioxide as a gas. Sulfur dioxide reacts in the atmosphere and becomes sulfate, an ultrafine and fine particulate air pollutant. Reducing sulfur dioxide emissions therefore provides multiple benefits to health not only close to the sources, but hundreds of miles away.

Particulate Matter Pollution
These bills would also increase the risk of particulate matter by rolling back or delaying measures already in place—and, in some cases long overdue—to clean up emissions. Particulate matter is a complex mixture of extremely small particulates and liquid droplets that are suspended in the air we breathe. Particulate matter pollution can be emitted directly from the burning firewood or fossil fuels such as coal, or can be formed when gases such as sulfur dioxide interact in the atmosphere to create particulate matter pollution. The exact nature of the particulate matter pollution varies significantly based on the pollution source, but all fine particulate matter can be inhaled deeply into the lungs. Many inhaled particles are small enough to traverse the lung tissue and enter the blood stream and effects organs outside the lung, including the brain and heart. Exposure to air pollution has both long-term and short-term adverse health consequences.

Particulate Matter Pollution – Long-term health effects

The continued emissions of sulfur dioxide from power plants would continue to produce particles from the reaction of SO2 gas in the atmosphere. This would happen on a day-in, day-out basis, creating long-term exposure to particulate matter. A number of large studies have looked at the long-term health effects of ambient particles. First was the Harvard Six Cities study which found that over a 16 year period, adults who lived in the most polluted of the 6 cities had a 26% higher rate of death as compared to those in the least polluted city. Several other studies have found similar results including the American Cancer Society Cancer Prevention Study II, the California Seventh-day Adventists cohort study, and a 2007 national study of 66,000 participants from the Women's Health Initiative. These studies provide evidence linking long-term exposure to ambient particulate matter and all-cause mortality, cardiovascular mortality, and non-fatal cardiovascular events. The impact of particulate air pollution on life expectancy is substantial.

Recent reviews by the International Agency for Research on Cancer, part of the World Health Organization, now concludes that long-term exposure to particulate matter can cause cancer, particularly lung cancer.

Particulate Matter - Short-term health Affects

Wood stoves and outdoor wood boilers are among the reasons too many places suffer episodes of high particulate matter that can also threaten human health. Hundreds of studies in the U.S. and around the world have confirmed that elevations in particulate matter are associated with an increased risk of premature death, cardiovascular death, hospitalization for respiratory and cardiovascular diseases, and respiratory symptoms a risk that is demonstrated with days of the exposure. These scientific studies have linked particulate matter exposure to a variety of problems, including:

- Aggravated asthma in children;
- Increased emergency department visits and hospital admissions;
- Higher risk of hospitalization for congestive heart failure, stroke, and myocardial infarction (heart attacks);
- Increased risk of premature death; and
- More frequent dangerous irregularities of the heartbeat ; and
- More frequent deaths, second heart attacks, and hospital admissions for people who have already experienced one heart attack.

Particulate pollution can cause health problems for anyone, but certain people are especially susceptible. Children and teenagers, the elderly, and people who already have cardiovascular disease, chronic lung disease or diabetes are among the groups most at risk. Particulate matter pollution is real concern for patients with lung diseases like cystic fibrosis. Research shows that annual average levels of particulate matter pollution exposure are associated with lung function decrease and an increased likelihood of pulmonary exacerbation in CF.
Even healthy adults who work or exercise outdoors may face higher risk. As best we can now tell, people pass into and out of conditions where they are more susceptible to the effects of fine particulates. Even younger and healthier people may be transiently susceptible.

In sum, particulate matter pollution is bad for human health.

Toxic Air Pollutants

Finally, the SENSE Bill and the BRICK Act would also allow more toxic air pollution by allowing utilities and brick manufacturing facilities to emit more mercury and carcinogens such as arsenic and chromium. Instead of adopting established technology long needed to reduce these emissions, the industries seek delays that would burden the people who live downwind of their facilities.

Reducing Air Pollution Improves Health

To get you to agree to let them delay cleaning up, industry would like you to ignore the evidence that shows that as pollution is reduced, health improves. We know this from studies that looked at the impacts of changes made in the last twenty to thirty years. Scientists in 2013 looked at changes in life expectancy in 200 counties in the U.S. and calculated that reductions in fine particle air pollution between 1980 and 2000 increased the average lifespan in these counties by approximately 5 months. Importantly, the greatest increase in life expectancy was seen in those counties showing the greatest reduction in fine particle air pollution during this time. A follow-up study, just published this week, found that reductions in particulate matter in the U.S. between 1980 and 2010 reduced premature deaths by about one-third. Studies on Steubenville, OH—one of the six cities Harvard studied-- and Salt Lake City, UT provide other real world examples showing that reduced air pollution emissions lead to measurable improvements in morbidity and mortality . Two recent publications based on a 20 year multi-cohort study of children in southern California demonstrated improvements in lung-function development in children as air quality improved. These were observed in girls and boys, in children with and without asthma, and across multiple ethnicities – suggesting all children benefit from improvements in air quality.

Legislation Before the Committee

This explanation should provide a warning against the 4 separate bills that would grant industry specific exemptions to EPA Clean Air Act standards. Each of the bills would allow more of these harmful pollutants. Mr. Chairman, my patients don't know or care if the pollution that is making them sick is from a wood stove, a brick kiln, a coal power plant or a race car. All they know is air pollution is making them sick and they expect Congress and the Administration to allow EPA to continue its work in preserving and improving the quality of air we all breathe. On behalf of my patients, I urge the committee to reject the bills under consideration.

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