American Thoracic Society

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June 21, 2021

The Honorable Shalanda Young
Deputy Director
Office of Management and Budget
725 17th Street NW
Washington, D.C. 20503

RE: **Docket No. OMB-2021-09679**, Request for Comments: Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates

Deputy Director Young:

On behalf of the 16,000 members of the American Thoracic Society (ATS), I am pleased to submit the following comments on the Request for Comments: Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates (OMB-2021-09679). As background, the ATS is a medical professional society of physicians, scientists, respiratory therapists, nurses, and allied health professionals dedicated to the prevention, detection, treatment and cure of respiratory disease, critical care illness and sleep disordered breathing. Our members pursue our missions through research, clinical care, education, and advocacy. Our members are strongly committed to advancing the science documenting climate changes and its adverse health effects as well as advocating for policies that will reduce greenhouse gas emissions. The ATS has identified climate change as one of the most important health concerns facing our patients, who are children and adults across the United States who suffer from critical illness or lung diseases (1, 2).

What is causing climate change?
CO_2 concentrations are on the rise due to human activities that burn fossil fuels for energy. CO_2 levels have risen by 40% since pre-industrial times. Due to the greenhouse effect of higher CO_2 levels, temperatures are rising and are predicted to increase 0.5° to 5.6° F over the 21st century (3).

Climate Change Harms Human Health
Heat waves are predicted to worsen **-** by mid-21st century, more than 50% of the summers will have temperatures exceeding the highest temperatures seen in the 20th century (3). Extreme heat increases mortality, especially in the elderly and those with chronic diseases (4,5) and increases hospitalization for respiratory conditions and other

causes (6,7). People living in cities, particularly elderly and low-income families in neighborhoods with large buildings, little open space, and less access to air conditioning, are especially vulnerable to extreme heat (8).

Climate change worsens air pollution and ground-level ozone: Higher temperatures result in higher levels of ozone pollution (a component of smog) (9), which worsens asthma and increases risk of respiratory hospitalization and mortality (10). *Particulate matter (PM):* Wildfires and dust storms are on the rise, releasing more PM. Fuel burning to meet air conditioning needs may also release more PM. PM increases risk of hospitalization and death for respiratory and cardiovascular conditions, including asthma and heart attacks (18,19). It slows lung function growth among children and hastens lung function decline in adults (11,12).

Climate change lengthens the pollen season and raises pollen production - Pollen levels rose over 40% in the 2000s compared to the 1990s in the northern states (13). The range of plant species is expanding towards the poles, exposing new populations to pollen. Changes in the pollen season may help explain the increasing prevalence of allergy in the US.

Mold exposure increases due to more frequent hurricanes, heavy rainfall, and flooding - Mold at home, work and school can trigger asthma attacks and worsen other chronic lung conditions (10).

Forest fires become more frequent due to hot, dry conditions - Climate change is estimated to have nearly doubled the forest fire area burned across western US during 1984–2015 (10). Wildfires kill, and release a range of pollutants, including PM and acrolein (a respiratory irritant), and carcinogens such as formaldehyde and benzene. Breathing wildfire smoke increases risk of respiratory and cardiovascular emergency room visits and hospitalizations (14) (15) and overall mortality (16).

ATS members are seeing the adverse health effects in their patients **-** Climate scientists do not dispute that climate change is occurring. ATS doctors concur. In a 2015 survey (17), 77% of ATS members noted worsening of chronic lung disease as a consequence of climate change (ozone, wildfires, heat waves). Fifty-eight percent of ATS members observed an increase in allergic disease associated with pollen and mold levels.

Health Damage Functions Must Be Improved

The current social cost of carbon estimates do not fully capture the true health costs associated with climate change. The shortcomings of the current health-damage functions have been noted by the National Academies of Sciences, executive orders issued by the Biden Administration, and recent publications on social cost of carbon. The failure of the current economic models to capture the scientifically documented adverse health effects of climate change mean the current social costs of carbon estimates significantly underestimate the true social costs of carbon. The ATS notes the current heat-health damage functions used in economic models are particularly crude and do not appropriately use currently available data. Social cost of carbon models could be significantly improved by using available heat-health damage function data.

In an effort to improve the current heat-health damage functions, the ATS recently held a virtual workshop with experts from respiratory, cardiology, vector-borne infectious diseases and economics to review the available research on heat-health damage functions. There will be two products of this workshop: first a comprehensive literature review with pooled estimates of damage functions for all-cause mortality, cardiovascular diseases, respiratory diseases, child health and vector-borne diseases. The second product of the workshop will be a series of recommendations on how to improve the underlying research that supports the damage functions and future research needs to improve the reliability and precision of function damage function estimates. The ATS expects to have the literature review and pooled damage function work completed shortly (60-90 days) and hopes this information will be useful as the Administration develops new social cost of carbon estimates. We hope the research recommendations will guide federal research and program investments to improve the science and economic modeling that will be used in future social cost of carbon estimates.

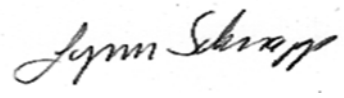
High Discount Rates Undervalue Climate Health Effects

The ATS notes with concern economic models that use high discount rates. The use of high discount rates significantly undervalues the true benefits of addressing climate change for future generations and grossly overvalues the monetary benefits of current generations. In a recent survey of nearly 200 economists, the vast majority recommended using social cost of carbon discount rates between 1% and 3%, with higher (3%) discount rates for near-term (30-year) estimates and lower rates (1%) for long-term (30+ years) estimates. While ATS members are not experts in economic analysis, we believe strongly that high discount rates (7%) used in previous social cost of carbon estimates, including circular A-4, are inappropriate and would strongly urge

Interagency Working Group to consider discount rates in the range of 1%-3%. We further recommend federal agencies continue to support climate change modeling assumptions that will further support and refine social cost of carbon model estimates.

The ATS appreciates the opportunity to comment on social cost of carbon estimates and the underlying assumptions supporting the current models. We hope our comments and our ongoing scholarly contributions to this field will help OMB and IWG determine future social cost of carbon estimates.

Sincerely,



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