

How Medical Associations can Engage Policymakers on their State Clean Power Plans



Program on Climate and Health
Center for Climate Change Communication
George Mason University
msarfaty@gmu.edu

Updated: February 8, 2016

Introduction

Major medical groups such as the American Medical Association, American Thoracic Society, American Academy of Pediatrics, American Academy of Allergy, Asthma, and Immunology, and the National Medical Association support the Clean Power Plan, which is a nationwide effort to decrease the output of carbon dioxide and other greenhouse gases that are warming the atmosphere and the oceans and causing a variety of adverse health effects. The AMA is providing the following information so that physicians can offer their unique perspective to make state policy makers aware of the adverse health implications of power generation from fossil fuels, and the more healthful alternative--clean renewable power sources. While there are many potential adverse health effects caused by power generation with fossil fuels, those most noted by physicians recently are pulmonary conditions, allergic symptoms, heat illness, and injuries from extreme weather events. Of course this varies by region, by underlying health condition, and by exposure. Actions to reduce emissions of carbon pollution (carbon dioxide), the major contributor to climate change, will help to protect human health in the short and longer term. While the entire population of the United States is at risk from the changing climate, certain populations are particularly vulnerable to rising temperatures and CO₂ concentrations, namely people with chronic disease, children, the elderly, and the poor.

Physicians have an opportunity to contribute to current policy development because, as of 2015, the Environmental Protection Agency is requiring every state to significantly reduce the output of carbon pollution which comes from electric power generation, which is the largest single source of carbon pollution nationwide. Every state may develop its own Clean Power Plan and has its own specific goal to reach by the year 2030. Physicians have an opportunity to provide their perspective about the health implications of their State Plan because the EPA has required every state to seek input from interested stakeholders while state plans are developed and reviewed.

Since the initial deadline for completion of the state Clean Power Plans is September 2016, most states are posting information at this time about the opportunities for public or written testimony; these generally appear on the websites of their Departments of Environmental Quality or Natural Resources, and can be found by searching with the term "clean power plan".

Table of Contents

I.	What is known about the health effects of climate change.....	5
II.	How can states reduce carbon pollution that results from generating electric power by implementing the Clean Power Plan?.....	7
III.	What will be the health benefits of implementing the state Clean Power Plan?.....	7
IV.	What are we asking policy makers to do?	9
V.	When and where are the opportunities for stakeholder input?	
	a. California.....	10
	b. Colorado.....	10
	c. Florida	10
	d. Georgia.....	11
	e. Illinois.....	11
	f. Iowa.....	11
	g. Michigan.....	11
	h. Minnesota.....	11
	i. Missouri.....	12
	j. Montana	12
	k. Nevada.....	12
	l. New Mexico.....	13
	m. Ohio.....	13
	n. Pennsylvania.....	13
	o. Virginia.....	13
VI.	What are the relevant policies of the AMA and other medical societies on this issue?	
	a. American Medical Association	14
	b. American Academy of Pediatrics.....	15
	c. American Thoracic Society.....	16

Table of Contents continues on next page

VII.	Two Model Letters to Policymakers on the State Clean Power Plan	20
VIII.	Information to leave behind after in person visits.....	24
IX.	Talking Points.....	25
X.	References	29

Online Interactive Maps: facts about your state at the following websites.

- A. How each state generates electricity (gas, coal, renewable) by the Washington Post
<https://www.washingtonpost.com/graphics/national/power-plants/>
- B. State of the Air in Your County/State from the American Lung Association
<http://www.stateoftheair.org/>
- C. Policy Solution Opinion Map: each state, county, congressional district
<http://environment.yale.edu/poe/v2014/>
- D. County by County Extreme Weather Map: what extreme weather events occurred between 2010 and 2015
<http://environmentamerica.org/page/ame/hitting-close-home-global-warming-fueling-extreme-weather-across-us> OR <http://goo.gl/WQQ8E7>
- E. Carbon Dioxide Reduction Goals for your State: state targets and politics
http://www.eenews.net/interactive/clean_power_plan

What is known about the health effects of climate change?

There are multiple sources of evidence about the current health effects of climate change found today in the United States. The evidence is published in the medical literature, reported by blue ribbon groups and easy to find in respected sources such as the websites of the Centers for Disease Control, the Institute of Medicine, and the World Health Organization. References are provided below following the list of health effects.

The effects of the increasing concentration of carbon dioxide and other greenhouse gases in the atmosphere include:

- 1) Increased duration and severity of the pollen allergy season.
- 2) Increased summertime concentrations of ground level ozone, a potent lung irritant that causes respiratory illness and hospitalization.
- 3) Longer and more severe heat waves.
- 4) Sea level rise and increased precipitation that place many communities at significant risk of storm surges and flooding.
- 5) Worsening severe weather events, which threaten citizens with injury, death, separation of children from their caregivers and mental health consequences.
- 6) Shifts in infectious disease patterns, including spread of tick and mosquito borne illness and increased gastrointestinal infections.
- 7) Food and water insecurity, as weather extremes destroy crops and floodwaters contaminate water sanitation systems.

References

Koh H. Communicating the Health Effects of Climate Change. *JAMA*, Jan 19 2016; Vol 315 (3): 239-240.

The National Climate Assessment (2014) was guided by the Centers for Disease Control and reviewed by the National Academy of Sciences. The material is found in the *health sector* report at:

<http://nca2014.globalchange.gov/reportsectors/human-health#intro-section-2>

References and reports published in journals cited below are available from three medical societies that are members of the American Board of Specialty Societies and have focused work on the health effects of climate change and relevant policy solutions. These are the American Academy of Pediatrics, The American Academy of Allergy, Asthma, and Immunology, and the American Thoracic Society.

American Academy of Pediatrics. (2015). Global climate change and children's health. *Pediatrics*, 136(5). <http://doi.org/10.1542/peds.2007-2646> [Policy Statement]

Barnes, C. S., Alexis, N. E., Bernstein, J. a., Cohn, J. R., Demain, J. G., Horner, E., ... Phipatanakul, W. (2013). Climate change and our environment: The effect on respiratory and allergic disease. *Journal of Allergy and Clinical Immunology: In Practice*, 1(2), 137–141. <http://doi.org/10.1016/j.jaip.2012.07.002> [Workgroup Report]

Pinkerton, K. E., Rom, W. N., Akpınar-Elci, M., Balmes, J. R., Bayram, H., Brandli, O. Takaro, T. K. (2012). An official American Thoracic Society workshop report: Climate change and human health. *Proceedings of the American Thoracic Society*, 9(1), 3–8. <http://doi.org/10.1513/pats.201201-015ST>

Physician experience with climate change and health:

Sarfaty, M., Bloodhart, B., Ewart, G., Thurston, G. D., Balmes, J. R., Guidotti, T. L., & Maibach, E. W. (2015). American Thoracic Society member survey on climate change and health. *Annals of the American Thoracic Society*, 12(2), 274–278. <http://doi.org/10.1513/AnnalsATS.201410-460BC>

Sarfaty M, Kreslake J, Casale T, Maibach E. Views of AAAAI members on climate change and health. *Journal of Allergy and Clinical Immunology-In Practice*. Published online December 16, 2015. DOI: <http://dx.doi.org/10.1016/j.jaip.2015.09.018>

Sarfaty, M., Mitchell, M., Bloodhart, B., & Maibach, E. (2014). A survey of African American physicians on the health effects of climate change. *International Journal of Environmental Research and Public Health*, 11(12), 12473–12485.

How can states reduce carbon pollution that results from generating electric power by implementing the Clean Power Plan?

When the Clean Power Plan is fully in place in 2030, carbon pollution from the power sector should be 32 percent below 2005 levels. This is the goal of state implementation plans. The EPA created a unique goal for each state based on that state's mix of power generating plants in 2012 and the potential for alternatives. The most effective strategy for each state is to be derived with input from stakeholders. States can derive their plans independently drawing on the available building blocks. The best system of emission reduction in each state is viewed as having 3 building blocks: improved coal plant efficiency (or reduced dependence on coal), natural gas, and renewable energy. In addition states may choose to use energy efficiency as a strategy. They can also collaborate with one or more other states to trade carbon reductions (i.e. "trading ready"). Trading-ready mechanisms allow states or powerplants to use creditable, out-of-state reductions to meet goals. This eases administrative burdens and reduces the cost to consumers and utilities. Examples of successful trading exist in several regional greenhouse trading systems around the country that have reduced carbon dioxide output, generated revenue for building resilience, and saved money for consumers.

What are the health benefits of implementing the state Clean Power Plan?

Reducing carbon pollution from power plants will have local and immediate clean air public health benefits. Ozone, particulate matter and other air pollutants associated with oil, coal and natural gas fired power plants have documented adverse respiratory and cardiac health effects, including increased symptoms, risk of hospital admissions, and death. Reducing carbon pollution will cause reductions in other air pollutants, such as ozone, particulate matter, oxides of Nitrogen and Sulphur dioxide. Whether states improve coal plant efficiency (building block 1), switch from coal to natural gas power plants (building block 2), expand alternative clean renewal fuel sources (building block 3), or use state based initiatives to improve consumer energy efficiency, or a blend of all options, states will benefit from reductions in fossil fuel air pollution emissions. In fact, EPA estimates that for every \$1 dollar invested in reducing

carbon pollution emissions (especially if coal combustion is reduced as part of the implementation, American families will enjoy \$4 in health benefits. That is an impressive health “payback” for going forward with the Clean Power Plan implementation.

What are we asking policy makers to do?

1. Ensure a strong Clean Power Plan implementation plan, with substantial reductions in total electric-sector CO₂ emissions.
2. Implement a state plan that is mass-based, rather than rate-based. Mass based reductions insure a decrease in total power generation from fossil fuel sources. Rate based reductions reduce the intensity of power generation but may not reduce overall use of fossil fuel.
3. Implement a state plan that covers both new and existing power plants.
4. Ensure that the state plan encourages maximum efficiency and clean renewable energy utilization. EPA is providing the Clean Energy Incentive Program (CEIP) to incentivize early investments that generate wind and solar power or reduce end-use energy demand during 2020 and 2021.

Q: Should the State develop a plan? If yes, should it be a “State only” plan or a regional plan?

A: We believe our state should proceed with developing its own state plan, but should explore opportunities to coordinate with neighboring states. Such coordination with neighboring states may allow our state to achieve maximal carbon emission reduction at lower cost.

Q: To what extent should the state develop a plan?

A: We believe that our state has the expertise and public health mindset to develop a state plan that complies with the EPA Clean Power Plan requirements. We encourage the state to consider all building blocks (decreasing reliance on coal power plants, use of natural gas, and increased use of clean renewable power) as well as consumer energy efficiencies.

Q: What suggestions do we have for cost-effective carbon dioxide reductions?

A: In addition to considering each of the building blocks to meet the state targets under the Clean Power Plan and consumer energy efficiency, it is important to track and quantify the health co-benefits to the state. The immediate health co-benefits can exceed the cost of emissions reductions as long as fossil fuel combustion decreases result from the carbon reductions.

When and where are the opportunities for stakeholder input?

Here are the currently schedule dates of public sessions in the selected states: California, Colorado, Florida, Georgia, Illinois, Iowa, Michigan, Minnesota, Missouri, Ohio, Nevada, New Mexico, Pennsylvania, and Virginia. Dates for other states may be found at the websites of their Departments of Environmental Quality or Natural Resources by searching on “Clean Power Plan.”

California

The State of California is beginning to draft its plan to comply with the Clean Power Plan and has begun engaging with stakeholders. California’s Air Resources Board (ARB) is leading the state’s efforts to develop its plan. ARB maintains a website with information and the ability to sign up for an email listserve to be alerted to future public meetings/workshops.

<http://www.arb.ca.gov/cc/powerplants/powerplants.htm>

Here is the link to sign up for the List Serve:

http://www.arb.ca.gov/listserv/listserv_ind.php?listname=cc This list serve (as well as the website) is used to announce all upcoming meeting and notice of material availability.

Colorado

February 22, 2016

Colorado Department of Public Health and Environment, Sabin Cleere Room, 4300 Cherry Creek Drive South, Denver, CO 80246

8:30 a.m. - 11:30 a.m.

Potential focus: Colorado's compliance status and compliance options

March 2016

Craig, CO (Details Pending)

Potential Focus: Demand growth, cost and reliability

Florida

No listening sessions have been scheduled. The Florida Department of Environmental Protection is reviewing the Final Rule, released in August 2015 and published in the Federal Register on October 23, 2015. Once its review is complete, the Department will

begin work on a status report for submittal to EPA in September 2016. A final plan is due in September of 2018. The Department is still considering all compliance options.

Georgia

February 17, 2016 Meeting: The Clean Power Plan- An Informational Meeting for Businesses <https://epd.georgia.gov/air/111dstakeholdermeetings>

Prior Meetings:

January 7, 2016 Meeting: Exploring the Clean Energy Incentive Program (CEIP)

October 8, 2015 Meeting: Examining the Final Clean Power Plan

January 14, 2015 Developing Georgia's State Plan

September 19, 2014 Focus on Energy Efficiency and Renewable Energy for Georgia under the EPA Clean Power Plan

August 7, 2014 Meeting: Overview of the EPA Clean Power Plan and of the Energy Sector in Georgia

Illinois

Not yet scheduled

Iowa

Each meeting will be from 10:00 am – 3:30 pm.

Monday, February 22, 2016 at the Council Bluffs Public Library, 40 Willow Avenue in Council Bluffs, IA

Tuesday, March 22, 2016 at the Lime Creek Nature Center, 3501 Lime Creek Road in Mason City, IA

Michigan

Not yet scheduled

Minnesota

Not scheduled yet

A series of listening sessions are planned throughout Minnesota, but the team is still working to book dates and venues. The best resource for staying informed when we do is GovDelivery list (https://public.govdelivery.com/accounts/MNPCA/subscriber/new?topic_id=MNPCA_234)—if you sign up to receive bulletins on the Clean Power Plan topic, you'll be notified as soon as they post the meeting schedule and any other developments.

Missouri

Not scheduled yet

The Missouri Department of Natural Resources' has held two public stakeholder meeting since the final Clean Power Plan rule was signed by EPA. Information about those two meetings can be found on the Department's Clean Power Plan webpage: <http://dnr.mo.gov/env/apcp/cpp/index.html>

The Department is planning to continue conducting outreach for the Clean Power Plan and intends to hold additional stakeholder meetings. They are working to develop a schedule for the stakeholder meetings and once developed, they will be posted on the Department's Clean Power Plan webpage.

Montana

January 14 meeting <http://www.leg.mt.gov/css/Committees/Interim/2015-2016/EQC/111d-Subcom/default.asp>

Other meetings:

March 10, 2016

May 10 or May 11, 2016

July 21, 2016

September 8, 2016 (Tentative)

Nevada

NDEP will accept written comments on Nevada's planning and implementation of the Clean Power Plan through the plan development period. Email comments to NVCPP@ndep.nv.gov. You may also submit comments by mail to the Carson City office at:

NVCPP Comments

NDEP BAQP
901 S. Stewart St., Suite 4001
Carson City, NV 89701

New Mexico

The informal public comment period is open as the state is in the pre-draft stages. Before the state drafts a plan or even an outline of a plan, they are holding the initial series of public meetings. Before a plan is submitted to EPA, it must be approved by the Environmental Improvement Board, which will require a formal public comment period that will be well advertised. Either keeping up with the CPP web page or signing up for email alerts will be the best way to keep informed. For email announcements, sign up for email alerts: <https://public.govdelivery.com/accounts/NMED/subscriber/new>

Ohio

Not scheduled yet

Regional Listening Sessions will be held in early 2016

They are looking at early to mid-March for listening sessions. In the meantime, you can see what Ohio's working on in regards to the Clean Power Plan here:

<http://www.epa.ohio.gov/dapc/111drule.aspx>

Pennsylvania – process completed

The 14 listening sessions for the Clean Power Plan began on September 15th and concluded on November 4th. The public comment period closed on November 12, 2015. You can view the submitted comments on the website:

www.ahs.dep.pa.gov/eComment/ViewComments.aspx?enc=8YWleHIdijzUAfiG53EkjflnP%2fXgFr0fA3HnfGi1I5Y%3d

Virginia – process completed

Listening sessions were conducted in September & October of 2015

<http://www.deq.virginia.gov/Portals/0/DEQ/Air/Planning/listening%20session%20notice.pdf> Written comments were accepted from August 13 to October 13, 2015.

What are the relevant policies of the AMA and other medical societies on this issue?

American Medical Association

Support of Clean Air and Reduction in Power Plant Emissions H-135.949 (2015)

Our AMA supports (1) federal legislation and regulations that meaningfully reduce the following four major power plant emissions: mercury, carbon dioxide, sulfur dioxide and nitrogen oxide; and

(2) efforts to limit carbon dioxide emissions through the reduction of the burning of coal in the nation's power generating plants, efforts to improve the efficiency of power plants, substitution of natural gas in lieu of other carbon-based fossil fuels, and continued development of alternative renewable energy sources.

Global Climate Change and Human Health H-135.938 (2014)

Our AMA: 1. Supports the findings of the Intergovernmental Panel on Climate Change's fourth assessment report and concurs with the scientific consensus that the Earth is undergoing adverse global climate change and that anthropogenic contributions are significant. These climate changes will create conditions that affect public health, with disproportionate impacts on vulnerable populations, including children, the elderly, and the poor. 2. Supports educating the medical community on the potential adverse public health effects of global climate change and incorporating the health implications of climate change into the spectrum of medical education, including topics such as population displacement, heat waves and drought, flooding, infectious and vector-borne diseases, and potable water supplies. 3. (a) Recognizes the importance of physician involvement in policymaking at the state, national, and global level and supports efforts to search for novel, comprehensive, and economically sensitive approaches to mitigating climate change to protect the health of the public; and (b) recognizes that whatever the etiology of global climate change, policymakers should work to reduce human contributions to such changes. 4. Encourages physicians to assist in educating patients and the public on environmentally sustainable practices, and to serve as role models for promoting environmental

sustainability. 5. Encourages physicians to work with local and state health departments to strengthen the public health infrastructure to ensure that the global health effects of climate change can be anticipated and responded to more efficiently, and that the AMA's Center for Public Health Preparedness and Disaster Response assist in this effort. 6. Supports epidemiological, translational, clinical and basic science research necessary for evidence-based global climate change policy decisions related to health care and treatment.

The American Academy of Pediatrics (2015)

Abstract of published policy (see full reference below the abstract):

Rising global temperatures are causing major physical, chemical, and ecological changes in the planet. There is wide consensus among scientific organizations and climatologists that these broad effects, known as "climate change," are the result of contemporary human activity. Climate change poses threats to human health, safety, and security, and children are uniquely vulnerable to these threats. The effects of climate change on child health include: physical and psychological sequelae of weather disasters; increased heat stress; decreased air quality; altered disease patterns of some climate-sensitive infections; and food, water, and nutrient insecurity in vulnerable regions. The social foundations of children's mental and physical health are threatened by the specter of far-reaching effects of unchecked climate change, including community and global instability, mass migrations, and increased conflict. Given this knowledge, failure to take prompt, substantive action would be an act of injustice to all children. A paradigm shift in production and consumption of energy is both a necessity and an opportunity for major innovation, job creation, and significant, immediate associated health benefits. Pediatricians have a uniquely valuable role to play in the societal response to this global challenge.

Adhoot S, et.al., Policy Statement: Global Climate Change and Children's Health. Pediatrics November 2015, Vol 136 / Issue 5. American Academy of Pediatrics Council on Environment.

American Thoracic Society

ATS Applauds EPA Rules to Limit Power Plant Carbon Emissions (2015)

The American Thoracic Society welcomed this week's announcement by the Environmental Protection Agency of new rules to reduce carbon emissions in the U.S. These rules are an important step toward improving air quality and addressing global climate change, and they will improve public health.

"The evidence linking both air pollution and climate change with adverse health consequences, which comes from a broad range of scientific disciplines, is extensive," said George D. Thurston, ScD, chair of the ATS Environmental Health Policy Committee and professor at NYU Langone Medical Center's Institute of Environmental Medicine. "These new rules will help slow the progression of global climate change while also preventing children and adults from being exposed to the toxic effects of air pollutants associated with carbon emissions."

Reducing carbon emissions also decreases other noxious air pollutants such as mercury, ozone and particulate matter, which have been shown to cause neurological damage, respiratory and cardiovascular disease.

The adverse respiratory effects of climate change include increases in the symptoms of asthma and seasonal allergies due to longer, more potent pollen seasons, critical illnesses caused by heat waves, and exacerbation of a number of pulmonary conditions, including asthma, chronic obstructive pulmonary disease (COPD), and associated cardiovascular diseases, by climate-driven air pollution.

In a recent survey of American Thoracic Society members, the majority of respondents said that they had already observed adverse health consequences of climate change in their patients.

"Reducing carbon pollution will improve the health of communities across the United States right now," said ATS President Atul Malhotra MD. "Controlling carbon emissions will directly reduce ozone and particulate matter air pollution,

which remains a serious public health problem, causing asthma attacks, COPD exacerbations, and even premature deaths which could have been prevented.”

ATS Policy Brief on Clean Air

Outdoor Air Pollution – Mission Base

The American Thoracic Society (ATS) mission is to "improve health worldwide by advancing research, clinical care and public health in respiratory disease, critical illness and sleep disorders." Air pollution is a major clinical and public health problem that is of importance to our membership. ATS clinicians primarily treat people with respiratory conditions, who are especially vulnerable to the adverse health effects of air pollution. We treat the consequences of polluted air, and air pollution is one of many factors our patients must consider in managing their disease. ATS scientists have been at the forefront of air pollution research for decades. We have documented the harmful effects of air pollution exposure on cardio-pulmonary health, and have identified people with chronic lung disease as especially vulnerable to the harmful effects of air pollution. It is incumbent upon our membership, as clinicians who treat patients who are most vulnerable to air pollution, and as scientists who contribute to the understanding of air pollution and its effects, to play an active role in the development, implementation and assurance of air quality policy.

Outdoor Air Pollution – Science Base

Scientific studies have clearly established that exposure to air pollution is harmful for human health. Hundreds of studies, in multiple scientific disciplines, have demonstrated that exposure to air pollution, including particulate matter, ozone, biomass smoke, heavy metals, diesel fumes, and acid gases, negatively impacts the respiratory system and other aspects of human health. Epidemiological studies have documented adverse health effects at the population level, including increased respiratory illness in children and adults and premature death. In addition, controlled exposure chamber studies have demonstrated that exposure to air pollutants, in some cases at levels equal to or lower than existing air quality standard limits, impairs pulmonary and vascular function. The above findings have been verified and replicated in multiple US

and international studies, over decades. The evidence is clear and compelling that air pollution is harmful to human health.

Because of the compelling evidence for the adverse health effects of air pollution, the participation of ATS members in expanding our scientific understanding of these effects and the clinical implications of air pollution to the patients we serve, the ATS adopts the following policy positions:

- The U.S. Environmental Protection Agency (EPA) should continue to establish and, every five years, revise (as needed) the science-based air quality standards to effectively protect the American public, especially vulnerable populations, with an adequate margin of safety, from the adverse health effects of air pollution. The information gleaned from continuing research into these pollutants needs to be regularly reviewed so that the standards can be based on the most current evidence to provide that protection.
- The ATS reserves the right to use court action to compel the EPA to carry out these actions should the agency fail to protect the American public from the known adverse health effects of air pollution, as required by the Clean Air Act. The ATS supports the EPA in its efforts to enforce the Act, including support for sufficient funding for all steps needed to provide that protection.
- The ATS opposes any efforts to weaken, delay or remove the authority of the EPA to establish air pollution standards for the protection of the American public.
- The EPA, NIH and other federal granting agencies should financially support rigorous, independent peer-reviewed scientific research to better understand, measure, document, and prevent the adverse health effects of air pollution.
- The ATS strongly opposes any effort to undermine the integrity of the scientific basis of air pollution research through harassment of scientific investigators.
- The federal government, the states and the tribes have established and maintain a robust air pollution monitoring network to accurately measure

air pollution exposure in the U.S., to establish areas of compliance and non-compliance with air pollution standards, and to enforce them. The nation should continue to update and invest in this monitoring network to ensure a national monitor capability with state of the art monitoring technologies, and to continue intervention and enforcement actions, as needed.

- The ATS recognizes that air quality is a global issue. As an international organization, we will work with our members in other countries and collaborate with partner societies to decrease the respiratory health burden of polluted air worldwide.

This brief is a collaboration by the ATS Health Policy and Environmental Health Policy committees. *Last Reviewed: February 2015*

Model Letter #1 to Policymakers on the State Clean Power Plan

Title First Name Last Name

Address 1

Address 2

City, State Zip

Date

Dear Title Last Name,

I am writing to express my support for reducing carbon pollution in our state through developing a highly effective state Clean Power Plan that contributes maximally to the health of *[name your state]* residents. Currently, electric power production is the greatest single source of carbon pollution in the air.

As a *[physician/ nurse/health professional]*, I recognize the importance of clean air to ensure and protect healthy growth and development of children and support cardiorespiratory health throughout the life cycle. All of our citizens need access to healthy air, but many are breathing unhealthy air on too many days. The increase in annual temperatures resulting from climate change poses a particular risk to clean air. People with chronic lung disease (asthma, COPD), representing 10-20% of the population or more, have greater difficulty breathing under these conditions. Very young children, the elderly, and lower-income and/or vulnerable individuals face greater risk from the heat itself. Increases in pollen levels generated by longer plant growing seasons are stressing many people with lung conditions and causing more symptoms for the 30% of the population who have hay fever. This causes more reliance on medications, less productivity and more absenteeism, and more medical visits for many.

The Clean Power Plan's requirement that states reduce carbon pollution provides an opportunity to address these situations, reduce immediate risks, and protect the health of state residents into the future. Reducing dependence on coal-fired power plants will bring immediate health benefits by reducing other dangerous air pollutants emitted by coal combustion, such as toxic metals, nitrogen oxides, sulfur dioxide and particulate matter. In contrast, energy derived from clean renewable sources is the healthiest way to generate power. The Clean Power Plan offers incentives to expand the renewable sector in our state that we should use to the greatest extent possible. Improved efficiency of electric energy production is a safe and effective way to generate

more electricity with less carbon pollution. In addition, adapting our homes, offices, and industries to be highly energy-efficient will allow us to make the most of the electricity that is generated. These are common-sense approaches that I believe we must use to the maximum extent possible.

The flexible approach provided to states by the Clean Power Plan is an opportunity to customize our energy portfolio, expand clean energy solutions for better health, build new industries and generate good jobs in the state. I support timely finalization of our state implementation plan and offer my support for *[specify types of clean energy that could best be applied in your state: solar power, wind energy, geothermal energy]* and energy efficiency solutions. Thank you for your leadership.
Sincerely,

Model Letter #2 [ATS Letter to Policy Makers on the North Dakota Plan]

December 18, 2015

Terry L. O'Clair, P.E.
Director, Division of Air Quality
North Dakota Department of Health,
918 E Divide Avenue,
Bismarck, ND 58501-1947
Via email: airquality@nd.gov

Director O'Clair:

On behalf of the American Thoracic Society and its members in North Dakota, we greatly appreciate opportunity to comment on North Dakota's efforts to develop a state implementation program in response to EPA Clean Power Plan. The American Thoracic Society is a medical professional organization with over 15,000 members who are dedicated to the prevention, detection, diagnosis, treatment, cure and research of respiratory disease, critical care illness and sleep disordered breathing. Because air quality has a direct impact on the health of the patients we serve, the ATS has a compelling interest in how state compliance with Clean Power Plan will affect the patients we serve.

Climate Change and Public Health

The evidence documenting climate change and the urgent need to respond is consistent, compelling and comprehensive. While it is not our intent to provide an

exhaustive list of references documenting the reality of climate change and its adverse human health effects, we have concluded that sufficient documentation of the cause and scope of the challenge posed by climate change can be found in the 4th IPCC report, the US National Climate Change Assessment and the Lancet Report on climate change. In addition, as documented below, surveys of our own members, who include respiratory physicians and scientist, overwhelmingly indicate that they are already seeing the human health effects of climate change in their practices. Collectively, these documents provide a compelling outline of facts that document climate change is occurring and that it will have significant negative public health effects today, absent policy action, will continue have even more disruptive public health impacts in future years. Moreover, implementation of the Clean Power Plan provides an opportunity not just to avoid global climate change effects, but also to immediately improve local public health by achieving cleaner air.

Climate Change is a Public Health Issue

The ATS is pleased that the North Dakota Department of Public Health, Division of Air Quality has been charged with responding to EPA's Clean Power Plan. We believe that public health is proper frame to view both the challenge and opportunity posed by the Clean Power Plan. Research has shown that climate change is already having an impact on health today. Pollen seasons start earlier, are longer and are more intense, climate-forced heat waves are happening more frequently and lead to premature mortality, storm intensity is increasing leading to both injury and death. Climate-forced droughts are leading to water scarcity issues and promoting forest fires. Forest fires lead to both enormous property damage, loss of life and create large plumes of air pollution that impact both local and regional air quality.

These health effects are not speculative. Surveys of physician in the U.S. show that clinicians are seeing the health effects of climate change in their patients (insert ATS, NMA survey). In fact a recent of survey of U.S. ATS member found:

- 89% of respondents believe climate change is happening
- 68% believe climate change is being driven entirely or mostly by human activity
- 65% believe climate change is relevant to direct patient care
- Free text responses indicate physicians believe they are seeing climate change health effects in patients today

Climate Change and Co-Benefits

Reducing carbon pollution from power plants will have local and immediate clean air public health benefits. Reducing carbon pollution will at the same time lead to

reductions in other air pollutants, such as ozone and particulate matter. Ozone, particulate matter and other air pollutants associated with oil, coal and natural gas fired power plants have documented adverse respiratory and cardiac health effects, including increased risk of hospital admissions and death. Whether North Dakota adopts improvements in power plant efficiency (block 1), switching from coal to natural gas power plants (block 2), expansion of alternative renewable fuel sources (block 3), state based initiatives (consumer energy efficiency improvements) or a blend of all options, North Dakota residents will benefit from reductions in fossil fuel air pollution emissions. In fact, EPA estimates that for every \$1 dollar invested in reducing carbon pollution emissions, American families will enjoy \$4 in health benefits. That is an impressive health “payback” for going forward with the Clean Power Plan implementation, especially if coal combustion is reduced as a part of the implementation.

Seek Input from the Physician Community

As North Dakota begin developing their Clean Power Plan implementation plans, we strongly urge you to actively seek the input of the physician community. Many physicians, particularly those engaged in research on the health effects of air pollution, can provide valuable assistance in understanding community, regional and national health impacts of reductions in carbon and other co-pollutants. Physician groups can also be helpful in explaining to the public why state-based Clean Power Plans are important tools to improve public health

Beware the Lure of Biomass Fuels

One of the many topics that will accompany the state planning effort to reduce carbon emissions from power plants will be the role of alternative energy sources, like wind, solar, geothermal nuclear and biomass. Each energy source has strengths and weaknesses. However, the ATS is concerned that the potential respiratory health damage drawbacks of biomass fuels are not fully appreciated by the public and policy makers. Burning of biomass fuels will likely increase dangerous pollutants like particulate matter and ozone. We urge state planners to proceed cautiously when considering biomass fuel sources vs. other cleaner alternative energy sources.

Sincerely, Individual or Medical Society

Note: This handout is useful to give to policymakers at the time of a visit

Cool Climate and Clean Air are Health Imperatives:

The Perspective from Health Professionals

A cool, livable climate and clean air are essential to health.

Human health is put at risk by the extremes associated with climate change. Heat waves are already the leading cause of weather-related deaths in the U.S. Flooding, drought, wildfires, expanded disease ranges, and damage to food crops, water resources and health infrastructure endanger health. Everyone needs clean air to breathe – yet many Americans live where air pollutants from coal-burning power plants make them sick, miss days from work/school, and contributing to premature deaths.

As health professionals, we endorse policies that reduce air pollutants and climate change.

Clean Power Plan will tackle a major threat to the nation's health: climate change.

Burning fossil fuels produces heat-trapping gases which contribute to increased temperatures and climate change. Reducing carbon pollution through the Clean Power Plan is a significant and feasible step to help protect state residents from heat waves, extreme weather, infectious diseases and other climate change-induced outcomes. By transitioning from coal to clean energy, we can cut carbon pollution at the source.

Cutting carbon pollution will reduce other pollutants to protect health.

Coal-fired power plants emit pollutants that contribute to diseases and premature death: sulfur dioxide (permanent lung damage), nitrogen oxides (lung damage, ground-level ozone precursor), mercury (known brain toxin), and fine-particulate pollution (heart disease, respiratory disease, cancer). As we replace coal plants with clean renewable energy through the Clean Power Plan, every \$1 invested can generate up to \$4 in health benefits. By 2030, the Clean Power will prevent up to 3,600 premature deaths, 1,700 heart attacks, 90,000 asthma attacks and 300,000 missed work and school days *each year*. These protections will benefit communities throughout our state.

Clean Power Plan supports state-based initiative and economic development.

The Clean Power Plan is a flexible approach, allowing states to write their own plans for reducing carbon emissions. When we invest in clean, carbon-free options like solar and wind energy plus energy efficiency, we provide healthy, well-paid jobs located here.

We need to implement America's CLEAN POWER PLAN to create immediate health benefits by reducing soot- and smog-causing pollution. It will reduce heat-trapping gases and help limit climate change. Health professionals strongly support this opportunity to protect our citizens' health.

INSERT YOUR ORGANIZATION'S NAME & CONTACT INFORMATION.

Communications and Messaging in Brief

<p>Problem:</p> <p>Burning dirty fossil fuels is polluting our air and our water, and dangerously destabilizing our climate. Air pollution, water pollution and climate change are harming our health now – through asthma, lung and heart disease, heat waves, violent storms, droughts, wildfires, and infectious diseases. It will worsen if we don't take effective steps to <u>protect</u> ourselves.</p>	<p>So what?</p> <p>Anyone and everyone's health can be harmed by climate change. But the people whose health is likely to be hurt first, and worst, are our nation's infants and children, older adults, people who already have a chronic health condition, people who work outdoors, and the poorest Americans.</p>
<p>Issue:</p> <p>More than 97% of climate scientists have concluded that human-caused climate change is happening, and research has proven that it is already harming the health of many of us. As a health professional, I have a duty to <u>protect</u> people from further harm by taking steps to address climate change.</p>	
<p>Benefits?</p> <p>The sooner we take steps to <u>protect</u> ourselves, the sooner every U.S. family, community and business will benefit from cleaner air & water, better health, lower health care costs, and stronger communities.</p> <p>A useful way to think about it: What's good for our climate is good for our health, and what's good for our health is good for our climate.</p>	<p>Solutions?</p> <p>The two most important steps we can take are to stop needlessly wasting energy, and to replace dirty fuels – especially coal – with clean renewable fuels like solar, wind and geothermal. Every American family, community, business, and state can take these steps – or at least support them.</p> <p><u>Protecting</u> ourselves from the health effects of climate change is the right thing to do – and the smart thing to do.</p>

Climate Health Impacts and Solutions Climate Nexus/George Mason

IMPACTS:

- Evidence: In a [landmark survey](#) from the National Medical Association (NMA) found that 88% of NMA physicians think climate change is relevant to direct patient care, and almost two-thirds of doctors said their own patients' health has been affected by climate change.
- **Heat-Related Illness:** Heat is already the [leading cause](#) of direct weather-related deaths in the United States, and the average number of heat-related fatalities will continue to rise, especially among vulnerable populations like the poor and elderly.
- **Heart Disease:** Climate change is strongly linked to heart-related diseases, which have been found to rise in tandem with [extreme heat](#), increasing levels of [ground-level ozone](#), [particulate matter from coal burning power plants](#), and [stress and anxiety](#) brought on by extreme weather events.
- **Asthma:** High levels of [ground-level ozone](#), are [strongly linked to a rise](#) in asthma attacks.
- **Allergies:** Allergies, which affect 10 to 30% of people worldwide, are also getting worse as the climate continues changing and emissions continue to rise. Last month, a study found that air pollution makes pollen [more potent](#); studies also show that warming is contributing to an [earlier and longer pollen season](#) and rising carbon dioxide in the atmosphere results in [more pollen per plant](#).
- **Aggression:** A [recent meta-analysis](#) found that the results of 56 separate studies link climate change to a rise in violence and aggression, with an expected 20% rise in conflict in Africa for every increase of 1°C. A study [linked the civil war in Syria](#) to an extreme drought driven by human-caused climate change.
- **Suicide:** A 2012 study that looked at suicide over 37 years in Australia found that an increase in suicide among rural men was [strongly correlated](#) to a rising drought index—findings that were echoed earlier this year in [skyrocketing suicide rates](#) in drought-stricken states in India.
- **Post-Traumatic Stress Disorder (PTSD):** Communities affected by [wildfires](#), [tsunamis](#), [hurricanes](#), or other disasters experience high rates of PTSD and other psychopathologies, case studies show, especially in those more directly exposed to the threat.

Infectious Diseases

- **Lyme Disease:** The number of reported cases of Lyme disease in the United States has [doubled since 1991](#), partly because warming temperatures facilitate the spread of the ticks that carry the disease. Deer ticks [prefer conditions](#) with temperatures above 45°F and humidity over 85%, and many parts of the U.S. are expected to get warmer (and some wetter) as climate change continues.
- **Mosquito-Borne Diseases:** [Malaria](#) and [dengue fever](#) are two examples of diseases transmitted by mosquitoes that are on the rise as temperatures warm. Floods can also [increase the incidence](#) of mosquito-borne illnesses, as mosquitoes depend on standing water for breeding.
- **Waterborne Parasitic Diseases:** [Cholera](#), giardia, and other diarrheal illnesses are expected to [pose a greater threat](#) to humans as temperatures warm. Both increased drought and rain can challenge the capabilities of water filtration plants and create more standing water, which both expose people to higher levels of disease.

Extreme Weather

- Extreme weather events can contribute to global war, conflict, and migration. For example, a persistent and extreme drought that has been linked to human-caused climate change destabilized Syria and contributed to the ongoing civil conflict and humanitarian disaster. ([Source: PNAS](#))
- Sea level rise and flooding are affecting millions of people around the world. In the Sundarbans, a group of islands off the coast of Bangladesh, sea level rise and saltwater intrusion are threatening the livelihood and health of [over ten million people](#).
- Climate-related disasters include storms, floods, extreme temperatures, drought and wildfires. From 1994 to 2013, the US was affected by more climate-related disasters than any other country, and in 2014, 87% of all disasters worldwide were related to climatological processes. In total, the frequency of global climate-related disasters has [doubled since the 1980s](#).
- Between 1994 and 2013, floods accounted for 43% of all recorded disasters and affected [nearly 2.5 billion people](#). In 2014, hydrological disasters like floods and landslides were responsible for 71% of disaster-related deaths worldwide.
- More than [one billion people](#) were affected by droughts over the past twenty years. Droughts contribute to malnutrition, disease, and displacement, so direct deaths from drought are harder to quantify.

Global instability

- Extreme weather events can contribute to global war, conflict, and migration. For example, a persistent and extreme drought that has been linked to human-caused climate change destabilized Syria and [contributed to the ongoing civil conflict](#) and resulting humanitarian disaster. Sea level rise and flooding are affecting millions of people around the world. In the Sundarbans, a group of islands off the coast of Bangladesh, sea level rise and saltwater intrusion are threatening the livelihood and health of [over ten million people](#).

Solutions: The two most important steps we can take are to stop needlessly wasting energy, and to replace dirty fuels – especially coal – with clean renewable fuels like solar, wind and geothermal. Every American family, community, business, and state can take these steps – or at least support them. Protecting ourselves from the health effects of climate change is the right thing to do – and the smart thing to do.

[Every/Our] state should be taking the opportunity to protect our citizens' health by replacing fossil fuels with clean renewable energy and energy efficiency. Protecting ourselves from the health effects of climate change is the right thing to do—and the smart thing to do.

Benefits

- The sooner we take steps to protect ourselves, the sooner every U.S. family, community and business will benefit from cleaner air & water, better health, lower health care costs, and stronger communities.
- A useful way to think about it: What's good for our climate is good for our health, and what's good for our health is good for our climate

References

- American Academy of Pediatrics. (2015). Global climate change and children's health. *Pediatrics*, 136(5). <http://doi.org/10.1542/peds.2007-2646> [Policy Statement]
- American Medical Association Policy on Global Climate Change and Human Health. Policy I-08. <https://ama-assn.org>
- American Medical Association. Green Initiatives and the Healthcare Community. <https://download.ama-assn.org/resources/doc/csaph/x-pub/csaph1i08.pdf>
- Climate Change & Public Health. Barry Levy, Jon Patz eds. Oxford University Press. 2015.
- Driscoll, C, et al. U.S. Power Plan Carbon Standards and Clean Air and Health Co-benefits. *Nature Climate Change* 5, 535-540 (2015) Published online 04 May 2015. <http://www.nature.com/nclimate/journal/v5/n6/full/nclimate2598.html> Webinar at: <http://www.chgeharvard.org/resource/health-co-benefits-carbon-standards-existing-power-plants#part1>
- Guidotti TL. Health and Sustainability. New York, Oxford University Press, 2015.
- Barnes, C. S., Alexis, N. E., Bernstein, J. a., Cohn, J. R., Demain, J. G., Horner, E., ... Phipatanakul, W. (2013). Climate change and our environment: The effect on respiratory and allergic disease. *Journal of Allergy and Clinical Immunology: In Practice*, 1(2), 137–141. <http://doi.org/10.1016/j.jaip.2012.07.002> [Workgroup Report]
- Environmental Protection Agency. (2015). *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units; Final Rule* (Vol. 80).
- EPA—Nitrogen Dioxide, <http://www.epa.gov/air/nitrogenoxides/health.html>
- <http://www.epa.gov/cleanpowerplan/clean-power-plan-existing-power-plants>
- EPA state by state support: <http://www.epa.gov/cleanpowerplantoolbox>
- E and E Reporter (Environment and Energy); E & E Publishing, LLC. http://www.eenews.net/interactive/clean_power_plan. Accessed Jan 23, 2016.
- Gauderman WJ, Urman R, Avol E, Berhane K, McConnell R, Rappaport E, Chang R, Lurmann F, Gilliland F. Association of improved air quality with lung development in children. *N Engl J Med*. 2015 Mar 5;372(10):905-13.
- Melillo, J. M., Richmond, T. C., & Yohe, G. W. (2014). *Climate change impacts in the United States: The third national climate assessment*. Washington, D.C. <http://doi.org/10.7930/j0z31WJ2>

Pinkerton, K. E., Rom, W. N., Akpinar-Elci, M., Balmes, J. R., Bayram, H., Brandli, O., ... Takaro, T. K. (2012). An official American Thoracic Society workshop report: Climate change and human health. *Proceedings of the American Thoracic Society*, 9(1), 3–8. <http://doi.org/10.1513/pats.201201-015ST>

Sarfaty, M., Bloodhart, B., Ewart, G., Thurston, G. D., Balmes, J. R., Guidotti, T. L., & Maibach, E. W. (2015). American Thoracic Society member survey on climate change and health. *Annals of the American Thoracic Society*, 12(2), 274–278. <http://doi.org/10.1513/AnnalsATS.201410-460BC>

Sarfaty M, Kreslake J, Casale T, Maibach E. Views of AAAAI members on climate change and health. *Journal of Allergy and Clinical Immunology-In Practice*. Published online December 16, 2015. DOI: <http://dx.doi.org/10.1016/j.jaip.2015.09.018>

Sarfaty, M., Mitchell, M., Bloodhart, B., & Maibach, E. (2014). A survey of African American physicians on the health effects of climate change. *International Journal of Environmental Research and Public Health*, 11(12), 12473–12485.

Wiser, R, et.al. A Retrospective Analysis of the Benefits and Impacts of U.S. Renewable Portfolio Standards. Lawrence Berkeley National Laboratory. Jan 13, 2016 <https://emp.lbl.gov/publications/retrospective-analysis-benefits-and>