January 21, 2016

The Honorable Gina McCarthy, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Re: Federal Plan and Model Rules for the Clean Power Plan, Docket ID: EPA-HQ-OAR-2015-0199

The American Lung Association is the nation's oldest voluntary health organization. Our mission is to save lives by improving lung health and preventing lung disease. We write to provide comments to the U. S. Environmental Protection Agency on the proposed Clean Power Plan federal plan and model state rules.

Climate change poses grave threats to public health. To protect our communities and the public, the United States must significantly reduce carbon pollution from the largest source, existing power plants. The Lung Association was proud to support the Clean Power Plan, and is now working in states across the country to ensure that the rule is implemented in a way that maximizes the benefits to human health. Thank you for this opportunity to commend on the federal plan and model state rules.

While we expect most states to develop their own plans, in the case where a state is unable or unwilling to develop its own plans, putting in place a strong federal plan is critical to the success of the Clean Power Plan implementation nationwide.

We support EPA's effort to help the states develop and adopt effective plans to reduce their carbon emissions. Having model plans to use will help the states focus their time and effort on choosing the steps that work best for them. We hope that states will be able to use the recommendations in the model rules to reduce carbon emissions even more than the Clean Power Plan requires.

We urge EPA to strengthen the final federal plan and model rules to provide greater protection to public health in a few key ways, outlined below.

Climate change poses serious threats to human health

The changing climate threatens the health of Americans alive now and in future generations. Growing evidence over the past few years has demonstrated the multiple, profound risks that imperil the lives and health of millions. Consequently, the nation has a short window to act to reduce those threats.

On November 2, 2014 the Intergovernmental Panel on Climate Change issued its most recent policy assessment of current observations and analyses about the changing climate. The IPCC found:

> "Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems. Limiting climate change would require substantial and sustained reductions in greenhouse gas emissions which, together with adaptation, can limit climate change risks." [1]

And for the first time ever, U.S. Surgeon General Vivek Murthy, MD, MBA highlighted the health impacts of climate change during 2015 National Public Health Week, saying: "We know that climate change means higher temperatures overall, and it also means longer and hotter heat waves... higher temperatures can mean worse air in cities, and more smog and more ozone. We know that more intense wildfires will mean increased smoke in the air. And we know that earlier springs and longer summers mean longer allergy seasons."[2]

To combat these profound challenges, it is essential that EPA provide in the federal and model plans clear guidance and policy that will ensure states adopt and maintain the strongest possible measures to reduce carbon and other greenhouse gases that endanger the long-term health of all people.

The *Unites States Third National Climate Assessment* issued in May 2014 provided the most recent comprehensive summary of the research outlining these risks to the United States.[3] This review is consistent with reports produced by leading health and medical organizations: the American Academy of Pediatrics technical report in 2015 on "*Global Climate Change and Children's Health*"[4]; Trust for America's Health, *Health Problems Heat Up: Climate Change and the Public's Health*, in October 2009[5]; the Asthma and Allergy Foundation of America's *Extreme Allergies and Global Warming*, issued with the National Wildlife Foundation in 2010[6]; the American Public Health Association's *Climate Change: Mastering the Public Health Role*, in April 2011[7]; and the American Thoracic Society's workshop on Climate Change and Human Health published in 2012[8]. All these reviews arrived at similar conclusions, summarized below.

Ground-level ozone is likely to be worse in some locations. Ozone levels in the eastern states rose significantly in the United States in 2012, one of the hottest years on record.[9] Higher temperatures increase the likelihood that the precursor gases will react to form ground-level ozone, making to harder to protect people from this most widespread air pollutant.

Researchers repeatedly found that the risk of premature death increased with higher levels of ozone.[10] Ozone causes asthma attacks and respiratory distress, and may increase cardiovascular harm, risk of harm to the central nervous system and the risk of low birth weight in newborns.[11]
As EPA noted in its 2015 report, *Climate Change in the United States: Benefits of Global Action,* "In already polluted areas, warmer temperatures are anticipated to increase ground-level ozone (O3), a component of smog, and increase the number of days with poor air quality."[12]

Wildfires and drought conditions give rise to smoke and dust storms spreading miles from their source. Recent years have showcased the risks from wildfire smoke from blazes in the West. As of September, California had reported nearly 5,000 wildfires in 2014--1,000 *more than usual*—before fire season had even begun, as the *Los Angeles Times* noted.[13] In one example, particulate matter in the smoke from those fires covered Sacramento to Reno in a code purple particulate matter alert on September 21, 2014.[14] (Code Purple is the designation for "Very Unhealthy" air signifying that everyone may experience more serious health effects.)

Drought-driven dust storms also produce high levels of particulate matter. The impact of dust storms in recent years, such as one in Oklahoma in 2012 that shut down Interstate 35, demonstrate their power to threaten health in multiple ways.[15]

Even short-term increases in particle pollution have been linked to premature death from respiratory and cardiovascular causes, including strokes[16, 17, 18, 19]; increased mortality in infants and young children[20]; increased numbers of heart attacks, especially among the elderly and in people with heart conditions;[21] increased hospitalization for cardiovascular disease, including strokes and congestive heart failure[22, 23, 24]; increased hospitalization for asthma among children; [25, 26, 27] and increased severity of asthma attacks in children.[28]

Wildfire smoke contains more toxics pollutants than just particulate matter; the smoke mixture includes carbon monoxide, nitrogen oxides, volatile organic compounds and carcinogens as well.[29] These examples show that these changes due to climate change erect new hurdles to our ability to protect health from air pollution. As EPA noted in its 2009 report on the impacts of global climate change on ground-level ozone, modeling for future pollution levels shows the complexity of the problem, with one compelling outcome: climate change had "the potential to make U.S. air quality management more difficult."[30]

Extreme weather threatens health. Many cities across the U.S., such as Chicago and Milwaukee have experienced increased death rates from episodic heat waves in recent years.[31] Hotter temperatures can increase the risk of heat stroke and heat exhaustion and can increase the risk of hospitalization for cardiovascular and respiratory diseases.[32]

Increased risk of dangerous hurricanes threatens not only damage and death from the wind, but disruption in communities that suffer the hurricanes. As Hurricane Katrina and Sandy showed, the disruption can last for years. Hospitals, clinics, medical care and public health services may be blocked from serving their patients and communities as resources are diverted to emergency response or too damaged to provide those services. Patients find themselves in emergency shelters or relocated to new homes far away from their previous medical caregivers.

According to the most recent assessments[33], the nation has experienced increased heavy rainfall and flooding since 1991. Flooding causes premature deaths, often through drowning, but the aftermath of flooding expands the burden. Water damage leaves behind lingering risks including dampness and mold, chemicals and sewage spread through flood waters, and contaminated debris in flooded homes, schools, hospitals and other community facilities.[34]

Allergens and risk of vector-borne diseases will increase. Warmer weather leads to shifting growing seasons that change flowering time and pollen development and can expand the habitat for allergen-rich plant species. Higher concentrations and longer growing seasons increase the exposure to allergens that trigger asthma and other respiratory and allergic responses.[35] In the U.S., spread of diseases such as Lyme, West Nile Virus, and Rocky Mountain spotted fever, is linked to complex differences in weather, hosts and human behavior that can be profoundly affected by changes in climate. [36]

Food and water supplies face uncertain challenges. The recent extreme drought in the West, particularly in California, exemplifies the risks to supplying adequate water and food supplies to the nation.[37] As the water levels drop, farmers confront more challenges growing food to supply the rest of the nation and the world. Certain communities, such as Alaska Natives, may suffer shortages of fresh water and food they have historically hunted or fished.[38]

Stress will complicate response and mental health issues. Mental health problems increase after disasters, such as seen after Hurricane Katrina. Moreover, even people with no history of mental health problems, including children, will risk increased stress from responding to and accommodating these severe changes. Among the expected impacts from these stresses are: post-traumatic stress disorder; depression and anxiety; increases in violence; and strains due to relocation. [39]

Millions of Americans suffer greater vulnerability to these threats. Many people face greater risk or exposure, as documented in the large air pollution science assessments EPA has repeatedly completed. Children court special risks because their bodies are growing and because they are so active.[40] Older adults are more likely to die during high heat events.[41] People with chronic respiratory diseases like asthma and chronic obstructive pulmonary disease, people with cardiovascular diseases and people with diabetes also risk greater harm from increased pollution.[42]

Poorer people and some racial and ethnic groups are among those who often confront higher exposure to pollutants and who may experience greater responses to such pollution. Many studies have explored the differences in harm from air pollution to racial or ethnic groups and people who are in a low socioeconomic position, have less education, or live nearer to major sources.[43]

Poorer people, people of color, older people and disabled people will have a harder time responding to the threats, especially if electricity is lost or relocation or evacuation is required. [44] Hurricane Katrina demonstrated that many people in these groups had difficulty evacuating and relocating after a major weather event.[45] Native American tribal communities may face threats to food supplies and difficulty relocating due to tribal land locations.[46]

Even healthy adults can be affected by increased air pollution especially if their work requires them to be outdoors, as the study of lifeguards in Galveston, Texas demonstrated. [47]
In the federal and model rules, EPA must include requirements for consideration and protection for all of these especially vulnerable populations in the federal and model plans, including but not limited to low-income communities and communities of color.

A strong federal plan and effective model rules will ensure states reduce carbon pollution and other dangerous pollutants from existing power plants to protect health.

Reducing carbon pollution is an essential step to reduce the burden of climate change, but the benefits and opportunities to protect public health expand far beyond the impact on climate change.

Lifesaving benefits to public health can begin immediately. In addition to reducing the longer-term risks from climate change, steps to cut carbon pollution will cut other toxic emissions as well, including PM $_{2.5}$, sulfur dioxide, and nitrogen dioxide. Those pollutants directly form particulate matter and ozone that cause widespread harm and premature death as described earlier.[48]

Based on those reductions, EPA estimated that implementing the Clean Power Plan could avoid 1,500 to 3,600 premature deaths in 2030. In 2030, children would suffer 90,000 fewer asthma attacks. People with cardiovascular disease would have up to 1,700 fewer heart attacks. Hospital admissions for cardiovascular and respiratory conditions would drop, with 1,700 fewer admissions in 2030. 300,000 missed days of school and work would be avoided.[49]

It is important to remember that the modeling actually may underestimate the real-world benefits of these reductions. The EPA's use of established BenMAP modeling is appropriate to make these estimates, but the predictions focus on findings from certain studies looking at specific outcomes. The BenMAP model cannot estimate the impact on other, also demonstrated, benefits. For example, although the World Health Organization has determined that particulate matter causes lung cancer, science currently lacks appropriate modeling to estimate how many fewer cases of lung cancer would occur in 2030 with the reductions in particulate matter.[50]

A separate, major study confirms that co-benefits from reducing carbon pollution are real, but that doing too little may prove harmful. Strong limits on carbon pollution from existing power plants could improve air quality and prevent an estimated 3,500 (780 to 6,100, 95% CI) premature deaths in 2020 along with other significant benefits to human health, according to an analysis released in September 2014 by researchers from Harvard University, Syracuse University, and Boston University. That report, *Health Co-Benefits of Carbon Standards for Existing Power Plants*, evaluated alternative approaches for reducing carbon pollution from power plants, and showed that limits must be strong, flexible and enforceable to achieve the greatest health benefits for the American people.[51]

The study compared "business as usual" conditions with three alternatives for limiting carbon from power plants. Results showed that a strong, enforceable and flexible approach to reducing carbon pollution would reduce emissions of other harmful pollutants of sulfur dioxide and nitrogen oxides by about 775,000 tons each year. In addition to reducing premature deaths, the strongest options avoided 530 to 1500 hospital admissions for cardiovascular and respiratory diseases in 2020. As a result of lower emissions, all of the lower 48 U.S. states would experience cleaner air.[52]

The EPA's proposed federal plan and model rules are critically important to the successful implementation of the Clean Power Plan to reduce carbon pollution from power plants.

The Clean Power Plan encourages innovation and the use of cleaner energy sources for electricity generation, as well as strategies to improve energy efficiency, which would decrease the need to burn fossil fuels. Our organization is urging states to adopt plans and systems that will provide the greatest reduction in carbon emissions and maximum protection for public health.

It is critical that EPA finalize a strong federal plan as a backstop for any states that do not comply with the Clean Power Plan, as well as strong model rules to provide guidance to the states that will comply to drive the greatest reduction in carbon emissions to protect public health.

We agree with EPA's proposed approach to release the final model state plans well in advance of the deadline for states to submit their initial state plans to provide states with adequate time to incorporate the model rules into their state planning process.

Alternative energy sources that increase air pollution and harm health should be excluded from the federal plan and model state plans as compliance options.

Not all fuels labeled "renewable" are equally good for human health. We are pleased that the federal plan would not allow biomass to be considered as a compliance option and encourage EPA to strengthen the model rule to eliminate biomass, as well as waste-to-energy as compliance mechanisms as well.

The American Lung Association is very concerned about expanding biomass or waste-to-energy as acceptable alternative energy sources as part of state compliance plans because of the likely harmful impacts to health from the increased conventional pollutants emitted. The American Lung Association does not support biomass combustion for electricity production. Biomass combustion currently uses feed stocks that have proven harm to human health: wood products, agricultural residues or forest wastes, and potentially highly toxic feed stocks, such as construction and demolition waste.

Burning these as fuels contributes pollution to the air we breathe, including particulate matter, nitrogen oxides, carbon monoxide, and carcinogens such as benzene and formaldehyde. Choosing wind and solar will help us reduce air pollution by keeping us from needing to use dirtier fuels like coal, oil, and natural gas, as well. This will reduce emissions that trigger asthma attacks and heart attacks, cause cancer and shorten life.

In the model rules for rate-based plans, EPA would allow states to take credit for using biomass and waste-to-energy as alternatives to coal and natural gas. Use of biomass was not included in determining the emission reduction targets, so states should be able to meet their goals without reliance on biomass. The model state rules should not allow states to transition from burning one harmful source, like coal, to burning another harmful source, like waste products.

The EPA must provide the strongest possible tools in the model plan to prevent leakage.

We support EPA's commitment to ensure that the reductions in carbon emissions are "real, and not just apparent." We were glad to see that EPA recognized that some actions could result in leakage, where a state takes credit for emissions reduced from a source covered under the Clean Power Plan, but increases emissions from a source not covered by the plan or located in another geographic location. We support EPA providing the strongest possible tools and clear guidance for states to use in the model state plans and in the federal plans to ensure additional carbon emissions reductions and to prevent leakage.

As EPA has noted, a mass-based plan that covers only existing power plants may fail to achieve their emission reductions goals if electricity generation shifts from existing plants to new power plants that are not covered by the Clean Power Plan, rather than to lower-emitting existing plants and to zero-emitting renewable generation. A mass-based plan that covers existing and new power plants avoids this problem and is the most straightforward plan to implement. EPA must not allow a mass-based approach that only covers existing plants for the federal plan until EPA has developed a way to prevent this leakage.

Requirements for permanent, enforceable, measurable, verifiable emission reductions are crucial.

We appreciate the EPA's commitment to require that the states demonstrate "that each emissions standard is quantifiable, non-duplicative, permanent, verifiable, and enforceable" under the Clean Power Plan (79 FR 34838). States will have difficulty assessing, without verifiable measures, whether the actions they took have the expected impact. Unless compliance measures can be measured and verified, the potential exists for them to ineffective, costing time and resources that could be spent in more effective measures. This should apply to all Clean Power Plan compliance pathways, including the federal and model plans.

Energy efficiency should be allowed as a compliance pathway in federal and model plans.

The American Lung Association supports programs and policies to significantly reduce demand for energy by increasing the efficiency of U.S. homes and businesses, strengthening appliance standards, and reducing the energy consumption of consumer products. The American Lung Association supports programs and policies to encourage consumers and utility companies to expand investment in energy efficiency and energy conservation measures to reduce air pollution emissions, to reduce household energy expenses, and to stimulate new economic opportunities and job creation. Energy efficiency should be allowed and encouraged as a compliance pathway in federal and model plan.

It is important that the EPA strengthen and clarify the standards for measurement and verification of renewable energy and savings from energy efficiency. The EPA should require that energy savings from energy efficiency be measured from a baseline of what would have happened in the absence of the energy efficiency project. The EPA should also allow for the comparison of energy efficiency savings estimates between states, and do more to ensure that third party verifiers have no conflicts of interest.

EPA should fully incorporate the elements of the Clean Energy Incentive Program into the model state plans.

The American Lung Association strongly supports the Clean Energy Incentive Program as a promising encouragement to all states to start now to invest in the clean renewable energy sources of wind and solar. Both are fully capable of adding capacity to our energy supply while not adding additional harmful pollution to the air we breathe.

The Clean Energy Incentive Program offers opportunities for advancing action that will meet the target of the Clean Power Plan, but the program needs to be stronger in the model rule and in the FIP so that they will best help the communities that they intend to serve.

We are pleased that EPA has the full CEIP in the federal plan. However, in the model plan, states can "opt out" of the broad opportunity for renewable energy and improved energy efficiency programs. We recommend that EPA incorporate the CEIP elements fully in the model plan rather than leaving this as an option for states to decide later.

In particular, we strongly support the Clean Energy Incentive Program's component that focuses on energy efficiency improvements in low income communities. Many residents in low income communities could benefit from having repairs done to their homes that can cut their energy bills and make their homes warmer in winter and cooler in summer. Communities will also benefit from additional jobs that would be created to fix these homes.

The EPA must protect low-income communities from disproportionate health burdens that may result from trading.

Cleaning up carbon pollution from power plants will clean up more than just carbon—it will help cut emissions of other toxic pollutants that impact nearby communities as previously discussed. Historically, trading programs have not addressed the impact on communities who suffer continued exposure to the emissions that continue in the power plants that don't get cleaned up. The EPA needs to do more in the model rules and the federal plan to ensure that low income communities don't continue to bear the oversized burden of pollution under the Clean Power Plan.

Low income communities have suffered the problems from pollution from our nation's coal-fired power plants for far too long. Low-income communities living near these plants breath the worst of the pollution, including toxic emissions like arsenic, lead and carcinogens like benzene, spewed uncontrolled for far too long. They often suffer more from changes that climate change brings, since research documents that air pollution harms people with low-incomes more that those with higher incomes, in part, because they are more likely to have diseases like asthma that puts them at greater risk.

We are concerned that encouraging trading emissions under the federal and model state plans means that emissions from some power plants won't be cleaned up – missing an opportunity to reduce the

toxic pollution burden and health risks from that particular power plant. The American Lung Association favors a transition to enforceable pollution reduction obligations for all facilities. As part of the federal and model state plans, the EPA should require states to ensure that the steps taken in their plans do not continue to disproportionately burden those who live near the affected power plants. The EPA should develop model approaches for the states to use to protect the health of these communities, and include them in the federal and model state plans.

Conclusion

We are pleased that the EPA has proposed to take these critical steps to ensure the successful implementation of the Clean Power Plan through proposing the federal plan as well as model state plans, much-needed tools to move the nation toward effective reduction in carbon pollution from existing power plants.

The American Lung Association urges EPA to take advantage of this opportunity to ensure even greater public health protection with strengthened federal plan and model state rules.

We appreciate the opportunity to provide comment and weigh in on these issues.

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