NPCA – AMC Clean Power Plan comments

I. Introduction

The National Parks Conservation Association (NPCA) and the Appalachian Mountain Club (AMC) strongly support EPA's proposed Clean Power Plan (CPP) rule, with several proposed enhancements discussed below. The high, and rapidly increasing level of carbon dioxide (CO_2) in the atmosphere, is causing an unprecedented rise in temperatures and extreme weather events, increasingly eroding the health of our national parks, forests and wild lands, and threating the health of their millions of visitors.

The U.S. National Park System encompasses 401 natural, cultural, and recreational areas covering more than 84 million acres across all states and the District of Columbia, American Samoa, Guam, Puerto Rico, Saipan, and the Virgin Islands, and almost 7,200 miles of shorelines along the oceans and Great Lakes. Congress established the very first national park, Yellowstone, in 1872.

Our national parks are living emblems of our nation, and they deserve our protection as well as restoration so their true grandeur may be enjoyed by current and future generations. By creatively reducing the emission of CO_2 from the largest single industrial source in the country – fossil fuel fired power plants – the CPP promises to mitigate the impact of this pollutant on the natural, cultural and historic resources of our national parks, and our country as a whole.

Since 1919, NPCA has been the leading voice of the American people in protecting and enhancing national parks. NPCA is a nonpartisan, nonprofit organization dedicated to preserving our nation's natural, historical, and cultural heritage for future generations. Because climate change and air pollution are the greatest threats to our national parks, NPCA works to mitigate climate disrupting and air quality degrading pollution while effectuating methods of adaptation and management related to park resources, gateway communities, and park visitors.

Founded in 1876, AMC promotes the protection, enjoyment, and understanding of the mountains, forests, waters, and trails of America's Northeast. Energy use and the current dependence on fossil fuels is directly related to air pollutant and greenhouse gas emissions that impact the enjoyment and safety of hikers and the vitality of the resources AMC works to protect. AMC works to reduce greenhouse gas and air pollution emissions and their impacts to these resources, especially to visibility and hiker and ecosystem health.

II. Direct Climate Change Impacts to Our National Parks.

When Glacier National Park (GNP) was established in 1910, there were over 100 active glaciers within its boundary. By 2030, however, the United States Geologic Survey estimates that most – if not all – of those glaciers will be gone. The culprit? Increasing temperatures caused by rising concentrations of greenhouse gases (GHG) in the atmosphere.[1] According to the USGS,

> Analysis of weather data from western Montana shows an increase in summer temperatures and a reduction in the winter snowpack that forms and maintains the glaciers. Since 1900 the mean annual temperature for GNP and the surrounding region has increased 1.33°C (Pederson et al. 2010), which is 1.8 times the global mean increase. Spring and summer minimum temperatures have also increased (Pederson et al. 2010), possibly influencing earlier melt during summer. Additionally, rain, rather than snow, has been the dominant form of increased annual precipitation in the past century (Selkowitz et al. 2002). Despite variations in annual snowpack, glaciers have continued to shrink, indicating that the snowpack is not adequate to counteract the temperature changes.[2]

It is probably too late to prevent the loss of glaciers at Glacier National Park, but their demise is a harbinger of future impacts to our national parks that could be reduced, if not prevented, through the implementation of the CPP.

National parks are significantly threatened by a rapidly warming planet. Impacts range in degree and breadth and include coastal areas affected by rising oceans, deserts experiencing extreme heat events, and alpine regions beleaguered by extended drought.

For example, rising sea levels in Florida's Everglades National Park threaten the mangrove ecosystem that filters saltwater thereby preserving freshwater wetlands.[3] Rising temperatures and drought in New Mexico's Bandelier National Monument have driven bark beetles to higher elevations causing high mortality rates to the piñon pines. Rising temperatures in Yellowstone National Park are also killing whitebark pine trees; the dying of whitebark pine translates to reduced chances of grizzly bear survival in Yellowstone because grizzlies rely heavily on whitebark pine seeds as a critical source of nutrition.[4] Warmer temperatures in Great Smoky Mountains National Park could increase

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[1] National Park Service, "Climate Change in National Parks," online at: www.nps.gov/pore/planyourvisit/uploadbrochure_climatechangeinntionalparks.pdf.
[2] Retreat of Glaciers in Glacier National Park, USGS, online at http://nrmsc.usgs.gov/research/glacier_retreat.htm
[3] Id., "Climate Change in National Parks."
[4] Id., "Climate Change in National Parks."

ozone levels, further damaging critical tree and plant species.[5] Scientists have linked these and other changes occurring in our national parks directly to climate change.

In 2014, NPS published a study that examined the extent to which 289 parks are experiencing extreme climate changes when compared to the historical records from 1901–2012 ("2014 Parks Study").[6] Results show that parks are overwhelmingly at the extreme warm end of the historical temperatures. The 2014 Parks Study also points to changes in precipitation patterns since 1901.[7] These findings are supported by previous scientific research. Parks that have been experiencing extremely warm and dry climates include Kalaupapa National Historical Park in Hawaii, Mojave National Preserve in southern California, and Lake Mead National Recreation Area in Nevada and Arizona. Parks that have become extremely warm and wet include Cape Lookout National Seashore in North Carolina, Florissant Fossil Beds National Monument in Colorado, and Delaware Water Gap National Recreation Area in New Jersey and Pennsylvania.[8]

The Appalachian National Scenic Trail (ANST) was designated as a unit of the National Park System and the first National Scenic Trail in 1968. The Appalachian Trail (A.T.) follows the hills and valleys of the Appalachian mountain range in the eastern United States. The 2014 Parks Study found the recent mean temperatures on the ANST were ranked as "extreme warm" compared to the historical data set. Further, climate data collected at a northern ANST mid-elevation site in the White Mountain National Forest, where winter recreation is very important to local economies, show that snowpack is leaving 15 days earlier in the spring and annual snowfall has declined by 69 inches over the time period of 1935-2012 (AMC unpublished data).

According to the 2014 Parks Study, species within national parks are experiencing extreme climates, causing changes to plant and animal behavior. For example, temperate tree species in the Great Lakes region appear most sensitive to higher summer temperatures, while white-tailed deer are more sensitive to winter conditions.[9] A more detailed description of parks impaired by the effects of climate change is set forth in Appendix A.

Park managers are now preparing various adaptive strategies to protect some park resources while resigning themselves to the sacrifice of others. For example, in coastal parks such as Point Reyes National Seashore, managers have been advised to accept – rather than fight – the inexorable erosion of the shoreline and saltwater incursion into near-shore wetlands. The abandonment of trails, scenic overlooks, boat ramps and

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[5] National Parks Conservation Association, "Unnatural Disaster: Global Warming and Our National Parks" (2007), online at http://www.npca.org/assets/pdf/unnatural_disaster_2.pdf.

[6] Monahan WB, Fisichelli NA (2014) Climate Exposure of US National Parks in a New Era of Change. PLoS ONE 9(7): e101302. doi:10.1371/journal.pone.0101302.

[7] Id., p. 5.

[8] Id., p. 10.

[9] Id., p. 10.

historical structures and artifacts, unthinkable twenty years ago, is now under active consideration.

III. Indirect Climate Change Impacts to Our National Parks.

The direct impacts to national parks caused by rising levels of CO_2 in the atmosphere is reason enough to promulgate the CPP. Those impacts, however, only tell part of the story. Multiple studies have documented the indirect impact of CO_2 pollution on surface air quality. The warmer temperatures of climate change alter atmospheric chemistry and dynamics in ways that lead to generally higher ground-level ozone and $PM_{2.5}$ concentrations.

In particular, a recent study from Princeton University indicates that the United States is experiencing, or will experience, increases in ozone and $PM_{2.5}$ associated with climate change;[10] this conclusion is generally consistent with other research on this topic.[11] The analysis isolates the effects of climate change alone on surface air quality (as opposed to changes due to population growth, variations in emissions, etc.). In the U.S., it documents increases in $PM_{2.5}$ of up to 2 ug/m^3 annually – roughly 17% of the current PM2.5 National Ambient Air Quality Standards (NAAQS). The highest increases are in the eastern U.S. Changes in ozone concentration are more varied, but the Princeton findings suggest increases of up to 2 parts per billion by volume in the northeast United States (nearly 3% of the current ozone NAAQS).

In addition to threatening the attainment and maintenance of the NAAQS, these climate-change induced increases in ozone and $PM_{2.5}$ negatively affect another Clean Air Act objective: regional haze. $PM_{2.5}$ is the major source of haze pollution in the country. The Princeton study notes that "among all $PM_{2.5}$ components, the largest increases are in sulfate, smaller dust particles, and organic matter." The increase in sulfate particulate matter is of particular concern given its significant role in regional haze. Additionally, projected increases in humidity would further exacerbate the haze-producing effects of any sulfate (or nitrate) present. Increases in ozone are also associated with lower visibility.[12]

Most significantly, these CO_2-related changes in surface air quality cause increased mortality and other health impacts. In North America, $PM_{2.5}$ and ozone increases due to climate change are expected to increase mortality by 8% and 2%, respectively – resulting in an increase of nearly 13,000 premature deaths annually. The indirect impacts of climate change on air quality in our national parks – including impacts to visitor health and experience – are already being felt and will be further exacerbated without intervention.

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[10] Y. Fang (2013), "Impacts of 21st Century Climate Change on Global Air Pollution-Related Premature Mortality," Climate Change 121:239-253.

[11] See, e.g., M. Z. Jacobson (2008), "On the Causal Link Between Carbon Dioxide and Air Pollution Mortality," Department of Civil and Environmental Engineering, Stanford University.

[12] V.P. Aneja (2004), "Ozone and Other Air Quality-Related Variables Affecting Visibility in the Southeast United States," J. Air & Waste Manage. Assoc. 54:681–688.

IV. Co-Benefits of Implementing the Clean Power Plan

The CPP will result in reducing not only CO_2 but also other harmful pollutants. Once implemented, collateral reductions in sulfur dioxide, nitrogen oxides and particulate matter will be substantial. These "co-benefits" of the CPP are projected to include the reduction of hundreds of thousands of tons of non- CO_2 pollutants, benefiting public health invaluably. These reductions will also improve the air quality in our national parks and wildernesses.

The table below offers a glimpse into the range of impacts to national parks realized by emissions of just four of the many pollutants released by coal burning power plants. The impacts extend well beyond those identified in the table; documented studies identifying specific national parks, species and ecosystems impacted are extensive. As EPA moves to finalize the CPP we strongly support the agency taking into account the co-benefits that CO_2 reductions will have on our national parks and the Appalachian Mountains.

Table 1. Examples of pollutants generated from coal powered plants that contribute to negative impacts in national parks

Pollutant	Impact on national parks	Parks, ecosystems or species affected
Nitrous oxides (NOx)	Acid rain impacts on wildlife	Reduction and impact on salamander population at Great Smoky Mountains National Park
	Nitrogen nutrient overload impacts vegetative species distributions	Rocky Mountain National Park flowering plants being replaced by grasses; Yosemite National Park lichens (indicator species) disappearing
	Asthma and respiratory illness impacting health of visitors	
Sulfur oxides (SOx)	Injurious effects on the condition of water bodies	Alterations in snowpack chemistry and water quality in Yellowstone National Park
	Ecosystem level impacts to terrestrial environments	High elevation tree communities, particularly spruce trees, are facing chronic degradation in Shenandoah National Park.
Particulate matter (PM)	Haze / reduction of visibility	Scenic vistas dramatically degraded at Grand Canyon National Park
	Injurious effects on the health of wildlife and livestock	
Mercury (Hg)	Biological concentrations of mercury reach toxic, life threatening levels	Lake Clark National Park has documented toxic levels of mercury poisoning in pike and trout fish species which result in high levels found higher in the food chain among eagles
	Wildlife and ecosystem dysfunction in areas with high mercury accumulation	Mt. Rainier National Park wetland ecosystems suffer high levels of mercury deposition that impact songbird populations

V. NPCA and the AMC Support a CPP that Includes More Aggressive CO_2 Reduction Goals and Backstop Federal Plans.

NPCA and the AMC support the CPP as a promising strategy to reduce CO_2 emissions from our country's electricity generating power plants. Due to the dire consequences of rapidly rising temperatures caused by elevated CO_2 levels in the atmosphere, however, including significant and potentially irreversible impacts to our national parks, we recommend the CO_2 reduction targets be increased and that EPA prepare backstop federal plans now for those states that fail to develop their own plans.

A. EPA Should Promulgate More Aggressive CO_2 Reduction Targets.

The Supreme Court held in 2007, over EPA's objection at the time, that EPA has a "statutory obligation" under the Clean Air Act to regulate GHGs, including CO_2, as air pollutants. *Massachusetts v. EPA*, 549 U.S. 547, 534 (2007). According to the Court, "[u]nder the clear terms of the Clean Air Act, EPA can avoid taking further action only if it determines that GHGs do not contribute to climate change or if it provides some reasonable explanation as to why it cannot or will not exercise its discretion to determine whether they do." Id. at 533. Thus the Court required EPA to determine "whether sufficient information exists to make an endangerment finding" for GHGs. Id. at 534.

Two years later EPA formally announced its determination that GHGs do endanger public health and the environment. Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act ("Endangerment Finding"), 74 Fed. Reg. 66496 (Dec. 15, 2009). EPA's endangerment finding withstood industry challenge in *Coalition for Responsible Regulation, Inc. v. EPA* (D.C. Cir. Jun 26, 2012).

EPA's 2009 CO_2 endangerment finding triggered the requirement in Section 111(d) of the Clean Air Act that EPA establish "standards of performance" for existing sources of pollution – in this case CO_2 pollution. Existing fossil fuel-fired power plants comprise the nation's largest single source of CO_2 pollution. Because CO_2 is an air pollutant, and because existing power plants are a major source of that pollution, the CPP constitutes EPA's standard of performance for such sources.

The core objective of the CPP is to reduce the 2005 annual power plant CO_2 emission rate by 30% in 25 years, or by 2030. The national CO_2 emission rate was 2.7 billion tons per year in 2005, therefore the objective of the CPP is to obtain a lower national emission rate of 1.9 billion tons per year by 2030. Because *current* power plant CO_2 emissions are closer to 2.3 billion tons per year, however, the 1.9 billion ton per year target for 2030 only represents an 18% reduction in annual emissions compared to current emissions. For the reasons described below, we urge EPA to adopt a 40% CO_2 reduction target based on 2005 emissions.

1. BSER and the Four Building Blocks

Building Block	Targets
1. On-site coal plants efficiency	↑ 6%
2. Re-dispatch to NGCC	Up to 70%
3. Nuclear and Renewable Energy	5.8% of existing Nuclear Renewables 13%* by 2030
4. Energy Efficiency	Cumulative 10.7%* by 2030
*National average	

We strongly support EPA's overall approach of establishing a "best system of emission reduction" (BSER) using four building blocks to reduce CO_2 emissions from the existing fleet of U.S. power plants. Those building blocks are: improving coal plant efficiency, increasing the capacity of natural gas plants, increasing the amount of renewable energy generation, and increasing demand-side energy efficiency.

Our position on the BSER targets and each of the building blocks is set forth below. We do not support EPA's alternatives to the BSER that would look at a shorter compliance window, or a BSER that relies only on the first two building blocks.

(a) Alternative Multi-State Programs

As long as states can show within their SIPs that they can achieve the same or better emission reductions, we agree with EPA's inclusion of allowing multi-state programs that include features of mass-based caps and interstate trading. An example is the successful Regional Greenhouse Gas Initiative (RGGI). We strongly support EPA's inclusion of this type of program as a compliance option. The recently strengthened RGGI program cap locks in significant reductions in GHG pollution from the power sector in the nine participating states. The program has been a success to date with not only emission reductions but economic benefits. An independent analysis[13] found that the net effect of RGGI's first 2.5 years of operation:

- Caused a boost in economic output in participating states of $1.6 billion dollars
- Created 16,000 job years of employment across the regional economy
- Saved $1.3 billion in energy bills over 10 years

An analysis by Acadia Center (formerly Environment Northeast) show that electricity prices declined by 8% across the region between from 2008 (the year before RGGI launched) to 2013.[14] EPA and the RGGI states should examine how the RGGI program should be reformed to ensure that it is at least as stringent as EPA's final BSER.

2. Increase CO_2 Reduction Targets

[13] Analysis Group, 2011, The Economic Impacts of the Regional Greenhouse Gas Initiative on Ten Northeast and Mid-Atlantic States, available at: http://www.analysisgroup.com/uploadedFiles/Publishing/Articles/Economic_Impact_RGGI_Report.pdf

[14] ENE analysis used average retail electric prices from EIA, at: http://www.eia.gov/electricity/data.cfm

We urge EPA to set a CO_2 target reduction from power plants of 40% -- rather than 30% -- by 2030, considering the current levels are already lower than 2005 levels. We support the Notice of Data Availability (NODA) alternative target emission rate method whereby any incremental renewable energy and/or energy efficiency would not only displace fossil generation beyond the baseline year(s) but could replace historical fossil generation below that baseline level. This method puts renewables and demand-side efficiency on equal footing with re-dispatching to natural gas combined cycle (NGCC) and we believe this method should be utilized to achieve 40% reductions by 2030.

3. Building Blocks 1 & 2

EPA assumes that coal plants can improve their heat rate efficiency by 6% on average through onsite upgrades, maintenance, and operational modifications. We support this averaging approach because it will encourage states to maximize efficiencies from each facility to meet the state-wide average.

We strongly support a reduction of emissions from dirtier coal plants through building blocks 1 and 2. This will reduce carbon emissions while at the same time delivering important co-benefits including the reduction of sulfur, mercury, and nitrogen pollution. The range of CO_2 reduction rates across all 50 states is 0 – 38%.
EPA's initial proposal appropriately encourages re-dispatch from coal to existing natural gas combined cycled (NGCC) units which is a phenomenon already occurring due to market forces.

The shift from coal to natural gas combustion, however, is not without its downside. Impacts from natural gas development range from local to global. Considerable impacts to air, land and water resources due to natural gas exploration and development activity is occurring on public lands recognized for their outstanding recreational and ecological values. Better management, mitigation and awareness of the impacts to public resources are needed, especially in relation to public lands, waters, air quality, and GHG emissions. In addition, methane leakage from our ever-expanding network of natural gas fields and distribution pipelines could offset much of the climate benefit expected by converting from coal to natural gas. We urge EPA to take a close look at these unintended consequences and drafting sufficient safeguards in the final rule. Please see Section VI for further discussion concerning the worsening of atmospheric methane.

EPA should not adopt a phase-in for either building block 1 or 2 as it will undermine efforts to meet the national all-sector goal of 17% by 2020 and 28% by 2025. While we have reduced emission from power plants solely as a result of market forces, the nation as a whole must stay on track to achieve the needed reductions across all anthropogenic sources.

We generally support the inclusion of new NGCC facilities within the 111(d) program. These facilities would be included under building block 2. However, we are concerned with allowing re-purposed coal turbines to convert to natural gas as they may not run as efficiently as existing or new NGCC.

4. Building Block 3

We support a robust renewable energy market and believe the CPP can play a significant role in advancing the amount of energy that renewables can contribute to our overall energy needs. At the same time the CPP should not advance policies that disproportionately contribute to other environmental impacts from energy projects beyond climate change. For example, wood biomass energy developed at a major scale in the Northeast could significantly impact forest sustainability, future forest management practices, and associated ecological and recreational values derived from forests. Therefore renewable energy projects must balance all environmental impacts including state and local community considerations.

While EPA cannot replace state renewable energy policies, the agency should provide clear and consistent policies that apply to CPP qualified renewable energy.

(a) Building Block 3 Targets Should Be Re-evaluated

The CPP provides regional renewable energy targets and requires each state to develop a plan to meet that target. A number of states have already met the regional target. For example, the state of Maine, whose target is 25%, is currently meeting 30% of its in-state energy generation under its state RPS. Other state RPS laws have future year adjustments that should be taken into account beyond what was on the books in 2012.

Currently EPA has provided state renewable energy targets based on regional averages. EPA should consider how existing RPS markets are structured, where states are already collaborating through the Renewable Energy Credit (REC) system. This approach would allow growth on an existing framework of state collaboration.

(b) EPA Must Provide Methods to Avoid Double Counting Using Existing REC system.

Existing REC tracking and accounting can be used and expanded to include new renewables that may not qualify under existing RPS state laws but do under the CPP. This is feasible as it is used effectively with the variation of state RPS laws. Through this system EPA can ensure that when a REC (or renewable capacity-based energy) is retired that the same entity that retires the REC gets the carbon reduction credit. The state that bought the REC and retires it gets the credit. This must be required under the CPP to avoid double counting.

(c) EPA Must Finalize Standards for Biogenic Emissions with Complete Carbon Accounting:

While EPA recently issued a second draft of it *Framework for Assessing Biogenic CO2 Emissions from Stationary Sources* it is important for the agency to expeditiously carry out the public process and issue final guidance. EPA should weigh heavily the science of

accounting for the full carbon cycle of various biogenic fuels and the timing of the burning of fuel verses the amount of time for the carbon to be sequestered.

For biomass to be considered as a "renewable" resource full carbon accounting should be done. Foremost, any feedstock from permanent land conversion should not qualify, as this land is no longer available to re-sequester emitted carbon, and does not meet even the most limited definition of sustainability. Certified sustainable forestry practices of the fuel source used in such facilities must be verifiable. All biogenic emissions must be clean and non-hazardous, and not result in emission of toxic substances, degrade air quality, or negatively affect public health. EPA must provide a consistent definition of "sustainably harvested biomass" that would qualify for Renewable Energy Credits (RECs) used to comply under CPP. These should include:

1) Certification by a widely-accepted program such as FSC, SFI or Tree Farm
2) Harvesting conducted according to a harvest plan required under state forest practices legislation, provided such legislation requires consideration of the full range of sustainability issues (including, but not limited to, effects on water quality, soils, and wildlife habitat.)
3) Harvesting conducted according to an accepted stewardship plan required by current use tax programs.
4) Harvesting conducted under a management plan prepared and supervised by a state-licensed professional forester.

Even if biogenic fuel sources come from a sustainably managed forest for carbon there is potential for a mismatch due to timescale. For example, if large volumes of biomass are burned emitting carbon dioxide in the next ten years but the same amount of carbon sequestered by the same lands is not for 30-40 years then the net is a positive carbon flux over the 25 year compliance window, counter to the goals of the CPP. Managing the lands to avoid this type of situation is feasible and must be part of qualifying biogenic fuels and facilities crediting.

The McCabe memo *Addressing Biogenic Carbon Dioxide Emissions from Stationary Sources, Nov 19th, 2014* indicates EPA would recognize the climate benefits of waste-derived and certain forest-derived industrial byproduct feedstock. EPA's position is that these biofuel categories do not contribute to excess CO_2, in comparison to other ways they are disposed (e.g. landfill). However, we have grave concerns about the practical application of tracking these feedstocks, especially if used in municipal solid waste to energy facilities. For waste-derived feedstocks in particular it would be difficult to differentiate the biogenic matter from other materials making any carbon crediting process cumbersome and uncertain.

To maximize the benefits of any biomass facilities they should utilize co-generation, a feature that should be standard in any newly constructed plants.

(d) <u>Clarification regarding hydro-electric power</u>

Generally, we support low-impact hydropower, and we believe that independent 3rd party certification of hydroelectric projects by the Low Impact Hydroelectric Institute (LIHI) should be required for any hydroelectric project to qualify for state or national renewable energy certificates or to qualify in renewable portfolio standards. In addition, where minimal environmental or recreational impact is to occur, we support the upgrading of existing turbine generating capacity and the powering of existing non-hydroelectric dams and water conduits. This is consistent with our overall position that renewable energy should not result in other environmental impacts. We do not support inclusion of new hydro-electric dam construction projects.

It is important to recognize that rivers are publicly owned resources. Hydroelectric dams can create relatively pollution-free energy, but they can also cause significant adverse impacts on fish and wildlife, water quality and quantity, recreation, and other resources. Multiple dams within the same watershed can have both individual and cumulative impacts. Therefore it is important to have a more comprehensive basin-wide review and permitting approach, regardless of the fact that multiple land owners may be involved.

State RPS polices vary greatly on what hydroelectric projects qualify but many do not include large existing facilities because they swamp the RPS market and would not allow for growth across the renewable energy sector. States have addressed this issue of including existing large hydroelectric facilities in RPS standards by limiting their inclusion to only new incremental hydro-generation added beyond a certain base year. Here, we urge EPA to only include LIHI certified hydroelectric power facilities as qualifying hydro under the CPP and to exclude any new dam construction projects. If existing LIHI hydro facilities are included EPA should re-evaluate the renewable goals for each state and adjust them to ensure that growth of new renewable energy sources are prioritized and facilitated under building block 3. To reach a goal of 40% by 2030, as we urge EPA to do, EPA must increase the renewable energy targets as well as its goals for energy efficiency as we discuss below.

5. Building Block 4: Energy Efficiency Should Have a 0.38% ramp up to a level of 2.0% of annual retail sales

We urge EPA to maximize energy efficiency's role in reducing power plant emissions. RGGI estimates that investments in energy efficiency, as of 2012, will return more than $1.8 billion in lifetime energy bill savings to consumers across the region.[15] According to a recent Acadia Center report, our Canadian neighbors to the north have also greatly benefited with every dollar spent on energy efficiency programs resulting in an increase in gross domestic product of $5 to $8 billion.[16] This type of investment is common sense.

[15] http://www.rggi.org/docs/Documents/2012-Investment-Report.pdf
[16] See: http://acadiacenter.org/wp-content/uploads/2014/11/ENEAcadiaCenter_EnergyEfficiencyEngineofEconomicGrowthinCanada_EN_FINAL_2014_1114.pdf

EPA currently has a ramp up of 0.2% from 2012 to a level of 1.5% that starts accumulating at 2017. The value in the target emission equation is the cumulative value from as early as 2017 when a state reaches 1.5%. This could be improved by increasing the state ramp up rate to 0.38% per year, the "high group" identified in EPA's technical analysis on existing state practices.[17] Further, EPA must consider a higher final target percentage, beyond 1.5% per year. Some states are already achieving this level of energy savings due to efficiency. It is important that EPA require methodologies for states to monitor, measure, and verify the energy savings achieved by the energy efficiency actions taken.

Finally, we strongly agree with EPA's approach that energy efficiency only be credited to the home state as a percent of the amount of in-state generation. Thus if a state imports 20% of its power from another state it may only attribute efficiency savings to 80% of its total electrical use. This avoids over-crediting to states for energy efficiency measures on power not generated in-state.

6. Periodic Reviews

Based on the experience of the Regional Greenhouse Gas Initiative (RGGI) program, periodic reviews of progress and targets are important to keep the program on track. This is especially true when, as here, the CPP relies on assumptions about evolving energy market and technologies that can be subject to unforeseen changes and outside forcing agents. Therefore, we urge EPA to have a required review of the overall program target and each building block target four years after the 2018 regional SIPs are submitted, and at the time updated SIPs submitted are submitted in 2023.

B. EPA Should Revise the CPP to Require Prompt EPA Findings of Non-submittal, or Inadequate Submittal, of State and Tribal Plans.

1. State Plans

The CPP sets forth state-by-state CO_2 standard of performance reduction targets that have been tailored to the individual energy generation and energy use profiles for each state. By June 30, 2016, all states are required to submit a plan to EPA that demonstrates how they intend to meet the targets, unless eligible for later deadlines in 2017 or 2018. Unfortunately, states regularly fail to meet their required deadlines under the Clean Air Act, and we are concerned that this trend will continue with the deadlines in the CPP. Additional methods to address this issue are discussed below.

Pursuant to Clean Air Act Section 111(d)(1), states are first provided the opportunity, by June 30, 2016, to submit plans consistent with the CPP that would, if approved by EPA, be enforceable. If a state fails to submit a plan EPA has the authority, pursuant to Section 111(d)(2), to prescribe an enforceable, federal plan for that state. Furthermore, pursuant to CAA Section 110(c), EPA must first make a finding that a state

[17] See page 5-35 of http://www2.epa.gov/sites/production/files/2014-06/documents/20140602tsd-ghg-abatement-measures.pdf

has failed to make the required submission before it can issue a federal plan, and, after making such a finding, EPA has two years before it must issue a federal plan.

With respect to the failure of any state to submit a complete or initial state plan by June 30, 2016, we propose the CPP include a provision that requires EPA to make a Section 110(c)(1)(A) finding of non-submission within 30 days of June 30, 2016. With respect to the submission of state plans that fail to satisfy the minimum requirements of either a complete or initial plan, we propose that the CPP include a provision that requires EPA to make a Section 110(c)(1)(A) finding of inadequate submission within 90 days of June 30, 2016. Failures to meet the 2017 and 2018 deadlines would be treated similarly.

The CPP also should be revised to include a requirement that EPA issue a federal plan within 180 days of any EPA finding that a state did not submit a plan, or submitted an inadequate plan, that includes federally-enforceable measures sufficient to ensure the attainment of the 2030 CO_2 reduction target for that state.

2. Tribal Plans

EPA's supplemental proposed tribal lands rule, described as implementing CO_2 reduction goals on tribal lands with electricity generating units (EGUs), is fundamentally flawed and unenforceable. Issued on November 4, 2014 (79 Fed.Reg. 65481), the proposed tribal rule fails to include a deadline for the submission of a tribal implementation plan, fails to include a deadline for EPA to make a "necessary or appropriate" finding that a federal plan should be developed, and fails to set forth a deadline by which EPA will issue a federal plan after the agency finds such a plan is necessary or appropriate.

According to EPA's summary of its supplemental proposed rule:

> A tribe with jurisdiction over the affected EGUs in its area has the *opportunity, but not the obligation*, to establish a plan for its area of Indian country. Each tribe can do so alone or can collaborate with other jurisdictions, including states and territories, on multi-jurisdictional plans that may provide additional opportunities for cost savings and flexibility. If a tribe does not seek and obtain the authority to establish a plan, the EPA is responsible for establishing a plan if it determines that a plan is necessary or appropriate. At this time, the *EPA is not including a proposal for whether it is necessary or appropriate to establish a plan for any area of Indian country, and is not proposing a federal plan for any area of Indian country*.

First, EPA should establish the same deadline for tribes to submit a plan as EPA has for states and territories: June 30, 2016. Adopting EPA's language, tribes would have the "opportunity, but not the obligation" to submit a plan by that date.

Second, if any tribe decides not to embrace this "opportunity" by June 30, 2016, in whole or in part, the proposed supplemental tribal rule should include a provision that requires EPA to determine whether it is "necessary or appropriate" to issue a federal

implementation plan in light of such tribal inaction. 40 C.F.R. §49.11; CAA Section 301(d). EPA should impose a 30-day deadline – July 30, 2016 – by which the agency commits by rule to making this determination.

Third, the supplemental proposed tribal rule should be revised to include a commitment that EPA will issue a federal implementation plan without unreasonable delay, after the agency makes a "necessary or appropriate" finding pursuant to 40 C.F.R. §49.11. To be specific, the revision should include a statement that if EPA takes longer than 180 days to issue a federal implementation plan after making a "necessary or appropriate" finding, such delay shall be presumed to be unreasonable.

C. EPA Should Maintain Ozone, SO_2 and PM2.5 NAAQS, and Regional Haze Implementation Plans as Compliance Options.

The CPP proposal identifies opportunities for state planning to encompass myriad regulatory obligations. While emboldening states to consider harmony amongst programs, we strongly advocate that EPA preserve current implementation schedules and maintain that the NAAQS and regional haze programs are compliance paths that may be credited towards achieving CPP objectives.

EPA also can contribute to state compliance with the CPP's CO_2 targets by promptly and consistently implementing the recently revised NAAQS for ozone, SO_2 and PM2.5. Because coal-fired power plants contribute significantly to the overall atmospheric loading of these pollutants, ensuring compliance with the new NAAQS standards is likely to reduce CO_2 emissions as coal plants are de-rated or retired as part of a NAAQS compliance strategy. To the extent states lag in submitting approvable SIPs to implement the new NAAQS standards, EPA should step in promptly to issue FIPs. Ensuring NAAQS compliance will deliver significant co-benefits to achieving the CPP targets.

Similarly, EPA can further the effective implementation of the CPP by enforcing the regional haze rule. Implementation of the regional haze program has already produced co-benefits to the CPP by shifting generation sources from large CO_2 emitters like coal-fired power plants to sources such as natural gas turbines and renewables. The table below identifies 25 coal-fired EGU's that have been, or will be soon, retired as a result (in whole or in part) of the regional haze rule. These retirements will reduce EGU emissions of CO2 by over 52 million tons a year, independent of the CPP.

Facility Name	Unit ID	MW	Retirement Date	2005 CO2 (metric tons)
Arapahoe	3	46	Shutdown by 12/31/2013	350,789
Arapahoe	4	112	Natural Gas Operation by 12/31/2014	706,603
Boardman	1SG	601	Shutdown by 12/31/2020	3,626,138
Centralia	BW21	730	No coal past 12/31/2020	5,413,536
Centralia	BW22	730	No coal past 12/31/2025	5,942,151
Cherokee	1	125	Shutdown by 7/1/2012	757,449
Cherokee	2	125	Shutdown by 12/31/2011	900,204
Cherokee	3	171	Shutdown by 12/31/2016	998,345
Crystal River	1	441	Shutdown by 12/31/2020	2,251,288
Crystal River	2	524	Shutdown by 12/31/2020	2,504,740
Dynegy Danskammer	4	239	Date subject to further proceedings	1,232,224
Four Corners	1	190	Shutdown by 1/1/2014	1,279,326
Four Corners	2	190	Shutdown by 1/1/2014	1,446,727
Four Corners	3	253	Shutdown by 1/1/2014	1,939,717
Northeastern	3313	473	Shutdown by 4/16/2016	3,450,398
Northeastern	3314	473	Shutdown by 12/31/2016	2,982,556
Reid Gardner	1	114	Date subject to further proceedings	884,109
Reid Gardner	2	114	Date subject to further proceedings	872,469
Reid Gardner	3	114	Date subject to further proceedings	935,921
Reid Gardner	4	295	Date subject to further proceedings	2,073,044
Valmont	5	192	Shutdown by 12/31/2017	1,471,627
Cherokee	4	381	Natural Gas Operation by 12/31/2017	2,529,689
San Juan	2	369	Shutdown by 12/31/2017	2,281,457
San Juan	3	555	Shutdown by 12/31/2017	3,655,540
			Total CO2 reduction in tons/year	**50,486,045**

EPA's regional haze rule requires that state plans be updated every ten years. The next regional haze update is due in 2018. EPA should ensure that states revise their regional haze SIPs to include significant pollutant reduction for coal plants that are contributing to visibility impairment as part of the long-term strategy to meet visibility improvement requirements. To the extent the continued implementation of the regional haze plan results in the de-rating or retirement of coal generation, the co-benefit of CO_2 emissions reductions will help achieve CPP compliance.

VI. Reduce Other GHG Pollutants

The CPP only targets CO_2. However, as EPA points out, by addressing efficiency and fostering cleaner burning sources of energy there will be other benefits in reducing important air pollution such as sulfur dioxide and pre-cursors of ozone. These pollutants are also regulated under other parts to the Clean Air Act. We believe that EPA, in tandem with the CPP, should regulate shorter-term GHG's including methane, black carbon, and ozone. A 50% reduction in these shorter-term pollutants by 2030 worldwide would reduce warming by ~50% by 2050 according to a UNEP (2011) Integrated Science Assessment.

Specifically, as the CPP accelerates the country's reliance on natural gas as an energy source EPA should promulgate methane emission regulations for the oil and gas industry that address all aspects of the drilling, transportation, flaring, storage, and end-use of methane. According to a 2013 IPCC report methane is 28 times more potent a greenhouse gas than CO_2 over one hundred years, and 84 times more over 20 years, the latter of which is more in line with the CPP timeframe. These emissions and leaks can occur during all stages of production, processing, and transmission. With methane emissions expected to continue to grow as the oil and gas sector expands, if EPA does not provide this important parallel regulation the increase of methane emissions could undermine the benefits of CO_2 reduction impelled by the CPP.

President Obama announced in March 2014 a goal of reducing methane waste 17% by 2020, and the Bureau of Land Management is working on rules to reduce the venting and flaring of methane. Additional regulations are needed. Substantial reductions in methane waste can be achieved with proven, off-the-shelf technologies. Such advancements would result in a double-win: fewer greenhouse gas emissions and more energy captured for use.

VII. Conclusion

Nothing is immune from climate disruption, including the very places set aside so as to remain unchanged. On behalf of these places, and the many people that love and enjoy them, we submit these comments for consideration. NPCA and AMC strongly support EPA's bold effort to directly and critically limit carbon dioxide and urge the agency to further strengthen the final rule.

Sincerely,

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Appendix A

Sampling of Impacts to National Parks Caused by Climate Change

Alaska's National Parks. Glaciers in Alaska's national parks have been referred to as the "canary in a coal mine" and are rapidly receding. A three-year "glacier inventory" by University of Alaska, Fairbanks has recorded glacier decline in Alaska national parks as a response to climate change. Climate change is predicted to have greater impact at higher latitudes and altitudes, and all glacier-fed systems in national parks will therefore be potentially susceptible. Changes in surface water in rivers as a result of reduced glacial feed will have significant impacts to water availability and to the entire biotic community reliant upon them. Such changes also impact subsistence fishing practices.

Tracking growing and winter season processes have been studies in Alaska's national parks. These studies utilize GIS and remote sensing technology to monitor vegetation health (NDVI) in response to global observations of leaf-out and flowering dates occurring earlier in the spring and fall colors turning later.

Permafrost thaw and glacier thinning will contribute to an increase in the incidence of landslides, adding to the list of geologic hazards in Alaska's national parks. With 80% of Alaska's terrestrial habitat underlain by some form of permafrost, increased damage to park roads and structures are observed with a much future higher volume expected. To gain better understanding of impacts from permafrost change on Alaska's national parks, various studies are ongoing (soil analysis, permafrost change mapping).

Climate change has begun to impact current and potential health problems in rural individuals, families and communities including: disease expansion, reduced air quality from increased forest fires, reduced potable water, increased human injuries from thinning shore ice, toxic exposure from container damage from thawing ice, and psychological impacts to Alaskan residents.

Source: Alaska Park Science: Climate Change in Alaska's National Parks. Vol 12(2).
http://www.nps.gov/akso/nature/science/ak_park_science/volume_12_issue_2.cfm

Bandelier National Monument. Increased wildfires and drought causing soil erosion and flash flooding, threaten the Monuments ruins which tell the story of over 10,000 years of Ancestral Pueblo and Spanish history.

Source: Fire, Soil, and Preserving History at Bandelier, National Park Service,
http://www.nps.gov/stories/bandfire.htm
Holtz, Debra, Markham, Adam, Cell, Kate, Ekwurzel, Brenda, National Landmarks at Risk: How Rising Seas, Floods, and Wildfires Are Threatening the United States' Most Cherished Historic Sites, Union of Concerned Scientist, May 2014

Coastal Parks. Coastal parks are extremely vulnerable to climate change. The NPS manages 74 coastal units encompassing more than 5,100 miles of coast and three million acres of submerged resources including beaches, wetlands, estuaries, coral reefs, and kelp forests. These parks attract more than 75 million visitors every year, and generate over $2.5 billion in economic benefits to local communities.

Source: Statement of Dr. Herbert C. Frost, Associate Director, Natural Resource Stewardship and Science, National Park Service, before the Senate Subcommittee on National Parks. August 24, 2009

Everglades National Park. Rising sea levels are inundating freshwater habitats that are home to rare tropical orchids and herbs, pine forests and freshwater marshes and support many species of wildlife, birds and amphibians.

Source: Sea Level Rise In Everglades National Park, National Park Service, http://www.nps.gov/ever/naturescience/cceffectsslrinpark.htm

Glacier National Park. Glacier National Park contained more than 150 glaciers in 1910. Now, it holds only 26 glaciers—a reduction of about 67 percent. Experts predict that all of the glaciers in the park could be lost by as early as 2020. Imbalance to the natural ecological system is caused by recent dramatic changes brought to these alpine and subalpine areas. Increased temperatures are threatening high altitude species like the pika. Declining snowpack is contributing to wolverine and lynx population reduction. Losses are projected loss for bighorn sheep populations from loss of open alpine habitat as forests move upslope.

Source: Saunders, Stephen, Easley, Tom and Spencer, Theo, Glacier National Park in Peril: The Threats of Climate Disruption, April 2010.

Grand Canyon National Park, Arizona. This desert gem has already endured over a decade of drought, and rising temperatures make water sources even scarcer, increasing tree mortality and threatening the survival of area wildlife.

Source: Saunders, Stephen, Easley, Tom, Farver, Suzanne, National Parks in Peril – The Threats of Climate Disruption, The Rocky Mountain Climate Organization and the Natural Resources Defense Council, October 2009.

Harriet Tubman Underground Railroad National Monument. The 25,000 acres in this relatively new park site still look much the same as they did in Tubman's time, when she risked her life to bring enslaved Americans to freedom—but rising water levels threaten the park's ecology and historic sites.

Historic Jamestown. Many important archeological sites are being lost to coastal erosion and rising sea levels in this park established to protect some of our earliest American colonial history.

Mesa Verde National Park. Created in 1906, Mesa Verde protects a wealth of early Puebolean artifacts including roughly 4,500 archaeological sites and 600 cliff dwellings. But this remarkably well preserved treasure is endangered by increased wildfires and subsequent flooding which threaten to destroy a rich cultural heritage.

Source: Debra, Markham, Adam, Cell, Kate, Ekwurzel, Brenda, National Landmarks at Risk: How Rising Seas, Floods, and Wildfires Are Threatening the United States' Most Cherished Historic Sites, Union of Concerned Scientist, May 2014

Pu'uhonua o Hōnaunau National Historical Park. Located on the west coast of Hawaii's Big Island, Pu'uhonua o Hōnaunau is at risk of losing important cultural sites that it was established to protect. The National Park Service has identified multiple resources that may be lost to sea level rise including the Āle'ale'a Heiau temple site, the "Great Wall" and sections of historic trails.

Source: Holtz, Debra, Markham, Adam, Cell, Kate, Ekwurzel, Brenda, National Landmarks at Risk: How Rising Seas, Floods, and Wildfires Are Threatening the United States' Most Cherished Historic Sites, Union of Concerned Scientist, May 2014

The Statue of Liberty and Ellis Island. There are not many places that speak to the underlying foundations of America as the Statue of Liberty and Ellis Island, where 14 million immigrants came to the United States. These icons of American history suffered substantial damage during Hurricane Sandy and will continue to be at risk from increased storm events and rising sea levels.

Source: Holtz, Debra, Markham, Adam, Cell, Kate, Ekwurzel, Brenda, National Landmarks at Risk: How Rising Seas, Floods, and Wildfires Are Threatening the United States' Most Cherished Historic Sites, Union of Concerned Scientist, May 2014

Yellowstone National Park. Threats to grizzly bear population are due in part to the depletion of whitebark pine whose seeds are a major source of food. Whitebark pines have been heavily reduced due to bark beetle infestations. According to aerial surveys in 2009, 46% of the whitebark stands in Greater Yellowstone had suffered substantial mortality, and 36% had medium mortality. Wolverines, lynx and other species threatened with extinction are snow-dependent species, and projected declines in snow are among the threats to them. Drought due to climate change may affect geyser eruption. A U.S. Geological Survey study predicts longer eruptions and Old Faithful becoming less dependable. A reduced snowpack and hotter, drier summers pose major threats to the native coldwater trout of Greater Yellowstone. One study projects that with summers hotter by 5.4°F and other climate changes, just 53% of the Yellowstone cutthroat trout populations in the Yellowstone River basin would persist in the future.

Sources: Climate Change in National Parks, National Park Service, http://www.nps.gov/chis/planyourvisit/upload/Brochure-ClimateChangeInNationalParks.pdf

Saunders, Stephen, Findlay, Dan, Easley, Tom, Christensen, Scott, Greater Yellowstone in Peril – The Threats of Climate Disruption, The Rocky Mountain Climate Organization, Greater Yellowstone Coalition, Sept. 2011.

Hurwitz, S., Kumar, A., Taylor, R., Heasler, H., 2008, Climate-induced variations of geyser periodicity in Yellowstone National Park, USA, Geology, 36, 451-454.