Environmental Protection Agency
EPA Docket Center (EPA/DC)
Mailcode 28221T
1200 Pennsylvania Avenue, NW.
Washington, DC 20460

December 1, 2014

Dear Administrator McCarthy:

Thank you for the opportunity to provide comments on EPAs Clean Power Plan - **Docket ID No. EPA-HQ-OAR-2013-0602**. We applaud the EPA in taking steps to improve public health and the general welfare of Americans across the country, especially communities that are particularly vulnerable to the impacts of climate change. **WE ACT for Environmental Justice** has been working to build healthy communities for the past 26 by *assuring that people of color and/or low-income participate meaningfully in the creation of sound and fair environmental health and protection policies and practices*, especially in the clean air and climate space.

Since August 2012, WE ACTs DC Legislative Office has been heavily engaged in many of the federal clean air and climate policies that have been moving forth within the EPA. And while environmental justice is typically a 'local issue', we know that it is important that the policy decisions that happen within the DC Beltway are informed by an environmental justice perspective. Consequently, it is important that an environmental justice perspective is included in these policy decisions because guidance from the EPA can directly impact how states carry out environmental protection measures.

WE ACT has been working closely with members of your team in OAR and the OEJ to better understand how the rule was composed, as well as share our concerns about the current proposal. Some measure we have taken include spearheaded a webinar this past July for the ej community and the broader community to understand our initial concerns with the rule; having multiple conversations with members of your key staff; asking for an ej training on the rule; provided feedback on the proposed plan to the National Environmental Justice Advisory Council, as well as the Clean Air Act Advisory Council. We have been engaging numerous environmental justice organizations, social justice, the faith community, and mainstream environmental groups over the past couple of months to help spread our important messages. So how this rule is finalized is extremely important to not only our residents in Harlem, New York, but communities across this country.

With that said, we echo all of the sentiments expressed in the comments submitted by many of our environmental justice partners, specifically comments submitted by the Environmental Justice Leadership Forum on Climate Change (www.ejleadershipforum.org) , a national coalition of 33 environmental justice organizations. However, there are some specific recommendations we would like to highlight as well, as you look to finalize the final Clean Power Plan by next Spring.

Recommendation #1: Expand the current environmental justice analysis in the rule from 'qualitative' to 'proximity'. The way the rule is currently crafted, environmental justice is not mentioned within the proposed CPP until the very last section discussing Executive Order 12898. The Executive Order requires Agencies to conduct an EJ Analysis, and we truly believe that the Agency is positioned to provide a more robust ej analysis, that makes use of the data (i.e. NATA, GHG Inventory, data submitted from the states), analysis tools (EJ View, EJ Screen) and current guidance (draft Solid Waste rule) that are currently at the Agency's disposal. As we have mentioned before, the current qualitative analysis is insufficient. **We are asking that before or by the time the final rule is completed, that the EPA provide a proximity analysis of all the impacted facilities that details the location of permitted/affected EGUs and Natural Gas Combined Cycle Plants (NGCC)s, that includes the current emissions profile, review of the community demographics, other permitted sources in the 1 to 3 mile buffer zone, the prevalence of asthma and/or other related/recorded health outcomes in the impacted community, and other key variables.** This type of proximity analysis could be extremely useful to provide to States and state-based stakeholders as they work to implement the building blocks to meet the new emissions goals.

Recommendation #2: Add language in the rule that directs the States to address Environmental Justice. Environmental Justice is a local issue. Because there has not been any specific guidance given to States to address environmental justice in past Rules, we feel that the Clean Power Plan is that opportunity. Consequently, we are asking that the final rule includes language and the subsequent guidance to force States to recognize and consider potential disparate impacts the rule might have on environmental justice communities, and explicitly direct states to identify environmental justice communities and where there are potential disparate impacts, and take steps to avoid or mitigate those disparate impacts. Making equity and environmental justice concerns a mandatory part of the state implementation planning process is key because the States have the ultimate responsibility for crafting their solutions. While we have heard that some states are not sure how to define their environmental justice communities because there is no widely accepted definition, the EPA is in a position to advise states on how to identify overburdened communities and insure that the BSER measures that each state decides to use to meet emission reduction requirements do not adversely impact low income, and/or communities of color. By writing this into the final rule and the subsequent guidance, the EPA will send a message to States that environmental justice is a priority.

Recommendation #3: Health, energy efficiency, economic justice and meaningful transition must be a part of all solutions. A health in all policies approach is essential to create an environment that is protective for all populations. We are supportive of health not only driving emission reductions of green house gases, but also other criteria pollutants and listed urban air toxins that are just as or even more detrimental to ej communities. We support – in addition to targeted, absolute emission reductions at permitted facilities – that States are encouraged to develop multi-pollutant plans to re-duce other air toxins. The most recent report on the status of Urban Air Toxins to Congress supports the need for a strategy to address the cumulative impacts of pollution, especially in urban air areas and communities that are overburdened. Options for energy efficiency in single, multi-family housing units is critical. Whether it is upgrades to the current housing infrastructure (i.e. roofs, windows), or upgrading windows, insulation, and other ways to bring current housing infrastructure 'up to par' so low income energy users can take advantage of the benefits of adding energy efficiency options to their homes. And finally, the concerns that evolve around economic justice and

protecting energy rates, and providing energy assistance for low income energy users is crucial. States must strongly consider in the SIP process an analysis and demonstration that the burden of any predicted increases to consumer bills, for any part of the period (taking into account remedial measures proposed in the plan, such as discounts and other safeguards), will not make electricity unaffordable to lower-income customers nor to disadvantaged communities in the state. Additionally, removing some of barriers to take advantage of cost-saving and/or energy savings programs through creative financing strategies and 'other ways' (other than credit checks) to substantiate eligibility are crucial. And as communities that have been heavily dependent on fossil-fuel fired power plants to provide the majority of economic stimulus for local economies, we need to insure that clean energy training and job opportunities, and other innovative ways to stimulate the local economy are considered in the SIP planning process to help create a thoughtful, just transition for plant-dependent communities.

Recommendation #4: Using the 'best solutions' to get the 'best protections'. The current Clean Power Plan proposal offers several options for the States to use to meet their emissions reductions goals. There are many options but there are some particular 'proposed solutions' that we are very concerned will exacerbate the current emissions in ej communities across this country.

- **We do not support Cap and Trade or carbon trading mechanisms as an option for BSER.** The CPP as written is very slanted towards states initiating Cap & Trade programs, where facilities are given the opportunity to buy and sell permits to pollute. This type of process—as witnessed in California's program—often results in allowing the most polluting companies to 'buy their way out' of compliance, and not eliminating pollution in the most impacted communities. Rather, we support a tax on carbon, and making renewable energy options accessible and affordable for low-income, communities of color. A carbon tax/fee needs to be presented as a mitigation option in the CPP. We also recommend that if States choose to embark on or continue a Cap & Trade Program, the state implementation plans (SIPs) must address the potential negative impacts.
- The use of Carbon Capture and Sequestration, the direct and indirect effects of natural gas extraction, and the use of nuclear power and the waste generated from using nuclear power, and the harmful by-products of biomass incineration should be a last resort as a BSER. We support a priority, and push for clean renewable energy options and reducing pollution at the source.

We have provided a brief paper (attached below) that describes the importance and identifies how equity should be a part of the executive strategy behind the Clean Power Plan. We hope that this is useful to your process and you will strongly consider our recommendations laid out above, **especially including environmental justice and equity as a required part of the state implementation planning process and the accompanying guidance developed for implementation**. The intent of Executive Order 12898, Title VI of the Civil Rights Act of 1964, EJ Plan 2014, NEPA, rulemaking guidance, and documented advice from the NEJAC, CAAAC and other federal advisory committees is to make sure that the EPA uses its authority to identify, address and mitigate potential disproportionate impacts on low income, communities of color that can be a result of policies that might unintentionally increase negative, cumulative environmental burden on certain communities. Again, we thank you for your efforts to better protect the health of the public and many of the communities we represent. Let's make sure that equity is a key piece of this transformative rule and sets a strong precedent by making environmental justice a permanent piece of the framework for all future rules. If you have any questions, please contact Dr. White-Newsome, our federal policy analyst directly.

Yours in health and justice,

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Equity and The Carbon Standard: How the Clean Power Plan can better protect Environmental Justice Communities

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Introduction

Fossil fuel plays an integral part in the energy sector of this country, but its use has come with a litany of severe social and public health issues. The brunt of these issues often disproportionately affects certain communities, a fundamental issue within the environmental justice (EJ) movement.

There are several key events within the EJ movement: the Warren County, North Carolina protest in 1982 (energy.gov) the publication of *Toxic Waste and Race in the United States* (United Church of Christ 1987), an analysis of the presence of uncontrolled toxic waste sites and commercial hazardous waste facilities in non-white neighborhoods; the Mother Earth Conference of 1990 (www.ien.org); the First National People of Color Environmental Leadership Summit of 1991; and Executive Order 12898 (E.O. 12898). The environmental justice movement started with the protest of a small, predominately African-American community, fighting against the siting of a hazardous waste landfill. There were many sites throughout North Carolina which could have been used to dispose of the PC-contaminated soil, but this small community was chosen by the Governor, which culminated into massive protests that provided national recognition to what has become known as the environmental justice movement. *Toxic Waste and Race in the United States* proved to be groundbreaking: according to the United Church of Christ (1987) prior to its publishing, "environmental issues and racial justice issues were commonplace in public debate, but not addressed as an interrelated problem." This study found that waste sites were being sited extraordinarily disproportionately in communities of color, a form of "environmental racism." In 1990, the Protecting Mother Earth gatherings began, which was the start of a national gathering of tribal grassroots youth and Indigenous leadership to *discuss our common experiences regarding environmental assaults on our lands, waters, communities and villages*. Four years later, the First National People of Color Environmental Leadership Summit, an event that brought together over 400 national and international grassroots leaders in Washington DC, developed and adopted the "The Principles of Environmental Justice." These principles affirm that all people, regardless of their race or income level, are entitled to EJ through specific demands, which include: the equal and meaningful involvement of all people in the environmental decision making process; the sustainable use of land and resources; and that "public policy be based on mutual respect and justice for all peoples, free from any form of

discrimination or bias" (First National People of Color Environmental Leadership Summit 1991). And in 1994, President Clinton signed E.O. 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations. This order was promulgated to assure that historically vulnerable communities will not suffer disproportionate environmental health effects as a result of the policies issued by Federal agencies.

These events and the uprising of communities everywhere brought national attention to the environmental racism and injustices that were occurring across the country and the world and provided the impetus for further scientific research to explore EJ issues. While there has been a myriad of EJ studies over the last 27 years that have used various research and statistical methods to uncover disproportionate impacts of pollution and policy on communities of color, there has not been one standard method of analysis that is used by all researchers. Without a standard method or structure of an EJ analysis, it becomes a challenge to inform local, state and federal level policy decisions and hold governmental agencies accountable for quantifying and qualifying the potential negative impacts of new policies on communities. A singular, definitive methodology would allow for more straightforward comparisons between studies, which would prove vital to providing an environmental justice perspective that is often missing in policy planning, especially federal environmental policy.

The Clean Power Plan

The EPA's proposed Clean Power Plan (CPP) was announced on June 2, 2014 with the goal of mitigating carbon dioxide (CO_2). This would be accomplished through setting state-specific limits on the amount of CO_2 pollution allowed from currently operating electrical generating units (EGUs), like fossil-fuel burning power plants. While this effort to reduce pollution and address climate change on such a broad scale is a commendable effort, there are concerns that the CPP does not do enough address EJ.

The CPP is nearly 130 pages, yet the discussion of EJ related impacts of the plan is limited to less than two pages. Title XI, Part J discusses E.O. 12898 as well as how reductions in CO_2 will lead to reductions in co-pollutants, a major health concern for historically marginalized areas. However, EJ issues will seemingly not be specifically addressed in the CPP as it states it is "not practicable to determine whether there would be disproportionately high and adverse human health or environmental effects on minority, low income, or indigenous populations from this proposed rule" (EPA 2014a). This statement is very concerning, especially with previous criticism the EPA has received for its lack of inclusion of EJ in drafting regulations: "When drafting the three clean air rules [the Gasoline Rule, the Diesel Rule, and the Ozone Implementation Rule], EPA generally devoted little attention to environmental justice" (GAO 2005). Additionally, this statement contradicts the EPA's own mandates for its operations as its *Plan EJ* 2014 states EPA is "continuing to identify and prioritize EJ-related research activities." (EPA 2014b). The EPA again reinforces its commitment to achieving EJ by ensuring "everyone enjoys the same degree of protection from environmental and health hazards…" (EPA 2014c). Furthermore, the onus to thoroughly address EJ in federal policy was established with E.O. 12898 in that "each Federal agency shall make achieving environmental justice part of its mission by identifying

and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States…" (E.O. 12898 1994).

Consequently, the purposes of this paper is to: describe some of the EJ concerns around the CPP; discuss other analyses of the CPP; provide a summary of peer reviewed studies that utilize some type of an EJ framework; suggest a methodology that could be useful to conduct an EJ analysis; and describe New York State's efforts to address CO_2 pollution, which could be used as a framework for policies and actions of other states to achieve the mandates within the CPP.

Summary of EJ concerns and factors to be addressed within the EPA's Clean Power Plan (CPP)

There is an obvious lack of EJ within the CPP. To assure it thoroughly addresses EJ, the proposed rule must address the following: adhering to the requirements of Executive Order 12898; ensuring that other options – besides Cap & Trade – are presented as viable options for CO_2 reductions; equal access to and distribution of clean energy as an energy source and employment opportunity; understanding the consequences of biomass proliferation; and insuring that an equity analysis will be a part of state implementation planning. These issues within the CPP are reflected in past recommendations made to the EPA by the National Environmental Justice Council (NEJAC) on various issues. Since its inception in 1993, the NEJAC has helped to shape EPA's programs, policies, and activities in serving as the EPA's federal advisory committee by providing advice on various, interdisciplinary issues that relate to EJ (EPA 2013). A thorough discussion of concerns and factors discussed below can be found on a website dedicated to compiling resources for environmental justice advocates around the CPP (See www.weact.org/ejcleanair). A general summary of EJ concerns around this rule are captured below.

1. Cap & Trade

   Cap & Trade (C&T) is being proposed as the most viable strategy for states to stay within their emissions levels within the CPP. According to the EPA (2009a), C&T is a market-based policy program intended to protect environmental quality and human health by controlling emissions from a group of sources. After a maximum level on emissions (cap) has been established for a C&T program, participants within the program are issued a specific number of emission allowances or permits. Compliance measures are then developed by each participant and can include the selling or trading or allowances/permits as well as the use of pollution controls and efficiency measures. Regardless of the compliance method pursued, each participant must provide allowances/permits equal to the amount of their emissions.

   There are inherit problems with C&T Programs as it has the potential to exacerbate the substandard environmental quality in EJ communities. C&T gives EGUs the ability to pay their way out of compliance through unfettered

allowance/permit allocation, which allows the oldest and dirtiest facilities to avoid reducing emissions. This poses a problem in an EJ context in that communities of color and low-income communities are disproportionately affected by concentrations of co-pollutants, which are products of fossil fuel combustion. The EPA states that co-pollutants include several hazardous chemicals that can cause or intensify cases of respiratory illnesses, heart disease, cancer and even death (EPA 2012). Disproportionate co-pollutant concentrations violate several of The Principles of Environmental Justice as it threatens a fundamental right to clean air and thereby jeopardizes public health. Additionally, the CPP violates E.O. 12898 by promoting a policy that, without specific regulations and limitations, has the potential to incur disproportionate health effects on low-income communities and/or communities of color.

For states or regions with preexisting C&T programs or for those intending to implement one to meet emission level compliance, the following stipulations must be included in a C&T program's design. These stipulations were developed through the use of two sources: 1) Dr. Rachel Morello-Frosch's discussion on C&T in "What's at Stake - Environmental Justice and the EPA's Clean Power Plan" (WE ACT 2014); and 2) *Addressing Poverty and Pollution: California's SB 535 Greenhouse Gas Reduction Fund* (Truong 2014), an article written by Ms. Vien Truong, the Environmental Equity Director at the Greenlining Institute.

- Complete an analysis of other market-based compliance mechanisms (Truong 2014).
- Any market-based compliance program must be designed to guarantee that they do not increase the emissions of co-pollutants, especially in EJ communities (Truong 2014).
- Restrict allowance allocations trading and offset use – or fee options – among facilities responsible for the worst health impacts (WE ACT 2014).
- Create trading zones to incentivize pollution reduction in the areas with the dirtiest air (WE ACT 2014).
- Use revenues to improve air quality in highly polluted areas and enhance the ability of local residents to adapt to climate change impacts (WE ACT 2014).
- Mandate that "long-term investments [are moved] into disadvantaged communities to fund environmental programs that have cobenefits, such as economic and employment benefits" (Truong 2014).
- Create a climate gap neighborhoods fund to protect the most vulnerable neighborhoods (WE ACT 2014).

2. Presenting a balance of Alternative CO_2 Mitigation Options

Given the inherent issues of C&T in an EJ context, other options for CO_2 mitigation must be presented more robustly than they are in the current version of the CPP. Alternatives to C&T include carbon pricing, the proliferation of energy sources that are both renewable and clean, and energy efficiency among EGUs

and end-users. In order to ensure that EJ is being promoted and that historically disadvantaged communities benefit from the potential economic and employment benefits associated with carbon mitigation policies, we believe that more precedence should be given by states to Building Block 3 of the CPP. This mitigation option, laid out by the EPA, demonstrates how states can reduce CO_2 emissions by using zero- or low-carbon sources, such as solar, hydro, wind and thermal energy. However, according to a recent publication by the Union of Concerned Scientists (UCS), the CPP "could deliver much deeper reductions in emissions, especially by taking greater advantage of cost-effective renewable energy options" (UCS 2014). We insist that renewable energy play a larger role in the final version of the CPP as well as each State Implementation Process so as to directly alleviate the need for the use of fossil fueled EGUS.

3. Equal Access to and Distribution of Clean Energy

   Energy originating from sources like solar, wind and low-impact hydro must be available to residents living in impacted communities as a viable and affordable electricity source. There must also be accessible education opportunities and attainable jobs within the clean energy sector for all communities, regardless of their racial and/or socioeconomic composition. This condition is aligned with the NEJAC's recommendations presented to the EPA in a 2008 document entitled *Strengthening the Participation of Business and Industry in Environmental Justice, Green Business, and Sustainability*: "The rapid increase in interest in environmental and energy sustainability and security provides an opportunity for EPA to encourage public policy choices that protect the environment while encouraging the sustainability and protection of communities with environmental justice concerns" (NEJAC 2008).

4. Biomass as a "Clean" Energy Source

   The CPP is incentivizing the use of biomass as CO_2 mitigation option by classifying it as a clean energy source. This is a faulty and troubling claim in an EJ and overall environmental context as the burning of biomass is more carbon-intensive than coal and as biomass facilities are a source of several dangerously toxic co-pollutants, at times emitting 14 times the amount as coal plants (New York State Public Service Commission 2011). In that regard, the promotion of biomass ignores recommendations brought forward by the EPA's own EJ advisory council, which calls for the consideration of the "potential for industrial pollution and other significant quality of life impacts to surrounding communities by so-called "green" businesses and industries" (NEJAC 2008).

5. Compliance Requirements for States

   States are required to develop plans (i.e. state implementation plans, or SIPs) that will outline what mitigation options they will use to meet the new reduced CO2 emission limits. How this plan comes together should include EJ advocates to

help insure that potential mitigation strategies improve the environmental conditions of historically marginalized communities or, at the very least, do not perpetuate or worsen them. According to NEJAC (2013), the "EPA has an obligation to carry out regulatory policy development processes that are inclusive of all stakeholder views, including the concerns of some geographically and demographically defined communities, particularly minority and low-income communities." Many advocates are asking for a more robust exploration – beyond the qualitative analysis presented in the proposed CPP – such as a proximity analysis that will provide both the location of EGUs and data on the socio-demographic characteristics around the specified EGUs. It is believed that an EJ analysis must be a required part of the approval process for state SIPs. The EPA's own *Plan EJ* 2014 reinforces this sentiment by quoting Administrator McCarthy: "She called upon EPA to 'take into consideration the impacts of [its] decisions on environmental justice communities through increased analysis, better science and enhanced community engagement to ensure the protection of basic fundamental rights'" (EPA 2014b). While there is no set methodology for an EJ analysis, the methodology we present will incorporate the techniques of previous EJ analyses to assess how potential mitigation strategies can affect the social, political, economic, environmental, and health factors of affected communities. In the coming sections, a summary of EJ analyses and publications will be given.

Additional Carbon Standards Analyses

Several other entities have also been documented their concerns and recommendations for what an effective and efficient Carbon Standard would look like. In our research, we set out to gather a broader consensus of policies, regulations and standards other groups are promoting, which we did by looking into three analyses: *Health Co-benefits of Carbon Standards for Existing Power Plants* (Schwartz et al. 2014); The National Resources Defense Council's *Cleaner and Cheaper: Using the Clean Air Act to Sharply Reduce Carbon Pollution from Existing Power Plants, Delivering Health, Environmental, and Economic Benefits* (Lashof et al. 2014); and *Strengthening the EPA's Clean Power Plan* (Union of Concerned Scientists 2014). We summarize these analyses in the following subsections.

Health Co-benefits of Carbon Standards for Existing Power Plants (Schwartz et al. 2014)

This study implements three policy scenarios to determine each one's effectiveness and efficiency for establishing power plant carbon standards and their subsequent co-benefits. These scenarios are: Scenario 1: Power Plant Improvements (incorporating low stringency, low flexibility, and no user efficiency; Scenario 2: Electricity Sector Improvements (incorporating moderate stringency, high flexibility, and high user efficiency); Scenario 3: Cost of Carbon Improvements (implementing high stringency, moderate flexibility and no user efficiency (Schwartz et al. 2014).

This study was designed before the CPP's release in June 2014, however Scenario 2 resembles what the EPA outlines in the CPP as both implement state-based CO_2 emission targets and provides states with a high level of flexibility in compliance measures. Their analysis found that Scenario 2 would provide the most co-benefits of the scenarios analyzed

as it would result in larger CO_2 and co-pollutant (NO_x, SO_2, and Hg) emission reductions than other two scenarios. While the reduction of co-pollutants is aligned with EJ concerns, there is not guarantee that these reductions will occur in historically overburdened communities; similarly to the CPP, Scenario 2 allows for "emissions averaging across all existing and new fossil units in a state, as well as interstate averaging or credit trading" (Schwartz et al 2014).

Using the Clean Air Act to Sharply Reduce Carbon Pollution from Existing Power Plants, Delivering Health, Environmental, and Economic Benefits (Lashof et al. 2014)

The NRDC's study was also designed prior to and strongly resembles the CPP. In this study, Lashof and Yeh propose six policy cases to mitigate carbon pollution, each with varying degrees of regulation and are as follows: Moderate, Full Efficiency case; Moderate Constrained Efficiency; Ambitious, Full Efficiency; Ambitious, Constrained Efficiency; and Ambitious, Constrained Efficiency, Product Tax Credit (for wind power) (Lashof et al. 2014). They compared each of these policy options to a reference case, which was established through the Energy Information Administration (EIA) and its Annual Energy Outlook of 2013. The Energy Outlook of 2013 includes projections that "focus on the factors that shape the U.S. energy system over the long term. Under the assumption that current laws and regulations remain unchanged throughout the projections, the AEO2013 Reference case provides a basis for examination and discussion of energy production, consumption, technology, and market trends and the direction they may take in the future" (EIA 2013). Each proposed action was analyzed using ICF's Integrated Planning Model (IPM) and NRDC's assumptions, which were based on fuel prices, expected policies, and energy demand, to determine CO_2 reductions by 2020. (Lashof et al. 2014).

The IPM modeling showed substantial reductions in each case, with a 21% drop from 2012 levels (using the Moderate, Constrained Efficiency case) to 31% (using the Ambitious, Constrained Efficiency, Product Tax Credit case). IPM also showed the economic impetus for pursuing NRDC's suggestions as the benefits outweighed costs by at least $21 billion in each case. Lashof et al. (2014) also showed the scale of environmental and health benefits these cases could bring as CO_2 reductions would mitigate climate change and cuts in co-pollutants would "prevent more than 17,000 asthma attacks annually, avoid more than 1,000 emergency room visits and hospital admissions per year, and prevent thousands of premature deaths, among other benefits."

The results are very impressive and implementing any of these cases would produce considerable benefits to improving health and air quality. However, similarly to the CPP, a state's emission standard would be an "overall average of all fossil fuel plants in the state. An individual plant could emit at a higher or lower rate" (Lashof et al. 2014). Individual plants could emit at a higher rate as these cases allow for cap and trade, an EJ concern that was previously mentioned and that we will be discussed in the remaining sections of this paper. Subsequently, Lashof et al.'s work does not indicate that these improvements and emissions reductions would be occurring in EJ communities, where they are needed most.

Strengthening the EPA's Clean Power Plan (Union of Concerned Scientists 2014)

The analysis conducted by the Union of Concerned Scientists (UCS) is a response to the CPP and, specifically, how it underestimates the current capabilities and predicted proliferation of renewable energy (RE) across the country. UCS voices several issues with the CPP in that it does not "adequately capture renewable energy deployment rates that states are already achieving or "reflect the continued growth and falling costs of renewable energy projected by market experts." It also "falls short of the national renewable energy generation levels that the U.S. Energy Information Administration (EIA) projects would occur in 2020 under a business-as-usual approach; the proposal's 2030 results are only marginally higher than the EIA's projections" (UCS 2014).

UCS claims that, in using their methods, the EPA could nearly double the amount of renewable energy in their state targets, raising the currently projected 12% of RE sales in 2030 to 23% (UCS 2014). Subsequently, the implementation of their methods would also lead to a 10% greater reduction in CO_2 emissions from 2005 levels by 2030. From an EJ perspective, UCS's analysis of RE potential is very significant for two reasons: 1) a reduction in fossil fuel use means fewer co-pollutants and better environmental quality for communities historically overburdened by emissions from EGUs; and 2) the growth of the RE industry would mean new job opportunities. However, as discussed later, we want to see RE as electricity source and form of employment that is equally attainable for all people, regardless of their location, race and/or socioeconomic status.

Previous EJ Analyses

The United Church of Christ's 1987 innovative study *Toxic Waste and Race in the United States* was the first study to correlate the relationship between racial justice and environmental issues, setting the groundwork for other studies into how EJ has been affected by various environmental hazards. These subsequent studies have provided a substantial amount of evidence that low-income communities and/or communities color are disproportionately exposed to pollution and environmental hazards. Despite similarities in results, there has not been a definitive and agreed upon methodology to address these issues; various studies over the years have used a multitude of measurement techniques to assess EJ. In order to determine a singular, encompassing methodology for conducting an EJ analysis within the CPP, we reviewed publications that recommended specific means of accomplishing successful EJ assessments and analyses. There were eight EJ studies over the span of 27 years we reviewed to assess the effectiveness of previously used methodologies. They include the following: *Toxic Waste & Race* (United Church of Christ 1987); *"Every Breath You Take... "; The Demographics of Toxic Air Releases in Southern California* (Sadd et al. 1999); *Reassessing Racial and Socioeconomic Disparities in Environmental Justice Research* (Mohai and Saha 2006); *Trading Equity for Efficiency in Environmental Protection? Environmental Justice Effects from the SO2 Allowance Trading Program* (Ringquist 2011); *Assessment of the Distribution of Toxic Release Inventory Facilities in Metropolitan Charleston; An Environmental Justice Case Study* (Wilson et al. 2012); *Clearing the air: incorporating air quality and environmental justice into climate policy*

(Boyce and Pastor 2013); *CalEnviroScreen 2.0* (OEHHA 2014a) and; *Analysis of CalEnviroScreen 2.0 Scores and Race/Ethnicity* (OEHHA 2014b).

United Church of Christ (1987) was included as it established for conducting an EJ analysis. Ringquist (2011) and Wilson et al. (2012) were found through Google and Google Scholar searches combining terms like "environmental justice," "toxic waste," "Toxic Release Inventory (TRI) Facilities," "race," and "allowance trading programs." Specific studies are included in the reference lists of these papers: Rinquist (2011) included Mohai and Saha (2006) whereas Wilson et al. (2012) included a 2002 publication by Morello-Frosch et al. entitled *Environmental Justice and Regional Inequality in Southern California: Implications for Future Research* (not used in this paper), which, subsequently, lead us to Sadd et al. (1999). Similarly, commonly occurring names in reference lists served as an impetus to seek out studies by certain authors, specifically, Boyce and Pastor. A Google search combining "Pastor," "Boyce," and "Environmental Justice" lead us to a link through the University of Massachusetts, Amherst's Political Economy Research Institute (http://www.peri.umass.edu/nc/201/?tx_peripubs_pi1%5Bauthor_id%5D=2), where Boyce and Pastor (2013) was found. The OEHHA publications were found through a Google search of "Environmental Justice Screening Tool."

These studies were chosen as they incorporate analyses of varying locations, timeframes, populations, environmental hazards, and assessment methods on a state level. Overall, most of the studies find that, at varying levels, environmental hazards are disproportionately distributed among low-income communities or communities of color or both. In the following subsections, a summary of the methodologies used in and the findings of these previous studies are shared in four distinct categories: Study Area, Statistical Exposure Methods, Timeframe and Results. The attached chart entitled "EJ Studies and Publications" gives a more detailed account of each article researched. The two non-analysis publications researched and used in this paper (discussed in the Proposed Methodology for EJ Analyses in SIPs section) were the *Draft Environmental Justice Methodology for the Definition of Solid Waste Final Rule* (EPA 2009) and *Analyzing Environmental Justice Issues in Siting of Major Electric Generating Facilities Pursuant to Public Service Law Article 10* (New York Department of Environmental Conservation [NYDEC] 2012). The former was found through a Google search combining the terms "Environmental Justice" and "methodology" while the latter was found through researching NYDEC's website and searching for Environmental Justice-related information.

Additionally, a presentation on the EPA's new program called EJSCREEN given in October 2014 at the bi-annual Clean Air Act Advisory Council meeting was synthesized and included in the "Proposed Methodology for EJ Analyses in SIPs" in this paper. EJSCREEN and will allow the EPA as well stakeholders within the EJ movement to identify which areas and communities could be vulnerable to environmental inequity. By combining geographical information systems (GIS), demographic data, and likely exposure or proximity to environmental hazards, this tool is able to classify a location as vulnerable and need for further review. EJSCREEN will account for a range of environmental hazards, including average co-pollutant intensities, proximity to superfund and hazardous waste management sites, average traffic of nearby roads, and distance from major direct water discharge

facilities (EPA 2014d). The demographic data taken into account by this tool are: non-white population; socioeconomic status; language isolation; level of education; and population under 5 years old and above 64 years old (EPA 2014d). This program is imperative as it is intended to be a "nationally consistent EJ screening tool" (EPA 2014d). Furthermore, its implementation by states would be a significant first step in addressing EJ as they decide their carbon mitigation strategies during their State Implementation Planning Process.

Study Area

The study area varied as certain studies focused on particular cities or metropolitan areas while others were broader and analyzed issues on a state or national level. These studies also differed in the environmental hazards researched. Wilson et al. (2012) focused on South Carolina's Charleston Metropolitan Area's census blocks at varying distances from TRI facilities. OEHHA (2014a) looked at the state of California as a whole and assessed a broad range of hazards including co-pollutant emissions, drinking water and contaminants, and proximity to waste sites. Ringquist (2011) analyzed how sulfur dioxide emission concentrations differ among communities with varying education, socio-economic status, and racial compositions as a result of allowance trading programs. Toxic waste sites were researched by United Church of Christ (1987) with a focus on specific cities and metropolitan areas. The varying level of co-pollutants emitted by different industrial sectors on a national basis and its subsequent exposure to different racial groups was addressed by Boyce and Pastor (2013). Sadd et al. (1999) examined if a pattern of disproportionate proximity to TRI facilities among communities of varying demographic compositions existed in Southern California.

Mohai and Saha (2006) differed from the other articles researched as it analyzed the relative effectiveness of unit-hazard coincidence methodologies and distance-based methodologies in terms of hazardous waste treatment, storage, and disposal facilities.

Statistical methods to account for exposure

These studies were primarily defined by spatial coincidence (also known as unit-hazard coincidence) and/or distance based methods, both of which use census data to determine if a particular area's demographics correlate to disproportionate hazard exposure. According to Council for Environmental Quality (1997), this exposure is defined as "contact with a chemical (e.g., asbestos, radon), biological (e.g., Legionella), physical (e.g., noise), or radiological agent."

A spatial coincidence analysis involves comparing the demographics of a predefined geographical unit (e.g. census tracts and area codes) containing a hazard against units that do not host a hazardous site. With distance-based methods, "the precise location of environmental hazards…are mapped, and their distances to nearby residential populations are specified. The demographics of all units within the specified distances, not just in the host unit proper, are contrasted with the demographics of units farther away" (Mohai and Saha

2006). The boundary-intersection method was the most widely used version of distance-based analysis in the studies we researched. This specific type of distance-based analysis defines a host unit as those within specified radii of an environmental hazard. United Church of Christ (1987), and OEHHA (2014a) solely used unit-hazard coincidence while Mohai and Saha (2006), Ringquist (2011), Sadd et al. (1999), and Wilson et al. (2012) used both methods in their respective research.

There were also sub-analyses performed within some of these articles. Sadd et al. (1999) used univariate analysis, multivariate analysis, ordered logit and Tobit analysis in their research. Logistic regression and linear regression were used by Wilson et al. (2012). Ringquist (2011) employed Probit, Tobit, and GLS models in his study. OEHHA (2014a) developed its own statistical measure: a "CalEnviroScreen" score is derived, relative to other places in the state, by using a "scoring system to weight and sum each set of indicators within pollution burden and population characteristics components" (OEHHA 2014a). The use of geographical information systems (GIS) methodologies was also common in throughout these studies, as evident in Sadd et al. (1999), Mohai and Saha (2006), Wilson et al. (2012), Ringquist (2011), and OEHHA (2014a).

Timeframe

The timeframe of each article was dependent on its study area in that specific information (e.g. Census and TRI data) are only compiled or available (in its final, definitive form) in certain years. For example, OEHHA (2014a) had to incorporate distinct data from several sources, over various timeframes. An example of this is its analysis of particulate matter, in which data gathered by the California Air Resources Board (CARB) was developed by assessing the "Annual mean concentration of PM2.5 (average of quarterly means), over three years (2009-2011)" (OEHHA 2014a). While this study was conducted developed and released in 2014, CARB's website states that "data after 2012 may be preliminary" (California Air Resources Board 2014).

Since differing data sets may not come from the same year, and at times may only be available years apart, limitations to a study may arise through factors like issues of misrepresentation. Wilson et al. (2012) admitted as such as they "used 2008 TRI data and 2000 census data, which could have introduced some burden misclassification, and results provide only a snapshot of burden disparities of TRI facilities in the Charleston MSA. It is important to look retrospectively at both changes in the TRI distribution over time and changes in population demographic indices."

Results

The studies and articles that were researched found that communities with particular demographic compositions are at risk of disproportionate levels of exposure to environmental hazards. The demographic factors of the communities analyzed in these studies include age, race and ethnicity, population density, level of education, and socioeconomic status as well as indicators like local land uses. Ringquist (2011) found that, while allowance trading programs do not concentrate sulfur dioxide emissions in communities with large African

American and Latino populations, it does transfer emissions into communities with high numbers of adults without a high school diploma. Sadd et al. (1999) was able to demonstrate that factors like race, industrial land use, percentage of residents employed in manufacturing, and population density correlate to TRI location. OEHHA (2014b) determined that "all racial/ethnic groups have some members living in communities with the lowest and highest CalEnviroScreen score. However… the average score is lowest for whites and much higher for African Americans and Hispanics/Latinos than other groups." This is evident in that over "19 percent of the state's Hispanic/Latino population resides in one of the 10% most burdened communities, while fewer than 3 percent of the state's white population live in those communities" (OEHHA 2014b). Boyce and Pastor (2013) found that chemical manufacturers and refineries place an uneven burden on low-income communities and communities of color.

Mohai and Saha (2006) argue that discrepancies in the scale of communities disproportionately affected by environmental hazards are largely dependent on which measurement techniques are implemented. Despite previous studies proving there are uneven distributions of environmental hazards across racial and socioeconomic lines, there has been "considerable variation in the magnitude of disparities found…" (Mohai and Saha 2006). These disparities, which are the result of the use of unit-hazard coincidence methodology, can be alleviated by the use of distance-based methods, specifically the areal appointment method, in that they are "generally smaller and have greater consistency in their size and shape and greater consistency in the location of the hazards within them" (Mohai and Saha 2006). This understanding has been implemented in subsequent studies, such as Ringquist (2011) which stated "…using *any* administrative unit -- county, ZIP code, census tract, etc. – to define affected community runs the risk of introducing bias into estimates of environmental equity."

This "introduction of bias" is exemplified in the following figures from Mohai and Saha (2006) that illustrates the location of a hazardous waste treatment, storage, and disposal facility (TSDF) and how the surrounding, affected community is measured: "One observation that is apparent from the figure is that, rather than necessarily being located near the host tract's center, the TSDF may be located near a boundary…When the TSDF is near a boundary, much of the adjacent or nearby tracts may be as close to the TSDF as the host tract proper. For example, in Figure la, most of the areas of the tracts immediately south and west of the TSDF (shaded light gray) appear to be as near to the TSDF as most of the area of the host tract (shaded dark gray). A one-mile radius captures about as much of the areas of the adjacent and nearby tracts as it does of the host tract... In spite of their proximity to the TSDF, the unit-hazard coincidence method treats such nearby tracts no differently than non-host tracts much farther away and places them in the comparison group. However if there is a relationship between the location of a TSDF and the demographic characteristics of the neighborhoods surrounding it, then the demographic characteristics of the nearby tracts may be more similar to the host tract proper than to tracts much farther away. Placing such nearby tracts in the comparison group may thus obscure this relationship."

Figure 1: 50% areal containment using a one-mile radius (Mohai and Saha 2006)

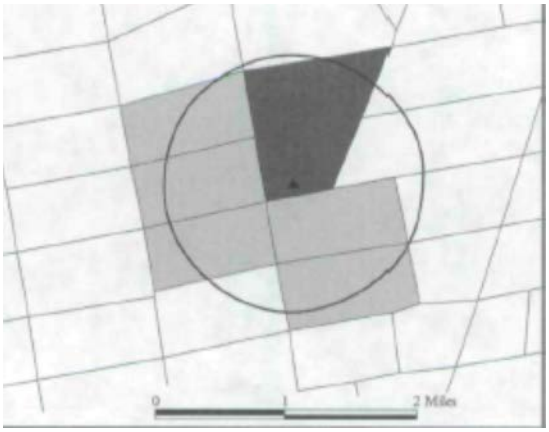
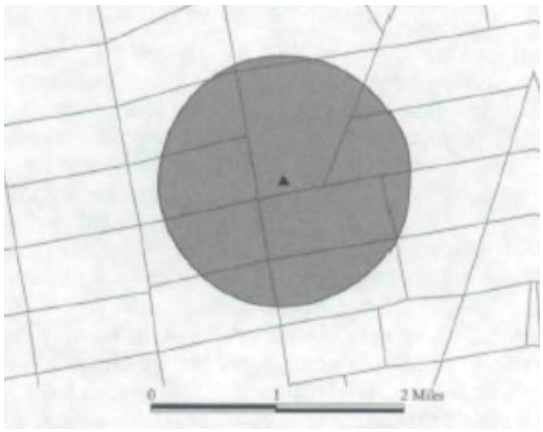


Figure 2: Areal apportionment using a one-mile radius (Mohai and Saha 2006)



Proposed Methodology for EJ Analyses in SIPs

Previous research provides an obvious rationale for pursuing EJ and E.O. 12898 offers a mandated impetus for preventing environmental inequity resulting from proposed federal policy. Yet, as discussed earlier, the CPP, in its current form, does not include adequate provisions to ensure EJ. In order for the EPA to live up to the requirements of E.O. 12898, as well as its own goals for promoting and protecting EJ, the CPP must insure that states conduct an EJ analyses of their proposed carbon mitigation strategies. The EPA has even clearly and publicly stated this in its *Plan EJ* 2014 as its own actions, including *Interim*

Guidance on Considering Environmental Justice During the Development of an Action and *Technical Guidance for Assessing Environmental Justice in Regulatory Analysis* are "intended to enable EPA to routinely conduct and consider EJ analyses in Agency rulemakings, thereby increasing meaningful involvement and improving public health and the environment for overburdened communities" (EPA 2014b).

In addition to our review of the aforementioned analyses used for guidance of our proposed methodology, three other documents were used in the development of the following methodology. *An Environmental Justice Methodology for the Definition of Solid Waste Final Rule* (EPA 2009), herein referred to as DSW Rule, is happening as we speak, and it lays a clear groundwork for performing an EJ analysis of a policy addressing environmental hazard exposure. *EJSCREEN: Environmental Justice Screening Tool*, a presentation given in October 2014 at the bi-annual meeting of the Clean Air Act Advisory Committee, is included it is intended to be a "nationally consistent EJ screening tool" (EPA 2014d). *Analyzing Environmental Justice Issues in Siting of Major Electric Generating Facilities Pursuant to Public Service Law Article 10*, issued by New York's Department of Environmental Conservation (NYDEC), was also used as it provides the "regulatory framework for undertaking an analysis of environmental justice issues associated with the siting of a major electric generating facility…" (NYDEC 2012). As such, the following flow chart, and subsequent descriptions of each step, is heavily influenced by what is outlined in these documents. Because the Agency has undertaken this analysis of the DSW Rule, we see that as evidence that the Agency knows how to do this, and the Agency believes this is the right thing to do.

Overview of a SIP EJ analysis

Step 1: Emission characterization	For all operational EGUs, the most recent data on their emissions must be determined. This includes not only CO_2 but also the type and amount of each plant's co-pollutant emissions, which must be accounted for in order to identify potential hazards that could pose risks to human health resulting from exposures to concentrations of co-pollutants.
Step 2: Identification of study area	Modeling the locations of all operational EGUs (including potential EGUs) and determining the demographic characteristics of the census tract within specified distance of EGUs.
Step 3: Identifying other factors that affect vulnerability in potentially affected communities	Identifying important vulnerability factors, including those that may increase the likelihood of "damages", or the likelihood that an EGU sited within a community is prone to compliance infractions, or the likelihood of health risks in the event of concentrated and frequent releases. Important factors in this step include the presence of other pollution sources and any information on public health and the demographics of the surrounding population.
Step 4: Identifying comparison areas	A comparison area must be defined in order to contrast demographic characteristics and air quality.

Step 5: Information synthesis: assessment of disproportional impact	Synthesizing all the information to characterize whether the wide-spread implementation of C&T within the CPP will facilitate the occurrence of any adverse impacts and whether some population groups (e.g., non-White and/or low income populations) would be overrepresented in the study area compared to the area described in step 4.
Step 6: Identification of potential preventive and mitigation strategies	Identifying potential strategies to prevent non-compliance and concentrations of co-pollutant releases as well as strategies to mitigate any impacts identified under step 5.

Step 1: Hazard characterization

Information on the CO_2 emissions of EGUs powered by coal and natural gas can be found by accessing the EPA's "2012 Greenhouse Gas Emissions from Large Facilities" interface (http://ghgdata.epa.gov/ghgp/main.do). This in an interactive map that allows the user to search for the type, location and emissions of EGUs on various levels (i.e. national, state, county). In addition to providing 2012 CO_2 emission levels for each facility, information on Carbon Dioxide Equivalent (CO_2e) emissions is also provided.

In terms of accounting for co-pollutants, SIPs must determine the amount and types of urban air toxics that are being released by coal and natural gas EGUs. According to the EPA (2014e), of the 187 hazardous air pollutants (HAPs) the EPA is obliged to control, there are 30 of them that are of particular concern as they pose the "greatest potential health threat in urban areas." 30 HAPs are designated as "urban air toxics" (listed in Appendix I) and can cause "cancer or other serious health effects, such as reproductive effects or birth defects…" (EPA 2014f). In general, information on the emissions of urban air toxics can be obtained through the EPA's TRI Program and accessing its 2012 TRI Explorer data.

Step 2: Identification of potentially affected communities

Cap & Trade (C&T) is being touted as the most viable option for states to reach their emissions goals, but it has the potential to intensify the environmental hazards already being experienced by communities in proximity to a power plant. As such, distance-based methodologies should be implemented in order to determine which communities maybe disproportionately affected by concentrations of co-pollutants and urban air toxics as a result of the accumulation of emission allowances/permits by operational power plants. There are four sub-steps needed to identify potentially affected communities: (1) identifying TRI electrical utilities and their allowance information (when applicable), (2) mapping these utilities with GIS tools; (3) implementing areal appointment; and (4) determining the demographic composition of areas designated by areal appointment. We suggest the use of areal appointment methods as a means to conduct a distance-based analysis as it is the method that is implemented by Ringquist (2011), suggested by EPA (2009), and described as more advantageous than other distance-based methods by Mohai and Saha (2006).

1. Sub-step 1 incorporates two proponents, described below.
    i. Identification of TRI Electrical Utilities: Accomplished through the use of TRI Explorer. TRI Explorer allows the user to search for TRI facilities based on their industry, location and HAP emissions.
    ii. Allowance Information: In states or regions already implementing a C&T system, a cross reference must be conducted in order to determine a TRI facility's emission allowance information. For TRI facilities in a C&T system, information must be gathered on the number of permits allotted, the number and location of plants with permits, and those who have violated their permits and how many times they have violated their permits. This will be done to determine the propensity of certain plants to obtain/violate permits and where they are located.
2. Sub-step 2 requires that, once TRI Electrical Utilities have been identified, there location will be mapped by utilizing GIS tools, like those implemented in EJView and EJSCREEN.
3. Under Sub-step 3, after the location of each TRI electrical utilities have been mapped, GIS tools will be used to establish "buffer zones." Buffer zones are defined by using radii of .05-, 1-, 2-, and 3-miles around each facility to determine the Study Impact Area.
4. Sub-step 4 implements areal appointment. Once these radii have been established, the populations within each radii must be determined. Through the use of areal appointment, demographic data from the 2010 Census will need to be utilized in order to determine the composition of each census tract that is at least partially inside the radii in terms of race and income level. With areal appointment, "…the characteristics of all units that are wholly contained by or intersected by a circle of a given radius are aggregated (i.e., weighted by population)… each unit's population is weighted by the proportion of the area of the unit that is captured by the circle. The weighted populations of these units are then used to determine the aggregate demographic characteristics of perfectly circular neighborhoods within a specified distance of the hazard…" (Mohai and Saha 2006).

Step 3: Identifying other factors that affect vulnerability in potentially affected communities

The potential for increased health risks of communities that may already suffer disproportionate concentrations of co-pollutants, TRI chemicals, and other environmental hazards must also be addressed in each SIP. In account for these other, preexisting factors, the following must be considered. Note: the ensuing factors are based on what is outlined in DSW Rule (EPA 2009) and the EJSCREEN presentation (EA 2014d), but have been slightly adapted in order to pertain to EJ analyses for SIPs within the CPP.

- Susceptibility of the community (e.g., higher numbers of children, higher elderly population, higher disease rates, National Air Toxics Assessments);
- Ability of the community to participate in decision-making or receiving information (e.g., lack of information, language barriers, lack of social capital, level of education);

- Ability of the community to recover from environmental insults (e.g., lack of access to health care, lack of financial resources);
- Cumulative impacts, which may include all or a combination of the above, as well as other factors; and
- Environmental Indicators: the distribution of environmental burdens and other potential sources of pollution, such as proximity to:
  - Other kinds of TRI facilities
  - High traffic areas
  - Superfund sites
  - TSDF
  - Major direct water discharge facilities under the National Pollutant Discharge Elimination System.

Step 4: Identifying comparison areas

Controls for this analysis are to be based on NYDEC's (2012) definition of comparison areas, which include the following:

- The county in which the facility is proposed to be located
- Adjacent communities, meaning the geographic area contiguous to and surrounding the Impact Study Area of a radius equal to the radius of the Impact Study Area. For example if the Impact Study Area is a one-half mile radius, the "adjacent communities" shall be represented by the next one-half mile radius around the Impact Study Area.

Step 5: Information synthesis: assessment of disproportional impact

The designated state agency or agencies must review all of the results of these analyses in order to "make an overall assessment of disproportionate impact. A key part of this assessment will be to properly characterize the nuances of the results of the analyses and avoid creating a "one-size-fits-all" expectation for such evaluations. This step will also include consideration of the uncertainties and variability in the Environmental Justice analysis" (EPA 2009).

Step 6: Identification of potential preventive and mitigation strategies

Prevention and mitigation strategies must be identified and implemented in order to avoid the disproportionate impacts established in the EJ analysis. Given the CPP's proposition of C&T being the most viable means for states to meet emissions limits, the preventative and mitigation strategies that must be implemented include C&T alternatives, such as carbon pricing, the proliferation of energy sources that are both renewable and clean, and energy efficiency among EGUs and end-users along with other measures outlined in the CPP as "Building Blocks". However, certain methods described in these building blocks are not acceptable alternatives to C&T. For example measures like the expansion of nuclear and biomass energy sources would be impermissible from an EJ context as they have the potential to incur severe impacts on human and environmental health.

In states and regions with a pre-established C&T programs, certain assurances must be made to prevent disproportionate impacts. As previously mentioned, these provisions are based on Dr. Morello-Frosch's discussion on C&T in "What's at Stake - Environmental Justice and the EPA's Clean Power Plan" (WE ACT 2014) and Ms. Vien Truong's *Addressing Poverty and Pollution: California's SB 535 Greenhouse Gas Reduction Fund* (Truong 2014) and including the following:

- Complete an analysis of other market-based compliance mechanisms (Truong 2014).
- Any market-based compliance program must be designed to guarantee that they do not increase the emissions of co-pollutants, especially in EJ communities (Truong 2014).
- Restrict allowance allocations trading and offset use – or fee options – among facilities responsible for the worst health impacts (WE ACT 2014).
- Create trading zones to incentivize pollution reduction in the areas with the dirtiest air (WE ACT 2014).
- Use revenues to improve air quality in highly polluted areas and enhance the ability of local residents to adapt to climate change impacts (WE ACT 2014).
- Mandate that "long-term investments [are moved] into disadvantaged communities to fund environmental programs that have cobenefits, such as economic and employment benefits" (Truong 2014).
- Create a climate gap neighborhoods fund to protect the most vulnerable neighborhoods (WE ACT 2014).

Those areas already operating a C&T, or for those intending to pursue a C&T system, must also follow steps similar to those described in NEJAC's *Recommendations Regarding EPA Activities to Promote Environmental Justice in the Permit Application Process* (2013) to ensure carbon emission allowances/permits do not contribute to exacerbated pollution in historically overburdened communities. General concepts of this document, described below, are focused on community involvement and public outreach and have been adapted for implementation within SIPs.

- Designated state agencies need to "systematically ensure that communities' concerns are appropriately considered during its permitting process."
- Designated state agencies must "educate community members and organization leaders on the effect of [state/regional policy on local decisions], and help community members develop the capacity to engage the [state/regional permitting] policy effort." Opportunities must also be present for a public commenting period that includes public forums or meetings.
- Designated state agencies "should focus guidance recommendations about how to collaborate with communities on ways to avoid, mitigate, or remediate potential adverse impacts on the community from applicant operations… Outreach to communities early in the application process to identify and address permit applicant impacts could help avoid unfeasible project costs, unsustainable operational costs, lost investment costs, or a long and costly formal adjudicatory process…" (NEJAC 2013).

Additionally, renewable, clean energy must be readily available and accessible as an energy source and employment opportunity to all communities, regardless of their racial and/or socioeconomic composition as SIPs and C&T alternatives are being implemented. By conducting community outreach, seminars, and public forums, designated state agencies would provide an opportunity for communities to learn about how specific carbon reduction measures would affect citizens at local level and inform them on how to properly engage in newly created job and energy markets. These events would also allow concerned citizens and community groups to advocate for carbon reduction strategies that would be of the most benefit to historically overburdened communities while simultaneously allowing states to stay within their emission limits. All communities must have equal access to clean energy, whether it is as a source of income or electricity.

In the following section, we describe means and policies states could use to stay within CPP mandated emission levels and develop alternative clean energy markets while assuring disproportionate impacts are not placed on specific communities using the state of New York as an example. New York was chosen as it has taken aggressive measures to address environmental issues, but, at times, has done so in manner that does not align with the EJ movement.

Case Study: New York State

The State of New York has developed numerous measures to improve environmental quality and equity through the implementation of executive orders, programs, and policies that revolve around energy sector modifications, CO_2 reduction strategies, and environmental justice. However, there are still considerations from an EJ perspective that need to be addressed, such as its reliance on C&T, its promotion of nuclear energy to reduce CO2 emissions, as well is as its classification of biomass as a clean energy source.

Executive Order 24 (E.O. 24)

E.O. 24 was issued in 2009 by former Governor David Patterson with the intent to reduce greenhouse gas [GHG] emissions in New York State by 80 percent below the levels emitted in 1990 by the year 2050, which correlated into a reduction of 50 million metric tons of GHG emissions annually (Climate Action Council [CAC] 2010). E.O. 24 also served as the impetus for the creation of the New York State Climate Action Council (CAC), whose main objective was to develop a climate action plan. In 2010, CAC, along with other state agencies and stakeholders, issued the Climate Action Plan Interim Report (herein referred to as Interim Report) which detailed how the state could reach its GHG reduction goal by 2050. While this report discusses an array of measures to be taken, we focus on the “Power Supply and Delivery Mitigation” chapter and its description of how the energy sector will need to modify its operations, specifically, its electric generation fuel mix and significant policy options to reach its 2050 goal.

Electric Generation Fuel Mix

The report states that, between 1990 and 2008, fuel sources have simultaneously shifted towards low-carbon sources, increased generation by 17.5%, and reduced GHG emissions by 16.2% (CAC 2010). The growth of the renewable energy accounted, in part, to this reduction and is described as being fundamental to aiding New York reach its 2050 goal. Renewable energy proliferation is being promulgated by the 2009 issuance of the state's renewable portfolio standard (RPS), which called for 30% of energy needs to be met by renewable sources by 2015 (CAC 2010). However, the means to which New York was able to achieve these emissions reductions and what it is considering renewable energy is not completely endorsable from an EJ perspective, as will be discussed in the ensuing sections.

New York's efforts to reduce energy consumption are also described in this chapter, in that the state program's goal of a 15% reduction in electricity demand by 2015 will be met through improving the level of efficiency in the energy sector. "[The program] includes eliminating a key conservation disincentive by decoupling utility profits from the amount of energy being consumed [as of the submission of this report, this step had already been implemented], strengthening efficiency standards for appliances and buildings, and addressing New York's largest energy consumer—State government" (CAC 2010).

Policy Options

To achieve the requirements described E.O. 24, CAC outlines three policy options that would be the most significant contributors to reducing GHG emissions. These include Power Supply and Delivery policies (PSDs) 2, 6a, and 6b. PSD-2 entails expanding and extending the existing RPS. "This policy option would increase the amount of new renewable power from approximately 10 million MWh in 2015 (when the current RPS of 30 percent by 2015 is fully implemented) to 23–24 million MWh by 2030" which would mean that, in 2030, about 40% of the energy supply in New York would be from what this report classifies as renewable sources (CAC 2010). These RPS milestones could be reached through the use of funding generated from charges on utility bills to facilitate the development and proliferation of relevant technologies. PSD-6a would require implementing a low-carbon portfolio standard (LCPS) that mandates a specific amount of renewable and nuclear energy use as well as carbon capture and sequestration. PSD-6b entails the strengthening of the Regional Greenhouse Gas Initiative (RGGI). CAC (2010) proposes that a strengthening of RGGI would potentially include a "multi-sector cap-and-invest program that caps and reduces carbon emissions region wide, sets a price on carbon emissions, and invests proceeds from allowance auctions in building the clean energy economy in New York."

Additional policies discussed that are relevant to the CPP include PSDs 4, 5, and 8. PSDs 4 and 5 would insure that the electricity grid is prepared to increasingly utilize energy from low-carbon sources and efficiently deliver electricity from these sources to end users. PSD-8 notes that, by 2030, emissions from existing power plants must meet "emissions level[s] of modern, efficient natural gas-fired plants" and that incentives will

be provided to “encourage the repowering or replacement of such plants with more efficient, lower-emitting technology earlier than 2030” (CAC 2010).

Programs

New York State has developed several energy sector related programs, including those that address energy waste and efficiency, facilitating renewable energy proliferation and modifying the state’s energy infrastructure to be able to incorporate renewable energy.

unwasteNY

unwasteNY is state issued program, instituted by the Public Service Commission that offers educational material and tools to New Yorkers. It allows residents to determine their energy use, provides tips to reduce energy waste and access programs and rebates for energy savings (NYDEC 2014).

BUILD SMART NY

BUILD SMART NY is a response to Governor Andrew Cuomo’s Executive Order 88, which aims to improve energy efficiency in state buildings 20% by 2020. According to NYDEC (2014), under this program, measurements will be taken of the building energy performance in all state buildings larger than 20,000 square feet. The largest and poorest performing buildings will be targeted for energy audits, energy efficiency upgrades, and best practices will be implemented for building operations and maintenance.

NY Energy Highway

NY Energy Highway (NYEH) was developed by the Energy Highway Task Force, a consortium of officials from the energy, environmental and economic fields. As demonstrated in New York Energy Highway Blueprint Update (NYEH 2013), this program was tasked with installing up to 3,200 megawatts (MW) of new electric generation and transmission capacity in New York State, including clean renewable power generation, while creating jobs, promoting economic growth, and protecting the environment” through 13 recommend actions. These areas of focus these actions are: expanding and strengthening the energy highway; accelerating the construction and repair of energy sector infrastructure; supporting clean energy; and driving technology innovation.

Environmental Justice in New York

EJ has been addressed by New York State in several capacities, including tools, agencies, programs, and partnerships as well as establishing how to conduct an EJ analysis; a list of

these EJ measures can be found at http://www.dec.ny.gov/public/333.html. While these efforts show commitment to protecting and promoting EJ, there are EJ related concerns in regards to certain policies and measures New York State has implemented. In the following subsections, we discuss how New York has managed to positively address EJ in energy related matters as well as areas were more attention and consideration is needed in order to ensue equity.

6 NYCRR Part 487, Analyzing Environmental Justice Issues in Siting of Major Electric Generating Facilities Pursuant to Public Service Law Article 10

According to NYDEC (2012), Part 487 establishes a "regulatory framework for undertaking an analysis of environmental justice issues associated with the siting of a major electric generating facility…" The second purpose of Part 487 is "to enhance public participation and review of environmental impacts of proposed major electric generating facilities in environmental justice communities and reduce disproportionate environmental impacts in overburdened communities" (NYDEC 2012). As noted earlier, the methodology we prescribe above was, in part, informed by Part 487 given its extensive nature and use of widely accepted methods, such as the distance-based methods incorporated by Mohai and Saha (2006), Ringquist (2011) Sadd et al. (1999), and Wilson et al. (2012).

Climate Action Plan Interim Report

As previously discussed, the State of New York has made lofty goals of GHG reductions and is taking the measures necessary to do, as outlined in the Climate Action Plan Interim Report. However, the means to which New York has thus far pursued its 2050 goal is not completely compatible with EJ, as seen in its definition of renewable energy sources and the strategies it uses or intends to use as methods to reduce CO_2.

According to the US Energy Information Association (EIA), over 31% of New York's "renewable" energy came from biomass sources in 2013 (EIA 2014). This biomass includes wood, municipal waste, landfill gas, and other non-wood sources. Biomass sources are not clean forms of energy, due to their rampant CO_2 and co-pollutant emissions, the latter of which has significant EJ implications due to its effect on public health. Per EIA projections however, the use of biomass is expected to gradually decline in 2014 and 2015, with roughly 30.5% and 29.5% coming from biomass sources each year respectively (EIA 2014). Additionally, these projections also see growth in the use of the use of energy sources like solar, wind and hydro that more favorable in an EJ context as they present less of a threat to public health.

Another source of non-fossil fuel based power being promoted in the Interim Report is nuclear energy. As of 2008, over 25% of New York's electric generation fuel was generated by nuclear power (CAC 2010). According to EIA (2014), nearly 32% of the electricity consumed in New York in 2012 came from nuclear power. Nuclear power is not justifiable from an EJ perspective as it violates the fourth principle of EJ outlined by the First National People of Color Environmental Leadership Summit (1991).

RGGI

New York's membership in the RGGI Cap and Trade (C&T) system elicits EJ concerns "legislation using primarily cap-and-trade mechanisms to reduce carbon emissions from power plants does not achieve that end in an equitable and efficient manner, particularly since corporations and facilities do not have to pay for any credits below the limit and would have little financial incentive to reduce emissions" (WE ACT 2009). A system like Cap and Tax would be more preferable from an EJ perspective as it incentivizes emissions reductions and the proliferation of clean/renewable sources by which setting a price on the emissions EGUs produce. However, there are measures RGGI has taken to make its system partially more acceptable to the EJ movement, as discussed in "Regional Investment of RGGI CO_2 Allowance Proceeds, 2012" which was issued by RGGI in February of 2014. In addition to detailing factors like investments in worker training and CO_2 emissions avoided across RGGI as a whole, it give state specific examples of how the proceeds from RGGI have been invested by and within each member state. New York's proceeds have been invested in the following ways: energy audits; installing energy efficient and renewable energy features in residential, commercial, and industrial buildings; and funding Green Capital Empire, which aids early stage renewable energy and fuel-efficiency companies attract funding. The most relevant investment from an EJ perspective is that which goes to the Cleaner, Greener Communities initiative. This initiative allows for the development of "regional sustainability plans that commit communities to a transition to more energy efficiency and clean energy in buildings, transportation, land use, waste management, water management and agriculture/forestry, while supporting sustainable economic development and fostering livable communities" (RGGI 2014).

Conclusion and Recommendations

The CPP in its current form does not adequately address EJ and, in many instances, has the potential to exacerbate the environmental conditions of communities already overburdened by pollution, many of which are communities of color and/or low-income. In order for the CPP to insure that EJ will be a priority when carrying out the implementation of the CPP, it is necessary that equity be written into the final rule. We strongly support the following recommendations in the final version of the CPP and the corresponding State/Regional Implementation Plans.

Final Rule
1. Equity and Environmental Justice should be a priority and written into the Clean Power Plan.
2. Explicit language that accounts for the potential disproportionate impacts of biomass incineration, carbon capture and sequestration, nuclear energy and shifting to natural gas as a fuel.
3. That coal plant retirements are not counted as credits for states to achieve their emission targets.

4. An analysis to determine if any negative impacts arise through classifying emission targets for states as “rate-based” or “mass-based.”
5. An analysis to determine the effects of shifting towards Natural Gas Combined Cycle.
6. Provisions that mandate the inclusion of Environmental Justice leaders in the drafting and implementation of State Implementation Plans.
7. A qualitative analysis is not sufficient to meet the intent of E.O. 12898. A quantitative analysis is needed in order to understand distributive the costs/benefits of proposed mitigation solutions.
8. Assurance that affected communities have available, sufficient and meaningful opportunities to both be educated on the rule and engage in the development process of the final rule.
9. SIPs will not be approved without an EJ analysis. The EPA will be required to provide guidance and tools for states to follow through with this request.

State/Regional Implementation Plans
1. Equity and Environmental Justice should be a priority and written into each state’s/region’s implementation plan.
2. GHG and co-pollutant emissions are being reduced at the source in EJ communities by providing assurances that “EGUs whose emissions of one or more of these pollutants or their precursors increase as a result of the proposed emission guidelines for existing fossil fuel-fired EGUs” does *not* occur.
3. Assurance that affected communities have available, sufficient and meaningful opportunities to both be educated on the rule and engage in the development process of the State Implementation Plan.
4. Assurance that energy originating from sources like solar, wind, geothermal, and low-impact hydro be available to residents living in impacted communities as a viable and affordable electricity source.
5. Affirmation of accessible training opportunities and attainable jobs within the clean energy sector for all communities, regardless of their racial and/or socioeconomic composition.
6. Co-pollutant intensity of energy sources and Electrical Generating Units must be intentionally and thoroughly addressed and accounted for.
7. For efficiency related measures, the following must be accounted for: • Efficiency investments must be made by all existing and announced EGUs. • Assurances that co-pollutant emissions do not occur as a result of increased dispatches from EGUs that have had efficiency modifications. • Efficiency programs for energy consumers must be included and pursued within each state.
8. A quantitative analysis of Cap & Trade to assess the potential of localized air pollution increases, especially in low-income communities and communities of color.
9. For states/regions with preexisting C&T Systems, the following assurances must be made:

• Complete an analysis of other market-based compliance mechanisms. • Any market-based compliance program must be designed to guarantee that they do not increase the emissions of co-pollutants, especially in EJ communities. • Restrict allowance allocations trading and offset use – or fee options – among facilities responsible for the worst health impacts. • Mandate a system will provide absolute reductions in areas with the dirtiest air. • Use revenues to improve air quality in highly polluted areas and enhance the ability of local residents to adapt to climate change impacts • Mandate that long-term investments [are moved] into disadvantaged communities to fund environmental programs that have co-benefits, such as economic and employment benefits. • Create a climate gap neighborhoods fund to protect the most vulnerable neighborhoods
10. A statement of cumulative impacts that affirms actions taken by states to reach their mandated emissions levels do not intensify the environmental impacts of historically over-burdened communities.
11. States/regions conduct an EJ analysis to inform the SIP and guarantee emission reductions in EJ communities.

More details about each of the concerns listed in the tables above can be found in the testimony of Dr. Jalonne White Newsome in the EPA Docket EPA-HQ-OAR-2013-0602 at the following link: http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2013-0602-18400.

Additional information on EJ assurances within the CPP can be found in the following link detailing a meeting between WE ACT for Environmental Justice and representatives from the EPA: http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2013-0602-18221.

The provisions and assurances listed above must be included in order to insure that the social, political, economic, environmental, and health conditions of affected communities are protected within the final version of the rule. The EPA has an explicit obligation to protect the health and environmental conditions of EJ communities, as defined in EO. 12898 and Title VI of the Civil Rights Act. In conclusion, this year marked the 20th anniversary of Executive Order 12898 on environmental justice, the 50th anniversary of the Civil Rights Act, and the EPA designated the month of February as Environmental Justice Month. We urge the EPA to stand firm on their commitment to environmental justice and make the Clean Power Plan something that brings justice to all.

Appendix I: EPA's 30 Urban Air Toxics

1. Acetaldehyde
2. Dioxin
3. Mercury compounds
4. Acrolein
5. Propylene dichloride
6. Methylene chloride (dichloromethane)
7. Acrylonitrile
8. 1,3-dichloropropene
9. Nickel compounds
10. Arsenic compounds
11. Ethylene dichloride (1,2-dichloroethane)
12. Polychlorinated biphenyls (PCBs)
13. Benzene
14. Ethylene oxide
15. Polycyclic organic matter (POM)
16. Beryllium compounds
17. Formaldehyde
18. Quinoline
19. 1,3-butadiene
20. Hexachlorobenzene
21. 1,1,2,2-tetrachloroethane
22. Cadmium compounds
23. Hydrazine
24. Tetrachloroethylene (perchloroethylene)
25. Chloroform
26. Lead compounds
27. Trichloroethylene
28. Chromium compounds
29. Manganese compounds
30. Vinyl chloride

Source: EPA (2014e)

Works Cited

1. Boyce J. Memorandum. 2009. Co-Pollutants & Co-Benefits. Available: http://www.arb.ca.gov/cc/etaac/meetings/082009pubmeet/mtgmaterials082009/publiccomments/memo-for-etacc-on-co-pollutants-&-co-benefits.pdf [accessed 08/24/2014].
2. Boyce J, Pastor M. 2013. Clearing the air: incorporating air quality and environmental justice into climate policy. Climatic Change 120.4: 801-814.
3. California Air Resources Board. 2014. Daily Average PM2.5 Data. Available: http://www.arb.ca.gov/aqd/aqdcd/aqdcddld.htm [accessed 08/28/2014].
4. Clinton, WJ. 1994. Executive Order 12898. Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations. Fed Reg 59.
5. Commission for Racial Justice (CRJ). 1987. "Toxic Waste and Race in the United States: A National Report on the Racial and Socioeconomic Characteristics of Communities With Hazardous Waste Sites." New York: United Church of Christ.
6. Council on Environmental Quality (CEQ). 1997. Environmental Justice: Guidance Under the National Environmental Policy Act. Available: http://www.epa.gov/environmentaljustice/resources/policy/ej_guidance_nepa_ceq1297.pdf [accessed 08/20/2014].
7. Energy.gov Office of Legacy Management. Environmental Justice History. http://energy.gov/lm/services/environmental-justice/environmental-justice-history [accessed 12/01/2014]
8. Indigenous Environmental Network. http://www.ienearth.org/about/ [accessed 12/01/2014]
9. Lashof D, Yeh S, Bryk D, Carter S, Doniger D, Murrow D, Johnson L. 2014. Cleaner and Cheaper: Using the Clean Air Act to Sharply Reduce Carbon Pollution from Existing Power Plants, Delivering Health, Environmental, and Economic Benefits. Available: http://www.nrdc.org/air/pollution-standards/files/pollution-standards-IB-update.pdf [accessed 10/23/2014].
10. Lee, C. 1991. Principles of Environmental Justice. In: Proceedings from the First National People of Color Environmental Leadership, 24-27 October 1991. Washington, DC.
11. Mohai P, Saha R. 2006. Reassessing racial and socioeconomic disparities in environmental justice research. Demography 43.2: 383-399.
12. National Environmental Justice Advisor Council (NEJAC). 2008. Strengthening the Participation of Business and Industry in Environmental Justice, Green Business, and Sustainability. Available: http://www.epa.gov/environmentaljustice/resources/publications/nejac/green-business-letter-100908.pdf [accessed 10/22/2014].
13. NEJAC. 2013. Recommendations Regarding EPA Activities to Promote Environmental Justice in the Permit Application Process. Available: http://www.epa.gov/environmentaljustice/resources/publications/nejac/2013-ej-in-permitting.pdf [accessed 10/22/2014].
14. New York State Climate Action Council (CAC). 2010. Climate Action Plan Interim Report. Available: http://www.dec.ny.gov/energy/80930.html [accessed 09/03/2014].

15. New York State Department of Environmental Conservation (NYDEC). 2012. 6 NYCRR Part 487: Analyzing Environmental Justice Issues in Siting of Major Electric Generating Facilities Pursuant to Public Service Law Article 10. Available: http://www.dec.ny.gov/regs/83336.html [accessed 09/10/2014].
16. New York Energy Highway (NYEH). 2013. New York Energy Highway Blueprint Update. Available: http://www.nyenergyhighway.com/PDFs/BluePrint/EHBPPT/Blueprint_Update_April%202013.pdf [accessed 09/11/2014].
17. New York State Department of Environmental Conservation (NYDEC). 2014. Energy/Climate Programs: New York's Portfolio of Energy and Climate Programs. Available: http://www.dec.ny.gov/energy/43384.html [accessed 09/10/2014].
18. New York State Public Service Commission. 2011. Comments of the New York State Department of Environmental Conservation regarding the Verified Petition of Covanta Energy Corporation. Albany, NY: General Counsel.
19. Office of Environmental Health Hazard Assessment (OEHHA). 2014a. California Communities Environmental Screening Tool, Version 2.0 (CalEnviroScreen 2.0). http://oehha.ca.gov/ej/pdf/CES20Finalreport2014.pdf [accessed 9/18/2014].
20. Office of Environmental Health Hazard Assessment (OEHHA). 2014b. Analysis of CalEnviroScreen 2.0 Scores and Race/Ethnicity. http://oehha.ca.gov/ej/pdf/CES20RaceEthnicity_05082014.pdf [accessed 9/18/2014].
21. Regional Greenhouse Gas Initiative. 2014. Regional Investment of RGGI CO2 Allowance Proceeds, 2012. Available: http://www.rggi.org/docs/Documents/2012-Investment-Report.pdf [accessed 09/18/2014].
22. Ringquist, E. 2011. Trading Equity for Efficiency in Environmental Protection? Environmental Justice Effects from the So2 Allowance Trading Program. Social Science Quarterly 92. 2: 297–323.
23. Sadd J, Pastor M, Boer JT, Snyder LD. 1999. "Every Breath You Take... "; The Demographics of Toxic Air Releases in Southern California. Economic Development Quarterly 13.2: 107-123.
24. Schwartz J, Buonocore J, Levy J, Driscoll C, Fallon K, Reid S. 2014. Health Co-benefits of Carbon Standards for Existing Power Plants. Available: http://www.chgeharvard.org/sites/default/files/userfiles2/Health%20Co-Benefits%20of%20Carbon%20Standards.pdf [accessed 10/23/2014].
25. Truong V. 2014. Addressing Poverty and Pollution: California's SB 535 Greenhouse Gas Reduction Fund. Harvard Civil Rights-Civil Liberties Law Review 49.2: 493-529.
26. Union of Concerned Scientists (UCS). 2014. Strengthening the EPA's Clean Power Plan. Available: http://www.ucsusa.org/sites/default/files/attach/2014/10/Strengthening-the-EPA-Clean-Power-Plan.pdf [accessed 10/23/2014].
27. United Church of Christ Justice & Witness Ministries. 2007. "Toxic Waste and Race at Twenty: 1987-2007." New York: United Church of Christ.
28. U.S. Energy Information Administration (EIA). 2013. Annual Energy Outlook 2013. Available: http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf [accessed 10/23/2014]

29. EIA. 2014. Available: http://www.eia.gov/forecasts/steo/report/renew_co2.cfm?src=Renewable-b1[accessed 09/04/2014].
30. U.S. Environmental Protection Agency (EPA). 2009a. Cap and Trade: Basic Information. Available: http://www.epa.gov/captrade/basic-info.html [accessed 08/21/2014].
31. EPA. 2009b. Draft Environmental Justice Methodology for the Definition of Solid Waste Final Rule. Available: http://www.epa.gov/osw/hazard/dsw/ej-meth.pdf [accessed 08/17/2014].
32. EPA. 2012. What Are the Six Common Air Pollutants? Available: http://www.epa.gov/airquality/urbanair/ [accessed 08/20/2014].
33. EPA. 2013. National Environmental Justice Advisory Council. Available: http://www.epa.gov/environmentaljustice/nejac/ (accessed 10/22/2014).
34. EPA. 2014a. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units. Proposed Rule. Fed Reg 34829: 34829 -34958.
35. EPA. 2014b. Plan EJ 2014. Available: http://www.epa.gov/environmentaljustice/resources/policy/plan-ej-2014/plan-ej-progress-report-2014.pdf [accessed 10/23/2014].
36. EPA. 2014c. What is Environmental Justice? Available: http://www.epa.gov/environmentaljustice/ [accessed 08/28/2014].
37. EPA. 2014d. EJSCREEN: Environmental Justice Screening Tool. Available: http://www.epa.gov/air/caaac/meetings.html [accessed 11/10/2014].
38. EPA. 2014e. Urban Air Toxic Pollutants. Available: http://www2.epa.gov/urban-air-toxics/urban-air-toxic-pollutants [accessed 08/28/2014].
39. EPA. 2014f. About Urban Air Toxics. Available: http://www2.epa.gov/urban-air-toxics/about-urban-air-toxics [accessed 08/28/2014].
40. U.S. Government Accountability Office (GAO). 2005. ENVIRONMENTAL JUSTICE: EPA Should Devote More Attention to Environmental Justice When Developing Clean Air Rules. GAO-05-289. Washington, DC: U.S. Government Accountability Office.
41. WE ACT for Environmental Justice. 2009. Advancing Climate Justice: Transforming the Economy, Public Health & Our Environment. Available http://www.weact.org/Portals/7/Program%20Docs/Movt_%20Bldg_/ClimateJusticeConferenceReport.pdf [accessed 09/17/2014].
42. WE ACT for Environmental Justice. 2014. What's at Stake - Environmental Justice and the EPA's Clean Power Plan. Available http://www.weact.org/ejcleanair/downloads/resources/webinar/what's%20at%20stake%20-%20environmental%20justice%20and%20the%20epa's%20clean%20power%20plan%20(2014-07-21)/2014-07-21%2014.31%20What's%20at%20stake_%20EJ%20and%20the%20EPA's%20Clean%20Power%20Plan.wmv [accessed 07/30/2014].
43. Wilson SM, Fraser-Rahim H, Williams E, Zhang H, Rice L, Svendsen E, et al. 2012. Assessment of the Distribution of Toxic Release Inventory Facilities in

Metropolitan Charleston: An Environmental Justice Case Study. American Journal of Public Health 102.10: 1974-1980.