COMMONWEALTH OF VIRGINIA
CLEAN POWER PLAN FOR GREENHOUSE GASES

STAKEHOLDER GROUP MEETING

SECOND FLOOR CONFERENCE ROOM
629 EAST MAIN STREET, RICHMOND, VIRGINIA
MARCH 11, 2016

Members Present:

Malcolm Woolf, Advanced Energy Economy
John Hendricks, AEP
Michael Van Brunt, Covanta
Will Poleway, Birchwood
Kris Gaus, Power Plant Management Services
Lenny Dupuis, Dominion
Scott Carver, Doswell/LS Power
Walton Shepherd, NRDC
Laura Rose, ODEC
Greg Kunkel, Tenaska
John Morrill, VACO
Irene Kowalczyk, WestRock/VMA

Members Absent:

Donald Ratliff, Alpha Natural Resources

Department of Environmental Quality:

David K. Paylor, Director
Ann M. Regn, Office of Public Information
Michael G. Dowd, Air Division
Karen Sabasteanski, Regulatory Affairs
Mary E. Major, Regulatory Affairs

The meeting began at approximately 9:05 a.m.

Meeting Purpose: This stakeholders group has been established to advise and assist the Commonwealth on elements that could be included in the state compliance plan to meet the final U.S. Environmental Protection Agency (EPA) Clean Power Plan (CPP) rule for the control of greenhouse gases. The purpose of this meeting is for DEQ to coordinate and facilitate discussions of this group in an effort to find common ground and elements that could be recommended to the Administration for consideration in the state compliance plan for the Commonwealth.

Welcome and Introductions: Mr. Paylor welcomed the group and made a number of introductory remarks. These meetings have been very helpful to us. Although this meeting is the last one scheduled, it is clear that there is more to learn. The collaborative process will continue; we will provide a schedule once we have reported to the Administration and we have a clearer framework on which to proceed. We also expect that a number of forthcoming studies will be useful in informing future activities.

Ms. Regn welcomed the group. Members introduced themselves individually. Ms. Regn then reviewed the agenda, provided a recap of the previous meeting, and stated

that the current meeting's primary task was to finish addressing Question 3 (What specific mechanisms should be included in the compliance plan?) with respect to a rate-based program, and to address Question 4: What other issues should be addressed and how? (See Attachment A.)

The group then discussed what should be the prescribed elements of a rate-based compliance plan. Members were asked to consider what they would prefer to see in a rate-based program regardless of whether or not they favor mass or rate, in order that the best possible rate-based plan can be developed.

The group reached consensus on the following specific items:

- A trading-ready program is preferred.
- A national registry for generating verifiable allowances and credits--whether standalone or as a marketplace--is important.

The following areas of general agreement were identified:

- A reliability safety valve is important.
- Price transparency is important.

The group then discussed potential ways of treating biomass, waste-to-energy and other sources under each compliance approach. There was some interest in how waste heat recovery from low quality steam could become economically attractive.

The Clean Energy Incentive Plan (CEIP) was then discussed. Although the members generally agree that the CEIP is a positive program in which the state should participate, and given that the program is not yet final, there was some discussion about when and how to participate, and how to best address impacts to low income communities. Mr. Shepherd added that the group representative for environmental justice had provided a document, *Environmental Justice State Guidance*, and asked that it be sent to the group (see Attachment B).

There was a discussion of other measures to reduce CO_2 emissions--that is, the group was given the opportunity to discuss any other ideas or concerns that had not otherwise been addressed throughout the stakeholder process. Although not necessarily part of the immediate CPP, members mentioned permitting requirements, new technologies and the rate at which they are appearing and become available, and considering recycling as a form of energy efficiency. The group also discussed whether or not Virginia should join the Regional Greenhouse Gas Initiative (RGGI); no consensus was reached.

Finally, the group initiated a discussion on cost: what least cost/cost mitigation measures should be considered. The group talked more about the concept of leakage as it affects cost, and who pays for transmission costs and stranded assets.

Prior to the meeting, Mr. Morrill provided the group with two ACEEE white papers (*Best practices in developing state lead-by-example programs and considerations for Clean Power Plan Compliance* and *Energy Efficiency and the Clean Power Plan: Steps to Success*), and an AJW document (*Simplifying energy efficiency for states: utilizing and incentivizing energy efficiency-related greenhouse gas reductions under the Clean Power Plan's mass-based approach*). (See Attachments C, D and E.)

Mr. Paylor and Ms. Regn then wrapped up the meeting. Mr. Paylor reiterated that the discussion will continue once we have developed a structure for moving forward.

The meeting adjourned at approximately 3:00 p.m.

ATTACHMENT A

COMMONWEALTH OF VIRGINIA
CLEAN POWER PLAN
STAKEHOLDER GROUP MEETING #5
MARCH 11, 2016

AGENDA

9:00 – 9:10 a.m.	WELCOME David Paylor
9:10 – 9:15 a.m.	MEETING 4 RECAP Ann Regn
9:15– 10:15 a.m.	FACILITATED GROUP DISCUSSION: Prescribed Elements of a Rate-based Compliance Plan
10:15-11:00 a.m.	FACILITATED GROUP DISCUSSION: Biomass, Waste-to-energy, other sources
11:10 a.m. -12:00 p.m.	FACILITATED GROUP DISCUSSION: Least Cost/Cost Mitigation Measures
12:00 – 1:15 p.m.	LUNCH BREAK (on your own)
1:15 p.m. – 1:45 p.m.	FACILITATED GROUP DISCUSSION: CEIP
1:45 – 2:20 p.m.	FACILITATED GROUP DISCUSSION: Other Measures to Reduce CO_2 Emissions
2:20 – 2:45 p.m.	FACILITATED GROUP DISCUSSION: Closing Remarks
2:45 – 3:00 p.m.	WRAP-UP
3:00 p.m.	ADJOURN

RECAP OF STAKEHOLDER MEETING 4

- Stakeholder members prioritized the pros and cons of a mass-based (existing sources only, or including existing + new sources), and a rate-based compliance approach and discussed why choices were made.
- Stakeholder members delineated elements that should be included in a mass-based compliance approach regardless of whether or not they favored mass or rate. Although the group did not reach consensus of any specific element, several areas of general agreement were identified (e.g., a trading ready program is likely a plan element that everyone would like see).
- Stakeholder members agreed that for the forthcoming discussion on rate, a dual approach would be discussed but not a blended rate.
- Stakeholder members were polled to determine their positions on each compliance approach. Consensus on a specific compliance approach was not reached.

Status as of February 22, 2016

option	support	oppose	neutral/unsure
Rate-based	4 members	7 members	1 members
mass - existing	3 members	3 members	5 members
mass with new source component	5 members	5 members	1 members

QUESTIONS FOR GROUP DISCUSSION

- Two general approaches are provided in the rule for compliance
  - Source performance standards plan, or
  - State measures plan
- Question 1 - What are the benefits and issues of each approach and what is the preferred path?
- Question 2 – What general mechanism should be used to implement the preferred compliance plan?
- Question 3 – What specific mechanisms should be included in the compliance plan?
- Question 4 – What other issues should be addressed and how?

FACTORS TO CONSIDER DURING GROUP DISCUSSIONS:

- Compliance deadlines
- Compliance flexibility
- Compliance with federal requirements
- Cost effectiveness
- Electric rate impacts
- Environmental benefits/impacts
- Low income and vulnerable communities impacts
- Plan implementation and administration
- Reliability and asset impacts
- State and regional interactions

WHAT ARE THE PRESCRIBED ELEMENTS OF A RATE- BASED COMPLIANCE PLAN?

PRESCRIBED ELEMENTS	

HOW TO TREAT BIOMASS, WASTE-TO-ENERGY, OTHER SOURCES UNDER EACH COMPLIANCE APPROACH?

RATE			MASS		
Biomass	Waste-2-E	Other	Biomass	Waste-2-E	Other

LUNCH BREAK

PROS AND CONS OF PARTICIPATING IN CEIP?

RATE		MASS	
PROS	**CONS**	**PROS**	**CONS**

OTHER MEASURES TO REDUCE CO2 EMISSIONS FROM ELECTRIC POWER PLANTS? JOIN RGGI?

Other Measures		RGGI	
		PROS	CONS

CLOSING REMARKS/COMMENTS FROM STAKEHOLDERS

REMARKS/COMMENTS			

MEETING WRAP-UP

- Next Steps

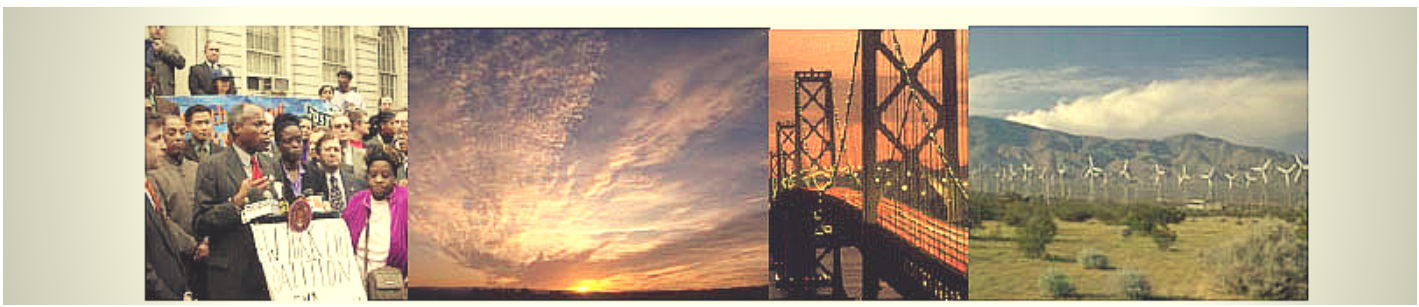
STAKEHOLDER GROUP: GENERAL AREAS OF AGREEMENT FOR A MASS-BASED COMPLIANCE APPROACH:

- A trading ready program is likely something that everyone would want to see
- Leakage should be clearly defined and addressed
- It is difficult to predict future load growth
- It is difficult to predict the benefits associated with new technology
- Need to look into ways to address uncertainty
- Given that the program is not yet finalized, CEIP will probably be a good option for Virginia

ATTACHMENT B

ENVIRONMENTAL JUSTICE STATE GUIDANCE

HOW TO INCORPORATE EQUITY & JUSTICE INTO YOUR STATE CLEAN POWER PLANNING APPROACH



JANUARY 2016

This Guidance was created by the Environmental Justice Leadership Forum on Climate Change.
HTTP://WWW.EJLEADERSHIPFORUM.ORG/EJ-STATE-GUIDANCE/

CONTENTS

All footnotes will be denoted by the italicized, bold numbers throughout the document.

EXECUTIVE SUMMARY

ENVIRONMENTAL JUSTICE STATE GUIDANCE: HOW TO INCORPORATE EQUITY& JUSTICE INTO YOUR CLEAN POWER PLAN STATE PLANNING APPROACH

In the Unites States, there are a higher percentage of communities of color and low-income communities are living near power plants. In fact, there are many rural power plants that are located near small communities with high percentages of low-income populations; and, in urban areas, nearby communities tend to be both low-income communities and communities of color. **The Environmental Protection Agency's Clean Power Plan** – released in August 2015 – requires states to reduce their emissions of carbon dioxide (CO_2) from fossil- fueled fired power plants. For the first time, the EPA is requiring state regulators to not only meet the new CO_2 emissions levels, but to also (1) demonstrate how they are meaningfully engaging all stakeholders - workers and low-income communities, communities of color, and indigenous populations, people living near power plants and otherwise potentially affected by the state's plan, (2) describe their engagement with their stakeholders, including their most vulnerable communities, and (3) evaluate the effects of their plans on vulnerable communities and take the steps necessary to ensure that all communities benefit from the implementation of this rule.

The purpose of this "Guidance" is to be a resource for state agencies and other stakeholders as they work to meaningfully engage with communities in the planning and implementation of this rule.

This guidance is not to be prescriptive, but offer some definitions and context about Environmental Justice and how the concepts of equity, health and engagement are pivotal to the Clean Power Plan. However, we do offer the following key process and policy recommendations for all stakeholders – regulatory, community, and others – to consider as states move forward with their Clean Power Planning.

1. Creating Opportunities for High Impact Engagement

It is important that key decision makers – from the state and community - are involved and visible in the conversation. EJ Stakeholders are fully represented and help drive the engagement process. Decisions are being made while considering all sides of the issue. The results of high-impact engagement should result in definitive environmental improvements and tangible results (i.e. reductions in emissions, and improvement in health)and the development of a more protective, stronger implementation of the Clean Power Plan and other regulatory constructs.

2. Conducting an Environmental Justice analysis to minimize the unintentional, disparate impacts of certain policy decisions before they are made

The final Clean Power Plan Rule "encourages states to conduct their own analyses of community considerations when developing their plans." This is an extremely important part of the state implementation process and should be taken very seriously. This Guidance puts great effort in articulating what an EJ Analysis should be, the tools and resources that are available to states to conduct their own EJ Analysis, and also provides samples of EJ Analysis as a reference. There is also a list of key questions stakeholders should be asking throughout the process in key categories such as Engagement, Health, Jobs/Economic Development and Civil Rights that can help this process.

3.Considering other options to reduce emissions of CO_2 without employing a cap-and-trade program, or other allowances from the Clean Energy Incentive Program

While the use of a cap-and-trade program is definitely promoted by the final Clean Power Plan as the primary option for compliance, cap-and-trade is a big concern for many community stakeholders that live near polluting facilities. We support achieving emission reductions without the use of a cap-and-trade program. While data is still being gathered to quantify the potential localized increases in pollution in both California and the Northeastern states where current trading plans exist, it is our hope that states strongly consider (1) adopting other strategies for compliance (source reduction, carbon pricing), (2) building in the structure to prevent the deterioration of air quality, at the local/community level if a trading mechanism is employed, and (3) building in a continuous monitoring and evaluation process into the final state plan that specifically tracks the quality and health outcomes in low income, communities of color.

4. Committing resources to spur economic development and job growth opportunities in impacted communities

Opportunities for training and job growth in the clean energy sector, as well as deployment of energy efficiency and renewable energy is important for overly impacted communities. The guidance provides some key principles of creating a Just Transition, where the quality of life for people and communities affected by economic disruption, is enhanced through inclusion and processes that strengthen the local health, wealth and the environment for future generations.

This Guidance has been created with input from environmental justice organizations and from diverse stakeholders and partners. In addition to this reviewing this document, we encourage each state to reach out and solicit input from their local experts to address specific concerns, ideas and requests of the most impacted communities in their state.

OVERVIEW & BACKGROUND

The EPA released the final Clean Power Plan (CPP) in August 2015, the first-ever carbon pollution standards for existing power plants. As states begin their planning, it is important that states engage **early** and **meaningfully** with communities to ensure that the implementation of the Clean Power Plan takes everyone's needs into consideration.

The final CPP sets performance standards for two subcategories of affected fossil fuel-fired electric generating units(EGUs) : fossil fuel-fired electric utility steam-generating units and stationary combustion turbines. In this final rule, the EPA requires states to (1) demonstrate how they are meaningfully engaging all stakeholders - workers and low-income communities, communities of color, and indigenous populations, people living near power plants and otherwise potentially affected by the state's plan, (2) describe their engagement with their stakeholders, including their most vulnerable communities, and, (3) evaluate the effects of their plans on vulnerable communities and take the steps necessary to ensure that all communities benefit from the implementation of this rule. ***1***

The purpose of this "Guide" is to provide a resource to state regulators and other key stakeholders that will result in an equitable planning, implementation and evaluation process to meet the goals of the Clean Power Plan. It is our hope that a better understanding of Environmental Justice will result in **meaningful engagement, measurable reductions of air pollution in over burdened communities and lay the foundation for a more equitable planning process for future regulatory initiatives.**

Throughout the document, we will be consistent with the final CPP and use the terminology "vulnerable and/or overburdened," to denote those communities least resilient to the impacts of climate change and central to Environmental Justice considerations, which we typically refer to as **Environmental Justice (EJ) Communities.**

This guide will be useful to a diverse set of stakeholders. This guide has been created with input from Environmental Justice organizations and from diverse stakeholders and partners. The ideas presented are not to be prescriptive or comprehensive but a conversation starter for state regulators and community stakeholders. We encourage each state to reach out, solicit and listen first and foremost to specific concerns, ideas and requests of the most impacted communities in their state as to how they might proceed throughout the entire state planning process.

KEY TERMS

Key terms and definitions have been defined that will be used throughout this document. Use this as a reference not only for this document, but as you have conversations with various stakeholders.

Clean Power Plan (CPP): On August 3, 2015, President Obama and EPA announced the Clean Power Plan – a historic and important step in reducing carbon pollution from power plants that takes real action on climate change.

Co-pollutants: gaseous pollutants that are emitted from a source in addition to the primary pollutant of concern. Co-pollutants are a significant concern to overburdened communities because the cumulative impacts (i.e. the additive effect of all pollutants in a community) are not considered when standards and emission limits are determined.

Disparate impacts : The U.S. Supreme Court recognized in Texas Department of Community Affairs v. Inclusive Communities Project (2015) that the prohibition of disparate impact discrimination, regardless of intent, is necessary to help move our country beyond a legacy of segregation and discrimination and toward opportunity for all. While the case was decided under the Fair Housing Act, the disparate impact standard under other laws is also critical for achieving Environmental Justice. Low-income communities and communities of color are more likely to be exposed to environmental contamination and pollution from industry sources, and lack environmental benefits , like parks and other green spaces .

There are five steps for determining disparate impact:
(1) identifying the affected population
(2) determining the demographics of the affected population
(3) determining the universe of facilities and total affected population
(4) conducting a disparate impact analysis; and
(5) determining the significance of the disparity ***2***

Electrical Generating Unit (EGUs): A generating unit consists of the sum and of all equipment necessary for production of electricity. In a coal-fired power plant, a generating unit would normally consist of one or more boilers where coal is burned to create steam, plus one or more turbine generators which convert the steam's heat energy into electricity.

Environmental Equality: Equality-driven goals for environmental policy, law, and regulations and the valid reliable delivery of such services. ***3***

Environmental Equity: Development, implementation, and enforcement of environmental policies and laws to ensure that no group or community is made to bear a disproportionateshare of the harmful effects of pollution or environmental hazards because it lacks economic or political clout. 4

KEY TERMS

Environmental Justice (EJ): a social justice, grassroots movement that seeks to protect communities of color and low-income communities from being overburdened with pollution. Citizens of different races and classes experience disparate environmental quality, directly affecting their public health and quality of life. The movement uses policy advocacy, research, community capacity building and organizing to advance environmental justice. Environmental Justice refers to those cultural norms and values, rules, regulations, behaviors, policies, and decisions to support sustainable communities where people can interact with confidence that their environment is safe, nurturing, and productive. Environmental Justice is served when people realize their highest potential without experiencing the —isms. ***5***

Environmental Justice Movement: the Environmental Justice movement was started by individuals, primarily people of color, Indigenous and Natives , who sought to address the inequity of environmental protection in their communities. Grounded in the struggles of the 1960's Civil Rights Movement, this movement sounded the alarm about the public health dangers for their families, their communities and themselves.

Environmental Self Determination : the ability to dictate the fate and use of your environment, as it is your rightful home. ***6***

Executive Order 12898 (EO 12898): Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations - was issued by President William J. Clinton in 1994. Its purpose is to focus federal attention on the environmental and human health effects of federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities.

Fair Treatment : a concept affirming that no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental and commercial operations or programs and policies. ***7***

Federal Implementation Plan (FIP): a federally implemented plan to achieve attainment of air quality standards and is used when a state is unable to develop an adequate plan.

Greenhouse gases (GHG): Any gas that absorbs infrared radiation and traps heat in the atmosphere. In large, artificially-created quantities (produced by human activities), GHG emissions can remain in the atmosphere for thousands of years at a time, and are increasingly toxic to human health when inhaled over long periods of time. Greenhouse gases include, carbon dioxide, methane, nitrous oxide, ozone, chlorofluorocarbons, hydrochlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride.

KEY TERMS

Meaningful Engagement: Actions by which potentially affected populations have an appropriate opportunity to (1) participate in decisions that will affect their environment and/or health, (2) contribute concerns that will be considered and can influence the local or state regulatory agency's decision throughout the process, and (3) that the decision makers seek out and facilitate the involvement of those potentially affected.

Mitigation : A human intervention to reduce the human impact on Earth's climate system; it includes strategies to reduce greenhouse gas sources.

National Ambient Air Quality Standards (NAAQS) : National Ambient Air Quality Standards are identified by the Clean Air Act as standards that provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. EPA has set National Ambient Air Quality Standards for six principal pollutants, which are called "criteria" pollutants. These pollutants include : carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), and sulfur dioxide (SO_2).

Overburdened communities - minority , low income, Tribal and Indigenous populations or communities in the United States that potentially experience disproportionate environmental harm and risks due to exposure or cumulative impacts or greater vulnerability to environmental hazards.

Particulate Matter (PM): Very small pieces of solid or liquid matter such as particles of soot, dust, fumes, mists or aerosols.

Resilience: the capability to anticipate, prepare for, respond to, and recover from significant multi-hazard threats with minimum damage to social well-being, the economy, and the environment.

State Implementation Plan (SIP): A plan for each State which identifies how that State will attain and/or maintain the primary and secondary National Ambient Air Quality Standards (NAAQS) set forth in section 109 of the Clean Air Act ("the Act") and 40 Code of Federal Regulations 50.4 through 50.12 and which includes federally-enforceable requirements. Each State is required to have a SIP which contains control measures and strategies which demonstrate how each area will attain and maintain the NAAQS. These plans are developed through a public process, formally adopted by the State, and submitted by the Governor's designee to EPA. The Clean Air Act requires EPA to review to ensure each plan is consistent with the Clean Air Act.

KEY TERMS

Title VI of the Civil Rights Act of 1964: Title VI and its regulations guarantee equal access to publicly funded resources, and prohibit both intentional discrimination and unjustified discriminatory impacts, regardless of intent, on the basis of race, color, or national origin, by recipients of federal funding. Recipients of federal funding sign contracts to comply with Title VI as a condition of receiving federal funds. California and other states have similar laws prohibiting intentional and disparate impact discrimination. The City Project's policy report, *Using Civil Rights Tools to Address Health Disparities*, is a valuable resource to address environmental and health concerns and comply with environmental justice and civil rights laws and principles. ***8***

U.S. Environmental Protection Agency (EPA or sometimes USEPA) : The United States Environmental Protection Agency is an agency of the U.S. Federal Government which was created for the purpose of protecting human health and the environment by writing and enforcing environmental regulations based on laws passed by Congress.

Vulnerability: The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed; its sensitivity; and its adaptive capacity.

ENVIRONMENTAL JUSTICE PRINCIPLES

The Principles of Environmental Justice(EJ Principles) and **the Jemez Principles** for democratic organizing are foundational documents that guide the work of many Environmental Justice organizations. The EJ Principles were developed and adopted at a convening in Washington D.C. in 1991 where over 1,000 grassroots people of color from all 50 states gathered to understand the environmental challenges being faced by low income, communities of color. The Jemez Principles were created to jointly to help facilitate collaborations among diverse stakeholders to ensure that people of color had a voice.Understanding and respecting will help ensure mutual respect among diverse stakeholders when tackling controversial policy solutions.

Principles of Environmental Justice

WE, THE PEOPLE OF COLOR, gathered together at this multinational People of Color Environmental Leadership Summit, to begin to build a national and international movement of all peoples of color to fight the destruction and taking of our lands and communities, do hereby re-establish our spiritual interdependence to the sacredness of our Mother Earth; to respect and celebrate each of our cultures, languages and beliefs about the natural world and our roles in healing ourselves; to ensure environmental justice; to promote economic alternatives which would contribute to the development of environmentally safe livelihoods; and, to secure our political, economic and cultural liberation that has been denied for over 500 years of colonization and oppression, resulting in the poisoning of our communities and land and the genocide of our peoples, do affirm and adopt these Principles of Environmental Justice

1) Environmental Justice affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction.

2) Environmental Justice demands that public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias.

3) Environmental Justice mandates the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for humans and other living things.

4) Environmental Justice calls for universal protection from nuclear testing, extraction, production and disposal of toxic/hazardous wastes and poisons and nuclear testing that threaten the fundamental right to clean air, land, water, and food.

5) Environmental Justice affirms the fundamental right to political, economic, cultural and environmental self- determination of all peoples.

6) Environmental Justice demands the cessation of the production of all toxins, hazardous wastes, and radioactive materials, and that all past and current producers be held strictly accountable to the people for detoxification and the containment at the point of production.

7) Environmental Justice demands the right to participate as equal partners at every level of decision-making, including needs assessment, planning,implementation, enforcement and evaluation.

8) Environmental Justice affirms the right of all workers to a safe and healthy work environment without being forced to choose between an unsafe livelihood and unemployment. It also affirms the right of those who work at home to be free from environmental hazards.

9) Environmental Justice protects the right of victims of environmental injustice to receive full compensation and reparations for damages as well as quality health care.

10) Environmental Justice considers governmental acts of environmental injustice a violation of international law, the Universal Declaration On Human Rights, and the United Nations Convention on Genocide.

11) Environmental Justice must recognize a special legal and natural relationship of Native Peoples to the U.S. government through treaties, agreements, compacts, and covenants affirming sovereignty and self-determination.

12) Environmental Justice affirms the need for urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature, honoring the cultural integrity of all our communities, and provided fair access for all to the full range of resources.

13) Environmental Justice calls for the strict enforcement of principles of informed consent, and a halt to the testing of experimental reproductive and medical procedures and vaccinations on people of color.

14) Environmental Justice opposes the destructive operations of multi-national corporations.

15) Environmental Justice opposes military occupation, repression and exploitation of lands, peoples and cultures, and other life forms.

16) Environmental Justice calls for the education of present and future generations which emphasizes social and environmental issues, based on our experience and an appreciation of our diverse cultural perspectives.

17) Environmental Justice requires that we, as individuals, make personal and consumer choices to consume as little of Mother Earth's resources and to produce as little waste as possible; and make the conscious decision to challenge and re-prioritize our lifestyles to ensure the health of the natural world for present and future generations.

Jemez Principles for Democratic Organizing

On December 6-8, 1996, forty people of color and European-American representatives met in Jemez, New Mexico, for the "Working Group Meeting on Globalization and Trade." The Jemez meeting was hosted by the Southwest Network for Environmental and Economic Justice with the intention of hammering out common understandings between participants from different cultures, politics and organizations. The following "Jemez Principles" for democratic organizing were adopted by the participants.

#1 Be Inclusive
If we hope to achieve just societies that include all people in decision-making and assure that all people have an equitable share of the wealth and the work of this world, then we must work to build that kind of inclusiveness into our own movement in order to develop alternative policies and institutions to the treaties policies under neoliberalism. This requires more than tokenism, it cannot be achieved without diversity at the planning table, in staffing, and in coordination. It may delay achievement of other important goals, it will require discussion, hard work, patience, and advance planning. It may involve conflict, but through this conflict, we can learn better ways of working together. It's about building alternative institutions, movement building, and not compromising out in order to be accepted into the anti-globalization club.

#2 Emphasis on Bottom-Up Organizing
To succeed, it is important to reach out into new constituencies, and to reach within all levels of leadership and membership base of the organizations that are already involved in our networks. We must be continually building and strengthening a base which provides our credibility, our strategies, mobilizations, leadership development, and the energy for the work we must do daily.

#3 Let People Speak for Themselves
We must be sure that relevant voices of people directly affected are heard. Ways must be provided for spokespersons to represent and be responsible to the affected constituencies. It is important for organizations to clarify their roles, and who they represent, and to assure accountability within our structures.

#4 Work Together In Solidarity and Mutuality
Groups working on similar issues with compatible visions should consciously act in solidarity, mutuality and support each other's work. In the long run, a more significant step is to incorporate the goals and values of other groups with your own work, in order to build strong relationships. For instance, in the long run, it is more important that labor unions and community economic development projects include

the issue of environmental sustainability in their own strategies, rather than just lending support to the environmental organizations. So communications, strategies and resource sharing is critical, to help ussee our connections and build on these.

#5 Build Just Relationships Among Ourselves

We need to treat each other with justice and respect, both on an individual and an organizational level, in this country and across borders. Defining and developing "just relationships" will be a process that won't happen overnight. It must include clarity about decision-making, sharing strategies, and resource distribution. There are clearly many skills necessary to succeed, and we need to determine the ways for those with different skills to coordinate and be accountable to one another.

#6 Commitment to Self-Transformation

As we change societies, we must change from operating on the mode of individualism to community-centeredness. We must "walk our talk." We must be the values that we say we're struggling for and we must be justice, be peace, be community

BENEFITS OF INTEGRATING ENVIRONMENTAL JUSTICE INTO THE CLEAN POWER PLAN PROCESS

BENEFIT #1: PUBLIC HEALTH

The purpose of the Clean Power Plan is to protect human health and the environment by reducing carbon dioxide emissions from fossil fuel-fired power plants in the United States. The CPP is also encouraging states to shift more of their energy generation by expanding the use of natural gas through building and increasing the capacity of Natural Gas Combined Cycle (NGCC) plants. While we recognize the air emissions from NGCC are lower than the emissions from coal-fired power plants, they are a source of concern for communities. NGCC's have been shown to lead to more emissions of methane,and foster the expansion of hydraulic fracking that has been shown to contribute to public health concerns.

The pollutants from burning coal contribute to four of the five leading causes of death in the United States: heart disease, cancer, stroke, and chronic lower respiratory disease. Power plants are a major source of air toxins like sulfur dioxide and mercury. One admitted, Some pollutants are can combine to form "secondary pollutants" such as ozone and particulate matter, which are an added threat to public health. While CO_2 is considered to be a global pollutant, CO_2 emissions exacerbate the impacts of climate change at the local level, further endangering the health and welfare of communities less resilient to extreme weather .

Climate Impacts on Health

• African Americans continue to have higher rates of asthma than the national rates. About 1 in 9 (11%) non-Hispanic blacks of all ages and about 1 in 6 (17%) of non-Hispanic black children had asthma in 2009, the highest rate among racial/ethnic groups. ***9***

• The greatest rise in asthma rates (almost a 50% increase) was among black children from 2001 through 2009. ***10***

• Increased levels of ozone caused by climate change will exacerbate asthma attacks and other respiratory ailments that disproportionately harm African Americans, leading to increased hospitalizations. In 2013, approximately 75 million people lived in counties with air pollution levels higher than the health-based standards set by EPA. ***11***

• Hispanic children continue to have higher rates of asthma than the national rates, and increased levels of ozone caused by climate change will exacerbate asthma attacks and other respiratory ailments. ***12***

• According to the United States Department of Health and Human Services' Office of Minority Health, in 2012, nearly 2.15 million Hispanic Americans reported that they have asthma. Hispanics are 60% more likely to visit the hospital for asthma, compared to non-Hispanic whites. Puerto Rican children are almost three times as likely to have asthma, as compared to non-Hispanic Whites. Hispanic children are 40% more likely to die from asthma, as compared to non-Hispanic Whites. ***13***

• Extreme heat events can impact outdoor laborers and can cause heat exhaustion and heat stroke, and exacerbate existing cardiovascular and respiratory disorders. Hispanics account for 42% of construction laborers and as much as 75% of farm workers in the United States. These outdoor workers, and the communities that depend on them, could be particularly vulnerable to the impacts of climate change. ***14***

• There are not enough parks, especially for children of color, as President Barack Obama recognized when he dedicated the San Gabriel Mountains National Monument. Parks provide healthy places for people to engage in active recreation; improve neighborhoods; help cool the climate by reducing the carbon footprint and the urban heat island effect; clean the air, ground, and water; provide habitat protection; and generate economic benefits including local green jobs.

Existing health disparities and other inequities increase vulnerability of certain communities. **By ensuring that these communities' voices are heard, we can go beyond compliance and make public health a priority.**

BENEFIT #2: BUILDING RELATIONSHIPS WITH STATES

The Clean Power Plan provides a unique opportunity for silos among agencies, both at the federal and state level, and among external stakeholders to be broken down. In addition to improving public health, the best CPP process can encourage:

• Constructing a CPP implementation plan that is equitable and meets the needs and voices of communities that are most impacted by air pollution and climate change

• Enhancing and complimenting current air quality strategies to achieve more co-benefits beyond compliance

Building trust and relationships between state regulators and impacted communities, beyond this document is important

• Developing a common set of working principles and engagement practices that can be used in **meaningful engagement** for the CPP and beyond.

STRATEGIES TO INTEGRATE ENVIRONMENTAL JUSTICE INTO THE PLANNING PROCESS: MEANINGFUL ENGAGEMENT

Meaningful and continuous engagement with communities is **more than one a public meeting or hearing.** Building the capacity of the community to be **engaged in the conversations** is critical as well. For communities to be "in the conversation", they need, at the least:

An understanding of key components of the Clean Power Plan

- State planning process
- State Implementation timeline
- Key state contacts, roles and responsibilities
- Critical Partner Agencies
- Understanding the projected impact of the CPP
- Specific points where the community can engage throughout the process.

An understanding of the current air and energy landscape

- Profile of the Energy suppliers and distributors
- Major public health concerns
- Approved utility plans of future and existing power plants
- Current state and local policies that promote energy efficiency and renewable energy
- The level of outreach and engagement from industry to community
- How far the state is from achieving compliance
- Existence of current environmental laws that compliment the CPP

An understanding of the potential positive and negative impacts of compliance pathways

- see Section: *Clean Power Plan Issues of Great Concern to Environmental Justice Communities*

In order to gain these understandings, **it is critical that technical resource assistance is available to the entire group of public participants**. Without additional support, it is difficult for most low income, communities of color to meaningfully participate the entire policy making process. Consequently, states should consider providing support by:

- Funding an analysis to answer specific questions about the impacts of the different compliance strategies on LI-COC
- Hosting community trainings and convenings throughout the entire planning and implementation process
- Creation of methodologies to determine overburdened areas and how resources might be deployed

BEFORE YOU BEGIN ENGAGEMENT

While the outcomes of meaningful engagement can be extremely revitalizing, meaningful engagement requires some preparatory work. For example, in the environmental regulatory world, **scoping** can be defined as an early, interactive process of determining key issues that can impact a decision-making process. ***15***

Scoping is typically a part of the National Environmental Policy Act (NEPA) process for federal agencies that are proposing environmental federal actions. As a part of the National Environmental Policy Act (NEPA) requirements, federal agencies might have to prepare an Environmental Impact Statement (EIS) if a proposed major federal action is determined to significantly affect the quality of the human environment. Some of the elements of the **scoping process** that are involved in an EIS could also be used to enhance **meaningful engagement** in the CPP process

- Identifying the main stakeholders concerns and values of the affected community
- Undertanding the concerns and values of the impacted communites
- Informing and keeping the public engaged throughtout the entire process
- Identifying and providing information on existing pollution sources, acknowledging data gaps or any constraints on the process

The Scoping process is not a discrete event or activity. Scoping can also be used at the begining and the end of the process to define reasonable alternatives

Questions to Ask When Scoping a Community

Scoping should be the first step in the engagement process. Scoping, accompanied by a preliminary EJ screening, *(See Section Environmental Protection Agency Tools)* to Support EJ Analysis allows you to answer some key questions:

- What areas in the state have a disproportionate number (i.e. more than average) of polluting industries?
- What communities in the state have consistently bad air quality?
- Are there any communities that are experiencing more negative health outcomes than others?
- Are these areas considered low income, or majority communities of color?
- Are there weekly/monthly community meetings that are open to the public?
- Are there people to talk to – trusted community members and leaders – that could share some of the needs and concerns of the community?
- Are there weekly, monthly community meetings that are open to the public that I should attend?

All of these- and many more- are questions that can be answered during the scoping process.

WHAT IS IMPACTFUL ENGAGEMENT ?

There are many ways that states can choose to meet the required engagement written in to the final Clean Power Plan. It is our hope that with the ideas and examples provided, states will consider more 'high impact' efforts, than 'low impact' efforts.

High Impact: Key decision makers are involved and visible in the conversation; EJ Stakeholders are represented and help drive the engagement process; decisions are being made while considering all sides of the issue; environmental improvements and tangible results (i.e. reductions in emissions, and improvement in health) are evident; new relationships and trust is being formed between state regulators and community stakeholders. Visible educational opportunities for impacted communities to understand the state planning, implementation and evaluation process.

Meetings should be conducted in the impacted community to educate, gather ideas and identify needs for engagement. Community leaders should be empowered to create the space and agenda.

Low impact: Unsatisfactory efforts for outreach to community stakeholders are one-way conversations and dialogues. While compliance is achieved, it is at the expense of the community. Standard public hearing are required but does not facilitate a conversation or any learning with the community context . Sporadic webinars for education purposeful can sometimes leave communities more confused.

Ultimately, The consequences of low impact engagement could be:

- Policies that unintentionally have a negative impact on communities
- Feelings of exclusion by community members
- High probability of community resentment
- Health disparities are exacerbated

EXAMPLE OF HIGH IMPACT ENGAGEMENT

When community organizations can come together with state agencies, it will encourage an implementation process that incorporates a vast diversity of needs and perspectives. The South Carolina Department of Health and Environmental Control, in collaboration with several state agencies and community members has laid-out a strategy for meaningful engagement, led by Environmental Justice advocates. Kingdom Living Temple Church in Florence, South Carolina is leading the way by organizing a statewide network called COREE (Communities Organized for Renewables and Energy Efficiency) to educate communities about equitable opportunities in partnership with WE ACT for Environmental Justice and the Environmental Justice Leadership Forum on Climate Change.

Having diverse partners all seated at the table to make decisions is the best approach. The South Carolina Department of Health and Environmental Control, South Carolina State Energy Coalition, Kingdom Living Temple, Communities Organized for Renewables and Energy Efficiency (COREE) and been engaged since early 2015 to work for the a strong implementation for the Clean Power Plan.

David White, left, an organic farmer, chats with Rev. Leo Woodberry on Nov. 12 at Francis Marion University after a forum discussing the future of South Carolina's energy plan. Photo Credit: Joe Perry of the Morning News

Specifically, a regional advisory committee was organized to coordinate four public regional meeting to be held three times from 2015 to 2016. Empowered community members are conducting an educational campaign with Solarize SC on the benefits of solar energy generation.

The State has organized an EJ Analysis Workgroup to develop a framework to understand the impacts of particular compliance decisions on overburdened communities.

- The state has also provided technical experts and consultants to support the community process and learning. This is particularly helpful when drafting responses during the public comment period.
- Encouraged state plan writers to provide updates to community on the progress as well as give feedback on why certain decisions were made.
- Organize a forum/gathering to provide an overview of state/local opportunities to assist with key topics like: job transition, energy efficiency/weatherization, job training, solar and wind energy, energy costs.
- Form a Standing EJ Advisory Committee to work on CPP and future regulations.
- Develop metrics to track progress on air quality, health, jobs. Review these metric at various intervals throughout the entire process.

STAKEHOLDER INITIATED ENGAGEMENT

While there are some states that are continuing to determine what their engagement strategy will be, there are community and environmental justice stakeholders that are pushing for enhanced engagement and influencing the federal and state planning process.

Many groups have created webinars, tool kits, organized legislative hearings, and have worked to find alignment between existing community concerns and CPP topics.

VIRGINIA EJ COALITION

The Virginia Department of Environmental Quality has held a series of informal listening sessions to gather general input from the public to help inform the Commonwealth's review and implementation of EPA's final rules for existing power plant. Six public listening sessions were held across the state, as well as written comments were accepted from August 13 – October 13, 2015. DEQ has also assembled a diverse stakeholder group –composed of industry, energy efficiency, non-governmental organizations, and an Environmental Justice representative - to help develop recommendations for the Governors office around the CPP.

LITTLE VILLAGE ENVIRONMENTAL JUSTICE ORGANIZATION (LVEJO) CHICAGO, IL

LVEJO convened the meetings for the Chicago Environmental Justice Network (CEJN) during 3rd and 4th quarter of 2015. The purposes of these meetings were to bring Environmental Justice Stakeholders together to discuss the details of Illinois State Implementation Plan , related legislation, and identify opportunities to strengthen EJ provisions in the SIP.

ENVIRONMENTAL JUSTICE ANALYSIS

Understanding the environmental landscape is important before implementing any policy solutions. The 'landscape' not only includes current policies that are being implemented at the local and state level, but also areas, neighborhoods, and regions that have multiple environmental concerns – ranging from air pollution, toxic waste sites, or the prevalence of chronic diseases linked to pollution.

An important strategy that the final Clean Power Plan encourages states to consider is conducting an environmental justice analysis. The rule states specifically,

> ***The EPA encourages states to conduct their own analyses of community considerations when developing their plans. Each state is uniquely knowledgeable about its own communities and well-positioned to consider the possible impacts of plans on vulnerable communities within its state. Conducting state-specific analyses would not only help states assess possible impacts of plan options, but it would also enhance a state's understanding of the means to engage these communities that would most effectively reach them and lead to valuable exchanges of information and concerns. A state analysis, together with the proximity analysis conducted by the EPA, would provide a solid foundation for engagement between a state and its communities . 16***

The purpose of an **EJ Analysis** is to study how the development, implementation, and enforcement of environmental laws, regulations and policies will impact – positively or negatively – low income, communities of color, Native American and Indigenous Peoples. An **EJ Analysis** can help states and communities better understand where multiple negative and positive environmental impacts exist, and areas of opportunity.

Using an **EJ Analysis** will help with the scoping process, and ensure that EJ communities are identified early on and will potentially benefit from the CPP. An EJ Analysis can:

- Provide governmental agencies and other entities a systematic method of assessing data and policy decisions
- Provide standards to measure progress and equity and hold leadership accountable
- Give communities an additional tool for advocacy

Simple Steps for EJ Analysis

Step 1: Identifying vulnerable and/or overburdened communities

Step 2: Evaluating the potential impact of compliance options

Step 3: Understanding the Baseline, Collect Feedback & Frequent Evaluation

Here are some sample EJ Analyses that can be used to guide your work.

- Sample EJ Analysis for the State of Mississippi http://www.ejleadershipforum.org/wp-content/uploads/2015/07/mississippi_mock-up.pdf
- Sierra Club's Comments on the CPP http://www.ejleadershipforum.org/wp-content/uploads/2015/07/Sierra-Club-Environmental-Law-Program-on-behalf-of-Sierra-Club-and-Earthjustice.pdf

ENVIRONMENTAL PROTECTION AGENCY TOOLS TO SUPPORT EJ ANALYSIS

The EPA provides a set of tools to begin to understand what underlying environmental concerns exist, and how these concerns are geographically situated in relation to proximity to existing electricity generating units (EGUs). It is critical to gather data from multiple sources to provide a clear picture of the current challenges. There are legal standards to assess compliance with civil rights and environmental laws that provide an analytic framework for an EJ Analysis, including Title VI and its regulations. An EJ Analysis can provide direction for how policies and regulations can be implemented to unities that are vulnerable and/or overburdened with pollution and other socioeconomic and health challenges.

EJSCREEN is an environmental justice mapping and screening tool that provides a national dataset with environmental and demographic indicators for geographic areas. This type of data is useful to understand the potential connections and disproportionate impacts that could exist for low-income communities and communities of color. The indicators are publicly available data from various environmental factors, including Air, Waste, and Water media, as well as demographic information. It is important to note that data on race, color, and national origin is provided in **EJSCREEN**, but not currently part of California's CalEnviroScreen. CalEnviroScreen should be revised to include data on race, color, and national origin, and comply with civil rights laws including Title VI.

While EPA's **EJSCREEN** is not perfect, it is a starting point. It is our hope that states will add local and state information – in addition to national data in EJSCREEN – to tell a complete story. Local and state data that could be added to EJSCREEN include the following :

- Health data (prevalence on chronic diseases, respiratory concerns, etc.)
- Concentrated areas of pollution sites, etc.
- # of facilities in non-compliance
- # of local health centers
- Locations of community, or environmental stakeholder monitoring
- Where the most energy is being used (by MWh)
- Where black-outs have occurred
- Park access and green space

CalEnviroScreen

CalEnviroScreen is a screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution – does not include the necessary data for a proper environmental justice analysis. Race and ethnicity were taken out of the most recent version of the tool which results in an inadequate and incomplete picture of underserved communities. No relevant agencies are restricted from considering race/ethnicity. Federal law, in fact, requires recipients of federal funding to gather, analyze, and publish data based on race, color, or national origin where there is evidence of disparities based on those characteristics. Civil rights and environmental justice organizations like The City Project in Los Angeles, California (http://www.cityprojectca.org) are working to get data on race, color, and national origin reinstated in CalEnviroScreen. Data on race, color, and national origin is needed to properly identify potential environmental justice communities in California and other states across this nation.

EPA's PROXIMITY ANALYSIS

One of the major requests from EJ Stakeholders during the Clean Power Plan rule finalization was for the EPA to conduct an EJ Analysis. The Agency conducted a **proximity analysis** for the final rulemaking that summarizes demographic data on the communities located near polluting power plants. The screening report used data from 2008-2012 Census and other key databases to understand the construct of communities within a 3-mile radius of power plants, collecting data on factors such as percentage of areas of minority population, those who qualify as low-income, the percentage of children and elderly in an area, and several other indicators. Again, this proximity analysis can be a useful starting tool for states.

Most importantly, the EPAs analysis underscores the need for separate, state EJ analysis' to occur. The findings show:

- **A higher percentage of communities of color and low-income communities are living near power plants than the national average**
- **There are many rural power plants that are located near small communities with high percentages of low-income populations**
- **In urban areas, nearby communities tend to be both low-income communities and communities of color** *17*

Every state has it's own unique story to tell. Pulling data sets together, to better understand the environmental baseline, is critical before writing and implementing any state plan for CPP and other regulations and policies that come down the line.

On the Ground Expertise

To compliment EJ Screen and other data sources, community stakeholders should be a part of the data collection process. Community stakeholders – who offer on-the-ground knowledge and expertise, should be involved. Often, there are factors and concerns that the data might not illuminate, or pertinent information that is more qualitative than quantitative. This is where having meaningful engagement with a diverse set of stakeholders, who can help add value and guidance to the process, is critical.

CLEAN POWER PLAN ISSUES OF GREAT CONCERN TO ENVIRONMENTAL JUSTICE COMMUNITIES

The final Clean Power Plan provides states the option to employ 3 distinct building blocks to achieve reductions of CO2, as well as the opportunity to earn credit or allowances to achieve compliance through carbon trading programs, and the clean energy incentive program, or CEIP. While both carbon trading and the CEIP are well-intentioned, there are specific concerns that should be taken into consideration.

Carbon Trading Allows Power Plants to Avoid On-Site Pollution Reductions.

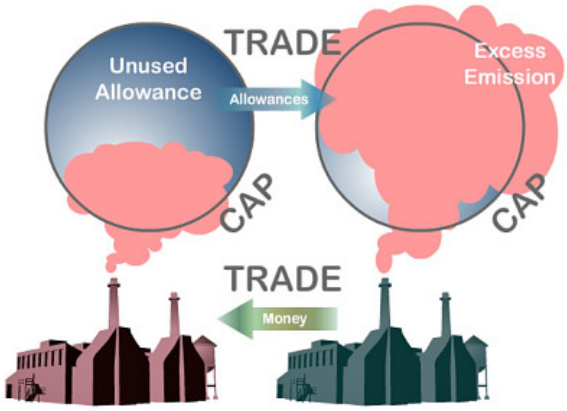
Carbon trading programs, which the Clean Power Plan allows states to include in their state plans, allow power plants to deny nearby communities important health benefits, or in the worst case scenario, increase emissions. Where carbon reductions actually occur matters: power plants emit co-pollutants, so when a power plant relies on trading, then nearby communities do not enjoy ozone, particulate matter, and air toxics reductions. ***18***

The EJ leadership Forum does not support pollution trading, and encourages states to promote equity and justice by requiring on-site reductions rather than pollution trading. States may even combine on-site reduction policies with a carbon tax to place a firm price on carbon, encourage additional reductions above and beyond mandatory regulations, and provide funding for climate resiliency.

We suggest states:

- Concentrate on source reductions – i.e. the "cap" without the trading
- Consider a carbon tax. There are several studies and a current piece of federal legislation (Climate Protection and Justice Act) that could be a useful model for states to consider. ***19***
- Work directly with EPA to assess whether and where emission increases may result from plan implementation and mitigate adverse impacts, if any, in overburdened communities. Even though there has been no quantitative assessment of data to prove or disprove increased emissions in certain communities as a result of cap and trade, states must ask these questions "up front" in the planning process.
- Create a monitoring system to document baseline levels of carbon dioxide emissions and toxic co-pollutants, specifically in neighborhoods with multiple regulated sources, Title V or other major and minor permitted sources, or areas that are identified in the highest percentile from the EPA EJ Proximity Analysis.
- Work directly with EPA to determine whether the implementation of the federal plans and other air quality rules are, in fact, reducing emissions and improving air quality in all areas and, or whether there are localized air quality impacts that need to be addressed under other Clean Air Act authorities.
- Any type of trading, allowances or credits should be prohibited from being exchanged in any areas where the air is already compromised.

• include federally enforceable provisions must be in state plans to assure monitoring, reporting, and enforcement happens in all communities for all compliance strategies, including cap and trade, and
• Provisions that assure no disparate impacts from trading to comply with states' obligations under Title VI of the Civil Rights Act.



The Climate Protection and Justice Act

In December 2014 the *Climate Protection and Justice Act* was introduced with the goal of reducing total carbon emissions 80% below 1990 levels by 2050 The Act has the following elements that could be considered as a pathway to reduce carbon and increase the state's financial capacity to build more resilient communities and enhance energy efficiency for low income households.
• Carbon Pollution Fee: Establishes an upstream carbon pollution fee for coal, petroleum, and natural gas, produced in or imported into the United States, based on the amount of carbon dioxide that would be released upon the combustion of that particular fossil fuel.
• Carbon Fee Rebate Program: Proceeds from the carbon pollution fee are rebated equally to all eligible U.S. residents, with the exception of those individuals who are members of high-income households.
o Who receives proceeds? States can decide on Environmental Justice Census Areas calle "climate adaptation hotspot communities". These communities could be identified areas based on geographic proximity on socioeconomic, public health, and environmental hazard criteria, including:
• Areas disproportionately affected by climate impacts, environmental pollution and other hazards that can lead to negative public health effects or environmental degradation.
• Areas with concentrations of people that are of low income, high unemployment, low levels of homeownership, high rent burden, sensitive populations, or low levels of educational attainment.
Eligible entities then submit a five-year plan prioritizing climate justice-based resiliency projects prioritized by the study findings.

CLEAN ENERGY INCENTIVE PROGRAM

States have the option to participate in the Clean Energy Incentive Program (CEIP). The CEIP is designed to:

- Incentivize investments in renewable energy and energy efficiency projects
- improve the liquidity of the emissions reduction credits and allowance markets in the early years of the program
- provide EGUs with additional emission reduction resources.

Any clean energy incentive program should not allow industrial sources to earn allowances that, again, support trading. For communities that live near power plants, CEIP is another source for allowances/ERCs and gives power plants double credits for EE projects which they will use to avoid onsite reductions. One pound of CO_2 reduced by EE, equals to two pounds of credit at the power plant. **That is a major public health concern for nearby communities that are in need of source reductions.**

Instead, it would be helpful to consider building out a CEIP program that addresses the following issues:

- How will EE and RE be more accessible to LI-COC?
- How should "Low income" be defined in the CEIP?
- How can we help communities to become EE-ready?
- How do we provide economic stimulus: job training
- How do we protect energy costs for low income energy users

How to define "low income" in the CEIP

The term "low income" is used throughout the CEIP without clear definition.

We believe that defining a low income community will be different based on the state or region.

There are existing definitions of eligibility that have been crafted by Federal agencies to implement different programs – particularly housing, community development, and weatherization – across the country. Definitions should not conflict with ones used by existing federal programs, and should be carefully crafted to ensure that both urban and rural communities can benefit from the program. For example, some already defined populations that might fit into that definition are:

- Stakeholders that already receive Supplemental Security Income or Aid to Families with Dependent Children
- Children and families that have been diagnosed with severe respiratory concerns
- Children and families that reside in multi-family units or public housing
- Children and families living in rural areas that experience high energy costs or low energy reliability, or any other criteria the state – working with environmental justice organizations in that state – seems as reasonable criteria.
    - This % should be determined by the % of people that are defined as overly-burdened by the environmental justice analysis

Help communities to become EE-ready

Equity needs to be a part of energy efficiency programs and deployment. Priority needs to be placed on making communities energy efficiency ready. At this time, some communities are not energy efficiency ready – states must be required to make a commitment to fund projects that will create the infrastructure (i.e. homes, multi-family dwellings) that can be retrofitted to meet baseline standards for weatherization, as well as the financial support to own and operate clean energy sources, like solar power.

Energy efficiency benefits and economic justice must be prioritized for vulnerable and overly-burdened communities. The deployment of energy audits, subsidies, installation, utility scale programs, improving transmission system efficiency, and even updating building codes, should be targeted to help build stability.

Insuring that communities are kept 'in the loop' for grants, and other funding opportunities that could provide these types of end user services should be delineated in a State's Implementation Plants. States should conduct an evidence based analysis of the costs to ratepayers should be used to create safeguards, discounts and other measures

to reduce the burden of any increases to consumer bills that are predicted, as to maintain affordable electricity to low income consumers

Provide economic stimulus: job training

We also need to insure that clean energy training and job opportunities are made available to communities heavily dependent on fossil fueled fired power plants as their economic stimulus. A portion of this set-aside should be targeted to RE projects that benefit low income communities.

CASE STUDY: WORKING FOR JUST TRANSITION IN KENTUCKY

Central Appalachian mining communities have long been among the nation's poorest. And in recent years coal production and employment has plunged, with mining jobs in the region dropping by more than half in just the last six years. The sharp decline in Appalachia's coal jobs is due to many factors, including competition from natural gas and cheaper western coal, along with utility investments in pollution control systems that reduced demand for more expensive low-sulfur coal.

Yet despite the region's persistent and immediate economic distress, the coal industry has all but drowned out consideration of economic and energy alternatives by investing heavily in a polarized and hostile political climate.

In the absence of elected leadership on these issues, grassroots efforts led by organizations like Kentuckians For The Commonwealth (KFTC) and the Mountain Association for Community Economic Development (MACED) have worked to promote a conversation about a just transition in the region.

In April 2013, KFTC hosted Appalachia's Bright Future, a 3-day conference attended by over 200 people in Harlan County, KY, the epicenter job losses in the coal industry. The event explored strategies and lessons from Appalachian communities and other places that have experienced economic disruption and transition. Panelists included a member of parliament from Wales, a fisherman from Newfoundland, a tobacco farmer from Kentucky, an indigenous community leader from the Black Mesa Reservation, a forester from the Pacific Northwest, an organic farmer from Southwestern Virginia, and founder of a community foundation in eastern Kentucky, and a displaced coal worker.

Today the results of those and other grassroots efforts can be seen in ways large and small. In late 2013 Republican Congressman Hal Rogers (KY-5) and former Democratic Governor Steve Beshear announced a bi-partisan initiative called Shaping our Appalachian Region (SOAR) focused on building a more diverse and prosperous economy

In 2015 President Obama proposed a package of investments worth more than $1 billion aimed at supporting worker training and transition for displaced miners, shoring up mine worker pensions and health plans, creating jobs, and reclaiming abandoned mine lands. And people throughout the region – led in many cases by young people - are striving to create vibrant local economies through worker cooperatives, food and fiber production, local music and food, clean energy projects and more.

None of these efforts is sufficient. But together they represent important steps towards a just transition where affected workers, unions, communities and government are partners in improving the quality of life for people and places most affected by our shift from fossil fuels to cleaner sources of energy.

Principles of a Just Transition

• Improve the quality of life for people and communities affected by economic disruption, environmental damage, and inequality.
• Foster inclusion, participation and collaboration.
• Generate good, stable, meaningful jobs and broad access to opportunities and benefits.
• Promote innovation, self-reliance and broadly held local wealth.
• Protect and restore public health and our environment.
• Respect the past while also strengthening communities and culture.
• Consider the effects of decisions on future generations.

KEY QUESTIONS FOR ENGAGEMENT

This document is not meant to be prescriptive but to only offer starter questions in some substantive areas that seek to engage with vulnerable and overburdened communities.

ENGAGEMENT PROCESS

- How can we layout a planning process early so community members are aware of the specific points of engagement?
- How can we facilitate communication with external stakeholders throughout the process using monthly check-in calls, meetings, webinars, a regulation hotline etc.?
- How often should we provide feedback on the process to stakeholders – monthly, quarterly basis?
- Have we properly scoped out areas vulnerable to climate change impacts and overly burdened communities in our state?
- Has the SIP planning team formed a community advisory board to work with throughout the planning process?
- Have you conducted intentional outreach to all groups that need to be a part of the public hearing process?
- Are there communities of concern identified in EJ Screen and EPAs proximity analysis that should be looked at more closely?
- Is there a 'checks and balance' process to assess how funds/revenues will be used in the Clean Energy Incentive Program, or other revenue generating programs to support building out an infrastructure to support climate resilient planning efforts in local communities?

HEALTH AND EMISSIONS REDUCTIONS

- Has baseline health data – specifically for respiratory diseases, cancers, etc. - been collected for impacted communities to understand the current state of health?
- Can we collect data to prove or disprove impacts?
- Using the experiences of current trading programs, what are the backstops that need to be put in place to ensure that certain areas do not see increased criteria pollutant? Emissions in overly burdened communities (i.e. "hot spots")?
- Is there a system in place to ensure that emissions reductions are happening? Are there CO2 monitors in place already, or do the current monitoring systems need to be expanded to quantify CO2 and CO2 co-pollutant reductions?
- Will the current classification of how waste is burned for energy cause an increase in harmful emissions? Or is there an opportunity to put in place Sustainable Materials Management practices that look to create closed loop industrial and chemical manufacturing processes and significantly reduce the amount of waste needing to be burned or landfilled?

JOBS AND ECONOMIC DEVELOPMENT

• Will you create incentives for the entities responsible for increasing energy efficiency, and that incentives are being re-distributed to targeted communities?

• For job creation, how can/will we track where related new jobs are being created and how EJ communities can directly benefit?

• Will the plan result in any displacement of communities (due to job loss, or demolition of older Power Plants, etc...) and how will that be addressed?

• How do we ensure that funds earmarked for communities of action are used appropriately and to greatest effect in these communities?

• How will states work to ensure that training, job creation is distributed fairly to impacted communities? How do we make sure that labor contracts are explicit and benefit the residents of the impacted communities?

CIVIL RIGHTS

• Does the current path to state CPP implementation comply with Title VI of the Civil Rights Act of 1964 and its regulations? Voluntary compliance with civil rights laws is the preferred means to achieve equal justice goals.
The following planning process applies to federal agencies and recipients of federal funding, including state and local agencies and private recipients, to help ensure compliance under Title VI and environmental justice laws and principles.

1. Describe the program or activity.
2. Analyze the benefits and burdens on all people, including people of color and low-income people. Who benefits and who gets left behind? The analysis can include numerical disparities, statistical studies, and anecdotal evidence; impacts based on race, color, or national origin; inequities based on income and wealth; and the use of GIS (geographic information systems) mapping and census data.
3. Analyze the alternatives.
4. Include people of color and low-income people in the decision-making process.
5. Implement a plan to distribute the benefits and burdens fairly, avoid unjustified discriminatory impacts and intentional discrimination, and comply with civil rights and environmental justice laws and principles.

• There are various tools to ensure equal access and compliance with civil rights and environmental justice laws and principles – aside from litigation by private parties, which requires evidence of intentional discrimination. Federal agencies can guard against intentional discrimination, and unjustified discriminatory impacts, through planning, regulations, data collection and analyses, review of federal funding applications, contractual assurances of compliance by recipients, compulsory self-evaluations by recipients, compliance reviews after funding, investigation of administrative complaints, full and fair public participation in the compliance and enforcement process, and termination and deferral of funding. The US Department of Justice can enforce the statute and regulations in court.

NEXT STEPS

This goal of this guidance is to set a framework for a path for meaningful engagement between environmental justice advocates, regulators and other interested stakeholders. While the focus of this document is related to the process around the implementation of EPAs Clean Power Plan, it is our hope that the suggested practices will be used beyond the Clean Power Plan, at all levels, on issues of permitting, compliance and potentially other environmental, energy, transportation and public health policy making processes. Most importantly, we hope that other issues or concerns for environmental justice communities can be concurrently addressed as well.

RESOURCES & TOOLS

California Communities Environmental Health Screening Tool, Version 1 (CalEnviroScreen 1.0). http://www.oehha.ca.gov/ej/ces042313.html

Title VI Civil Rights News
http://www.justice.gov/crt/about/cor/Pubs/newsletter/news@fcs/spring2015/Spring_2015_Newsletter.pdf

Guidance on Considering Environmental Justice During the Development of Regulatory Actions,
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BACKGROUND ON THE ENVIRONMENTAL JUSTICE LEADERSHIP FORUM ON CLIMATE CHANGE(EJ FORUM)

The EJ Forum and our partners represent 43 community based environmental justice organizations across 19 states that live and work in environmental justice communities where residents are less likely to recover from extreme weather events, and where industrial facilities and transportation routes release pollution that continues to heat up our planet and harm our health. Because low income communities, and/or communities of color experience the most negative impacts of pollution and climate change, we have purposefully engaged in all elements of the President's Climate Action Plan since 2013, with our most significant efforts and advocacy around the Clean Power Plan.

Members of the Environmental Justice Leadership Forum on Climate Change

Advocates for Environmental Human Rights (New Orleans, Louisiana)
Alaska Community Action on Toxics (Anchorage, Alaska)
Arbor Hill Environmental Justice (Albany, New York)
Arctic Village (Fairbanks, Alaska)
Asian Pacific Environmental Network (Oakland, California)
CATA -The Farmworkers Support Committee (Glassboro, New Jersey)
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Connecticut Coalition for Environmental Justice (Hartford, Connecticut)
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Little Village Environmental Justice Organization (Chicago, Illinois)
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OPAL Environmental Justice Oregon (Portland, Oregon)
People Organized in Defense of Earth and Her Resources (Austin, Texas)
People Organizing to Demand Environmental and Economic Rights (San Francisco, California)
Physicians for Social Responsibility – Los Angeles (Los Angeles, California)
Southeast Care Coalition (Newport News, Virginia)
Sustainable Community Development Group (Washington, DC)
TEJAS (Houston, Texas)
Texas Southern University (Houston, Texas)
The Labor/Community Strategy Center (Los Angeles, California)
WE ACT for Environmental Justice (New York, New York/Washington D.C)

ALLIES

Alaska Wild (Fairbanks, Alaska)
Center for Energy and Environmental Justice (Biloxi, Mississippi)
Metro St. Louis Coalition for Inclusion and Equity (St. Louis, Missouri)

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The views and opinions expressed in this document are those of the members of the Environmental Justice Leadership Forum on Climate Change. Please do no attribute these views to the members and the organizations that are represented on the External Advisory Team.

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ATTACHMENT C

Best Practices in Developing State Lead-by-Example Programs and Considerations for Clean Power Plan Compliance

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An ACEEE White Paper

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About the Author

Mary Shoemaker analyzes state and federal legislation and agency regulations that affect energy efficiency. In particular, she explores the role of energy efficiency in complying with air pollution regulations, with an emphasis on the Clean Air Act and Section 111(d) obligations for states. Mary also manages ACEEE's technical assistance for state energy efficiency policies. She joined ACEEE in 2014.

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Abstract

This is the second in a series of papers intended to guide states as they embark on the path to Clean Power Plan (CPP) compliance. As one of many approaches to reducing pollution and complying with the CPP, states and local governments can advance clean energy technologies and practices in the marketplace by promoting energy efficiency in their own operations, a practice commonly known as leading by example (LBE). This guide discusses some best practices for implementing state LBE programs, walking through the steps policymakers and program administrators can take to identify an LBE approach that will work best for their city or state. We focus on energy savings targets for public facilities and energy savings performance contracts with private parties, and we highlight states that have shown leadership in one or more aspects of LBE program design. LBE programs communicate to the public that state agencies are committed to reducing energy consumption, preserving government facilities, and protecting taxpayer dollars. States can use these programs to create jobs, strengthen local economies, and meet pollution reduction targets under the CPP.

Introduction

State and local governments can advance clean energy technologies and practices in the marketplace by promoting energy efficiency in their own operations, a practice commonly known as leading by example (LBE). In this guide we discuss some best practices for implementing state LBE programs. States may use these best practices to reduce pollution and comply with environmental regulations such as the Clean Power Plan (CPP).

This guide walks through key steps a policymaker or program administrator can take to identify the LBE approach that will work best for her city or state. We recommend adopting energy savings targets for public facilities and entering into energy savings performance contracts (ESPCs) with private parties. We also highlight states that have demonstrated leadership in one or more aspects of LBE program design.

Determine the Best LBE Program Approach

LBE efforts typically begin with a commitment to save energy, improve sustainability, or reduce pollution. After making these commitments, state and local governments have a range of options for financing building upgrades and investments in new technologies that will help them achieve their goals. Some best practices for each of these steps are discussed below.

ENERGY SAVINGS TARGETS FOR PUBLIC BUILDINGS

Energy savings targets for public buildings are one common mechanism to promote and enable investments in new and existing state facilities. Targets typically include a baseline year from which energy savings will be measured and an end year by which the savings will be achieved. The target may be annual, requiring a certain amount of energy savings in one year, or it may be spread out over the span of a program, requiring a percentage reduction over a number of years (without yearly targets). In North Carolina, for example, state agencies and universities were required to reduce energy consumption per gross square foot by 30% by 2015, from an FY2003–2004 timeline (Authority and Duties 2005).

If a state already has an energy savings target for public facilities, it can expand or renew its target, or broaden the subset of participating buildings to include smaller government buildings, state-leased buildings, or universities and schools if they are not already included. While voluntary targets can be effective, a mandatory target can better hold program participants accountable for delivering expected savings. Mandatory commitments can be more reliable and therefore lend themselves better to the long-term planning that states must conduct for the CPP.

Spotlight on Colorado

In 2007 Colorado Governor Bill Ritter Jr. signed Executive Order D0011 07 ("Greening of State Government"), charging all state agencies and offices to reduce energy consumption by 20% by FY2012, from FY2006 levels. The state reached this goal, and in 2015 Governor John Hickenlooper signed Executive Order D 2015-013, setting another energy savings target of 12% by FY2020, from an FY2015 baseline. This order also established a new Greening Government Leadership Council with representatives from every state agency, tasked with supporting efforts to make government operations more sustainable.

ENERGY SAVINGS PERFORMANCE CONTRACTING

Once energy savings goals are set, state and local governments must find ways to finance and install energy efficiency measures. ESPCs allow state agencies to enter into contracts with private energy service companies (ESCOs) and pay the cost of services and energy efficiency measures as energy savings accrue. This payment mechanism helps government agencies invest in their facilities without significant up-front costs. All 50 states, Puerto Rico, and Washington, DC, have passed enabling legislation for use of ESPCs in public buildings (Durkay 2013), but degrees of implementation vary.[1] Given their track record in documenting projects and achieving energy savings, ESPCs are a viable tool for meeting energy savings targets and complying with air regulations such as the CPP.

In many states the agencies administering state ESPCs provide resources to help interested state and local agencies and performance contractors identify, scope, implement, and evaluate projects. The US Department of Energy (DOE) and the Energy Services Coalition offer model ESPCs, steps and criteria for selecting and engaging ESCOs, and other key tools and resources.[2]

A state can achieve greater energy and pollution savings by looking beyond buildings occupied by state executive agencies. Other public buildings include correctional facilities, hospitals, colleges and universities, public K–12 schools, libraries, and local government buildings. Approximately 78% of electricity savings from ESCO projects in 2012 were from customers in the so-called MUSH market (municipalities, universities, schools, and hospitals) (Carvallo, Larsen, and Goldman 2014).

Much of the public sector's experience in financing, projecting, and guaranteeing electricity savings from energy efficiency projects can be leveraged to expand ESPCs into the private sector. Resources, templates, and best practices developed for public-sector ESPCs can be shared with interested private entities. ESCO market potential in the private commercial building sector is estimated to be $14–34 billion (Stuart et al. 2014).

Identify Players and Their Responsibilities

LBE programs involve coordination across government agencies, so identifying participants and their responsibilities up front facilitates more-successful program implementation. Through the work of a leadership team, supporting agencies, and energy service providers, state governments can reduce energy consumption and set a statewide example.

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[1] To view states' enabling legislation and the specific buildings to which these laws apply, visit Oak Ridge National Laboratory's map of ESPC Enabling Legislation in the United States: web.ornl.gov/info/esco/legislation/newesco.shtml.

[2] DOE provides templates and guidance documents to help states solicit ESCOs, conduct an investment-grade audit and present a project proposal, prepare an ESPC, and solicit financing: energy.gov/eere/wipo/model-documents-energy-savings-performance-contract-project#espc. The Energy Services Coalition has identified 10 key attributes for Guaranteed Energy Savings Performance Contracting Program Readiness, including several tools and guidance documents: www.energyservicescoalition.org/10-key-attributes.

LBE LEADERSHIP TEAM

In many states the department of general services or facilities management oversees performance contracting, so this department will likely play a prominent advisory role. These agencies often work in partnership with the State Energy Office (SEO) to develop and refine plans to meet energy savings targets for public buildings. SEOs also help identify energy savings opportunities by conducting energy audits and collecting consumption and cost data. This team oversees LBE programs by assessing program implementation and progress. In using LBE programs for CPP compliance, the team should communicate with the agency spearheading compliance plan development—often the state air office—to ensure that the state's compliance plan includes LBE efforts.

SUPPORTING AGENCIES

States with robust LBE programs have identified key officers in all agencies involved. These officers oversee the implementation of energy efficiency projects such as building retrofits, energy-efficient appliance procurement, and behavioral energy-conservation practices for state employees. Officers are also often responsible for submitting regular progress reports to the LBE leadership team on energy savings and general successes or challenges they face.

Spotlight on Maryland

In 2013 the Maryland Department of General Services (DGS) and Maryland Energy Administration (MEA) proposed a 20% energy savings target for all state buildings by 2020, from a 2008 baseline. The state requires each agency to identify an agency energy coordinator (AEC), who will submit an Agency Energy Plan (AEP) and agency energy performance goals to DGS. The AEC must identify an Energy Management Team, update the AEP at the beginning of each fiscal year, describe the status of current projects, and identify new project ideas. On the same timeline the AEC must also submit a progress report to the governor and work directly with her agency secretary on all energy matters. To guide this process, DGS and MEA developed an AEP template, a list of potential energy conservation measures, and an AEC checklist—among other resources.[3] To date, 26 agencies have named an AEC and submitted energy plans.

ENERGY SERVICE COMPANIES

ESCOs are private entities selected to implement energy efficiency programs for their clients (state or local agencies). Many states have established a list of prequalified ESCOs with which agencies may initiate projects. From this list participating agencies can use a request for proposals (RFP) process to select the ESCOs best suited for their projects. Institutions in states without a pool of prequalified ESCOs can use an RFP process to solicit and select an ESCO.[4] In order to understand the opportunities for performance contracting under the CPP, ESCOs and third-party evaluators—often hired by the program administrator to

[3] energy.maryland.gov/govt/Pages/stateBuildAct.aspx.

[4] DOE has assembled a variety of model documents to help states launch energy efficiency projects through ESPCs. DOE has included documents to help states solicit ESCOs through the prequalification approach as well as through a standard request for proposals: energy.gov/eere/wipo/model-documents-energy-savings-performance-contract-project.

conduct measurement and verification—should engage with state air offices independently or through ongoing public outreach efforts.

Design a Robust Program

FINANCE THE PROGRAM

States can fund LBE programs through a variety of mechanisms. One common approach used in performance contracting involves funding energy efficiency projects through money accrued from energy savings. States can also leverage utility incentives to cover a portion of project costs, or they can use capital budgets, loans, public bonds, lease-purchase agreements, grants, and rebates. Massachusetts, for example, requires agencies to take advantage of utility incentives on all energy efficiency projects. States may also use bond funding as well as revolving loan funds—which states can offer at no or low interest and with repayment schedules based on energy cost savings (EPA 2009).

PROVIDE TECHNICAL RESOURCES TO GOVERNMENT AGENCIES

During LBE program implementation the LBE leadership team can offer technical assistance to participating agencies. This assistance may include training energy managers on how to use the state's data collection platform, offering financial support, or dedicating staff time at the administering agency (e.g., the department of general services) to help participants as needed. The administering agency can also offer tools to help local governments participate, for example, by allowing them to use the state's energy data collection platform, helping them dissect consumption data, and identifying energy-saving opportunities.

Spotlight on Connecticut

The Institute for Sustainable Energy (ISE) formalized a benchmarking assistance protocol to help towns, state agencies, and schools with their questions on ENERGY STAR® Portfolio Manager. Through its Benchmarking Help Desk ISE provides customized, one-on-one assistance to interested parties. In addition, the Connecticut Department of Energy and Environmental Protection (DEEP)'s Energy Savings Performance Contracting Program offers many tools to state agencies and municipalities to standardize and simplify performance contracting implementation, including standardized contract documents, lists of qualified ESCOs and technical support providers, and support for project financing. DEEP also funds the positions of several program managers to help municipalities and state agencies begin the ESPC process.[5]

TRACK, EVALUATE, AND REPORT ON LBE PROGRAM PERFORMANCE

The ability to track LBE programs allows state leaders to determine whether or not the program is achieving expected energy savings and meeting state and federal policy goals. For CPP compliance this essential component will inform states about progress toward meeting EPA-designated emissions targets in 2030.

Establish a Baseline

In order to measure LBE program progress, participating agencies must understand energy consumption prior to implementation. By identifying current energy consumption state

[5] DEEP's website offers a closer look at resources provided through Connecticut's Energy Savings Performance Contracting Program: www.ct.gov/deep/cwp/view.asp?a=4405&Q=513642.

agencies can more reliably track progress toward meeting energy or emissions targets. Energy savings from performance contracting are generally calculated on a project-by-project basis every year through the end of a contractual savings agreement (SEE Action 2016). To use emission reductions from measures installed as part of LBE programs for CPP compliance, each state should consider several factors unique to its chosen compliance strategy. In a rate-based compliance scenario, energy efficiency measures installed on or after January 1, 2013 that are still achieving savings in 2022 are eligible for Emission Rate Credits (ERCs). While performance contractors may set baselines for their savings calculations based on the needs of customers (public entities), EPA suggests that states interested in reporting these savings to EPA must calculate project savings using common practice baselines (CPB). Existing equipment is often the baseline used to calculate savings for such contracts (EPA 2015b).[6] Under a mass-based approach any reductions in electric-sector emissions during the compliance period will help the state meet its goal, so calculating a baseline is not necessary.

Require Benchmarking

Benchmarking is the process of collecting building energy data so that building owners may understand their energy use compared with similar buildings and identify energy efficiency opportunities. Requiring agencies to benchmark energy usage will allow for frequent measurement of progress. Agencies can submit their energy usage data to the state energy office on a regular basis, and states may also publicly disclose results. Several states require building energy audits either at the beginning of program implementation, at regular intervals throughout implementation (e.g., every five years), or as needed in buildings that exceed average energy consumption. Many states already track data using EPA's ENERGY STAR Portfolio Manager®, but others use other data collection platforms or have created their own, some of which integrate with ENERGY STAR.[7] Through these platforms states can compile data and compare building types and agencies' portfolios. States can use automated benchmarking web services to directly share energy data with their benchmarking platforms, thereby reducing the workload of the designated energy manager.[8]

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[6] EPA makes this suggestion through its draft guidance on Evaluation, Measurement, and Verification (EM&V) for demand-side energy efficiency. EPA defines the common practice baseline as the default technology or condition that would have been in place at the time of project implementation absent energy efficiency installation (EPA 2015b).

[7] Georgia, Maryland, Montana, Oregon, and South Dakota use the EnergyCAP database, which compiles energy data from state buildings and allows for comparison of buildings within and across agencies. Other commercially available systems include B3 and FacilityDude.

[8] For a list of service providers that exchange data directly with ENERGY STAR Portfolio Manager via web services, visit: www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/save-energy/expert-help/find-energy-star-service-a-0.

Spotlight on Tennessee

In 2014 Governor Bill Haslam launched EmPower TN, an initiative to reduce state spending on utility bills by 28% by 2023. The General Assembly approved funding in the FY2015–2016 budget for EmPower activities. Recipients of this funding must submit quarterly reports to the program's executive director on the status of construction and achievement of milestones. Recipients must also provide monthly utility data through the Tennessee Utility Data and Energy Management System once it is launched. In addition, following the state fiscal year recipients must also submit an annual report of energy conservation for the project, covering energy consumption and cost for the five years after project implementation. The initiative focuses on state-owned and -managed buildings, but the state government hopes it will become a model for energy efficiency in the local-government and private sectors.

Define Goals and Metrics for Progress

In partnership with NGOs and government agencies, the ESCO industry has established and extensively documented common measurement and verification (M&V) approaches. While ESCOs or their third-party evaluators do conduct M&V to ensure their clients' savings, they often use project-based M&V (PB-MV), or measure-based deemed or stipulated savings values. Under this approach ESCOs quantify savings for each project, instead of quantifying savings for just a sample of projects and then estimating program-wide savings (EPA 2015b).

For CPP purposes EPA requires EM&V in a rate-based context and provides guidance on this process (80 FR 64908).[9] EPA recommends that ESCOs use PB-MV or a deemed savings approach; however these are often used in conjunction with one another. To account for independent factors (e.g., variability in weather or building occupancy), ESCOs should base energy savings on actual conditions with PB-MV methods, or use normalized or typical conditions with deemed savings methods. To ensure the accuracy and reliability of reported savings values, evaluators should describe in their M&V reports the certainty of reported savings values, quality control measures used, sources of deemed savings values, details of data metering practices, and baseline used (if different from the CPB). In order to avoid double counting, EPA advises ESPC evaluators to use consumer-level data across projects, then identify and correct for duplicate energy efficiency activity. To determine the persistence of energy savings, EPA suggests that evaluators use deemed effective useful life (EUL) values or annually verify the operation of a subset of projects. States may track additional metrics in order to measure progress that positions them to achieve other state policy goals, like improved public health or reduced energy burden (EPA 2015b).[10]

In a mass-based compliance context, the state is not required to conduct EM&V except for set-asides to address leakage or for participation in EPA's Clean Energy Incentive Program

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[9] Joint comments on EM&V, filed by ACEEE and other joint energy efficiency stakeholders, further discuss these issues: www.mwalliance.org/sites/default/files/uploads/Joint EE Stakeholder Comments on CPP Fed Plan and MTR re EMV 1-21-16 Final.pdf.

[10] Lawrence Berkeley National Laboratory developed eProject Builder (ePB) as a free tool for ESCOs and their customers to upload and track project data, generate project reports, and benchmark projects against historic project data. Originally developed for federal agencies, ePB is being modified for use by state and local agencies. This tool standardizes the data collection process and could help states include energy and emission savings from ESPC projects in CPP compliance plans. Pilots are under way in Georgia, Kentucky, and Virginia.

(CEIP).[11] However there are many good reasons to adopt a transparent and robust approach to EM&V. For example, participation in state, regional, or national emissions trading markets would likely require documentation and verification of energy savings.

DETERMINE OWNERSHIP OF EMISSION REDUCTIONS

The agency tasked with CPP compliance should ensure that ESCOs understand if and how they may receive allowances or ERCs for energy savings achieved through the LBE program. In a rate-based compliance scenario, state air offices will need to decide whether ESCOs will receive ERCs from energy efficiency projects or if the client state agency will receive them. In a mass-based approach state air offices will decide how to allocate emission allowances, including whether to auction, sell, or set aside allowances for electric generating units (EGUs) or energy efficiency providers. In either case language can be included in ESPCs to assign ownership rights to the emissions reductions achieved through installation of LBE measures.

Conclusion

Beyond the energy and emission savings achieved through energy efficiency measures in public facilities, LBE programs communicate to the public that state agencies are committed to protecting taxpayer dollars and investing in public facilities. LBE programs can also have ripple effects in other sectors and in state CPP planning processes by showing the feasibility of achieving long-term energy savings goals. LBE lessons learned can be applied to the broader utility sector, for example, in setting statewide energy savings targets or establishing sustainable building requirements. ESPCs between state and local agencies and energy service providers—one of the best examples of LBE programs—show the potential for public-private partnerships and prove that little to no up-front capital is necessary to improve building quality. By developing robust energy efficiency programs and reliably tracking program performance, state and local governments lead the way to using energy efficiency in any CPP compliance scenario.

[11] EPA provides a fact sheet, list of next steps, and other CEIP-related resources here: www.epa.gov/cleanpowerplan/clean-energy-incentive-program.

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ATTACHMENT D

Energy Efficiency and the Clean Power Plan: Steps to Success

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An ACEEE White Paper

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Abstract

This is the first in a series of papers intended to guide states as they embark on the path to Clean Power Plan compliance. Energy efficiency brings significant pollution reduction potential, but states may miss out on the lowest-cost road to compliance because of barriers to investment and uncertainty about how to proceed. While energy resources, regulatory structures, and policy priorities vary widely from state to state, some elements of the planning process are common to many of them.

This guide highlights steps states can take to use energy efficiency as a key compliance strategy. We help states identify critical decisions and their implications for energy efficiency, and we describe opportunities for identifying and engaging important stakeholders. We also describe factors in evaluating energy efficiency compliance options, including strategies and tools for comparing options, measuring and verifying energy and emission savings, and incentivizing energy efficiency. Throughout the guide, we provide examples of states that have shown leadership in the compliance and program development process.

Introduction

In August 2015, the US Environmental Protection Agency (EPA) released the final Clean Power Plan (CPP), a regulation to reduce carbon pollution from existing fossil fuel power plants.[1] Energy efficiency presents significant pollution reduction potential, but barriers to investment and uncertainty about how to proceed may mean that states miss out on the lowest-cost road to compliance.

While energy resources, regulatory structures, and policy priorities vary widely from state to state, some elements of the planning process are common to many of them. This guide highlights steps that states can take to help them use energy efficiency as a key compliance strategy. It is designed to help states

- Identify critical decisions and their implications for energy efficiency
- Identify and engage important stakeholders
- Evaluate energy efficiency compliance options

Identify Critical Decisions

As states embark on the path to compliance, they must make several foundational decisions about the timing of their plan submission, format of their emissions reduction goals, degree of interstate coordination, and interest in EPA's Clean Energy Incentive Program (CEIP).[2] Each of these choices will affect the timing, reporting requirements, and revenue streams related to emissions reduction measures. Energy efficiency can be used as a core compliance strategy in all scenarios. In table 1, we lay out some of the questions states should consider addressing as they examine their compliance landscape, and some pros and cons for energy efficiency in each decision.

[1] EPA provides resources in its Clean Power Plan Toolbox to help states develop compliance plans: www.epa.gov/cleanpowerplantoolbox.

[2] EPA provides a fact sheet, list of next steps, and other CEIP-related resources here: www.epa.gov/cleanpowerplan/clean-energy-incentive-program.

Table 1. Implications of state decisions for energy efficiency

Decision	Pro	Con
States are required to submit final plans in September 2018. Should the state wait until 2018 to submit a final plan?[3]	Waiting until 2018 to submit gives states more time for convening stakeholders and evaluating compliance options. Many states have only begun to scratch the surface of their energy efficiency potential, and this extra time can be used to evaluate all the options.	Delaying a plan submission puts a state in an extended period of flux. Uncertainty about what investments or activities will count toward compliance and how much those investments are worth may have a chilling effect on investment. Businesses and investors might seek opportunities in other states where the regulatory environment is more certain.
States may select from a variety of plan structures. EPA provides detailed guidance in the CPP on how to incorporate energy efficiency in a rate-based approach, in which states demonstrate compliance through achievement of a lbs/MWh rate (pounds of CO_2 per megawatt-hour of electricity generated). The main alternative most states are considering is a mass-based approach, in which compliance is achieved by limiting emissions to a tonnage cap. Should the state choose a mass-based approach?	Under a mass-based approach, savings are accounted for at the stack and automatically count toward compliance as reduced CO_2 emissions. States are not required to submit an Evaluation, Measurement, and Verification (EM&V) report to EPA.[4]	In theory a mass-based trading approach should create a financial incentive for the state to pursue the lowest-cost path to compliance. However longstanding regulatory and market barriers to energy efficiency investments remain. Without a method for specifically ensuring that regulatory and market barriers are addressed, states will miss out on energy efficiency opportunities.

[3] The Supreme Court recently granted a motion to stay the CPP until the DC Circuit Court hears arguments. In spite of this freeze on the rulemaking process, energy efficiency remains a powerful and cost-effective tool for reducing pollution. State air, energy, and utility regulators can use this time to continue working together—and with the public—to understand energy efficiency opportunities.

[4] Exceptions to this exemption include states that are participating in the CEIP (80 FR 64831) and states that are using efficiency to address leakage (80 FR 64951).

Decision	Pro	Con
The CPP regulates existing power plants, but not new ones. If a state selected a mass-based approach, and if electricity demand were shifted away from existing power plants and onto new plants, statewide CO_2 emissions could increase. In the rule this is called leakage (80 FR 64887). States can address leakage by setting aside some allowances from the overall cap for energy efficiency, or by expanding the cap and including new power plants in the CPP state plan.[5] States may also demonstrate to EPA through additional analyses that emission leakage is unlikely to occur due to existing state policies or unique characteristics (80 FR 64890). Should energy efficiency be used to address leakage in a state plan?	A set-aside of allowances dedicated to energy efficiency can serve as an incentive to encourage new investments.	A set-aside is typically some smaller portion of the total cap, when in fact energy efficiency can be used to meet 100% of state targets. Employing a set-aside as the only mechanism to incentivize energy efficiency might have the effect of artificially limiting its potential. It is also unclear how this treatment of energy efficiency would adequately address the leakage issue described in the rule.

[5] EPA refers to this as a "new source complement" (80 FR 64888).

Decision	Pro	Con
If a state adopts one of the model approaches laid out in the CPP, the state's plan will be "trading ready" (80 FR 64833). This means that entities in one state can transact with entities in other states to buy and sell allowances or credits if both states have the same type of plan. States can also partner with other states to enact multistate plans.	States that import electricity will reduce emissions in other states when they employ energy efficiency. States that partner can ensure that the full emissions benefits of energy efficiency can be tracked, documented, and counted toward compliance.	States may seek to achieve multiple goals in the CPP planning process, such as increased services to low-income communities. An influx of credits from a neighboring state could make those goals more difficult to achieve by eliminating the need for additional in-state reductions.
Should the state consider interstate trading?	Participation in an interstate market can help keep compliance costs low by providing access to a broader range of opportunities to reduce emissions.	
The CEIP is a program included in the CPP that rewards investments in renewable energy and low-income energy efficiency that reduce CO_2 emissions in advance of the compliance period. States that opt to participate in the CEIP can obtain extra allowances or Emission Rate Credits (ERCs) from a pool that is maintained by EPA. (80 FR 64829)	Participation in the CEIP could mean additional allowances or credits that states could use for compliance in later years. Since investments in energy efficiency typically generate savings for many years, it would also mean a jump-start on reductions needed during the compliance period.	Project developers in states participating in the CEIP must meet EPA's EM&V requirements to obtain the ERCs or allowances. (80 FR 64831)
Should the state participate in the CEIP?	Providing energy efficiency to low-income communities may require additional effort or up-front expenditures. This program can help defray those costs.	

Engage the Players

As states define their stance on the critical issues above, they will need to identify parties to involve in the compliance process. Government structures and policy priorities vary from state to state. As a result, stakeholders do not have the same responsibilities or areas of expertise.

GOVERNORS

In many states governors kick-start the compliance planning process. Whether they issue an executive order or announce intent to comply through less formal venues, a governor's stance can set the tone in that state. Governors often assign compliance plan development responsibility to the appropriate agency, such as the air quality regulatory agency, which then coordinates with other agencies such as utility regulators and state energy planners. In several states governors have also appointed CPP advisory committees.

Spotlight on Colorado

In his 2015 Colorado Climate Plan, Governor John Hickenlooper tasked the Colorado Department of Public Health and Environment (CDPHE) with the primary responsibility for engaging the public and developing the state's CPP compliance plan in coordination with the Public Utilities Commission and Colorado Energy Office. The CDPHE has convened ongoing stakeholder meetings since September 2015 and will continue to meet monthly through June 2016. Some of these meetings are for general public comment. Others focus on energy efficiency; urban and rural low-income communities; the CEIP; demand growth, cost, and reliability; and emission credit trading mechanisms. The CDPHE Air Pollution Control Division will submit an initial compliance plan to the Air Quality Control Commission.

STATE AIR OFFICES

Compliance with federal air regulations falls to these state agencies, which are tasked with conducting public outreach, developing compliance plans, and submitting the plans to their regional EPA offices.

Spotlight on South Carolina

South Carolina's Department of Health and Environmental Control (DHEC) has regularly convened state energy stakeholders since 2013, when they gathered to address early questions from EPA on regulating carbon pollution from existing power plants. Participants in this group—called the South Carolina Energy Coalition—include representatives from the utility sector, conservation and forestry groups, clean energy alliances, a community church, and several large companies with operations in the state.[6] In addition to four DHEC-hosted stakeholder meetings in late 2015, the coalition meets monthly and has launched compliance modeling and environmental justice work groups. By also engaging local clean air coalitions, DHEC has made a substantial effort to ensure that South Carolina's compliance plan reflects collective viewpoints.

[6] Michelin North America, Inc., KapStone Paper and Packaging Corporation, and Resolute Forest Products.

ELECTRIC GENERATING UNIT OWNERS

The CPP affects existing fossil fuel–fired electric generating units (EGUs) with capacities greater than 25 megawatts (MW) (80 FR 64715).[7] All types of owners or operators of affected EGUs have the ability to contribute to a state's emission reduction activities. This includes vertically integrated utilities and merchant generators, investor-owned utilities (IOUs), municipal utilities, customer-owned (cooperative) utilities, and owners or operators of single-unit fleets of generating units (80 FR 64752). The compliance pathway states select guides the responsibilities of EGU owners, who must either reduce the emissions of their affected units or secure the necessary number of ERCs or allowances to be in compliance.[8] EGU owners will have to evaluate the cost of shifting supply-side resources compared with investing in energy efficiency. An expensive compliance process will raise electricity rates, so participation of these key stakeholders in CPP planning could protect utilities and consumers alike.

UTILITIES

As energy providers, utilities are key partners in the resource planning process. Depending on the regulatory structure of the state, utilities will engage in the planning and implementation process differently. Utilities in vertically integrated states generate, transmit, and distribute power to retail customers. Through the integrated resource planning process, vertically integrated utilities evaluate the cost and reliability of their portfolios (RAP 2011). By evaluating energy efficiency as a resource equivalent to other supply-side options, utilities can assess opportunities for meeting customer needs while complying with the CPP at lowest cost (Hibbard, Okie, and Tierney 2014).

In states with deregulated electricity markets, distribution-only utilities do not own generators and therefore purchase power from upstream wholesale providers. States with restructured electricity markets can use market-based mechanisms to benefit residents and businesses. As one example, in a mass-based approach states might auction allowances to EGUs and then use the proceeds to fund efficiency activities.[9]

STATE ENERGY OFFICES

Responsibility for coordinating non-ratepayer-funded energy efficiency programs often resides within state energy offices (SEOs). Engaging these offices is essential to understanding which existing programs could count toward compliance and whether these

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[7] Many industrial combined heat and power (CHP) facilities are exempt from regulation (80 FR 64717), but some CHP units meet the definition of affected sources. Affected CHP units with a lower emissions rate than the standard requires may contribute reductions in emissions, and their owners are an important stakeholder group to engage.

[8] In a mass-based scenario, EGU owners emitting above their designated caps will have to acquire allowances that permit them to emit CO_2. In a rate-based scenario, generators with emissions above their designated rates will need to secure ERCs to be in compliance.

[9] For more information on ways to incentivize energy efficiency, see joint comments by ACEEE and partner organizations: www.seealliance.org/wp-content/uploads/Final-Model-Trading-Rule-Federal-Plan-Comments-1-21-16.pdf.

programs must be adjusted or improved to meet EPA's expectations. SEOs can also help identify new program opportunities.

UTILITY COMMISSIONS

Public utility commissions' priorities generally include maintaining grid reliability and electricity affordability. They also typically oversee the energy efficiency activities of investor-owned utilities in their states, which includes approving or rejecting energy efficiency programs and setting EM&V standards for energy savings—both potentially important components of a state's CPP compliance strategy.

STATE LEGISLATURES

Legislatures may shape the CPP planning process by passing laws that limit or expand agency authority to develop a compliance plan. Laws may also require submission of compliance plans to the legislature for approval prior to finalization or require state agencies to conduct specific analyses. In the 2015 session, 27 states introduced CPP-related bills, but only 9 of these bills were enacted (Durkay 2015).[10] Some states have formed CPP-specific subcommittees to handle all CPP-related legislation. Legislation may also be necessary in order to improve or alter energy efficiency or renewable-energy policies so that they may work better for compliance—for example, by revising an energy efficiency resource standard or updating building energy codes.

LOCAL GOVERNMENTS

The majority of energy consumption and greenhouse gas emissions occur in cities (Ribeiro et al. 2015). Energy efficiency programs and projects managed by local governments could play a significant role in meeting state CPP targets. Cities, localities, and municipalities are familiar with the residential, commercial, and industrial customers in their jurisdictions, and many have experience offering energy efficiency programs to these populations. While states are still defining the role of local governments in CPP planning, they can leverage and expand existing local efforts to reduce CO_2 emissions. A robust stakeholder engagement process that ensures a seat at the table for representatives of these communities can help ensure that all opportunities available to a state are appropriately considered.

THE PUBLIC

EPA requires a public outreach process to inform states' comments to EPA and guide the compliance plan development process. Some states are conducting topic-specific public listening sessions, while others are conducting more-general sessions. By leading public meetings focused on energy efficiency, states can begin an early, proactive dialogue on this compliance resource. State agencies are streaming sessions as webinars, sharing meeting minutes online, or creating state-specific email lists, so participation is not limited to in-person attendance.

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[10] Arizona, Arkansas, Illinois, Kansas, Minnesota, Nebraska, North Dakota, Tennessee, and West Virginia have enacted CPP-related bills. The National Conference of State Legislatures (NCSL) tracks states' reactions and legislative developments related to the CPP.

LOW-INCOME, ENVIRONMENTAL JUSTICE, AND VULNERABLE COMMUNITIES

EPA requires states to engage these communities and consider their needs in the compliance plan development process. However it is currently left to states to identify these constituencies. States must demonstrate how they have meaningfully engaged stakeholders including vulnerable communities (80 FR 64856). EPA has provided several resources to help states identify vulnerable populations.[11]

LARGE COMMERCIAL AND INDUSTRIAL CONSTITUENTS

Substantial energy-saving opportunities exist in large businesses including commercial and industrial facilities. Developing a plan that includes programs that respond to the needs of large customers—including the owners and employees of these facilities—will help maximize potential emissions reductions and ensure a lower-cost path to compliance.

NEIGHBORING STATES

Initiating multistate conversations enables states to understand each other's compliance priorities. States are already having some of these conversations through several regional venues. The Midcontinent States Environmental and Energy Regulators (MSEER), a group of utility and environmental regulators from 13 states, has been meeting since EPA released the draft CPP to discuss nonbinding options for multistate compliance.[12] Another such effort is the Western States Clean Power Plan Initiative, led by former Colorado Governor Bill Ritter Jr. at the Center for the New Energy Economy at Colorado State University. Through this collaborative, environmental, utility, and energy regulators from 14 states have discussed uniquely western issues and opportunities for compliance.[13] In the Northeast, states participating in the Regional Greenhouse Gas Initiative (RGGI) are discussing CPP compliance through the regional 2016 Program Review process.[14] Topics include state plan approaches to the CPP, strategies for promoting renewable energy and energy efficiency, and advantages of allowing additional states to participate in the RGGI market.

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[11] EPA's EJSCREEN Tool helps states generate custom environmental justice maps: www.epa.gov/ejscreen. In addition, EPA's *Guidance on Considering Environmental Justice during the Development of Regulatory Actions* provides steps for states to meaningfully engage vulnerable communities: www3.epa.gov/environmentaljustice/resources/policy/considering-ej-in-rulemaking-guide-final.pdf.

[12] Arkansas, Illinois, Indiana, Iowa, Kentucky (observer only), Louisiana, Michigan, Minnesota, Mississippi, Missouri, Montana, South Dakota, and Wisconsin (observer only): www.adeq.state.ar.us/air/planning/cpp/pdfs/final_mseer_comment_letter_20160120.pdf.

[13] Alaska, Arizona, California, Colorado, Idaho, Montana, North Dakota, Nevada, New Mexico, Oregon, South Dakota, Utah, Washington, and Wyoming. www.azdeq.gov/environ/air/download/cnee_comments_121515.pdf.

[14] Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont participate in RGGI. Topics for 2016 Program Review Stakeholder Discussions can be found here: www.rggi.org/docs/ProgramReview/2016/11-17-15/Key_Discussion_Items_11_17_15.pdf.

Develop a Plan in Which Energy Efficiency Works

LEVERAGE EXISTING PROGRAMS

The first step in assessing energy efficiency opportunities will be to evaluate which programs a state currently has in place and what level of savings they are currently achieving. EPA has indicated that many types of energy efficiency actions can count toward state emissions reduction targets. States will then need to identify the strengths of these existing programs, including whether or not the emissions reductions can be tracked and quantified and how long the measure will be sustained throughout the compliance period.

CONSIDER NEW PROGRAMS AND TECHNOLOGIES

In the final CPP, EPA identifies numerous energy efficiency programs as reliable sources of electricity and carbon pollution savings. These include

- utility and non-utility energy efficiency programs
- energy savings performance contracts (ESPCs)
- building energy codes
- CHP
- residential, commercial, and industrial measures
- appliance replacement and recycling programs
- behavioral programs
- energy benchmarking
- state appliance and equipment standards
- water and wastewater programs (80 FR 64901)

New technologies and appliances in the industrial, commercial, and residential sectors use decreasing amounts of energy. Because energy-saving opportunities continue to expand, states looking to achieve greater savings need not start from scratch. States can build on prior success by taking current initiatives to the next level. For example, a state considering building energy codes as one of its compliance strategies could explore opportunities to adopt a more recent version of that code, or it could examine ways to improve compliance with the existing building energy code. Both of these actions would enable the state to reap greater energy and emissions savings. Opportunities abound for states to promote or require energy-efficient technologies, operations, and behavior.[15]

COMPARE COMPLIANCE OPTIONS

Several tools have been developed to help states understand the potential of various compliance options:

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[15] ACEEE's *State Energy Efficiency Scorecard* scores states on performance and policy metrics in six major areas: utilities, transportation, building energy codes, CHP, state government initiatives, and appliance and equipment standards. Filled with instances of exemplary state programs, the *Scorecard* helps states compare progress and identify strategies for ramping up activities: aceee.org/state-policy/scorecard.

- *State and Utility Pollution Reduction Calculator Version 2 (SUPR 2).* ACEEE's tool allows users to select from 19 policies and technologies, including energy efficiency, renewable energy, nuclear power, emissions control, and natural gas, then calculates energy, pollution, and monetary savings.
- *Clean Power Plan Planning Tool (CP3T).* Synapse and Argonne National Laboratory's tool allows users to adjust state-specific fossil fuel unit capacity factors, renewable-energy and energy efficiency projections, unit retirements, and 111(b) unit additions, then compare generation, capacity, emissions, and cost differences associated with various scenarios.
- *Clean Power Plan Compliance Tool.* MJ Bradley's tool allows users to analyze state progress toward compliance with the final CPP rule under a range of electricity demand and generation scenarios and a variety of emissions reduction targets. The tool incorporates policy options outlined in the final rule, and provides the ability to alter all major drivers of state electric-sector emissions and ascertain their impacts on the state's CPP compliance status.[16]

Synapse Energy Economics has recently completed a synopsis of the variety of planning tools available to states.[17]

EXAMINE STRATEGIES FOR MEASURING AND VERIFYING SAVINGS

Depending on a state's chosen compliance approach, EM&V can play an important role in quantifying energy savings and assessing progress on monetary, energy, or emissions goals. In a mass-based state plan, EM&V is generally not required unless a state has chosen to participate in the CEIP or needs to address leakage in its allowance allocation process (80 FR 64951). In a rate-based plan, EM&V is required to support ERC tracking, trading, and issuance, as well as for participation in the CEIP. In both the mass- and rate-based compliance scenarios, states with utility-run energy efficiency programs will likely already have EM&V requirements, led by the state's public utility commission, to ensure that programs are cost effectively delivering energy savings. While EM&V requirements for the CPP are not yet final, EM&V protocols for ratepayer-funded energy efficiency programs are well established and can be used to begin the planning process.[18] Before evaluation begins program administrators should determine the metrics important to them: energy savings, cost savings, pollution reduction, or other state policy priorities. For CPP planning purposes administrators should include carbon pollution reduction as a metric for success. As states examine EM&V protocols, they should consider whether or not there is proper oversight of

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[16] ACEEE State and Utility Pollution Reduction Calculator Version 2: aceee.org/research-report/e1601; Synapse Clean Power Plan Planning Tool: www.synapse-energy.com/tools/clean-power-plan-planning-tool-cp3t; MJ Bradley Clean Power Plan Compliance Tool: www.mjbradley.com/about-us/case-studies/clean-power-plan-evaluation-tools.

[17] www.synapse-energy.com/sites/default/files/Guide-to-Clean-Power-Plan-Modeling-Tools.pdf.

[18] The US Department of Energy (DOE)'s Energy Efficiency Program Impact Evaluation Guide offers many tools to help states determine an evaluation process, quantify energy and emission impacts, and understand related energy efficiency evaluation terms, issues, and resources. www4.eere.energy.gov/seeaction/sites/default/files/pdfs/emv_ee_program_impact_guide_1.pdf.

such processes—by the utility, the utility regulatory commission, a third party, or another government agency. To lend credibility, consensus, and transparency to the EM&V oversight process, some states have a multiparty energy efficiency advisory group including utilities, environmental groups, businesses, and other stakeholders.[19]

INCENTIVIZE ENERGY EFFICIENCY

Each compliance method involves different considerations for incentivizing energy efficiency. In a mass-based compliance scenario, in which a state auctions allowances to EGUs, the state can invest proceeds in end-use energy efficiency measures.[20] If a mass-based state is directly allocating allowances, it can prioritize energy efficiency in that allocation process or set aside a portion of allowances for energy efficiency providers. In a rate-based compliance scenario, states can streamline EM&V so that efficiency projects and programs can easily apply for and receive ERCs. The providers of these projects can then sell ERCs to affected EGUs.

Next Steps

Energy efficiency measures are a low-cost, reliable approach to reducing CO_2 emissions that every state should consider including in its compliance plan. In subsequent publications ACEEE will provide guidance on specific energy efficiency policy and program approaches that can fit within a state compliance plan, making recommendations for best practices and models states can follow. States have a wide variety of opportunities to better maintain electric grid reliability, keep costs down, and protect the environment with energy efficiency.

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[19] Arkansas's Parties Working Collaboratively (PWC), initiated by the Arkansas Public Service Commission, includes investor-owned gas and electric utilities, EM&V contractors, program implementers, and others. The group recently reviewed industry EM&V best practices and developed a technical reference manual for the state (Johnson and Klucher 2014). Michigan's Energy Optimization Collaborative, established by the Michigan Public Service Commission, convenes electric and gas providers, energy efficiency experts, equipment installers, and other stakeholders to improve, develop, and support energy efficiency plans and programs: www.michigan.gov/mpsc/0,1607,7-159-52495_53750-217178--,00.html.

[20] Several states participating in the RGGI program use proceeds from periodic allowance auctions to fund investments in energy efficiency.

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ATTACHMENT E

SIMPLIFYING ENERGY EFFICIENCY FOR STATES

Utilizing and Incentivizing Energy Efficiency-Related Greenhouse Gas Reductions under the Clean Power Plan's Mass-Based Approach

December 10, 2015

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Executive Summary

PROBLEM STATEMENT

As proposed, the mass-based approach in EPA's Clean Power Plan (CPP) creates a dis-equilibrium in the treatment of energy efficiency as compared with a rate-based approach. In a rate-based system, energy efficiency projects may be used to generate emission rate credits (ERCs), which power plant owners will need to acquire for compliance with the CPP. The ability to create ERCs – just as other low- or zero-emission power resources can – will allow efficiency projects to compete for investment aimed at reducing electricity sector carbon dioxide (CO_2) emissions in a rate-based state.

No equivalent means exists for enabling energy efficiency participation in the EPA's proposed mass-based approach. Unlike CO_2 reductions from heat rate improvements or the use of renewable generation, investors in efficiency projects would "share" the value of the CO_2 reduction with all regulated entities supplying power to the grid, rather than realizing the full value of those reductions themselves. In a mass-based system, energy efficiency projects will produce CO_2 reductions that benefit the compliance efforts of all electric generating units (EGUs) on that regional grid. However, the cost of those reductions would be entirely borne by the entity implementing the efficiency project. This is a classic free-rider economic impediment.

The absence of a mechanism for directly crediting energy efficiency projects in a mass-based system will effectively exclude efficiency investments as an economically reasonable CPP compliance strategy. Thus, costlier compliance options will be used instead – artificially increasing the costs to society of achieving the CO_2 emissions reductions required by the CPP.

OVERVIEW

- This paper presents two options for managing allocation of allowances in a mass-based system under the CPP.
- Either approach will enable energy efficiency projects to compete with other compliance strategies on fair economic terms – allowing the market to select the most appropriate balance of clean generation and energy efficiency.
- Unless allowances are allocated in a manner that directly recognizes CO_2 emission reductions from efficiency projects, the mass-based pathway will create an inherent market bias against using energy efficiency for CPP compliance.
- The currency for compliance in a mass-based pathway is emission allowances issued by EPA or a state.
- This paper recommends allocation of allowances directly to registered energy efficiency projects based upon the verified CO_2 emissions avoided by the project.
- The first approach described in this paper would replace – and improve upon – a "set-aside" of allowances for efficiency projects by ensuring that all registered and verified efficiency savings are allocated allowances. This approach can be extended to include renewable energy and other zero-emission technologies.
- The second approach would enable emission reductions from all zero-CO_2 emitting electricity resources (including verified energy efficiency projects) to be fairly recognized through an "output-based" distribution of allowances.
- Either approach would exactly match allowance allocations to the tons of CO_2 emissions avoided by energy efficiency projects – no more and no less – and ensure that all allowances distributed to efficiency projects are available to be used by EGUs for compliance purposes.
- This approach would recognize all (ratepayer or private sector) investments in energy efficiency on equal terms and ensure that treatment of efficiency in a mass-based system is on par with treatment of efficiency in a rate-based system under the CPP.

HOW EITHER PROPOSED ALLOCATION SYSTEM WOULD WORK

- To be eligible for allocations of allowances, a project would have to be registered in an accredited project registry that has appropriate requirements for measurement and verification (M&V) of energy efficiency measures implemented, and appropriate protocols for auditing the M&V of registered projects.
- The registries would be used to identify the quantity of CO_2 emissions avoided by energy efficiency projects in a given state.
- Allocations would be made to energy efficiency projects in exact proportion to the CO_2 emissions avoided since the last allocation of allowances by energy efficiency measures.
- In the event that the entity responsible for the energy efficiency project (the recipient of allowances) does not need the allowances for its own compliance, the allocations can be sold or transferred to any regulated entity.

BENEFITS OF THE ALLOCATION APPROACHES PROPOSED IN THIS PAPER

- Effectively incorporating energy efficiency can be a highly cost-effective option for reducing CO_2 emissions associated with the power system.
- Increasing reliance on energy efficiency projects can:
    - Reduce CPP compliance costs,
    - Improve industrial competitiveness, and
    - Increase economic growth
    - Enhance opportunities for additional cost-effective power sector reductions in the post-2030 period
- Employing either allocation approach described in this paper would correct:
    - The dis-equilibrium between treatment of energy efficiency in a rate-based system and a mass-based system, and
    - The "tragedy of the commons" effect that would depress investment in energy efficiency in a mass-based system
- Implementing either of the allocation approaches described in this paper would be fairly straightforward and transparent
- Inclusion of energy efficiency in the manner described in this paper would be limited to measured and verified CO_2 reductions and would minimize the incentive for "leakage" which refers to the potential for replacing generation from existing sources regulated under a mass-based cap with generation from new sources not regulated under a cap for existing sources.

Contents

Issue Statement: Differences in Energy Efficiency under Rate- and Mass-based Plans

> *Energy efficiency automatically "counts" toward compliance under a mass-based approach since it displaces fossil generation and emissions under the cap, freeing up allowances for emitting sources to trade. There is no limit on the use of energy efficiency programs and projects, and energy efficiency activities do not need to be approved as part of a state plan … States can further incentivize energy efficiency under mass-based approaches by allocating emission allowances for energy efficiency activities, including activities that occur prior to 2022.* **(Energy Efficiency in the Clean Power Plan Factsheet, U.S. Environmental Protection Agency, August, 2015)**

As proposed, the mass-based approach in EPA's Clean Power Plan (CPP) creates a dis-equilibrium in the treatment of energy efficiency as compared with a rate-based approach. In a rate-based system, energy efficiency projects may be used to generate emission rate credits (ERCs), which power plant owners will need to acquire for compliance with the CPP. The ability to create ERCs – just as other low- or zero-emission power resources can – will allow efficiency projects to compete for investment aimed at reducing electricity sector carbon dioxide (CO_2) emissions.

No equivalent means exist for enabling energy efficiency participation in the EPA's proposed mass-based approach. Unlike CO_2 reductions from heat rate improvements or the use of renewable generation, investors in efficiency projects would "share" the value of the CO_2 reduction with all regulated entities supplying power to the grid, rather than realizing the full value of those reductions themselves. In a mass-based system, energy efficiency projects will produce CO_2 reductions that benefit the compliance efforts of all electric generating units (EGUs) on that regional grid. However, the cost of those reductions would be entirely borne by the entity implementing the efficiency project. This is a classic free-rider economic impediment.

The absence of a mechanism for directly crediting energy efficiency projects in a mass-based system will effectively exclude efficiency investments as an economically reasonable CPP compliance strategy. Thus, costlier compliance options will be used instead – artificially increasing the costs to society of achieving the CO_2 emissions reductions required by the CPP.

Energy efficiency is a proven, low-cost means of reducing CO_2 and serves as an eligible means of compliance with the CPP. EPA has made clear that the agency is counting on CO_2 reductions from energy efficiency to contribute to the success of the CPP and to lower the overall cost of the program. If properly integrated in the trading markets that are expected to develop in complying with the CPP, energy efficiency would provide flexibility to delay or avoid significant capital outlays otherwise needed to meet declining CO_2 emission budgets. Through energy efficiency, potentially wasted electricity use can be cost-effectively redeployed to where it can address new or growing demands—thereby eliminating the need for investment in new generation.

Although EPA has made clear that energy efficiency "counts" as an appropriate form of CO_2 emission reduction under the CPP, it has only formalized how energy efficiency projects can do so under a rate-based approach, through the creation of ERCs. The agency has specifically stated that quantified and verified megawatt hours from energy efficiency measures can be used to generate ERCs. The ability to generate and sell ERCs under a rate-based plan provides energy efficiency projects with the opportunity to participate in compliance markets on equal economic terms with other CO_2 emission reduction strategies.

However, EPA has yet to propose a corresponding program for mass-based state plans, due perhaps to its initial conclusion that efficiency would "automatically" be incentivized under a mass-based plan. In fact, a mass-based pathway, in which emission allowances are the primary trading currency, is not likely to automatically encourage energy efficiency projects or enable the inclusion of emission reductions from energy efficiency projects in CPP compliance markets. Without a specific crediting and approval mechanism under the mass-based pathway, the ability to count efficiency-derived CO_2 reductions will not translate into meaningful demand for energy efficiency—even when it is the least expensive among various emission control options.

Under the CPP, an allowance gives a fossil-fuel fired electric generating unit permission to emit one ton of carbon dioxide. States (or EPA under a federal plan) will decide the manner in which allowances are allocated. As proposed in the CPP, energy efficiency projects will not automatically receive allowances in a mass-based state in the same way they can automatically generate ERCs in a rate-based state. Therefore, states will need to take action to ensure that emission reductions resulting from energy efficiency projects receive appropriate allowances. Without such action, the absence of allowances for energy efficiency projects will limit the role energy efficiency can play in a state's efforts to meet its mass-based CPP obligations.

The simple assumption that demand for energy efficiency will automatically materialize in a mass-based system overlooks crucial market realities.

1) Energy efficiency (or electricity demand reduction) is anathema to many obligated parties, who are typically in the business of producing and selling electricity and whose revenues may not be decoupled from generation throughput.
2) More than half of the investments made annually in energy efficiency in the U.S. do not directly involve any party obligated to comply with the CPP (e.g., industrial manufacturers, building owners, energy service companies (ESCOs), etc.).
3) While it is reasonable to assume that higher electricity rates will create additional demand for efficiency:
    a. EPA does not anticipate significant rate increases will be caused by the CPP.
    b. Significant rate increases are harmful to industrial productivity and competitiveness, and would likely create a backlash that could slow or stop implementation of the CPP.
    c. Increasing deployment of demand-side energy efficiency would create downward pressure on electricity rates – which would, in turn, undermine the demand for additional efficiency if the cost of electricity is the expected driver of demand.
4) Efficiency projects would reduce demand on the entire grid, and would not necessarily reduce the CO_2 emissions for the owner of an individual EGU. Absent a system in the CPP that enables one to directly monetize the CO_2 emission reduction value of efficiency investments, CO_2 reduction benefits resulting from efficiency <u>investments made by one EGU</u> owner would be <u>shared by all suppliers</u> to the grid.

Thus, given that:

- Energy consumers will not increase investment in efficiency projects for their <u>own</u> compliance needs because the CPP regulates generators, not consumers, and
- A significant share of obligated parties view energy efficiency as contrary to their business interests (i.e., selling more electricity), and so, will seek to minimize or avoid energy efficiency solutions as a means of reducing CO_2 emissions.

Therefore:

- A failure to award allowances to energy efficiency projects will create material obstacles limiting the role energy efficiency can play in meeting a state's mass-based CPP obligations, and

- The costs of compliance with the CPP will be needlessly increased as obligated parties opt for compliance strategies that often exclude efficiency even when it is the least-costly greenhouse gas (GHG) emission reduction option.

Concept

> *Using data from a registry, States will distribute allowances to each energy efficiency project in proportion to the verified CO_2 emission reductions attributable to that project since the last allocation of CPP allowances by that state.*

This paper offers two options that state regulators can use in a mass-based state plan to maximize the use of low-cost energy efficiency strategies for compliance with the CPP. The success of the CPP will depend upon states having clear, easy to use implementation options that produce CO_2 reductions at the lowest possible costs. Energy efficiency is widely recognized as a lower-cost option than many investment strategies for addressing supply and demand in electricity markets and provides numerous ancillary benefits, such as increasing the reliability of the power sector, reducing criteria pollutant emissions, strengthening the competitiveness of state economies, and creating diverse jobs in the energy supply chain. EPA and the states can adopt an approach that will enable energy efficiency derived emission reductions to receive allowances and to compete head-to-head with other CO_2 emission reduction solutions.

EPA provided states with broad discretion in determining how to allocate allowances in the CPP. States that want, or expect, energy efficiency to contribute to CPP compliance should allocate allowances directly to efficiency projects. This will enable CO_2 reductions from energy efficiency programs and projects to compete on equal market terms with other options for CPP compliance.
Allocations to energy efficiency projects should only be made to properly verified or contractually guaranteed CO_2 reductions. To enable this approach, states will need EPA or another entity to furnish a simple-to-use registry of energy efficiency projects and their associated CO_2 reductions.

States can award allowances directly to the entities responsible for those efficiency projects – and in exact proportion to the CO_2 reductions that have been achieved and verified. The recipients of those allowances can sell, trade, or (in the case of EGU owners) use them for compliance depending on their own needs.

An energy efficiency registry will allow states to ascertain all of the verified efficiency-related CO_2 reductions that have occurred in the state during the applicable compliance timeframe. This tool will allow states to view the sum total of registered energy efficiency projects as they make annual allocation decisions. A reliable energy efficiency registry can catalog verified CO_2 reductions for state and federal officials and is essential to any effort to simplify and encourage the use of efficiency-related CO_2 reductions for CPP compliance.

EPA has proposed that it might support or contribute to the development of a national energy efficiency project registry. Although a broad, national energy efficiency registry does not exist today, many of the fundamental elements for such a registry are already in place as a result of states' experience with renewable portfolio standards and renewable energy certificates (RECs) tracking. The proposed National Energy Efficiency Registry (NEER) project, being led by the State of Tennessee and funded by a Department of Energy grant could prove to be an extremely useful platform for this activity. We look forward to being actively engaged in the NEER development stakeholder process, and encourage EPA to participate as well. We will discuss the additional steps needed to ensure an energy efficiency registry is in place.

Option 1: Direct Allocation Process (in Lieu of a Set-Aside)

Registries *will provide accurate, verified accounting of CO_2 emission reductions from efficiency projects.*

States *will allocate allowances to registered efficiency projects based on valid emission certificates issued by the registry for each project.*

Overview

EPA has requested comment regarding the use of a "set-aside" of allowances to incentivize energy efficiency. Set-asides are problematic for two reasons. In the event that CO_2 emission reductions from delivered efficiency projects is greater than the quantity of allowances set-aside, efficiency projects will not be able to realize the full value of their contribution to compliance. Uncertainty regarding the benefit will inhibit energy efficiency investments. Secondly, in the event that delivered efficiency projects underperform relative to the set-aside of allowances, regulated entities will be deprived of appropriate certainty regarding the quantity of allowances available for their compliance purposes.

In lieu of a set-aside, states should include energy efficiency projects in the allocation process based on achieved, verified reductions. The allocation design described below envisions annual allowance allocation based upon a retroactive look at the results of energy efficiency efforts within a state that were recorded in an EPA-approved registry. Distribution of allowances is determined by the quantity of CO_2 reductions achieved by registered and verified energy efficiency projects since the state's previous allocation of allowances.

Allocation Formula

TAA – RVEE = TAAR

Where:

- TAA = *Total Allowances Available* for allocation by a state in an allocation period (1, 2, or 3 years). This sum would be the "emissions budget" issued by EPA applicable to the state.
- RVEE = Tons of CO_2 reduced, since the previous allocation by the state, by appropriately *Registered and Verified Energy Efficiency* projects in the state. A number of allowances equal to RVEE should be distributed/allocated directly to energy efficiency projects in proportion to the CO_2 reduction achieved by each project.
- TAAR = *Total Allowances Available Remaining* are those that remain available for allocation by a state in an allocation period after distributing allowances based on RVEE.

Figure 1: Illustrative Example Using the Formula in an Annual Allocation of Allowances

	2022	2023	2024	2025
Proposed Formula	10,000,000 (TAA) - 0 (RVEE) = 10,000,000 (TAAR)	9,500,000 (TAA) - 250,000 (RVEE) = 9,250,000 (TAAR)	9,000,000 (TAA) - 350,000 (RVEE) = 8,650,000 (TAAR)	8,500,000 (TAA) - 500,000 (RVEE) = 8,000,000 (TAAR)
TAA (Total Available Allowances) The same as the declining CPP annual emission cap for the state	State Annual Cap 10,000,000 tons CO_2 TAA = 10,000,000	State Annual Cap 9,500,000 tons CO_2 TAA = 9,500,000	State Annual Cap 9,000,000 tons CO_2 TAA = 9,000,000	State Annual Cap 8,500,000 tons CO_2 TAA = 8,500,000
CO2 Emission Reduction from energy efficiency Projects	250,000 tons of CO_2 emissions avoided attributable to registered EE projects	350,000 tons of CO_2 emissions avoided attributable to registered EE projects	500,000 tons of CO_2 emissions avoided attributable to registered EE projects	750,000 tons of CO_2 emissions avoided attributable to registered EE projects
RVEE (Measured and Verified Energy Efficiency) States will simply use the number available[1]	RVEE = Zero (Derived from pre-2022 CO_2 reductions from registered energy efficiency projects)	RVEE = 250,000 (Derived from 2022 CO_2 reductions from registered energy efficiency projects)	RVEE = 350,000 (Derived from 2023 CO_2 reductions from registered energy efficiency projects)	RVEE = 500,000 (Derived from 2024 CO_2 reductions from registered energy efficiency projects)
TAAR (Total Available Allowances Remaining) This represents TAA minus RVEE. TAAR can be allocated in any manner the state determines appropriate.[2]	10,000,000 allowances allocated to additional recipients per state formula TAAR = 10,000,000	9,250,000 allowances allocated to additional recipients per state formula TAAR = 9,250,000	8,650,000 allowances allocated to additional recipients per state formula TAAR = 8,650,000	8,000,000 allowances allocated to additional recipients per state formula TAAR = 8,000,000
Allowances EE Projects Can Sell to Obligated Parties	Zero	250,000	350,000	500,000

[1] RVEE is based on prior year energy efficiency related CO_2 emission reductions. For this illustration we will assume no registered energy efficiency for the prior year. A state has the option to recognize pre-2022 registered energy efficiency in its first allocation of allowances.

[2] EPA has not imposed any limitation on who states can designated to receive allowances. This proposed approach to allocation of allowances depends on that flexibility to provide allocations to energy efficiency suppliers, but in no way proposes to limit allocation to other potential recipients, or methods of allocation. TAAR would be allocated in the manner, and to the parties, that the state deemed appropriate.

Qualified Energy efficiency Projects

This allocation scheme can incorporate CO_2 emission reductions created by any type of properly verified energy efficiency project in an approved registry including:

- Energy Efficiency Measures (non-guaranteed): industrial energy efficiency, above-code building measures, utility-led or ratepayer energy efficiency programs, residential retrofits, demand-response, building codes, etc.
- Energy Efficiency Measures (guaranteed): energy efficiency measures that are contractually guaranteed, such as performance contracts (PC) issued by ESCOs
- Other: This approach might be effective for capturing the CO_2 emission reduction potential of other emission reduction strategies, including distributed- and utility-scale renewable energy. While this paper is focused on market drivers for electricity demand reduction, other entities can consider whether this approach would further increase access to low-cost CO_2 emission reductions if it were expanded to include distributed renewable generation.

Allocation Method

As illustrated in Figure 1, a state will allocate allowances at the beginning of each calendar year[3] in the compliance period to appropriately registered energy efficiency projects located in their state in direct proportion to the verified tons of CO_2 emission reductions achieved by each since the previous allocation of CPP allowances. Allocations are distributed based upon energy efficiency projects already registered and generating savings in the prior year. This retroactively-looking, forward distribution process guarantees that only projects generating recorded efficiency savings can receive allowances for their CO_2 reductions (see Figure 2). A state will allocate the remaining allowances to EGUs or other entities in accordance with its established procedures.

Figure 2: Allocation Chronology

Timing	Event	Description
2022	Initial Allocation	Allocations are made to each efficiency project based on CO_2 certificates in a registry generated by that project. Thus, states can choose to distribute allowances to early action projects (activities occurring prior to 2022).
2022 – and Thereafter	Market Participation	Project participants may sell allowances to regulated entities or use them for compliance if they have CPP compliance obligations
2023 – and Thereafter	Subsequent Allocations	Using the project registry, state officials can identify the CO_2 emissions reduction associated with efficiency projects in the state since its last allocation of allowances

[3] While states have the flexibility to allocate for 1, 2, or 3 year periods, this approach assumes that single-year allocations will be used. While there may be some administrative simplicity achieved by three-year allocations, annual allocations will enable states to more effectively incentivize CO_2 emission reductions by the lowest-cost options – including, in many cases, demand reduction.

ALLOCATION METHODS FOR SPECIAL CIRCUMSTANCES

States can also enhance and accelerate the contribution to CPP compliance made by energy efficiency projects by allocating allowances under special circumstances.

- Early Action Allocation: States could recognize any and all registered energy efficiency measures installed after 2012 (commencing operations on or after January 1, 2013) that still provide energy savings during the post-2022 compliance period. Such allocation would incentivize early action energy efficiency deployment, which would in turn reduce demand and ease the state's overall CPP compliance burden. States could choose to allocate allowances in 2022 (the first compliance year) to qualifying early action energy efficiency projects.

- Clean Energy Incentive Program Allocation (Optional): States may also opt to credit early action energy efficiency measures that have commenced construction in September 6, 2018. At this time, EPA envisions that energy efficiency projects deployed in low-income communities after that time could receive two allowances (one from the state matched by one from EPA) for each ton of CO_2 emissions avoided. States would allocate allowances in 2022 to qualifying CEIP projects.

Application to Renewable Energy

> *States using a mass-based approach may provide additional support for renewable energy through direct allocations of emission allowances to renewables … States also have the opportunity under a mass-based approach to reward early action through allowance allocation strategies, separate from, and in addition to, a state's opportunity to participate in the Clean Energy Incentive Program.* **(Renewable Energy in the Clean Power Plan Factsheet, U.S. Environmental Protection Agency, August 2015)**

As EPA has stated, states can choose to directly allocate allowances to renewable energy technologies. This paper supports extending this direct allocation approach to renewables, as well as other clean energy technologies, in the same manner as the method described for registered energy efficiency projects. States would be able to see all quantified and verified energy efficiency and renewable energy projects in a registry and make allocations accordingly.

Distributed Renewable Energy: Small-scale, "distributed" sources of renewable electricity generation are often decentralized and modular. Distributed generation (DG) technologies face similar challenges as energy efficiency, since they are non-obligated parties under the CPP that will ultimately benefit states in reaching their compliance goals.

Utility-scale Renewable Energy: Utility-scale renewable energy technologies, such as grid-connected solar, wind or biomass, are measured for the purposes of sales, in which the output is metered in real-time by revenue grade meters. These technologies could easily integrate into a project registry.

Option 2: An Output-Based Allocation Approach

EPA has requested comment on options for implementing an output-based allocation system for distributing allowances. An output-based allocation approach may be the simplest and most direct

means of creating a market incentive under the CPP to decarbonize the generation and use of electricity.

Proposed below is an output-based approach that would allocate allowances based on their contribution to the grid of all system resources – including energy efficiency – in relation to the CO_2 emissions associated with that resource. In this system, the addition of a kWh of renewable or nuclear electricity would be treated identically to any demand reduction from a properly measured and verified efficiency project. Fossil combustion electricity resources would receive allowances proportionally reduced to reflect the CO_2 emissions associated with the generation of that electricity.

OUTPUT-BASED ALLOCATION APPROACH AND FORMULAS

1) Calculate Allowance Rate for Registered and Verified Energy Efficiency Savings, Renewables, and Nuclear

$$EE, RE, Nuc\ Allowance\ rate\ per\ MWh = \left(\frac{Avg.\ Lbs.\ CO_2\ per\ MWh\ from\ state's\ fossil\ EGUs}{2000}\right)$$

Where:
EE, RE, Nuc Allowance rate = number of allowances allocated for each MWh of generation or savings
EE = registered and verified energy efficiency
RE = renewable energy
Nuc = nuclear energy

2) Calculate Allocation of Allowances to EE, RE, and Nuclear

$$Total\ allocation\ to\ EE, RE, Nuc = EE, RE, Nuc\ Allowance\ Rate * MWh\ of\ EE, RE, Nuc$$

3) Calculate the Total of Available Allowances Remaining

$$TAAR = TAA - Total\ allocation\ to\ EE, RE, Nuc$$

Where:
TAA = Total allowances available
TAAR = Total allowances available remaining (after allocation to EE, RE, Nuc)

4) Calculate Allocation of Allowances to Fossil EGUs

$$EGU\ Allowances = \left(\frac{\left(\frac{TAAR}{Ftons}\right) * Avg.Fossil\ Emission\ Rate}{emissions\ rate\ of\ fossil\ EGU}\right) * Tons\ emitted\ by\ individual\ EGU$$

Where:
F_{tons} = Gross tons of CO_2 emitted from fossil sources
Emission rate of fossil EGU is equal to the pounds of CO_2 per one MWh from an affected source.

As illustrated in Figure 3, allowances will be allocated to sources according to a four step process:

1. Calculate the allowance rate for registered and verified energy efficiency savings, renewables, and nuclear power by dividing the average pounds of carbon dioxide per megawatt hour from the states fossil EGUs by 2000 in order to express the number of tons per MWh. For example, an average of 1,500 lbs. CO_2/MWh from all fossil sources would equal an allowance rate of three-quarter allowances per MWh of energy efficiency, renewables, or nuclear power.

2. Multiply the allowance rate in step one by the aggregate MWh's from energy efficiency, renewables, and nuclear power in order to calculate how many allowances will be allocated to these sources. To ensure that they are fully and fairly credited for their role in avoiding CO_2 emissions, these zero-emission resources are given priority over fossil generation sources in the allocation process.
3. Calculate the total number of available allowance remaining by subtracting the allocation to energy efficiency, renewables, and nuclear power from the number of tons under the cap in that year.
4. Calculate the allocation of remaining allowances to fossil EGUs. Allocations to fossil EGUs are determined by comparing an EGU's proportion of its emissions against all fossil emissions and allocating remaining allowances in inverse proportion to CO_2 emissions. This creates a further incentive for the use of the most efficient, least-emitting fossil powered generation resources.

This output-based allocation approach has the virtue of rewarding lower emitting sources with allowances in greater proportion than higher emitting sources. This serves as a direct incentive to expand reliance on the least-emitting resources and rewards the market actors that meet the largest electricity resource need while emitting the least CO_2. This should result in entities regulated under the CPP placing an increased premium on investments in low GHG electricity resources in order to secure sufficient allocations to offset emissions from their fossil-fired assets.

Figure 3: Hypothetical State Illustration

Assumptions:
Mass-based cap of 66,000,000 tons

Generation, Savings, and Emissions by Source:
Coal = 40,000,000 MWh @ 2,250 lbs. CO_2/MWh = 45,000,000 tons of CO_2 emitted
NGCC = 60,000,000 MWH @ 1,000 lbs. CO_2/MWh = 30,000,000 tons of CO_2 emitted
RE = 20,000,000 MWh @ 0 lbs. CO_2/MWh = 0 tons of CO_2emitted
Nuclear = 20,000,000 MWh @ 0 lbs. CO_2/MWh = 0 tons of CO_2emitted
EE = 10,000,000 MWh @ 0 lbs. CO_2/MWh = 0 tons of CO_2emitted

Average fossil emission rate = 1,500 lbs. CO_2/MWh

Total = 150,000,000 MWh generated and avoided
= 75,000,000 tons of CO_2 emissions

Output Based Allocation Approach:

1) **Calculate allowances for Registered and Verified Energy Efficiency Savings, Renewables, and Nuclear**

$$Allowances\ per\ MWh = \left(\frac{1{,}500}{2{,}000}\right) = 0.75\ Allowances\ per\ MWh$$

2) **Calculate Allocation of Allowances to EE, RE, and Nuclear**

$$Allowances\ to\ EE, RE, Nuc = 0.75 * 50{,}000{,}000 = 37{,}500{,}000$$

3) **Calculate the Total of Available Allowances Remaining**

$$TAAR = 66{,}000{,}000 - 37{,}500{,}000 = 28{,}500{,}000$$

4) **Calculate Allocation of Allowances to Fossil EGUs**

$$EGU\ Allowances = \left(\frac{\left(\frac{28{,}500{,}000}{75{,}000{,}000}\right) * 1{,}500}{2{,}250}\right) * 45{,}000{,}000 = 11{,}400{,}000\ allowances\ for\ coal$$

$$EGU\ Allowances = \left(\frac{\left(\frac{28{,}500{,}000}{75{,}000{,}000}\right) * 1{,}500}{1{,}000}\right) * 30{,}000{,}000 = 17{,}100{,}000\ allowances\ for\ NGCC$$

Allocation Summary:

37,500,000 allowances for EE, RE, Nuclear
17,100,000 allowances for NGCC
11,400,000 allowances for Coal

66,000,000 total available allowances

In this scenario, a coal-fired power plant generating 3,000,000 MWh would receive:

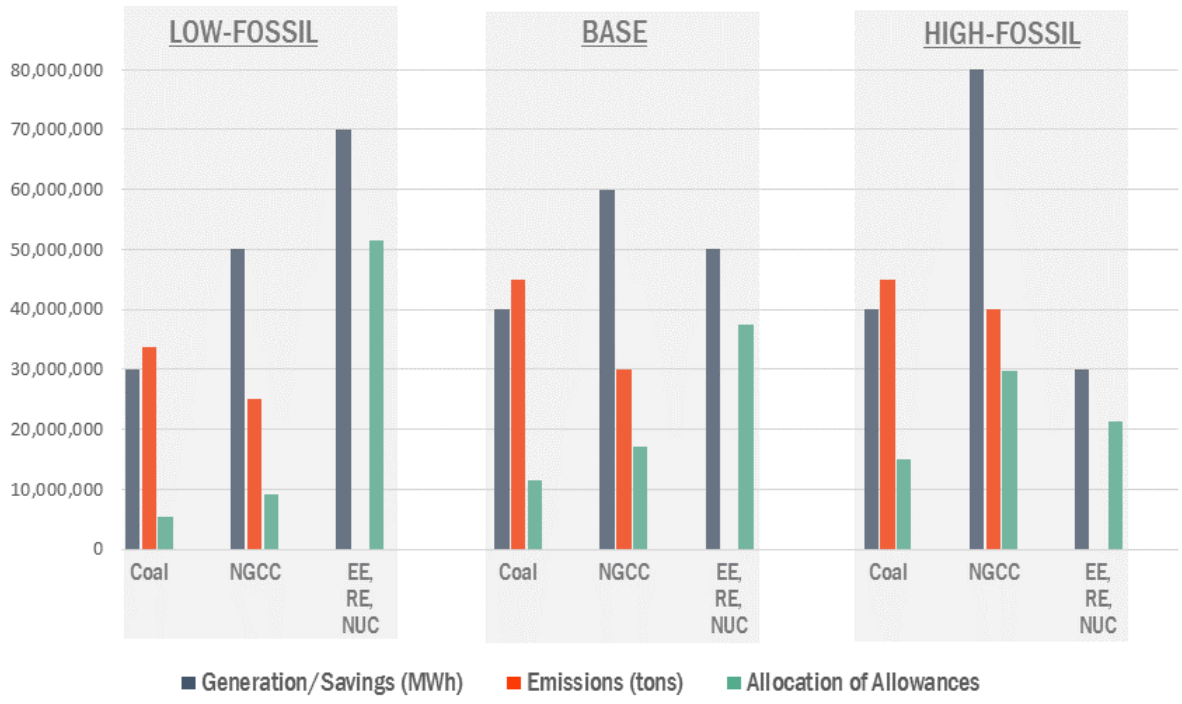
- 712,500 allowances if it were emitting at 2,400 lbs. CO_2 per MWh;
- 855,000 allowances if it were emitting at 2,250 lbs. CO_2 per MWh; or
- 1,005,883 allowances if it were emitting at 1,700 lbs. CO_2 per MWh

Figure 4 illustrates three allocation scenarios based upon the formula described above.

- The base scenario, described in full in the hypothetical state illustration in Table 1, describes how an allocation would occur in a state with a moderate balance between fossil and cleantech sources.
- The low fossil scenario assumes that less fossil sources and more energy efficiency, renewables, and nuclear power are used.
- The high fossil scenario reflects a greater reliance on natural gas for compliance.
- All three cases assume:
    - 150 million megawatt hours of power resources (total generated plus total demand avoided via EE)
    - 66 million ton CO_2 emissions cap
    - Emission rate for coal-fired units averages 2,250 lbs. CO_2/MWh
    - Emission rate for natural gas combined cycle units averages 1,000 lbs. CO_2/MWh

As shown in Figure 4, a state's allocation of allowances among sources is dictated by the composition of its net generation or savings and its gross emissions. The low-fossil scenario, which attributes 20 million more MWh to EE, RE, and nuclear (compared to the base case), results in nearly 17 million more allowances allocated to EE, RE, and Nuclear. These clean sources receive a higher proportion of allowances than coal and NGCC. In low-fossil states, allowances to clean sources outpace the linear progression of generation, so much so that the low-fossil state in this scenario will have surplus allowances, which it can sell to other fossil sources in need. Contrast this with the high-fossil scenario, where natural gas units receive more allowances than EE, RE, and nuclear, but at a proportionally lower rate than EE, RE, and nuclear. This is an output-based allocation approach that incentivizes and rewards investment in cleaner sources with allowances that can be used to reduce the cost of compliance with the CPP, and may even become its own profit center.

Figure 4: Output-Based Allocation Scenarios



Benefits

Each of these allocation approaches enables energy efficiency to compete on equal terms with other compliance options.

Overview

The allocation approaches proposed in this paper would enable energy efficiency to participate directly in competitive CPP compliance markets.

If conducted in the manner suggested by this paper, an allocation to clean sources would be simple for states to implement. With revenue generated through the sale of allowances, energy efficiency projects would have a clear opportunity to achieve shorter payback periods, which would make them increasingly attractive to private and public sector energy consumers. Given the large, well-documented, reserve of untapped efficiency opportunities in the nation's built environment, this approach may well enable a more rapid and less expensive path for CPP compliance by all parties than EPA currently anticipates – achieving even more ambitious future targets than conceived for decarbonizing the electricity sector post 2030.

Implementation Benefits of The Proposed Allocation Approach

The approaches described in this paper provides a simple and straightforward method for states to incorporate energy efficiency projects into their CPP implementation efforts. In addition, these approaches reduce uncertainty surrounding set-asides and other mechanisms that approximate future CO_2 reductions from efficiency projects.[4]

- Corrects the "Tragedy of the Commons" Error – In EPA's proposed mass-based allocation approach, investments in energy efficiency benefit all entities that supply the grid in a given region. This reality results in a significant dis-incentive for private sector energy efficiency investments to be included in CPP implementation activities. Either of the allocation approaches described in this paper would enable the CO_2 emission reduction value of any energy efficiency investment be fully and fairly realized by the entity that made the investment.

- Corrects the Dis-equilibrium between Mass- and Rate-based Approaches – The EPA describes how energy efficiency can participate directly in the market for CPP compliance options via the creation of ERCs. The allocation options described in this paper provide roughly equivalent approaches to enable energy efficiency to participate in the market for compliance under a mass-based approach.

- Simple to Implement – State regulators will face myriad challenges in implementing the CPP. The opportunity to harness market forces via CPP allowance trading mechanisms that encourage energy efficiency deployment would greatly ease this burden and reduce compliance costs. Furthermore, the approaches outlined in this paper provide simplicity, clarity, and certainty for states and regulators. The approach would create a simple two-step process for states: 1) use the energy efficiency registry to determine the amount of eligible CO_2 emission reduction delivered by registered projects; and 2) distribute the appropriate amount of allowances to those projects.

[4] While the CPP values the GHG reductions associated with avoided electricity consumption, many TPDEE projects include other environmental benefits, such as on-site fossil fuel savings and reduction in water consumption. By increasing the market signal for electricity avoidance, states will gain the environmental (including CO_2) benefits of non-electricity savings for no additional cost.

- Utilizes Only Verified CO_2 Reductions — Allowances are only distributed based on implemented energy efficiency measures for which the CO_2 emission reductions have been documented and verified.

- Allows Markets to Choose Energy Efficiency as a Compliance Option – Allocation of CPP allowances to efficiency projects will enable efficiency-derived CO_2 emission reductions to compete on equal terms with other CPP compliance options.

MARKET BENEFITS OF THE PROPOSED ALLOCATION APPROACH

- Low Cost Compliance: Energy efficiency is a low-cost, abundant GHG abatement resource. EPA estimates that efficiency projects can spur a 7% reduction in electricity demand by 2030, reducing electricity bills by $7/month on average for families and businesses across the nation. EPA's CPP rule gives states the opportunity to design "trading ready" plans in order to participate market-based emission trading programs. Energy efficiency's direct participation in these trading programs has the potential to drive down compliance costs and increase flexibility.
- Supports Economic Growth: Energy efficiency provides many public benefits in addition to reducing GHGs. Increased utilization of energy efficiency measures creates jobs across the manufacturing, construction, financial, environmental, energy, and technological supply chains. Additionally, by reducing wasteful energy expenditures, facilities as diverse as hospitals and manufacturing facilities can become more cost-effective, making them more competitive and increasing their ability to sustain and increase budget resources available to hire and retain employees.
- Increases CPP Compliance Flexibility: Energy efficiency can operate effectively in a mass-based approach. While EPA did not include energy efficiency as a building block in its goal-setting process, it unequivocally encourages and supports the use of energy efficiency in state plans. Under a mass-based approach, there is no limit on the use of energy efficiency projects and programs, and energy efficiency activities would not become federally enforceable as part of a state's plan.
- Allocation System Reinforces the Goals of the Clean Power Plan: This ambitious new regulatory program may be complex, but its simple purpose is to move the cost of electricity-related CO_2 emissions from society at-large to the electricity market. By awarding allowances to zero-emission electricity resources, regulators would set in motion a clear market incentive that rewards the largest use of the least expensive CO_2 avoidance strategies and technologies. This approach will maximize the internalization of CO_2 emission costs, and therefore create market forces that accelerate emission reductions.

Expected Market Response

A clear price signal and an open, transparent market for all power-sector CO_2 emission reductions will produce the most cost-effective CO_2 emission reduction strategies.

The majority of energy efficiency investments made in this country are made by organizations and entities that do not own or operate EGUs and, therefore, will have no compliance obligation under the CPP. Direct allocation of allowances to efficiency projects that deliver GHG emission reductions will

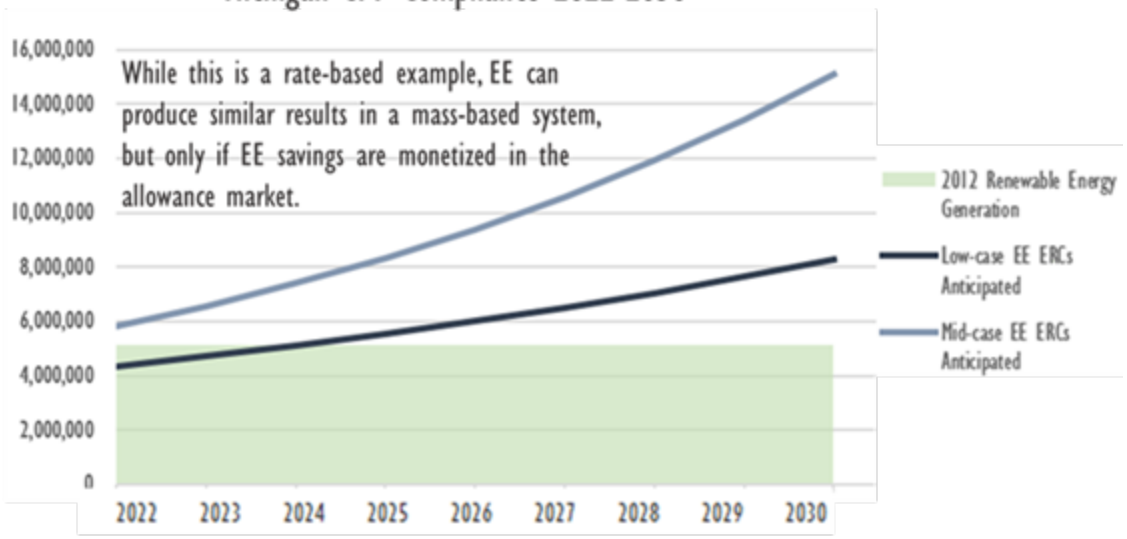
enable those projects to compete directly through allowance markets to provide low-cost CO_2 emission reductions.

The Acid Rain Program provides a compelling example of the benefits of allowing all compliance options, including energy efficiency, to participate directly in allowance markets. Some of the most cost-effective compliance in that program came – unexpectedly – through fuel switching to lower-sulfur coal resources. A scenario in which EGUs were only allowed to trade when surpluses were the result of installed post-combustion control technologies, but not when the surplus was created by fuel switching, would have been much costlier. Thus, the most broadly cost-effective strategy for reducing sulfur emissions played a much more significant role in compliance.

In many cases under the CPP, the lowest-cost compliance options will not translate into the compliance option that does the most to support corporate profitability. Obligated parties may have clear incentives to opt for more profitable but more expensive compliance options (e.g., increasing output from lower-GHG generating resources) over less expensive demand reduction options. While this would have no negative environmental impact (tons of emissions would be reduced either way), the greater cost would put the interests of corporate shareholders over those of ratepayers.

If energy efficiency is to play a substantial role in GHG emission reductions achieved under the CPP (as is illustrated in Figure 5), it is necessary for EPA and states to provide a clear and reasonable means of allowing proponents that develop and operate energy efficiency measures, but do not have CPP compliance obligations, to participate directly in the CPP allowance market.

Figure 5: EE's (Conservative) Potential Contribution to Michigan CPP Compliance 2022-2030



EE ERCs Generated as a % of Total ERCs Needed by Michigan Coal Plants to Achieve CPP Compliance

% of Needed ERCs	2022	2023	2024	2025	2026	2027	2028	2029	2030
Low Case Scenario	23%	21%	19%	19%	18%	18%	18%	18%	18%
Mid Case Scenario	30%	30%	27%	28%	29%	29%	30%	31%	32%

Market response (measured by increased investment in energy efficiency measures) will be driven by the value provided through the allocation of allowances. As the market demand and prices for allowances become clearer over time, large-scale efficiency projects will be able to estimate additional project value tied to allowances. A relatively strong and stable allowance price will shorten payback periods for efficiency projects and would lead to increased adoption of efficiency measures. Allowance prices that translate to $0.01 to $0.02 per avoided kWh would likely drive significant, sustained growth in market uptake for efficiency projects.

States Can Use Existing Program Elements

This allocation approach can enhance and leverage existing state energy efficiency programs.

States with existing programs aimed at increasing deployment of energy efficiency measures would see even greater results from those investments and activities and would not have to modify any existing programs or incentives in order for efficiency projects to be eligible to receive allowances. This includes traditional utility-led ratepayer or taxpayer-funded incentive programs, energy savings performance contracts, industrial efficiency programs, and above-code building efficiency incentives. Additionally, should a state choose to expand the scope or number of efficiency programs it uses, projects under those expanded programs would also be easily integrated in the allocation distribution system described in this paper.

For projects conducted under any state efficiency program to be eligible to earn allowances, each project would have to be registered and its performance appropriately measured and verified. The responsibility for these actions would fall to the project participants – not state officials. State officials implementing the CPP would be required only to make information available to project implementers regarding their intent to distribute allowances to registered and verified efficiency projects.

Additional Program Elements

States will need additional tools (e.g. a registry) to facilitate implementation of state plans.

State officials seeking to implement the approach described in this paper will not need to develop additional tools for managing their energy efficiency programs. They will, however, need additional tools to be developed and made available to them by EPA or other collaborating organizations. In some cases, (e.g. a registry) these additional tools will support more than demand reduction. In other cases, (e.g. approving M&V protocols) they will be more limited in scope. That said, the approaches described in this paper are far more straightforward for states to implement than several rate-based approaches currently under discussion.

In order to ensure that accurate information regarding efficiency-related CO_2 emission reductions is readily available to state officials, a few additional program elements need to be put in place. The most important of these is a registry of verified energy efficiency projects, such as the NEER project mentioned above and already in development. EPA indicated in its proposed Federal Plan that it would consider facilitating the development of a national project registry for this purpose. EPA can and should utilize and encourage third party efforts to develop a national project registry for CPP.

In order for a project registry to facilitate interactions between energy efficiency projects and CPP compliance, the CO_2 emission reductions associated with a project would have to be measured and verified according to widely accepted measurement and verification (M&V) protocols. Internationally-recognized M&V protocols exist and are in common use for energy efficiency projects listed in this paper. It will be necessary for a project registry to clearly establish the methods of M&V implementation and documentation that will be needed to participate in the registry.

- Appropriate M&V Methodology – M&V methodology varies by necessity depending on the type of energy efficiency program or project that is being verified. Residential appliance replacement incentives, whole-campus performance contract projects, and industrial process efficiency projects each have well-established, but unique M&V protocols. EPA has outlined how this can be achieved in the CPP rule and model plans. To provide meaningful support for energy efficiency projects under the CPP, any third-party registry must allow projects to use an accepted M&V protocol that is most appropriate given the nature of the project.

- Standardized Data – To facilitate effective auditing of M&V reports, while minimizing costs that could – if too high – eliminate any incentive for energy efficiency projects to participate in the registry process, the registry should establish and clearly articulate both the types of M&V data that will need to be reported and the format for that data to presented. It is costly and counterproductive for M&V data to be reconstructed and recalculated multiple times. This challenge can be addressed with clear guidance at the outset that allows all M&V professionals to prepare their data appropriately for this use.

- Audits – Maintaining confidence in the integrity of the data in an energy efficiency project registry is crucial if state officials are to rely upon that information for the purpose of determining the distribution of CPP allowances. It makes sense for the registry to utilize a process of random M&V report auditing. In the event that any deficiencies are found in a report, auditors should be authorized to investigate any additional projects associated with those participants.

- Liability – Organizations seeking to register projects in an energy efficiency registry should be required to adequately demonstrate that potential liability for any faulty claims of GHG emission reduction has been clearly assigned by binding contracts to an organization with sufficient financial resources and insurance to manage any future liability claims, to address financial penalties, and to secure additional GHG emission reductions as needed.

- Allowance and Tracking Compliance System (ATCS): Registry information will "feed" into the EPA ATCS system proposed in the Final Rule, allowing EPA and states to access energy efficiency project data. ATCS will serve as an emissions and allowance tracking system to record and track trading market and program data, including CO_2 emissions from regulated power plants and CO_2 allowance transactions among market participants. Each state's facilities and EGUs will have a registered account in the ATCS system that reflects their allowance transactions.

EPA and State Actions Needed

It will be necessary for the EPA to take several additional steps between now and the start of the CPP implementation period.

WE RECOMMEND THAT EPA:

- Include in the final Model State Plans and supporting materials an allowance allocation process along the lines of those proposed in this paper.
- Dedicate appropriate staff and financial resources to the implementation of an energy efficiency project registry as described above.
- Develop necessary guidance for states describing a process for allocating allowances with the purpose of incentivizing and recognizing the CO_2 emission reduction contributions from energy efficiency projects and programs.
- Provide states with appropriate support during the development of CPP implementation plans to enable the creation of clear and simple allocation procedures that will enable monetization of CO_2 emission reductions from energy efficiency projects.

WE RECOMMEND THAT STATES:

- Include in mass-based state plans an allowance allocation process along the lines of those proposed in this paper to enable the monetization of CO_2 reductions from energy efficiency projects.
- Recognize one or more EPA-accredited energy efficiency project registries as described in this paper to reduce state administrative costs to implement the CPP.