EPA Workshop for Environmental Justice Communities

November 4 - 5, 2015

Summary

Climate change is a threat in the U.S. -- We are already feeling the dangerous and costly effects of a changing climate – affecting people's lives, family budgets, and businesses' bottom lines

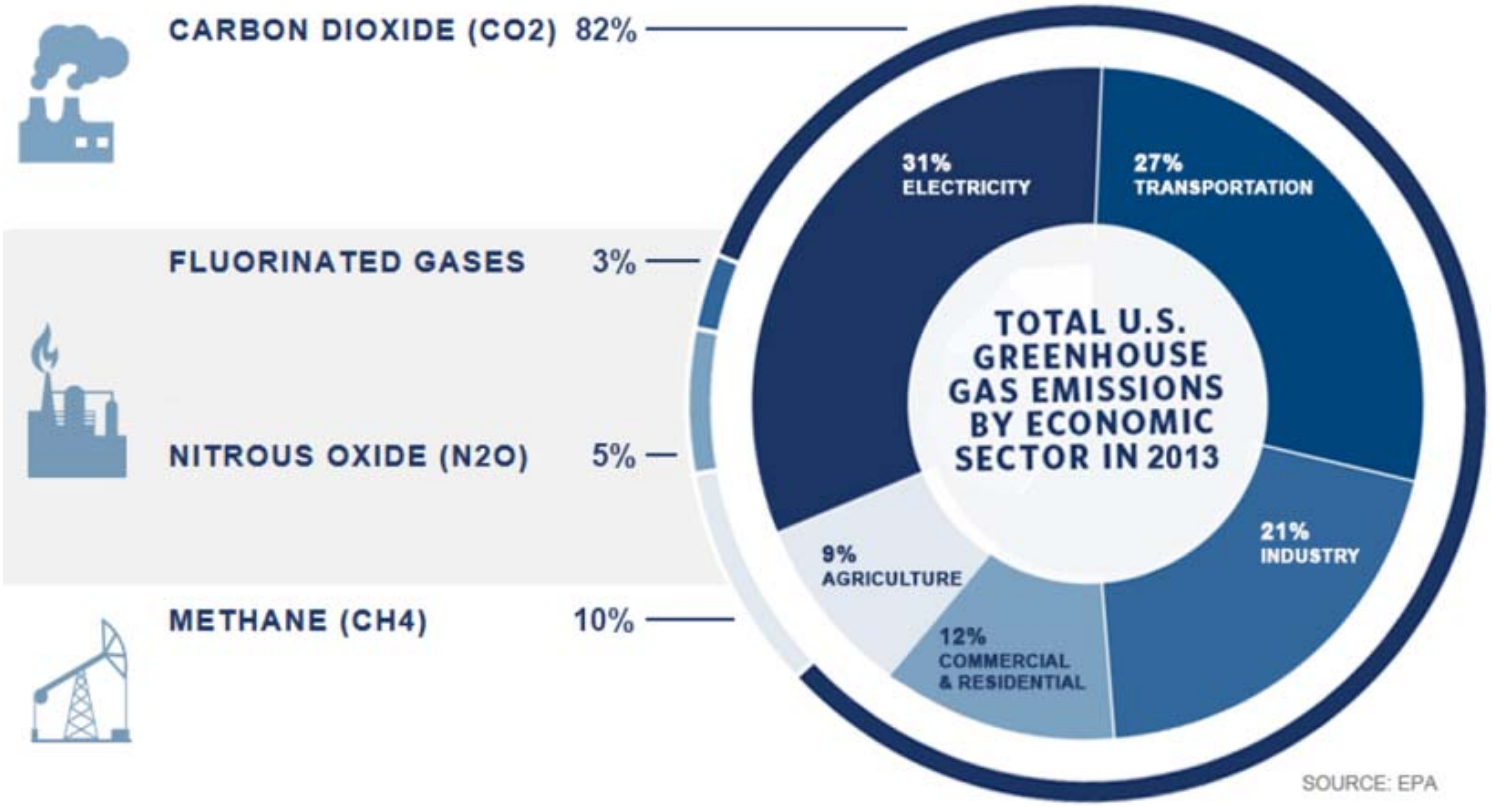
EPA is taking three actions that will significantly reduce carbon pollution from the power sector, the largest source of carbon pollution in the US

- Clean Power Plan (CPP) – existing sources (Final)
- Carbon Pollution Standards – new, modified and reconstructed sources (Final)
- Federal Plan and model rules proposal – out for public comment

EPA's actions

- Achieve significant pollution reductions
- Deliver an approach that gives states and utilities plenty of time to preserve ample, reliable and affordable power
- Spur increased investment in clean, renewable energy

POWER PLANTS ARE THE SINGLE LARGEST SOURCE OF CARBON POLLUTION



The Clean Air Act Calls For…

- Meeting health-based air quality standards
- Controlling stationary and mobile source emissions
- Reducing toxic emissions
- Reducing acid rain
- Reducing regional haze
- Protecting the ozone layer
- Reducing greenhouse gas emissions
- Involving states, tribes and stakeholders

Titles of the Clean Air Act

- **Title I**—National Ambient Air Quality Standards; Hazardous and Other Air Pollutants from Stationary Sources
- **Title II**—Mobile Sources
- **Title III**—Emergency Powers and Tribal Authority, Public Involvement
- **Title IV**—Acid Deposition
- **Title V**—Operating Permits
- **Title VI**—Stratospheric Ozone

Section 111

- Section 111 of the CAA was enacted in 1970
- It establishes a mechanism for controlling air pollution from categories of stationary sources
  - A stationary source is an industrial sources (some examples are chemical factories, refineries, power plants and incinerators)
  - Applies to categories of sources for which the Administrator, in her judgment, finds "causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare"
- Lays out different approaches for new and existing sources
  - New sources under section 111(b)
    - Federal standards for new, modified and reconstructed sources
  - Existing sources under section 111(d)
    - Federal Emission Guidelines for State programs to set standards for non-NAAQs/non-HAP pollutants from existing sources
    - Federal Plans for states without approved plans

Section 111 (cont.)

Section 111(b) for Modified and Reconstructed Sources

- EPA must also set a standard to address modified and reconstructed sources
  - Modification
    - A physical or operational change that increases the source's maximum achievable hourly rate of emissions
  - Reconstruction
    - When a single project replaces components and exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility
- Follows same regulatory process as setting standards for new sources
- Each modified or reconstructed source must meet the standard
- Standards are incorporated in state air permits
  - Standards are to be reviewed at least every 8 years and revised, if appropriate
  - The review process includes public participation

Section 111(d) (cont.)

Section 111(d) is broad by design

- Congress anticipated there may be air pollution problems that EPA would need to address beyond those covered by national ambient air quality standards (such as ozone and fine particle pollution) or air toxics standards
- Also recognized that existing sources do not have as much flexibility as new ones to build emission controls into their design
- Section 111(d) provides flexibility to states to design a plan to achieve the standards of performance that the state establishes based on federal guidelines
- Similar to the NAAQS program, EPA approves or disapproves state plans; and can do a federal plan if needed

Determining BSER under Section 111(d)

- EPA determines the best system of emission reduction (BSER) that has been demonstrated for a particular pollutant and a particular group of sources by examining technologies and measures that are available

- BSER analysis considers, among other factors:
  - Ranges of reductions that can be achieved
  - Costs of reductions
  - Pace and extent of possible reductions

Clean Power Plan

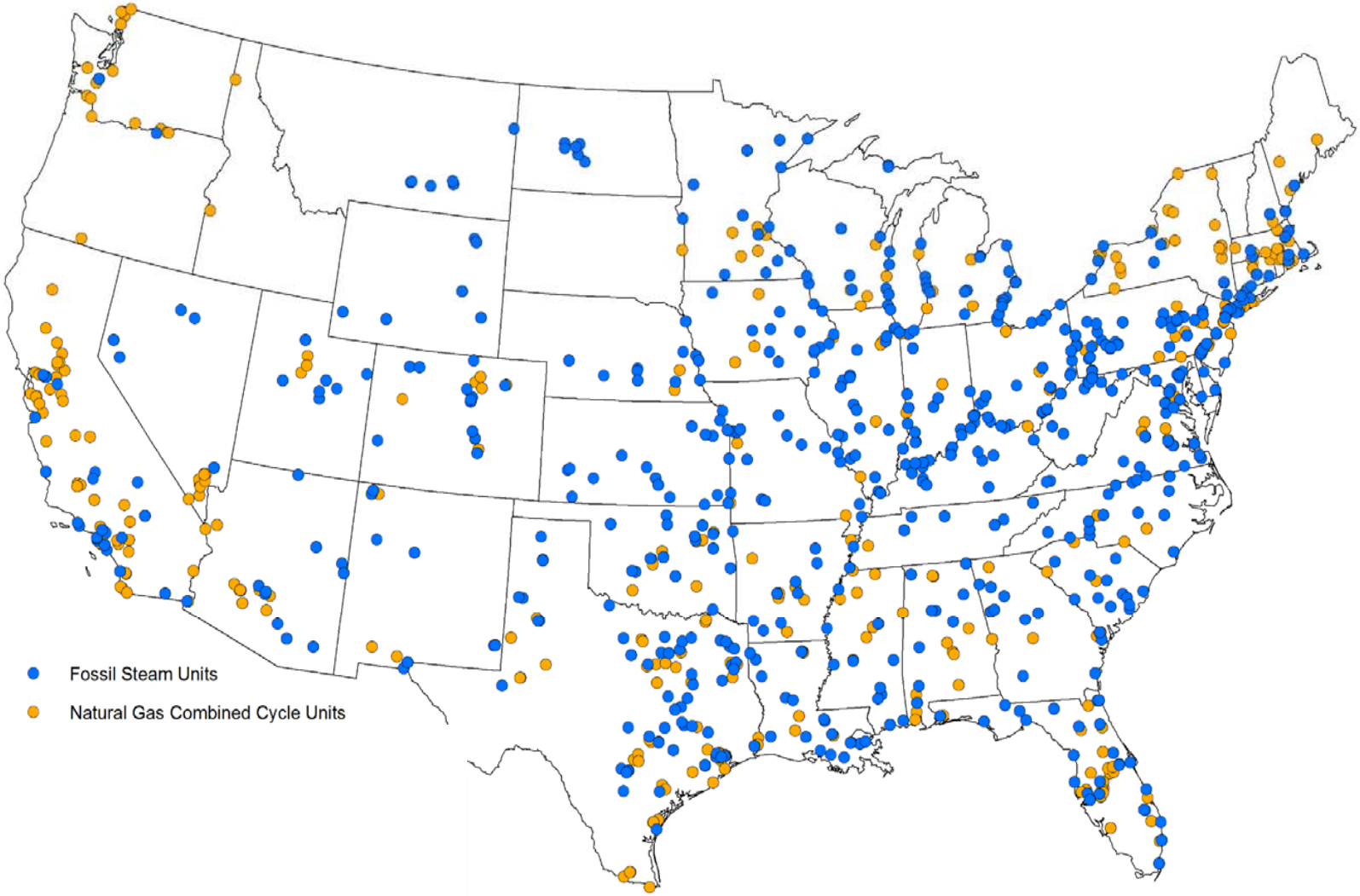
The Clean Power Plan

Overview

- Relies on a federal-state/tribal partnership to reduce carbon pollution from the biggest sources – power plants
- Carrying out EPA's obligations under section 111(d) of the Clean Air Act, the CPP sets carbon dioxide emissions performance rates for affected power plants that reflect the "best system of emission reduction" (BSER)
- EPA identified three "Building Blocks" as BSER and calculated performance rates for fossil-fueled EGUs and another for natural gas combined cycle units
- Then, EPA translated that information into a state or tribal goal – measured in mass and rate – based on each state or tribe's unique mix of power plants in 2012
- The states and tribes have the ability to develop their own plans for EGUs to achieve either the performance rates directly or the state goals, with guidelines for the development, submittal and implementation of those plans

The Clean Power Plan

What sources?



Determining BSER under Section 111(d)

- BSER analysis for CPP focuses on the three electricity grid interconnections
  - **Applies the building blocks** to all of the coal plants and all of the natural gas power plants in each regional interconnect
  - **Produces regional emission performance rates** for each category
  - **Chooses the most readily achievable rate** for each category
  - **Sets those rates as the national CO2 emission performance rates** for all sources in each category in all regional interconnects

- To set state goals, EPA:
  - **Applies national rates** to all affected sources in each state
  - **Sets individual statewide goals,** both rate-based and mass-based

- Each state has a different goal based upon its own particular mix of affected sources

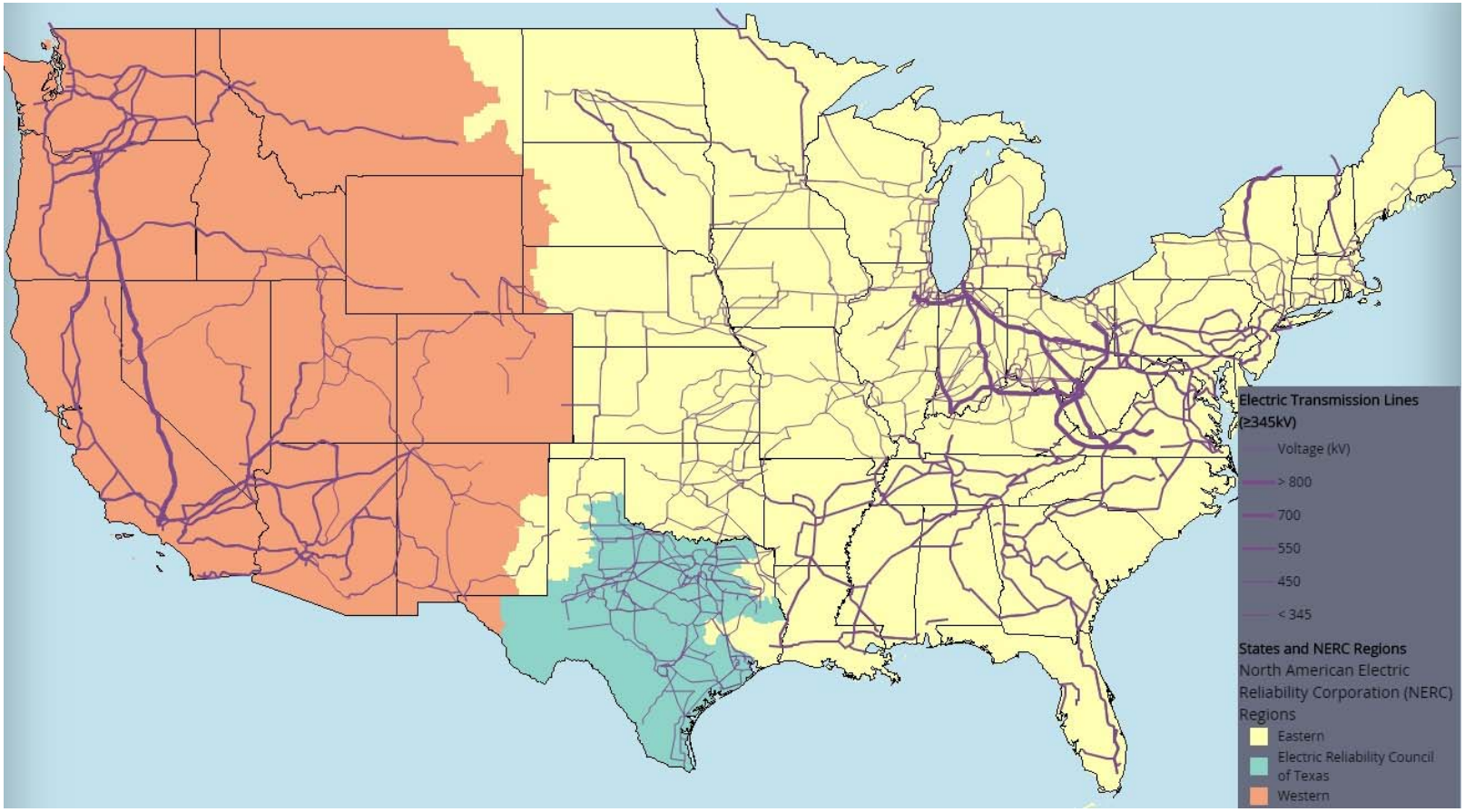
2012 Baseline

- EPA uses an "adjusted" 2012 baseline for the goal-setting process
  - EPA adjusted the historic 2012 CO2 emissions and megawatt-hour generation data for states in certain circumstances to reflect key concerns and corrections from commenters
- Adjustments include:
  - Some updated unit-level data
  - Three circumstances where EPA made "adjustments upwards" – i.e., added more fossil fuel CO_2 emissions and corresponding MWh of generation to the historic 2012 rate
    1. States with large hydro generation portfolios.
       - Hydro ran more than normal in 2012
    2. States where a unit outage was determined to have a potential significant impact on the state generation total.
       - i.e. if a coal unit was offline in 2012
    3. States with under-construction fossil steam and NGCC capacity
       - Assume operation at expected technology-class levels
- EPA did not remove units that were operating in 2012 but have since announced retirements
  - These retirements can count toward meeting the goal in state plans

Best System of Emission Reduction: Three Building Blocks

Building Block	Strategy EPA Used to Calculate the State Goal	Maximum Flexibility: Examples of State Compliance Measures
1. Improved efficiency at power plants	Increasing the operational efficiency of existing coal-fired steam EGUs on average by a specified percentage, depending upon the region	-Boiler chemical cleaning -Cleaning air preheater coils -Equipment and software upgrades
2. Shifting generation from higher-emitting steam EGUS to lower-emitting natural gas power plants	Substituting increased generation from existing natural gas units for reduced generation at existing steam EGUs in specified amounts	Increase generation at existing NGCC units
3. **Shifting generation to clean energy renewables**	Substituting increased generation from new zero-emitting generating technologies for reduced generation at existing fossil fuel-fired EGUs in specified amounts	Increased generation from new renewable generating capacity, e.g., solar, wind, nuclear, and combined heat & power

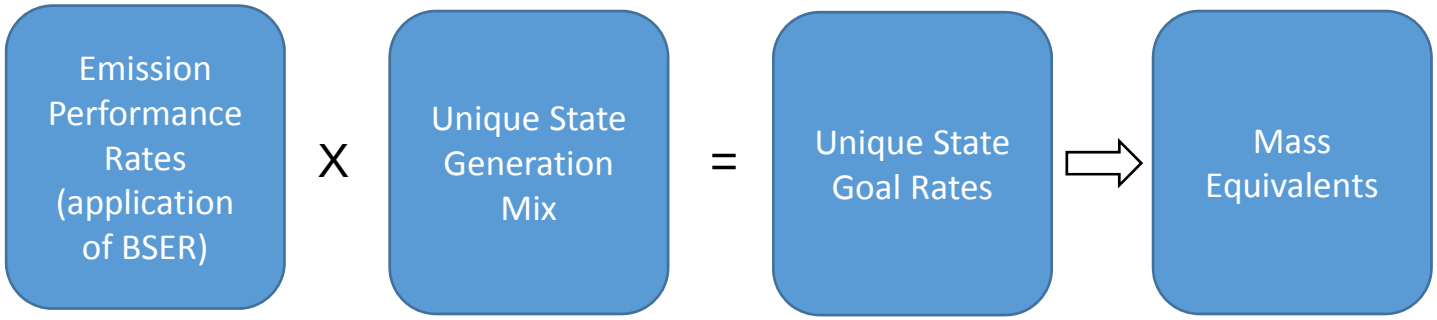
Grid Connects Sources to Deliver Energy



- This interconnection and diversity of generation offer cost-effective advantages and approaches that many states have already shown can provide power while emitting less CO_2
- In assessing the BSER, EPA recognized that power plants operate through broad interconnected grids that determine the generation and distribution of power. EPA's analysis is based on the three established regional electricity interconnects: Western, Eastern and the Electricity Reliability Council of Texas

Category-Specific Performance Rates

The emission performance rates are nationally uniform; but can be expressed as standards on power plants in multiple ways.



EPA is establishing carbon dioxide **emission performance rates** for two subcategories of existing fossil fuel-fired electric generating units (EGUs):

1. Fossil fuel-fired electric generating units (generally, coal-fired power plants)
2. Natural gas combined cycle units

Emission performance rates have been translated into equivalent state goals. In order to maximize the range of choices available to states, EPA is providing state goals in three forms:

- rate-based goal measured in pounds per megawatt hour (lb/MWh);
- mass-based goal measured in short tons of CO_2
- mass-based goal with a new source complement (for states that choose to include new sources) measured in short tons of CO_2

Choosing the Glide Path to 2030

- **Phased-in glide path**
  - The interim period runs from 2022-2029 and includes three interim performance periods creating a reasonable trajectory (smooth glide path)
  - Interim steps:
    - Step 1 – 2022-2024
    - Step 2 – 2025-2027
    - Step 3 – 2028-2029
  - Provided that the interim and final CO_2 emission performance rates or goals are met, for each interim period a state can choose to follow EPA's interim steps or customize their own
- **Renewables and energy efficiency can help states meet their goals**
  - Investments in renewables can help states under all plan approaches to achieve the Clean Power Plan emission goals while creating economic growth and jobs for renewable manufacturers and installers, lowering other pollutants and diversifying the energy supply
  - Energy efficiency improvements are expected to be an important part of state implementation across the country, regardless of state plan types, providing energy savings that reduce emissions, lower electric bills, and lead to positive investments and job creation

How Does EE/RE Fit in the Clean Power Plan?

Type of Approach	Role of EE/RE in State Plan	How states can advance EE/RE	EM&V Req'd?	Considerations
Emission Standards → **Mass**	***EE reduces cost, EE/RE lowers CO_2 emissions but are not enforceable or written into the state plan***	• Allocate CO_2 allowances for EE/RE (e.g. through a set aside)	*	• Unlimited flexibility with EE/RE implementation * EM&V generally not required for CPP purposes, except for CEIP and set asides specifically created to meet the leakage requirement
		• Auction allowances, use $ for EE/RE		
		• Secure matching allowances for solar, wind and low-income EE from Clean Energy Incentive Program (CEIP)	✓	
Emission Standards → **Rate**	***Explicitly written into state plan; Used to generate ERCs and directly adjust reported CO_2 emissions rate of affected EGUs***	• Include EE/RE ERC tracking, trading, and issuance provisions in the state plan	✓	• EM&V plans and M&V reports required • EE/RE is explicitly tracked & credited • Trading-ready plans facilitate broad access to ERCs • EE/RE implemented after 2012 can generate credits starting in 2022
		• Issue ERCs for quantified and verified MWhs from eligible EE/RE measures	✓	
		• Secure matching ERCs from CEIP for solar, wind, low-income EE	✓	
State Measures → **State Demonstration Based on Mass**	***Explicitly included as supporting material for state plan – enforceable under state law; State EE/RE policies and measures can be used to help affected EGUs meet mass goal***	• Implement state EE/RE policies and programs (e.g., EERS, RPS, building codes) that are enforceable under state law, either to meet goal or in conjunction with federally enforceable limits	✓*	• Projection of EE/RE impacts required and EGU CO_2 performance required ✓* EM&V Plan for EE/RE measures must be included as supporting material for state plan • Backstop emission standards for affected EGUs if CO_2 reductions don't materialize
		• Secure matching allowances from CEIP for solar, wind and low-income EE	✓	

Examples of EE/RE Mentioned in the CPP

- Demand-side EE policies, programs and measures called out in the CPP include, but are not limited to, those that:
  - **Lower electricity use in buildings and facilities** (e.g. residential/commercial buildings; industrial, water and wastewater treatment facilities)
  - **Are installed as individual EE projects** (e.g. by energy service companies (ESCOs)) **or through an EE deployment program** (e.g. appliance replacement and recycling programs, and behavioral programs, administered by electric utilities, state entities and other private and non-profit entities).
  - **Impose requirements that result in MWh savings** (e.g. state or local requirements, such as building energy codes, energy efficiency resource standards (EERS), state appliance/equipment standards
  - **May be provided by a variety of parties**, including but not limited to: Owners or operators of affected EGUs, electric distribution companies, independent power producers, energy service companies, administrators of state EE programs, and administrators of industrial EE programs among others
- RE Policies, programs, measures called out in the CPP include:
  - **Requirements for renewable generation** (e.g. Renewable portfolio standards)
  - **Utility and state-administered incentive programs** for RE technologies

Incentives for Taking Early Action on EE and RE

- All EE/RE that achieves energy savings or generation during the plan performance period (2022-2030) helps states meet their CPP goals for affected EGUs, either as a formal part of a state's plan or as a complementary effort
  - Efforts in place today are already working to help states achieve their goals for affected EGUs
- Under a mass-based plan approach, states can reward EE/RE efforts, including for early action, through allowance allocation provisions
- Under a rate-based approach, eligible EE/RE put in place after 2012 that achieves electricity savings or generation during the compliance period may be issued Emission Rate Credits (ERCs)
- The Clean Energy Incentive Program (CEIP) provides additional incentives for solar, wind and low income EE investments in 2020-2021 under both rate-based and mass-based approaches

Tribes

- CPP finalized guidelines cover three Indian reservations with units
  - Navajo, Fort Mojave, and Ute (Uintah and Ouray)
- Tribes generally have the opportunity, but not the obligation, to submit a plan for their respective areas of Indian country
- If a tribe chooses to establish its own plan, it must seek and be approved by EPA for "treatment in the same manner as a state" (TAS) status
  - In the proposed federal plan, the EPA is proposing to find that it is necessary or appropriate to implement a federal plan for the affected EGUs located in Indian country
  - EPA is consulting with these tribes and this proposal does not preclude tribes from seeking TAS and submitting a tribal plan to implement the Clean Power Plan for their affected EGUs
- RE or EE projects by tribes or in Indian country may be able to participate in trading programs by earning ERCs (in rate-based) or receiving allowances out of a set-aside (in mass-based)

Clean Power Plan and Communities

- Broad benefits to communities across the country - particularly low-income communities, minority communities and tribal communities – by reducing carbon pollution from power plants
- Public engagement will continue during Clean Power Plan implementation
  - **States-**must actively engage communities in developing state plans
  - **Communities** can learn strategies their state is considering, provide input on possible impacts to vulnerable communities, and work with their state to mitigate those impacts
  - **EPA**-will provide information to facilitate engagement between communities and states (e.g., Clean Power Plan Community Page/Portal)
- Helping communities benefit from clean energy
  - The **Clean Energy Incentive Program** (CEIP) rewards early energy efficiency investments in low-income communities (and wind and solar investments in all communities)
  - The Administration is providing **tools and resources** to help low-income communities access federal, state, local, and other resources for renewable energy and energy efficiency
    - New initiative to increase solar access for all Americans
    - Summary of relevant federal programs and activities
    - Identifying private sector partners and foundation support
    - Catalog of successful state and local programs (forthcoming in October 2015)
    - Catalog of relevant EPA programs (forthcoming in October 2015)

Clean Energy Incentive Program

- EPA is providing the Clean Energy Incentive Program (CEIP) to incentivize early investments that reduce end-use energy demand in low income communities or that generate wind and solar power during 2020 and 2021
- The CEIP is an optional, "matching fund" program states may choose to use to incentivize early investments in wind or solar power, as well as demand-side energy efficiency measures that are implemented in low-income communities
- EPA will provide matching allowances or Emission Rate Credits (ERCs) to states that participate in the CEIP, up to an amount equal to the equivalent of 300 million short tons of CO_2 emissions nationally. The match is larger for low-income EE projects, targeted at removing historic barriers to deployment of these measures. Also, states with more challenging emission reduction targets will have access to a proportionately larger share of the match.
  - To be eligible for allowances or ERCs under the CEIP a qualifying RE project must begin construction, and a qualifying EE project must begin operation, following submittal of a final state plan to the EPA that contains requirements for CEIP participation.
- The CEIP will help ensure that momentum to no-carbon energy continues and give states a jumpstart on their compliance programs
- EPA will engage with stakeholders in the coming months to gather feedback on specific elements of the program and finalize implementation details

Information and Resources

How can I learn more?

After two years of unprecedented outreach, the EPA remains committed to engaging with all stakeholders as states implement the final Clean Power Plan

- For more information and to access a copy of the rule, visit the **Clean Power Plan website**: http://www2.epa.gov/carbon-pollution-standards
- Through graphics and interactive maps, the **Story Map** presents key information about the final Clean Power Plan. See: http://www2.epa.gov/cleanpowerplan
- For community-specific information and engagement opportunities, see the **Community** Portal:
- For additional resources to help states develop plans, visit the **CPP Toolbox for States**: http://www2.epa.gov/cleanpowerplantoolbox
- For a graphical and detailed walk through of the EGU category-specific CO_2 emission performance rate and state goals, see **State Goal Visualizer**: http://www2.epa.gov/cleanpowerplantoolbox
- EPA provides **webinars** and **training** on CPP related topics at the air pollution control learning website. See: http://www.apti-learn.net/lms/cpp/plan/