
THE CLEAN POWER PLAN
epa.gov/cleanpowerplan
#ActOnClimate #CleanPowerPlan

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
- Carbon Pollution Standards – new, modified and reconstructed sources
- Federal Plan proposal and model rule

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

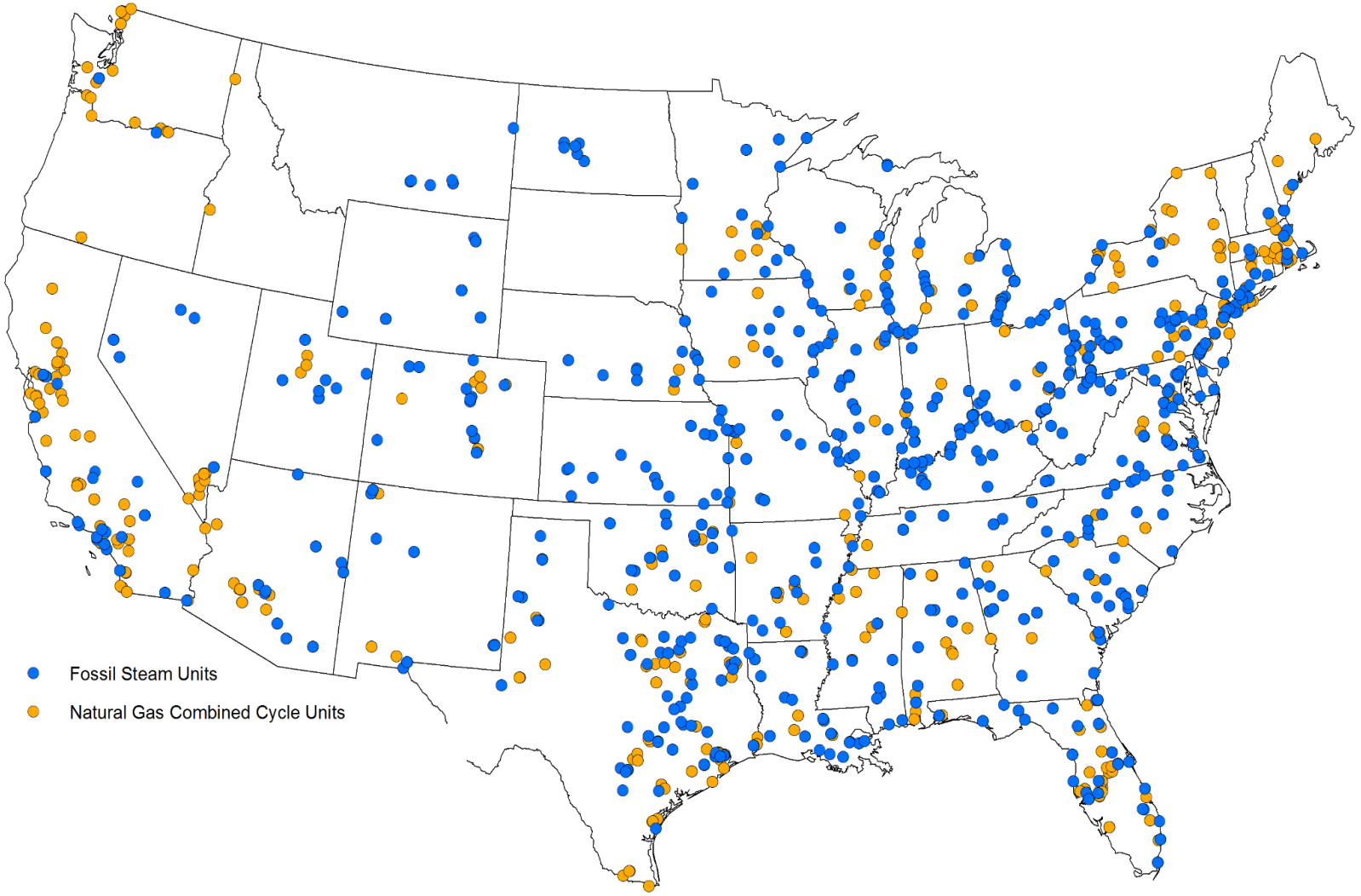
The Clean Power Plan

Overview

- Relies on a federal-state 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 3 "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 goal – measured in mass and rate – based on each state's unique mix of power plants in 2012
- The states 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?

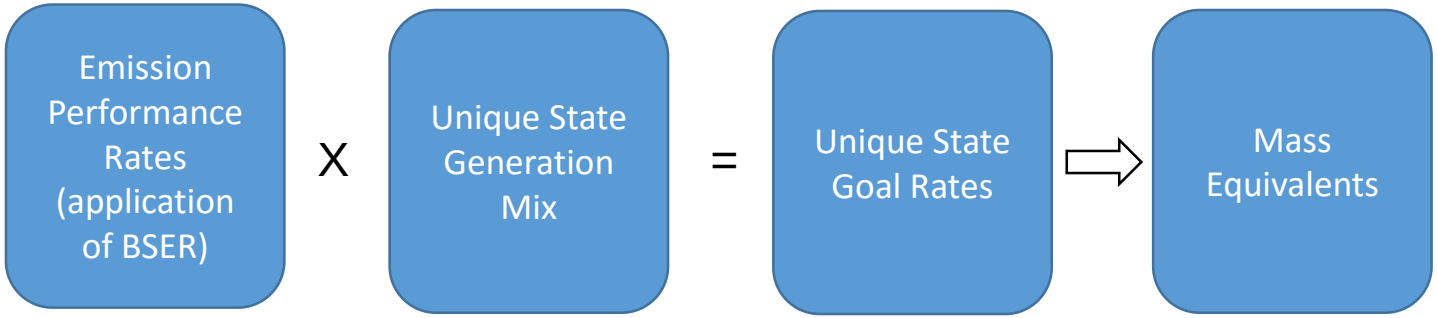


Best System of Emission Reduction: Three Building Blocks

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

Category-Specific Performance Rates

Power plants are subject to the same standards no matter where they are located.



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

Many CO_2 Reduction Opportunities

- Heat rate improvements
- Fuel switching to a lower carbon content fuel
- Integration of renewable energy into EGU operations
- Combined heat and power
- Qualified biomass co-firing and repowering
- Renewable energy (new & capacity uprates)
  - Wind, solar, hydro
- Nuclear generation (new & capacity uprates)
- Demand-side energy efficiency programs and policies
- Demand-side management measures
- Electricity transmission and distribution improvements
- Carbon capture and utilization for existing sources
- Carbon capture and sequestration for existing sources

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 compliance across the country and under all state plan types, providing energy savings that reduce emissions, lower electric bills, and lead to positive investments and job creation

Clean Power Plan Timeline

Summer 2015	• August 3, 2015 - Final Clean Power Plan
1 Year	• September 6, 2016 – States make initial submittal with extension request or submit Final Plan
3 Years	• September 6, 2018 - States with extensions submit Final Plan
7 Years	• January 1, 2022 - Compliance period begins
15 Years	• January 1, 2030 - CO_2 Emission Goals met

Two State Plans Designs:

- States are able to choose one of two state plan types:

Emission Standards Plan – State places federally enforceable emission standards on affected electric generating units (EGUs) that fully meet the emission guidelines

- Can be designed to meet the CO_2 emission performance rates or state goal (rate-based or mass-based goal)

State Measures Plan - State includes, at least in part, measures implemented by the state that are not included as federally enforceable emission standards

- Designed to achieve the state CO_2 mass-based goal

- Includes federally enforceable measures as a backstop

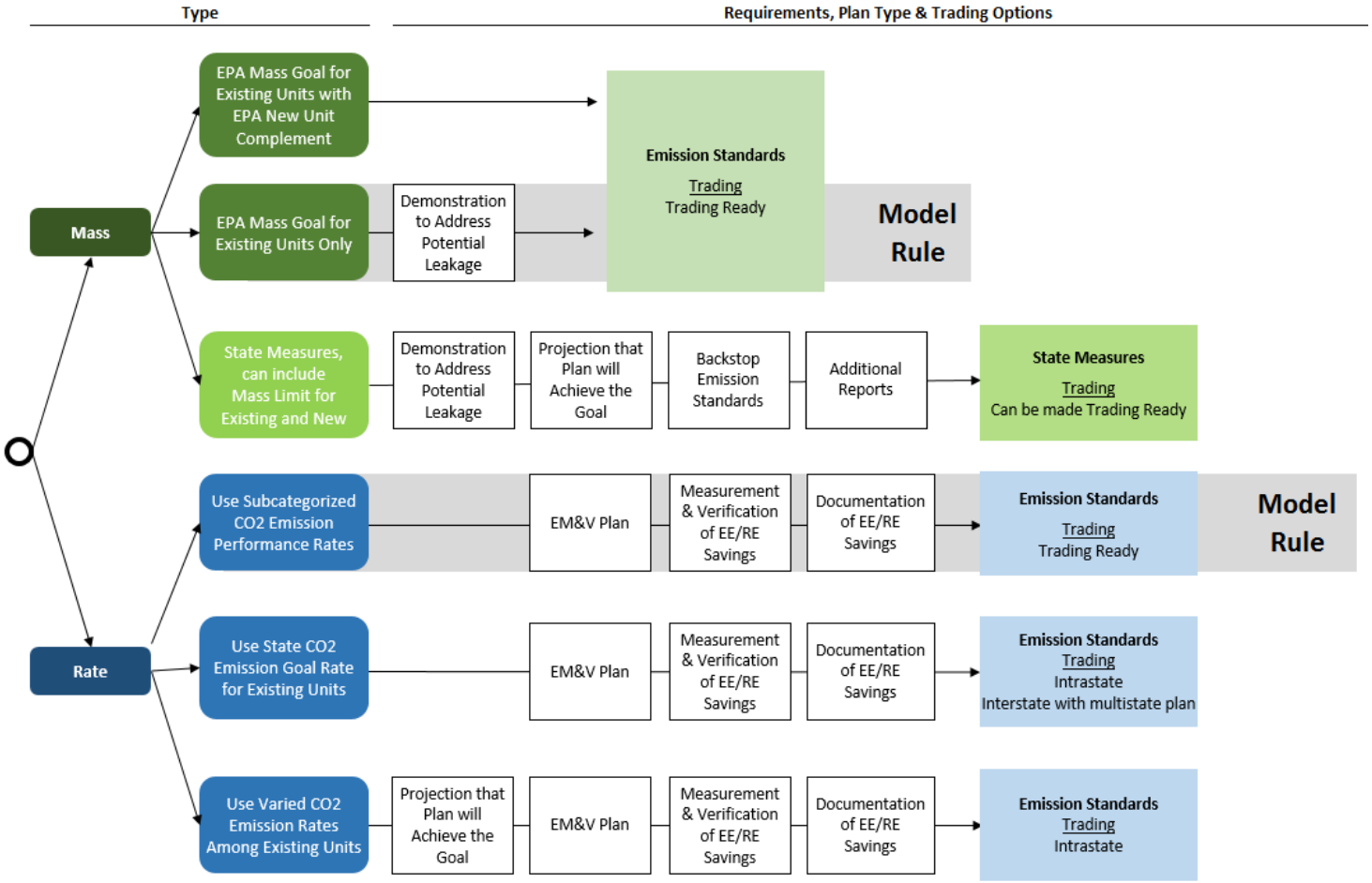
State Plan Development

- Many states are discussing plans that would enable them to collaborate with other states, including multi-state plans or linking plans through common administrative provisions (i.e. “trading ready”)
  - Trading-ready mechanisms allow states or power plants to use creditable, out-of-state reductions to meet their goal without the need for up-front interstate agreements
  - If states elect to collaborate, EPA can support the option for trading as a suitable choice for both EPA and states to implement the CPP
    - Examples of trading in NOx SIP and CSAPR, Acid Rain program
    - Appropriate for carbon emissions
    - Eases administrative burdens
    - Reduces costs to electricity consumers and utilities
- In the CPP, EPA is finalizing state plan designs that suit state needs
  - Pathways for existing programs to reduce carbon emissions, individual state plans and multi-state trading approaches
- Federal plan proposes option for model trading program a state may then implement
  - Invites comment on mass and rate based model trading programs for EGUs
  - Invites comment on idea that all types of state plans can participate in trading

More State Options, Lower Costs

- This chart shows some of the compliance pathways available to states under the final Clean Power Plan. Ultimately, it is up to the states to choose how they will meet the requirements of the rule
- EPA's illustrative analysis shows that nationwide, in 2030, a **mass-based approach is less-expensive** than a rate-based approach ($5.1 billion versus $8.4 billion)

- Under a mass-based plan, states that anticipate continuing or expanding investments in energy efficiency have unlimited flexibility to leverage those investments to meet their CPP targets. EE programs and projects do not need to be approved as part of a mass-based state plan, and EM&V will not be required
- For states currently implementing mass-based trading programs, the "state measures" approach offers a ready path forward
- Demand-side energy efficiency is an important, proven strategy that states are already widely using and that can substantially and cost-effectively lower CO2 emissions from the power sector



Information and Resources

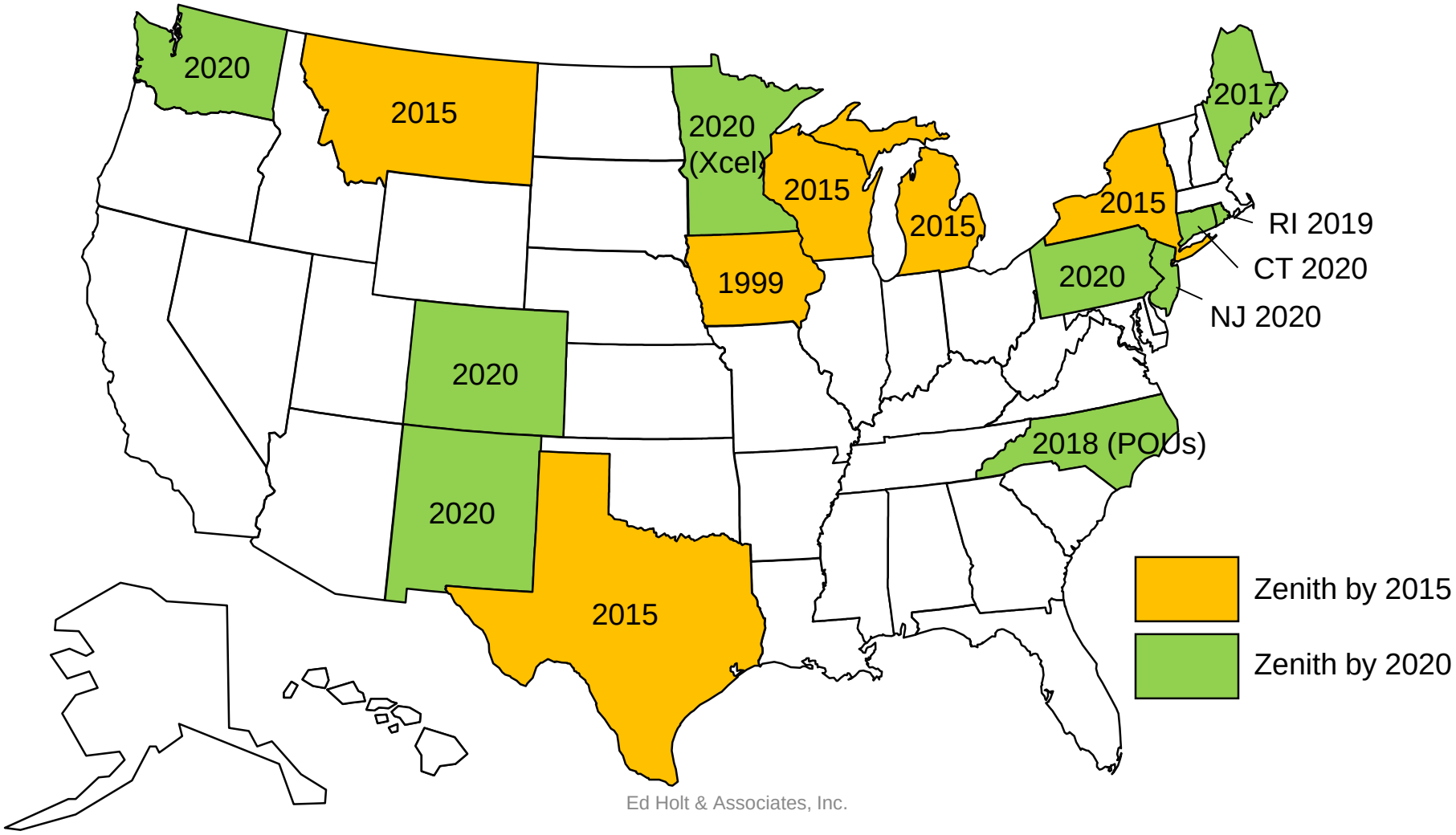
How can I learn more?

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/

RPS Zenith

CPP compliance period: 2022-2030



State Measures Approach

	Rate-based	Mass-based
Emission standards approach	Obligation on affected EGUs	Obligation on affected EGUs
State measures approach	N/A	State-enforceable measures* applied to entities other than affected EGUs, plus any federally enforceable emission standards the state chooses to impose on affected EGUs

No need to describe complementary measures such as RPS

e.g., RPS

* State measures will lead to reductions in emissions by affected EGUs

RECs and ERCs