ACEEE National Conference on

Energy Efficiency as a Resource

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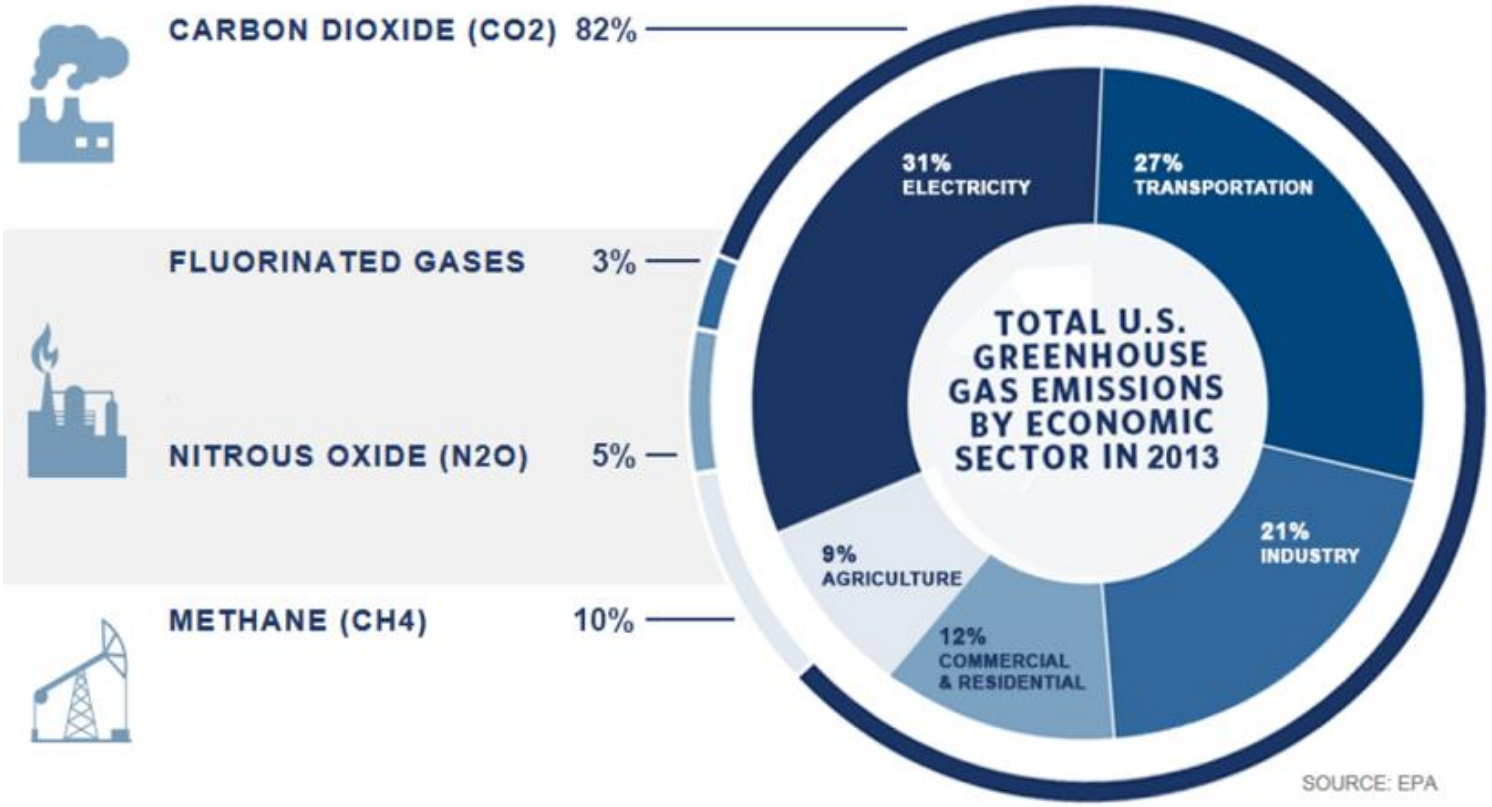
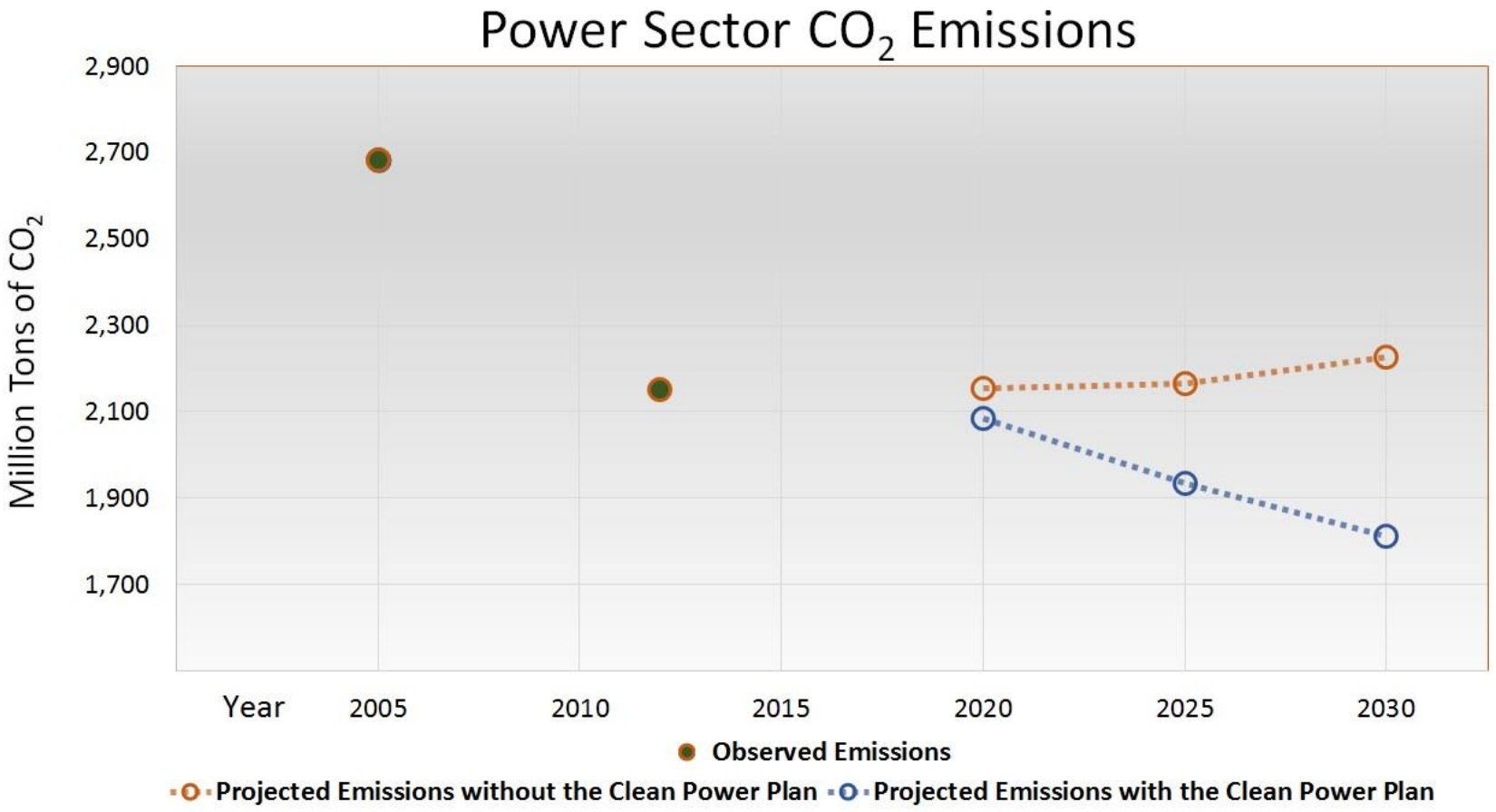
POWER PLANTS ARE THE SINGLE LARGEST SOURCE OF CARBON POLLUTION



Outreach Shaped the Clean Power Plan

- More than two years of unprecedented outreach and public engagement
- Responds to the critical changes that stakeholders and states asked the agency to make and incorporates many of their good ideas
  - More than 4 million public comments submitted to the EPA and
  - Hundreds of meetings with stakeholders
- Public engagement was essential throughout the development of the Clean Power Plan, and that outreach will continue during the implementation

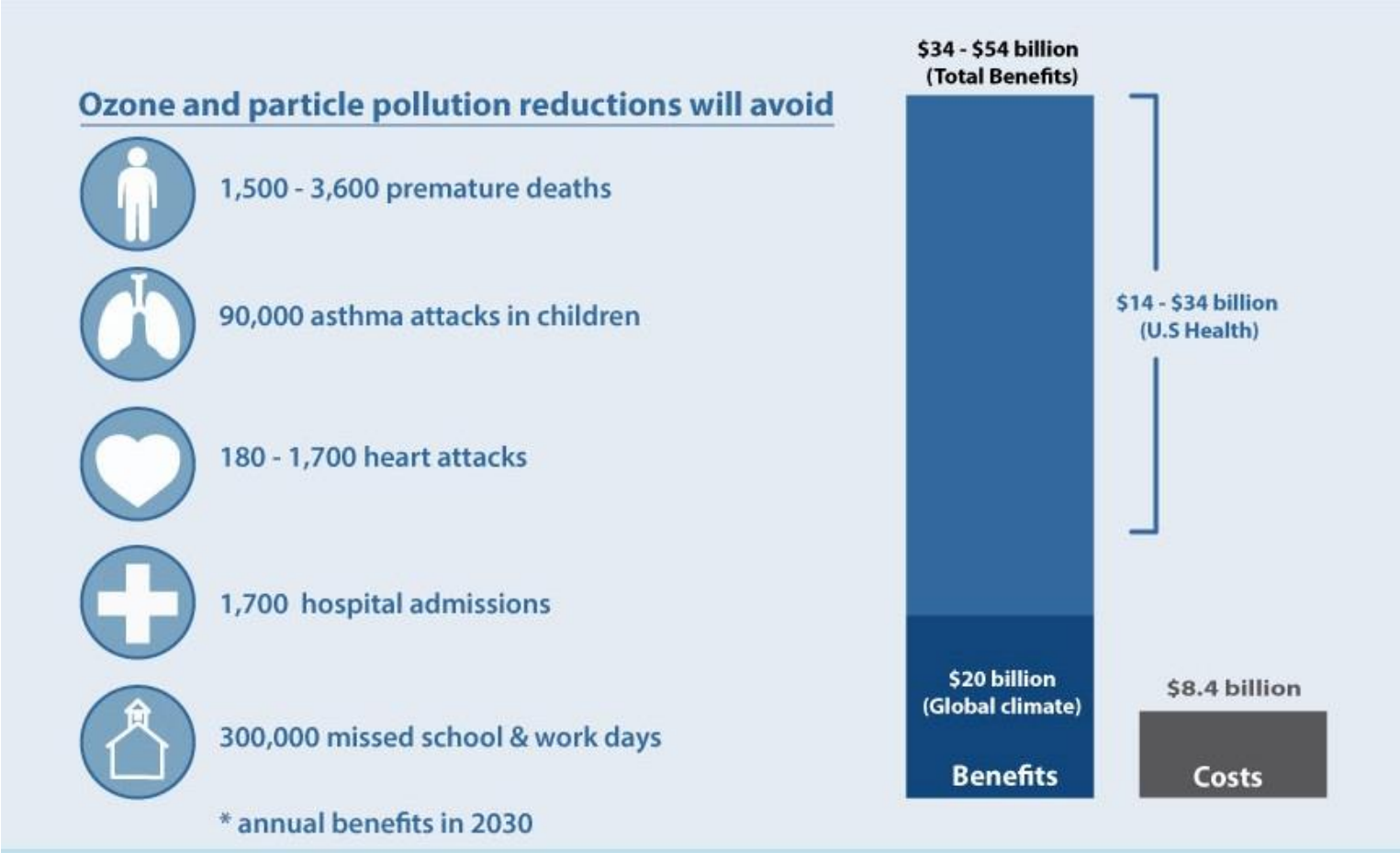
Transition to Clean Energy is Happening Faster than Anticipated



Carbon and air pollution are already decreasing, improving public health each and every year. The Clean Power Plan accelerates this momentum, putting us on pace to cut this dangerous pollution to historically low levels in the future. When the Clean Power Plan is fully in place in 2030, carbon pollution from the power sector will be 32 percent below 2005 levels, securing progress on and making sure it continues.

Benefits of the Clean Power Plan

The transition to clean energy is happening faster than anticipated. This means carbon and air pollution are already decreasing, improving public health each and every year.



While this chart reflects health benefits in 2030, EPA's Regulatory Impact Analysis for the CPP estimates health benefits due to reduced emissions beginning in 2020.

The Clean Power Plan

Overview

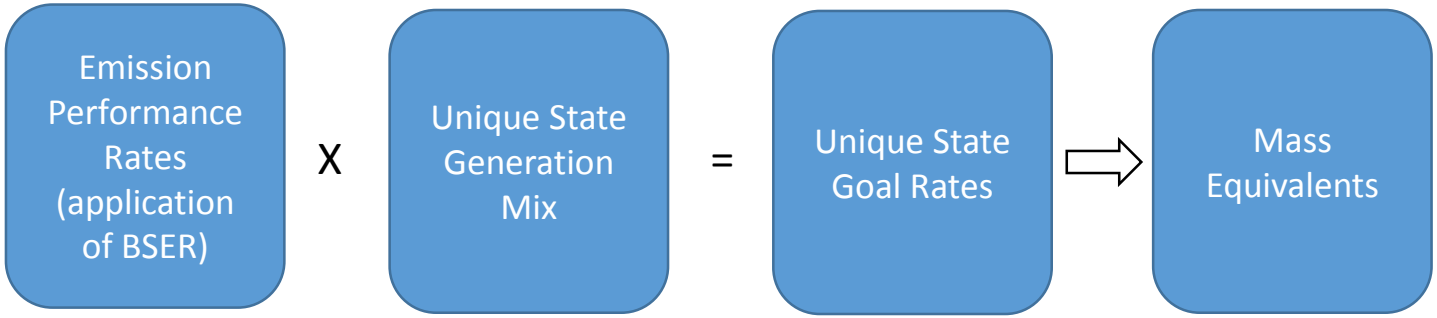
- Relies on a federal-state partnership to reduce carbon pollution from the biggest sources – power plants
- Carrying out EPA's obligations under section 111(d) of the Clean Air Act, the CPP sets carbon dioxide emissions performance rates for affected power plants that reflect the "best system of emission 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

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

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:

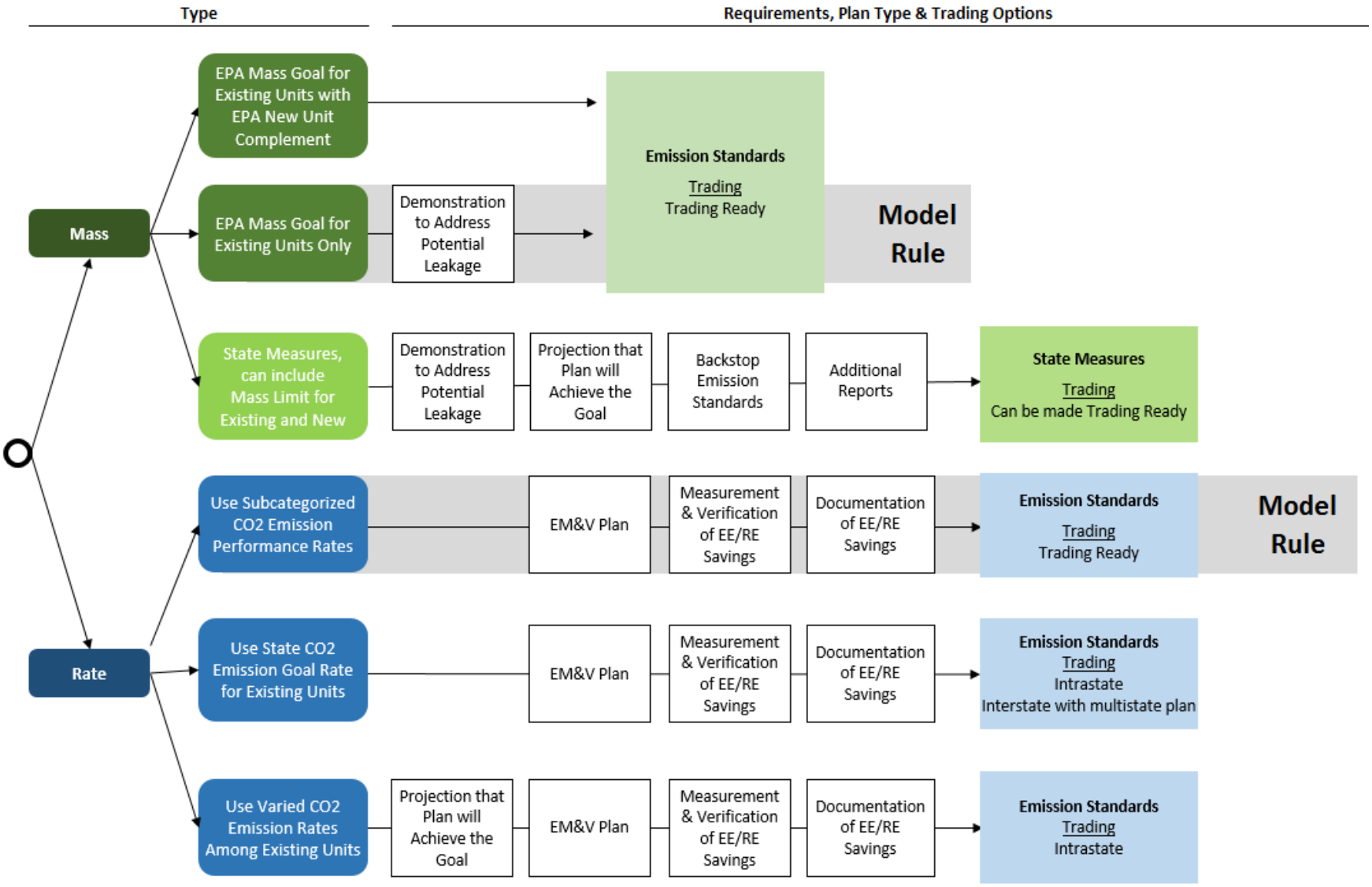
Emission Standards Plan – state places federally enforceable emission standards on affected electric generating units (EGUs) that fully meet the emission guidelines

- 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

More State Options, Lower Costs



Proposed Federal Plan

Overview

- The federal plan and model trading rules provide a readily available path forward for Clean Power Plan implementation and present flexible, affordable implementation options for states
- The model rules provide a cost-effective pathway to adopt a trading system supported by EPA and make it easy for states and power plants to use emissions trading
- Both the proposed federal plan and model rules:
  - Contain the same elements that state plans are required to contain, including:
    - Performance standards
    - Monitoring and reporting requirements
    - Compliance schedules that include milestones for progress
  - Ensure the CO_2 reductions required in the final CPP are achieved
  - Preserve reliability
- Co-proposing two different approaches to a federal plan— a rate-based trading plan type and a mass-based trading plan type
  - Both proposed plan types would require affected EGUs to meet emission standards set in the Clean Power Plan

Proposed Federal Plan Cont'd

How does it work?

- Will be finalized only for those affected states with affected EGUs that EPA determines have failed to submit an approvable Clean Air Act 111(d) state plan by the relevant deadlines set in the emission guidelines
  - Even where a federal plan is put in place, a state will still be able to submit a plan, which if approved , will allow the state and its sources to exit the federal plan
- EPA currently intends to finalize a single approach (i.e., either the mass-based or rate-based approach) for every state in which it finalizes a federal plan
- Affected states may administer administrative aspects of the federal plan and become the primary implementers
  - May also submit partial state plans and implement a portion of a federal plan
- Affected states operating under a federal plan may also adopt complementary measures outside of that plan to facilitate compliance and lower costs to the benefit of power generators and consumers
- Proposes a finding that it is necessary or appropriate to implement a section 111(d) federal plan for the affected EGUs located in Indian country. CO_2 emission performance rates for these facilities were finalized in the Clean Power Plan

Energy Efficiency is Front & Center

- The Clean Power Plan (CPP) puts **energy efficiency** (EE) front and center as compliance options for affected EGUs that avoid or reduce CO2 from affected EGUs and can help states meet their CPP goal for affected EGUs.
- EE is an important, proven strategy widely used by states that can substantially and cost-effectively lower CO_2 emissions from the power sector across all state plan pathways.
  - While the final state goals don't include energy efficiency as a Best System of Emission Reduction (BSER) building block, this does not limit the ability of states to use energy efficiency to meet their CPP goals for affected EGUs.

How Does EE 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)	✓	
	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	✓	

Incentives for Early Action

- 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 both rate-based and mass-based approaches.

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

Preserving Reliability

- The Clean Power Plan includes features that reflect EPA's commitment to ensuring that compliance with the final rule does not interfere with the industry's ability to maintain the reliability of the nation's electricity supply:
  - long compliance period starting in 2022 with sufficient time to maintain system reliability
  - design that allows states and affected EGUs flexibility to include a large variety of approaches and measures to achieve the environmental goals in a way that is tailored to each state's and utility's energy resources and policies, including trading within and between states, and other multi-state approaches
  - requirement that each state demonstrate in its final plan that it has considered reliability issues in developing its plan, including consultation with an appropriate reliability or planning agency
  - mechanism for a state to seek a revision to its plan in case unanticipated and significant reliability challenges arise
  - reliability safety valve to address situations where, due to an unanticipated event or other extraordinary circumstances, there is a conflict between the requirements imposed on an affected power plant and maintaining reliability

- EPA, Department of Energy (DOE) and the Federal Energy Regulatory Commission (FERC) are coordinating efforts to monitor the implementation of the final rule to help preserve continued reliable electricity generation and transmission

EM&V Guidance

- **Regulatory provisions for evaluation, measurement and verification (EM&V)** are included in both the final emission guidelines and proposed rate-based model trading rule
  - The *final emission guidelines* include the basic requirement to conduct EM&V under certain state-plan circumstances
  - Additional EM&V provisions are *proposed in the model trading rule t*o support issuance of emission rate credits (ERCs)

- EPA also released draft **EM&V guidance for EE** that supports implementation of the final guidelines and proposed rate-based model rule
  - The purpose is to provide supplemental information to help states and EE providers successfully quantify and verify savings
  - Not a regulatory document
  - Your input on the draft guidance is needed

EE-related Opportunities for Comment

- Under the federal plan and model rule proposal, there are several areas related to EE/RE where EPA is seeking comment
  - Clean Energy Incentive Program (e.g. Definition of an EE project that benefits a low income community, size of the matching reserve for RE and for low-income EE, method to convert MWh to CO_2 emission allowance equivalents under a mass approach, etc)
  - Proposed Federal Plan (e.g. Eligibility of RE and EE for ERC issuance under a rate-based federal plan; set-asides under a mass-based federal plan)
  - Proposed Model Rule (e.g. Eligibility and Provisions for EE/RE ERC issuance under the rate-based model rule; set-asides under a mass-based model rule approach, EM&V provisions)
  - Draft EM&V Guidance: http://www2.epa.gov/cleanpowerplantoolbox
- For more information on the federal plan and model rule proposal, see http://www2.epa.gov/cleanpowerplan/clean-power-plan-existing-power-plants#federal-plan
- A Factsheet is available at: http://www.epa.gov/airquality/cpp/fs-cpp-proposed-federal-plan.pdf
- You have 90 days to comment, following publication of the proposed federal plan and model trading rules in the Federal Register
- We expect that the model rule will be finalized by Summer 2016

Information and Resources

How can I learn more?

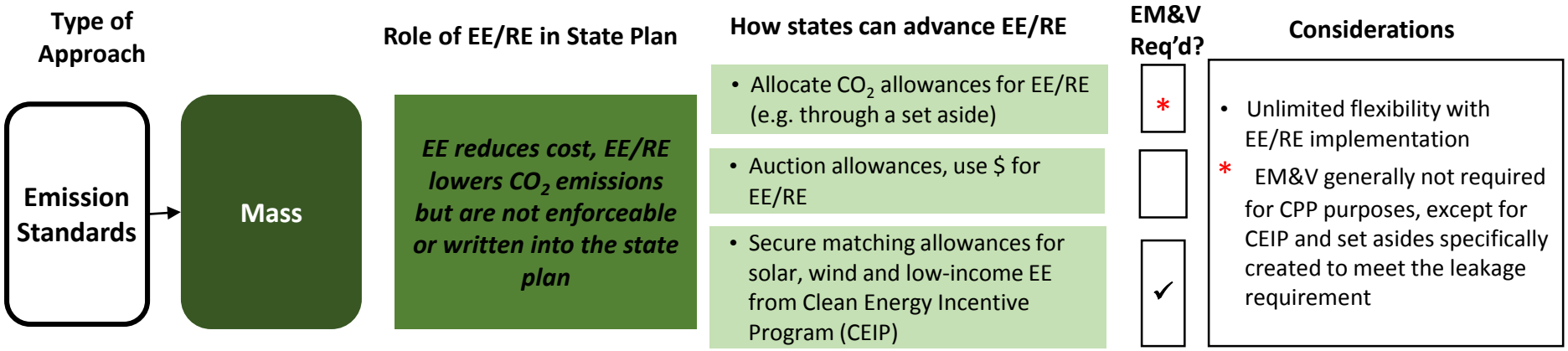
After two years of unprecedented outreach, the EPA remains committed to engaging with all stakeholders as states implement the final Clean Power Plan.

- 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: http://www2.epa.gov/cleanpowerplan/clean-power-plan-community-page
- 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/
- **Federal programs and activities** to support renewable energy and energy efficiency in low- and moderate-income communities: https://www.whitehouse.gov/sites/default/files/low-income_and_energy_efficiency_programs.pdf
- Federal initiative to **increase solar access** for all Americans: https://www.whitehouse.gov/the-press-office/2015/07/07/fact-sheet-administration-announces-new-initiative-increase-solar-access

Thank You and Questions

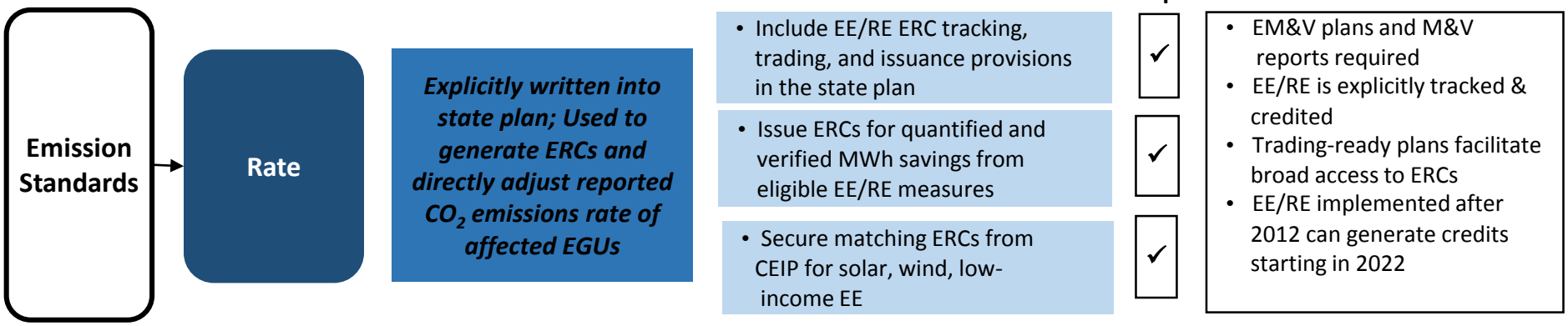
Appendix

Mass-based emission standards approach



- Any EE/RE measure achieving savings or generation during the plan performance period, regardless of when it was installed, automatically "counts"
  - It displaces fossil generation and helps meet the CO_2 emission cap
- States have many opportunities to advance EE/RE as a complement to their state plan, through allowance allocation as part of a state plan, and can get matching allowances from EPA through the Clean Energy Incentive Program
- Generally doesn't require EM&V as part of state plan – stack CO_2 emissions are the key criteria for showing that state goals for affected EGUs have been met.

Rate-based emission standards approach



- Quantified and verified MWhs from eligible EE/RE during the plan performance period (2022 and beyond) may be eligible for tradable Emission Rate Credits (ERCs), zero-emission MWh credits that can be used by affected EGUs to lower their reported CO_2 emissions rate during the plan performance period.
  - EE/RE eligible for ERCs includes measures implemented/installed after 2012 that are achieving MWh savings or generation during the compliance period.
  - Must be grid-connected and tied to a state plan.
  - No interstate discounting of EE impacts required.
- ERCs require EM&V for all MWhs; states must include ERC issuance and tracking provisions in state plans.
  - CPP proposed model rule includes presumptively approvable provisions for ERC issuance. Draft EM&V Guidance for EE is also available for comment.
- States that opt into the Clean Energy Incentive Program may award early action ERCs to EE/RE project providers that achieve MWh savings/generation in 2020 and/or 2021.

State measures approach

Type of Approach	Role of EE/RE in State Plan	How states can advance EE/RE	EM&V Req'd?	Considerations
State Measures → State Demonstration Based on Mass	***Explicitly included as supporting material for state plan – enforceable under state law; State EE 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	✓	

- States implement EE/RE programs and requirements (e.g. EERS, RPS) to help affected EGUs meet their mass goal – either alone or in conjunction with federally enforceable limits on affected EGUs
- EE/RE programs and policies must be enforceable under state law but are not federally enforceable
- Requires a projection of EE/RE impacts and EGU CO_2 emission performance, and an EM&V plan related to EE/RE policies and programs that must be included as supporting material for the state plan
- State Measures plan must include federally enforceable backstop emission standards for affected EGUs in the event state measures don't achieve required CO_2 emission reductions