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# **CLEAN POWER PLAN**

## **Reducing Carbon Pollution From Existing Power Plants**

Proposal



# This Proposal Deals With the Largest Source of GHG Emissions in the U.S.

## U.S. GREENHOUSE GAS POLLUTION INCLUDES:



### CARBON DIOXIDE (CO<sub>2</sub>) 82%

Enters the atmosphere through burning fossil fuels (coal, natural gas, and oil), solid waste, trees and wood products, and also as a result of certain chemical reactions (e.g., manufacture of cement).



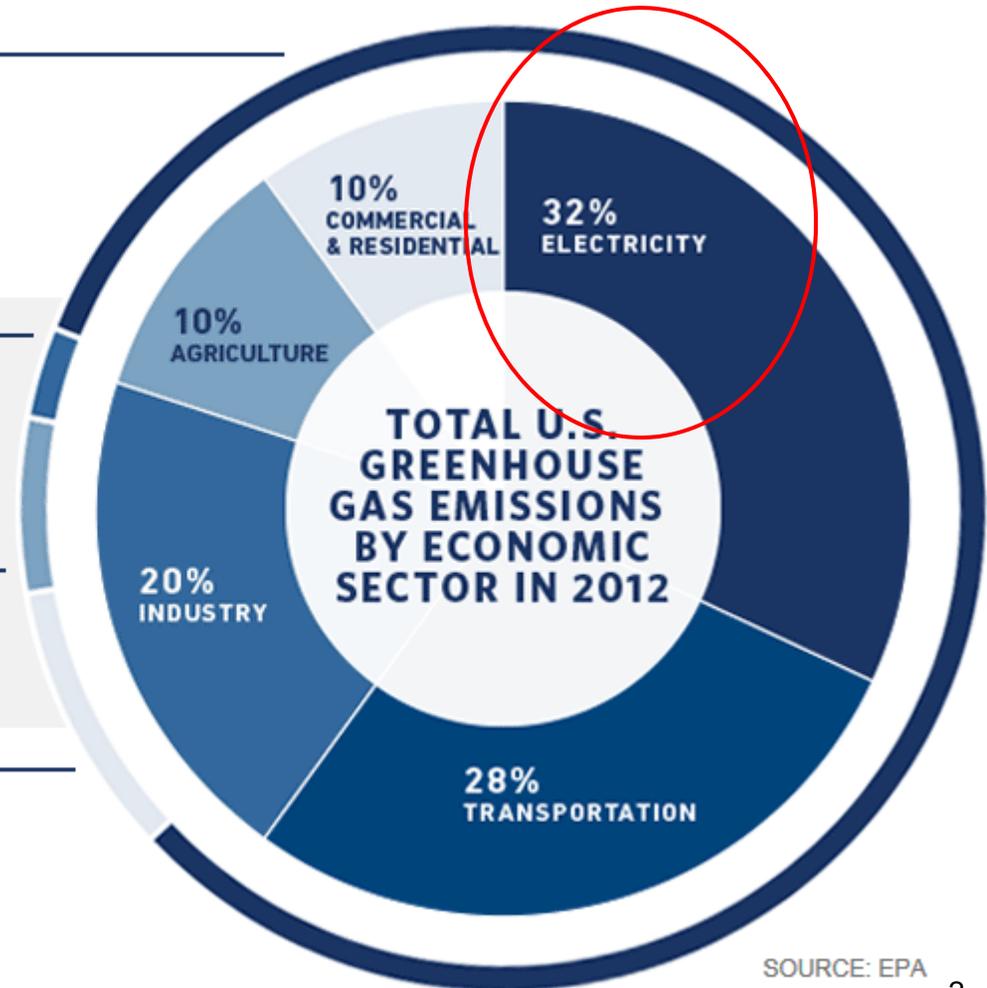
### FLUORINATED GASES 3%

Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes.



### METHANE (CH<sub>4</sub>) 9%

Emitted during the production and transport of coal, natural gas, and oil as well as from landfills.



SOURCE: EPA



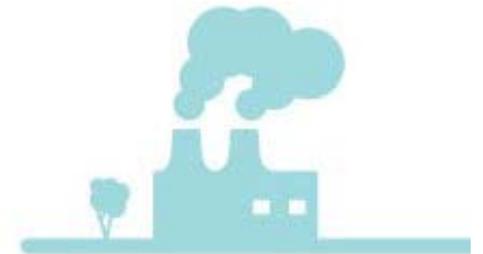
# Reducing Carbon Pollution From Power Plants

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## ***President's Directive to EPA:***

Develop carbon pollution standards, regulations or guidelines, as appropriate, for:

1. New power plants
  - Proposed: January 8, 2014
2. Modified and reconstructed power plants
  - Proposal: June 2014
  - Final: June 2015
3. Existing power plants
  - Proposed Guidelines: June 2014
  - Final Guidelines: June 2015
  - State Plans due: June 2016





## Background: Clean Air Act Section 111(d) Best System of Emission Reduction

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- Previous EPA rules under this section of the Clean Air Act have considered “add-on” control technologies – like scrubbers -- that are technically feasible to deploy at virtually any facility.
- In contrast, there are a wide variety of ways to reduce carbon pollution that are commercially available, technically feasible, and cost effective.
- The opportunities vary from state to state, depending on how electricity is generated, energy infrastructure, and other factors.
- In this proposal, EPA took an approach that viewed the Clean Air Act factors in determining Best System of Emission Reduction in light of the interconnected nature of power generation.
  - BSER factors
    - Costs
    - Size of reductions
    - Technology
    - Feasibility



# EPA Establishes a Goal for Every State

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- EPA analyzed the practical and affordable strategies that states and utilities are already using to lower carbon pollution from the power sector.
- Proposed goals are based on a consistent national formula, calculated with state and regional specific information.
- Each state goal is a rate – a statewide number for the future carbon intensity of covered existing fossil-fuel-fired power plants in a state.
- The state goal rate is calculated to account for the mix of power sources in each state and the application of the “building blocks” that make up the best system of emission reduction.
- States will need to meet an interim goal and a final goal.



# Goal Building Blocks

Four Building Blocks	Strategy EPA Used to Calculate the State Goal	Maximum Flexibility: Examples of State Compliance Measures
<b>1. Make fossil fuel-fired power plants more efficient</b>	Efficiency Improvements	<ul style="list-style-type: none"> <li>• Efficiency improvements</li> <li>• Co-firing or switching to natural gas</li> <li>• Coal retirements</li> <li>• Retrofit CCS</li> </ul>
<b>2. Use lower-emitting power sources more</b>	Dispatch changes to existing natural gas combined cycle (CC)	Dispatch changes to existing natural gas CC
<b>3. Build more zero/low-emitting energy sources</b>	Renewable Energy Certain Nuclear	<ul style="list-style-type: none"> <li>• New NGCC</li> <li>• Renewables</li> <li>• Nuclear (new and up-rates)</li> <li>• New coal with CCS</li> </ul>
<b>4. Use electricity more efficiently</b>	Demand-side energy efficiency programs	<ul style="list-style-type: none"> <li>• Demand-side energy efficiency programs</li> <li>• Transmission efficiency improvements</li> <li>• Energy storage</li> </ul>



# States Choose How to Meet the Goals

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- Demand-side energy efficiency programs.\*
- Generating electricity from low/zero-emitting facilities.\*
- Expanding use of existing NGCC units.\*
- Transmission efficiency improvements.
- Energy storage technology.
- Working with utilities to consider retiring units that are high emitting.
- Energy conservation programs.
- Retrofitting units with partial CCS.
- Use of certain biomass.
- Efficiency improvements at higher-emitting plants.\*
- Market-based trading programs.
- Building new renewables.
- Dispatch changes.
- Co-firing or switching to natural gas.
- Building new natural gas combined cycle units.

\* Measures EPA used in calculating the state goals



# Benefits and Costs

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- Nationwide, by 2030, this rule would help reduce CO<sub>2</sub> emissions from the power sector by approximately 30% from 2005 levels.
- Also reduce by over 25% pollutants that contribute to the soot and smog.
- These reductions lead to public health and climate benefits worth an estimated \$55 billion to \$93 billion in 2030.
- Health and climate benefits far outweigh the estimated annual costs of meeting the standards of \$7.3 billion to \$8.8 billion in 2030.

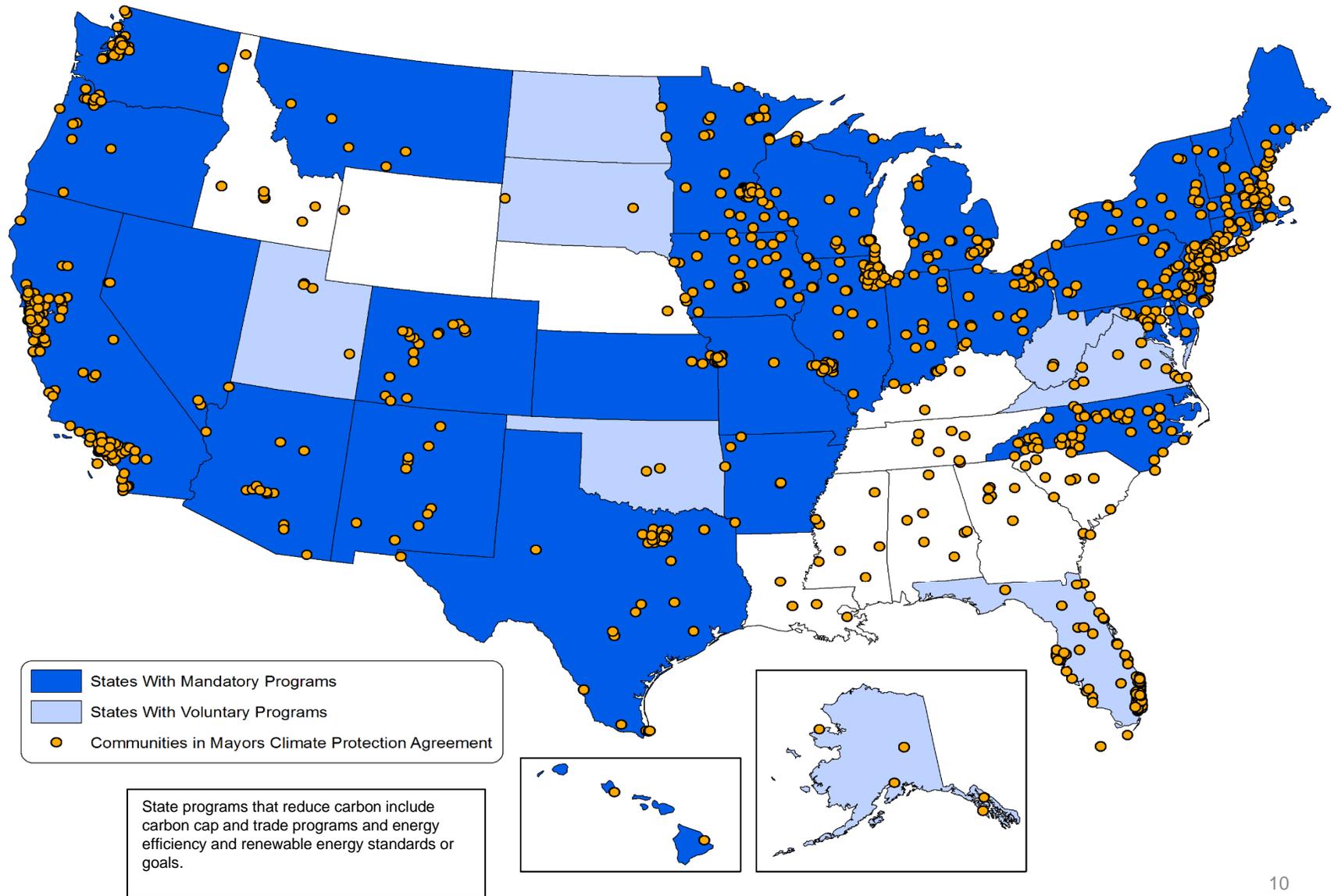


# Benefits and Costs (continued)

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- Will avoid an estimated 2,700 to 6,600 premature deaths and 140,000 to 150,000 asthma attacks in 2030.
- Protects children and other vulnerable Americans from the health threats posed by a range of pollutants.
- Move us toward a cleaner, more stable environment for future generations.
- Ensures an ongoing supply of the reliable, affordable power needed for economic growth.

# States and Communities with Programs That Reduce Carbon Pollution





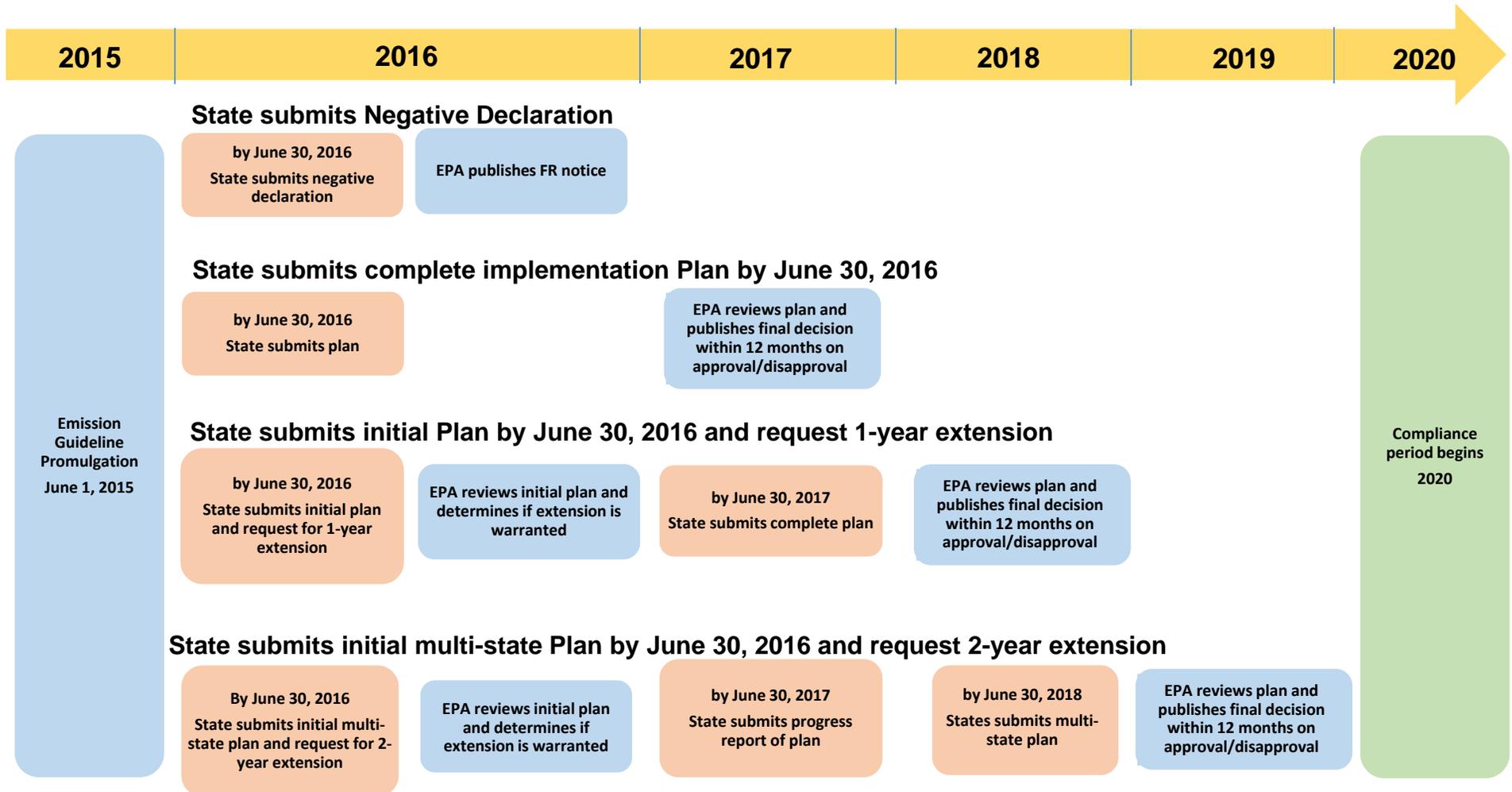
# Details About State Plans

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- EPA will provide a list of about a dozen components that will need to be included in the plan.
- Measures to meet the state's interim goal and final goal.
  - Interim goal -- meet on average over a 10-year period from 2020-2029;
  - Final goal -- meet in 2030 and thereafter.
- Individual and multi-state plans due June 30, 2016.
- Proposed timing of extensions to submit a complete plan, if justified and supported:
  - Submit initial plan by June 30, 2016;
  - Individual state plans: a one-year extension (June 30, 2017); and
  - Multi-state plans: a two-year extension (June 30, 2018).



# Proposed Implementation Timeline





# Next Step

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- The proposed rule, as well as information about how to comment and supporting technical information, are available online at:  
<http://www.epa.gov/cleanpowerplan>
- The comment period for the proposal ends ~~October 16, 2014~~ December 1, 2014.
- Comments on the proposal should be identified by Docket ID No.

EPA-HQ-OAR-2013-0602.



# Discussion of Impact and Opportunities for P2 Programs

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- Technical Assistance providers need to be aware of potential new efficiency and renewable programs that could assist businesses.
- States could consider including P2 programs as part of their CPP plan.
- Elements in State Plans need to meet Estimation, Measurement and Verification (EM&V) standards and are enforceable under the Clean Air Act.
- Other ideas ...