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# Clean Air Act Regulation of Power Plants: Greenhouse Gas Performance Standards

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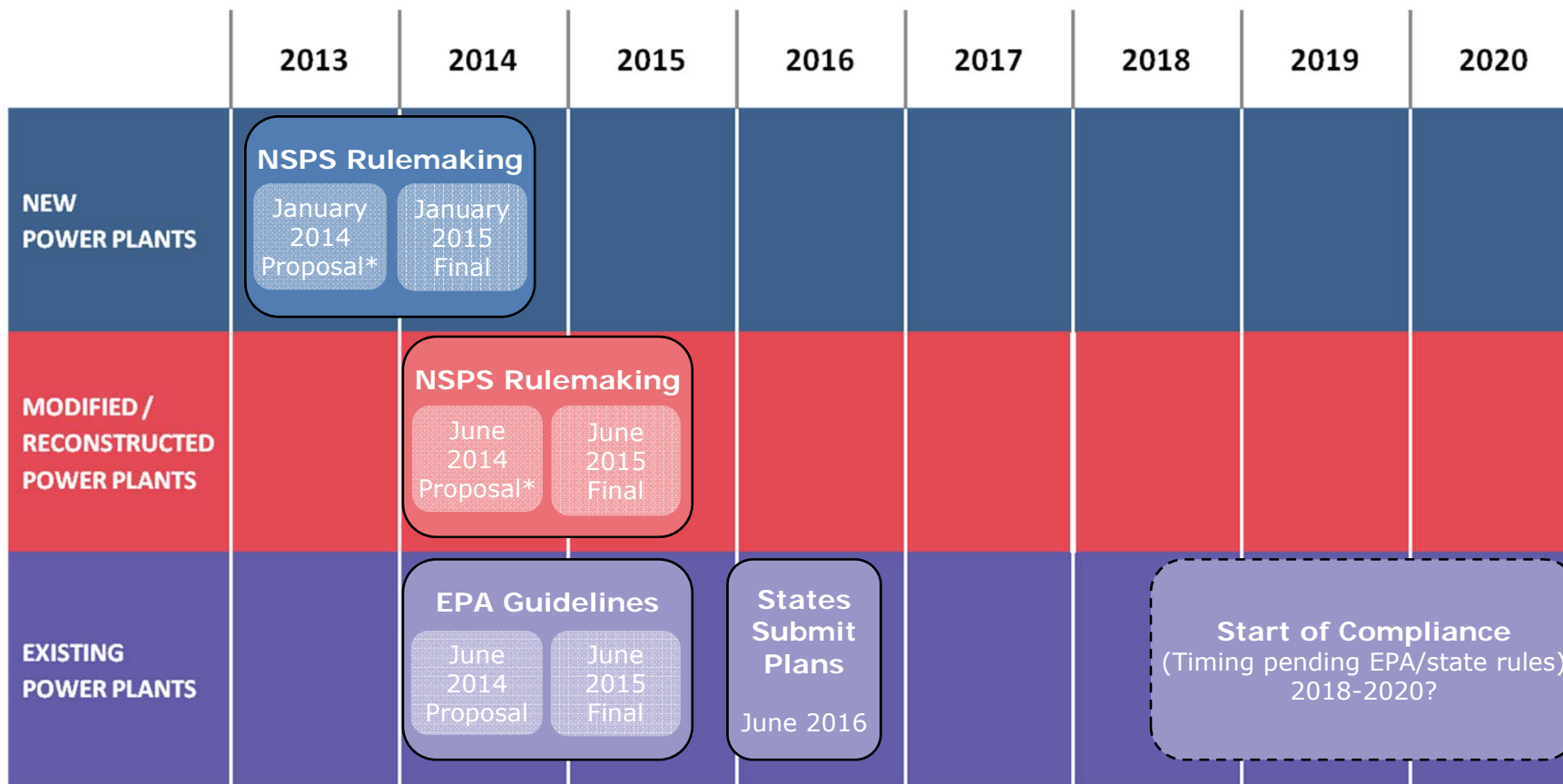
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## Clean Air Act Regulation of GHGs

- Supreme Court decision *Massachusetts v. EPA*
  - Affirms EPA authority to regulate GHGs under CAA
- EPA Endangerment Finding: GHGs endanger public health and welfare
- First CAA regulation of GHGs: mobile source tailpipe standards
  - Triggered GHG pre-construction permitting requirement for stationary sources
- 3/2012 EPA proposed fuel-neutral CO<sub>2</sub> standard for *new* power plants
- 1/2014 EPA re-proposed CO<sub>2</sub> standards for *new* power plants
  - Separate standards for coal (requires partial CCS) and gas
- 6/2014: performance standards for modified and *existing* power plants

## National Climate Action Plan

- Presidential Memorandum directs EPA to work expeditiously to complete GHG standards for new and existing power plants under Clean Air Act authority.
- Calls for EPA to work with states, industry, and stakeholders to develop carbon pollution standards that:
  - Build on state leadership
  - Provide flexibility
  - Take advantage of a wide range of energy sources
- Sets timetable for EPA rulemakings and state implementation plans



\*Proposal signed by EPA Administrator 9/2014 and published in Federal Register 1/2014. Effective upon promulgation 1/2014. NSPS: New Source Performance Standard

Source: Dates from Federal Register publication of 111(b) proposal, June 25, 2013 Presidential Memorandum; and projected from regulations under section 111 of the Clean Air Act.

**Standard of performance:** reflects the degree of emission limitation achievable through the application of the **best system of emission reduction** (taking into account cost, health & environmental impact, and energy requirements) which the Administrator determines has been adequately demonstrated.

## New & modified



- **New Source Standard**
- EPA issues performance standards for new and modified sources
- For each category of sources that “causes, or contributes significantly to, air pollution that may reasonably be anticipated to endanger public health or welfare.”

## Existing units



- **Existing Source Standard**
- Once NSPS applies to new sources
- EPA rulemaking establishes procedure for states to submit plans to EPA on existing source performance standards
- States develop, implement, and enforce existing source standards
- If states fail to do so, EPA steps in

CAA: Clean Air Act  
§: section

## Potential for CAA §111(d) to tap spectrum of GHG reduction options depends on design, legal interpretations, & state intentions

- GHG reduction opportunities, such as:
  - Efficiency upgrades (process & equipment) at existing electricity generating units
  - Fuel-switching/co-firing natural gas and biomass (depending on GHG treatment)
  - Carbon capture and storage; carbon capture, utilization and storage
  - Re-dispatch to shift generation to lower emitting generators (e.g., natural gas)
  - Renewable energy
  - Demand-side energy efficiency
  - Industrial generation: combined heat & power, waste heat to power
  - Transmission/distribution losses

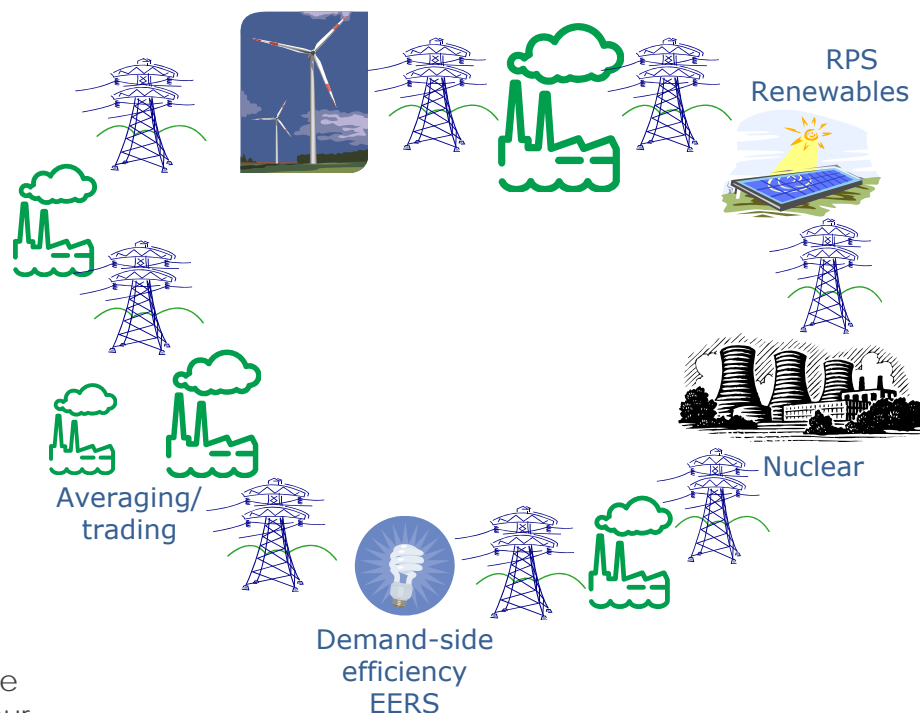
CAA: Clean Air Act  
§: section  
GHG: Greenhouse gas

# Existing Source Standards: "best system of emission reduction"

per unit emission standard  
(e.g., lbs CO<sub>2</sub>/MWh or lbs CO<sub>2</sub>/year)



system-wide (including other fossil-fired EGUs, renewables, energy efficiency, demand response)



averaging between affected units (achieve standard as a group of units)



CO<sub>2</sub>: Carbon Dioxide  
 MWh: Megawatt-hour  
 EGU: Electric Generating Units  
 RPS: Renewable Portfolio Standards  
 EERS: Energy Efficiency Resource Standards

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## Other Performance Standard Design Issues

- Stringency
- Timing
- Interaction with existing state programs
- State equivalency
- Regional coordination
- Early action/baseline year
- State design and implementation
- Level of detail in EPA Guidance





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