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

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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
- 3/2012 EPA proposed fuel-neutral GHG standard for *new* power plants
- 9/2013 EPA re-propose of GHG standards for *new* power plants
 - Separate standards for coal (requires partial CCS) and gas
- Next: performance standards for modified and *existing* power plants

Obama 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

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
NSPS: New Source Performance Standard

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)
 - Re-dispatch to shift generation to lower emitting generators (e.g., natural gas)
 - Renewable energy
 - Demand-side energy efficiency
 - Industrial generation: combined heat & power (CHP), waste heat to power (WHP)
 - Transmission/distribution losses

Existing Source Standards: “best system of emission reduction”

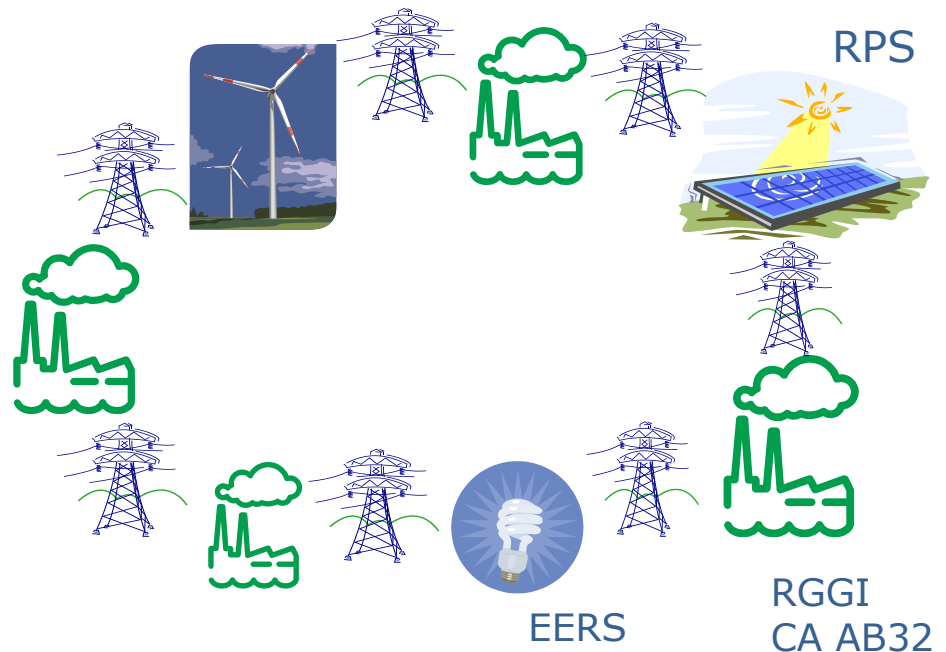
per unit emission standard
(e.g., lbs CO₂/MWh or lbs CO₂/year)



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



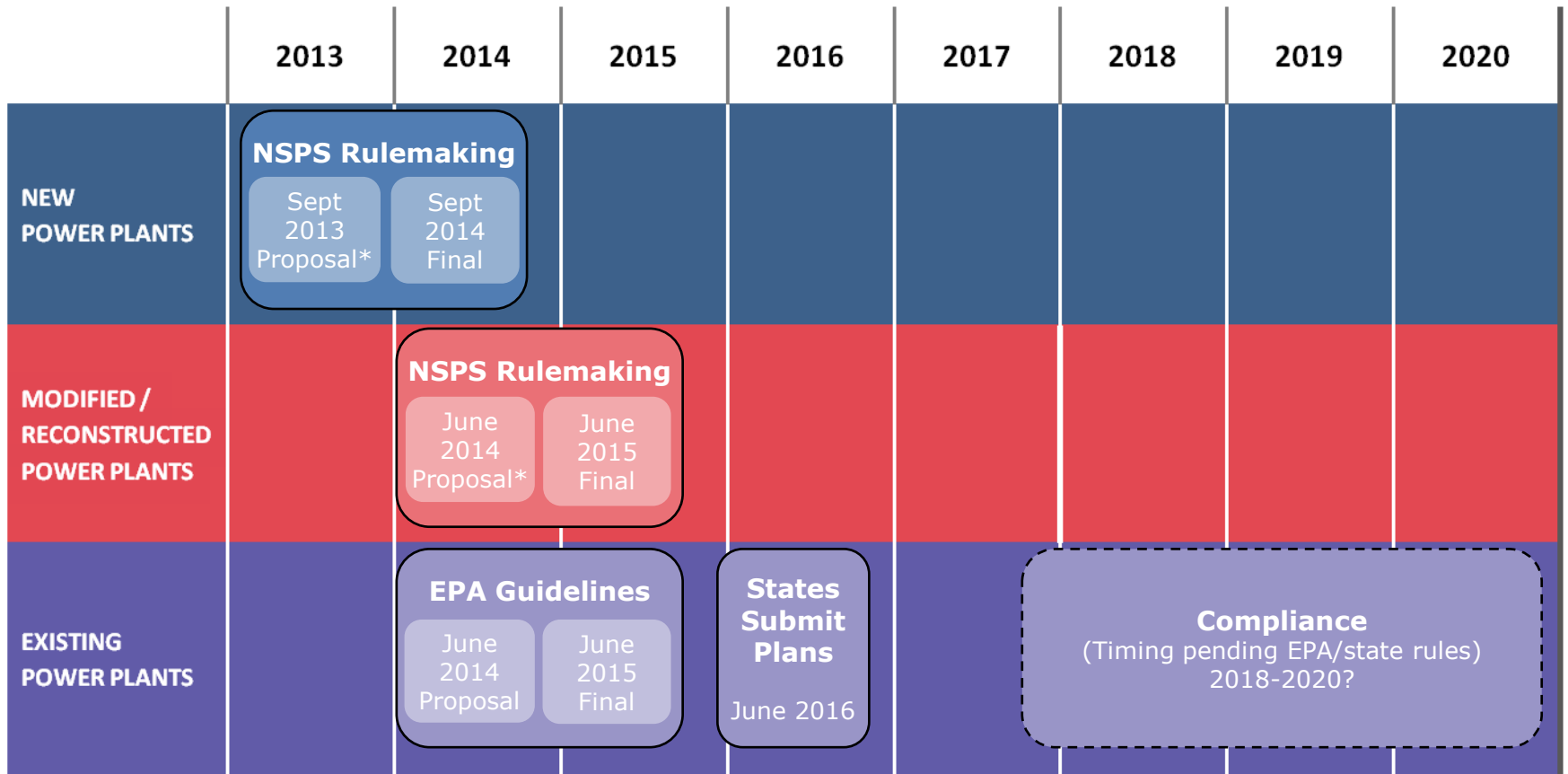
system-wide (including other fossil-fired EGUs,
renewables, energy efficiency, demand response)



CO₂: Carbon Dioxide
 MWh: Megawatt-hour
 EGU: Electric Generating Units
 RPS: Renewable Portfolio Standards
 EERS: Energy Efficiency Resource Standards
 RGGI: Regional Greenhouse Gas Initiative
 CA AB32: California GHG program

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 - model rule(s)?



*Effective upon promulgation
 NSPS: New Source Performance Standard

Source: Dates from June 25, 2013 Presidential Memorandum – Power Sector Carbon Pollution Standards; and projected from regulations under section 111 of the Clean Air Act.

Four Things to Watch Going Forward

- **What will Congress do?**
- **What will the courts do?**
- **How will power company compliance be affected by other energy market and regulatory trends?**
- **If there are delays in implementation, what will companies do in the mean time?**



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