

EPA'S DRAFT GUIDELINES TO STATES FOR THE DEVELOPMENT OF STATE 111(d) PLANS

ASSOCIATION OF AIR POLLUTION CONTROL AGENCIES
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Overview of Presentation

- 111(d)'s Federal-State Framework
- Building Blocks
- Beyond EPA's "Building Blocks"
- Planning under §111(d): the Approaches
- Prospects for Regional Coordination
- Reflections



The Federal-State Framework

- EPA issues standards for new sources--under §111(b) of the Clean Air Act—and these are federal.
- For existing sources, EPA issues guidelines to states under 111(d) to “guide” states on 111(d) plans.
- States develop 111(d) plans—single-state or multi-state.
- If state fails to submit plan, or the plan is inadequate, EPA imposes federal plan



Summary of EPA 111(d) Guidelines

- Dubbed EPA's "Clean Power Plan"
- Sets minimum stringency for a state—called "state goals" that apply in aggregate to the state's "affected" electric generating units
- Establishes a compliance time period of ten years, with an interim target to apply on average between 2020 and 2029, and a final target in 2030
- Guidelines give states very broad flexibility to achieve state goals through any "efficacious means"



“Adjusted Output-Weighted Average CO₂ Emission Rates”

TOTAL CO₂ EMISSIONS

from Coal-, Oil- & Gas-fired Steam,
Natural Gas Combined Cycle
& “Other” Units (Affected EGUs)

Lbs

TOTAL NET ENERGY OUTPUT

From Affected EGUs
+ Renewables + New Nuclear + 6% at-risk
nuclear + cumulative annual EE savings

MWh

Or Convert the Goal to Tons.



BUILDING BLOCKS

Heat Rate Improvements at Coal Plants
6% through both O&M and plant upgrades

Increased Utilization of Existing Natural Gas Plants
Dial up existing NGCC to 70% capacity factor

Increased Utilization of Zero Carbon Resources,
Including Nuclear and Renewables
Operate New Nuclear Plants, Preserve the 6% of Existing
Nuclear capacity that EIA projects would retire; & Achieve
renewables generation consistent with average regional
renewables target

Achieve 1.5% Energy Savings
through End-Use Energy Efficiency
Starting where a state is, increase energy savings at a rate of
0.2% per year until state reaches 1.5%



BUILDING BLOCKS ≠ Compliance Pathway

- EPA has not provided a compliance pathway—not really. That is left to the states.



BEYOND THE BUILDING BLOCKS

Heat Rate Improvements at Coal Plants

Increased Utilization of Existing Natural Gas Plants

Increased Utilization of Zero Carbon Resources,
Including Nuclear and Renewables

Achieve 1.5% Energy Savings
through End-Use Energy Efficiency

Co-firing lower carbon fuels

Retirements

New Natural Gas Plants

Distributed Generation, Combined Heat and Power

Carbon capture & storage (e.g. EOR-related)

Gains from Trade/Regional Compliance



EPA's Draft Guideline to States

- EPA says “YES” to broad flexibility for states—
“any efficacious means”
- Too many choices? Maybe not at closer look:
 - Federal enforceability issues
 - Direct vs. indirect emissions limitations on affected units
 - Self-correcting vs. not self-correcting compliance plans
 - Regulating entities other than owners & operators of the units?
 - Options that lend themselves to regional action



Key Considerations in Evaluating 111(d) Approaches

- A number of options emerge as most likely compliance pathways—
 - avoid federal enforceability of traditionally state-run energy matters
 - Are self-correcting mechanisms, and therefore do not require backup mechanisms.
 - Are flexible, and therefore lower cost options
 - Keep open the option for regional collaboration



Possible Approaches

- Approaches getting most consideration to date include:
 - ① ~~Traditional plant-level performance standards;~~
 - ② Mass-based emissions budget with trading;
 - ③ Rate-based standard with trading;
 - ④ Mass-based utility portfolio approach with an emissions budget; or



Mass-based budget with trading

The Approach

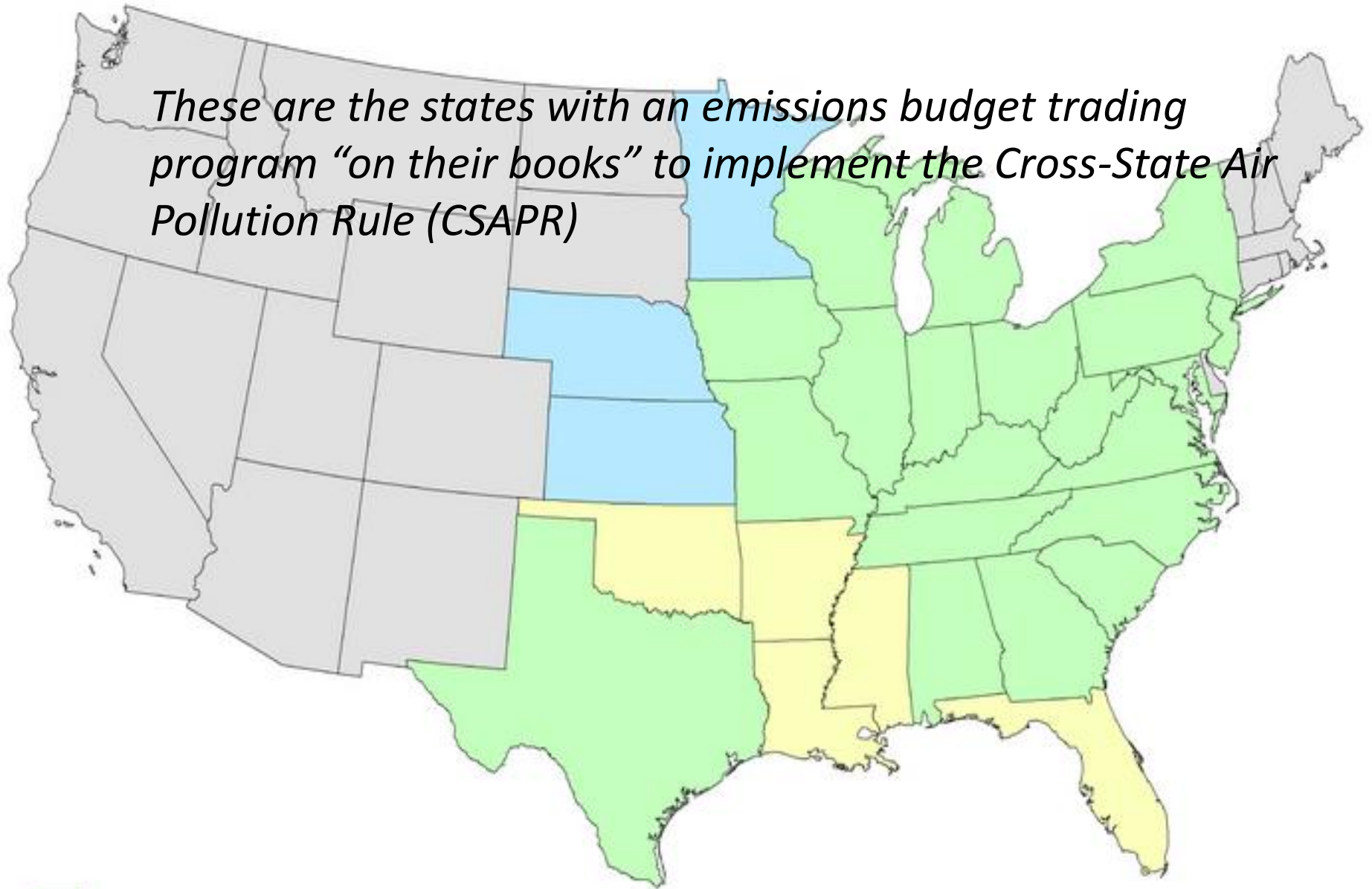
- State converts rate-based goals to mass-based emissions budget.
- State issues allowances (or permits) to emit.
- Power plant owners report emissions and must turn in enough allowances to “cover” all of the plant’s emissions on a set date.
- Value of allowance becomes part of generator’s bid to ISO.

Issues to Consider

- Direct emissions limits on affected units.
- EE, RE programs are complementary and remain separate and not federally enforceable.
- Multi-state cooperation possible by recognizing other states’ allowances.
- Self-correcting mechanism.



These are the states with an emissions budget trading program “on their books” to implement the Cross-State Air Pollution Rule (CSAPR)



- States controlled for both fine particles (annual SO₂ and NO_x) and ozone (ozone season NO_x) (20 States)
- States controlled for fine particles only (annual SO₂ and NO_x) (3 States)
- States controlled for ozone only (ozone season NO_x) (5 States)
- States not covered by the Cross-State Air Pollution Rule

Rate-based standard with trading

The Approach

- State follows emissions rates imposed by EPA, or some variation designed to meet federal goal:
 - Plants that do better than the rate generate credits that can be sold to other plants; and
 - Plants that do worse than the rate must purchase credits to improve their emissions rate.
- Can credit EE & RE through crediting mechanism.

Issues to Consider

- To credit EE & RE, a federally enforceable mechanism needed for EM&V and crediting. Can federal authority over state programs be avoided?
- May not capture all improvements to carbon profile that a mass-based standard would—such as retirements.
- Self-correcting approach.



Mass-based utility portfolio approach

The Approach

- State converts rate-based goal to mass-based “budget”.
- State apportions budget to utilities.
- To stay under budget, each utility can undertake any measures in its control:
 - Plant-level heat-rate improvements;
 - Fuel switching;
 - Retirements;
 - End-use energy efficiency;
 - Preserve Nuclear;
 - Carbon capture & storage/EOR; and/or
 - Renewables.

Issues to Consider

- Not really workable in a deregulated environment where utilities don’t own the generation
- As long as this approach places all obligations on utility owner/operator of affected units, this is a direct emissions limitation approach.
- If EE/RE credited from outside the utility, then enforceable mechanism needed for EM&V and crediting (no need to have crediting)
- Multi-state utilities may want multi-state coordination to allow tons to cross state lines.
- Does this raise cost recovery issues/resource plan issues?
- Self-correcting approach?



Multistate Collaboration

- Why collaborate?
 - “Gains from trade” make achieving goals easier region-wide.
 - Reliability of the electricity system—if something happens in one state to make compliance harder, the state can rely on options in other states.
 - Lessen competitiveness issues between states.
 - Regional wholesale electricity markets/power pools & multi-state utilities
 - The effects of measures to reduce emissions often appear outside the state, as with RE purchased from outside the state.
 - Comparative advantage—each state does what it does best (or most cost-effectively).



The “No Regrets” Path

- States can prepare individual state plans while also exploring regional or multi-state cooperation.
- In devising state plans, states can consider designs that keep the regional/multi-state pathway open. For example:
 - Common currency—”ton is a ton is a ton”;
 - By talking, states know what is important to other states and what is a “deal breaker”
- Ultimately linking up with others is a political decision to be made by governors, legislatures

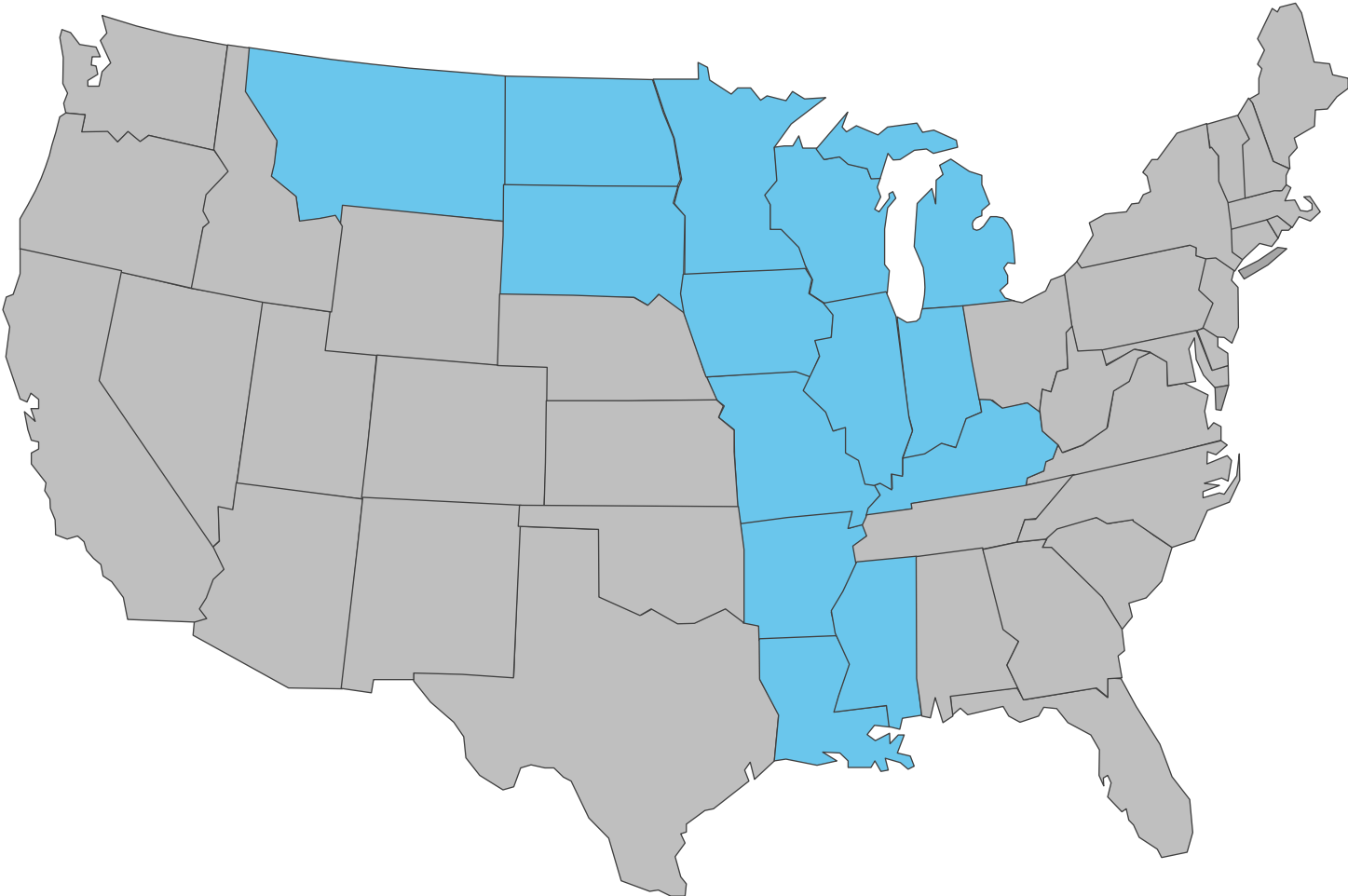


Issues for Multi-State Compliance

- Each state is a sovereign entity
- There is no regional government, only federal and state—
 - Enforceable obligations between states may trigger the Compact Clause of the US Constitution, requiring congressional approval.
 - Would any state want to make their 111d plan enforceable by another state?
- Not necessary to create new legal structures—the ones we have can work—
 - Need on-ramps, because different states will have different pathways and timeframes for decision; and
 - May need off-ramps, because a state may change its mind.
- A state can develop a plan that is “multi-state ready” and keep its options open.



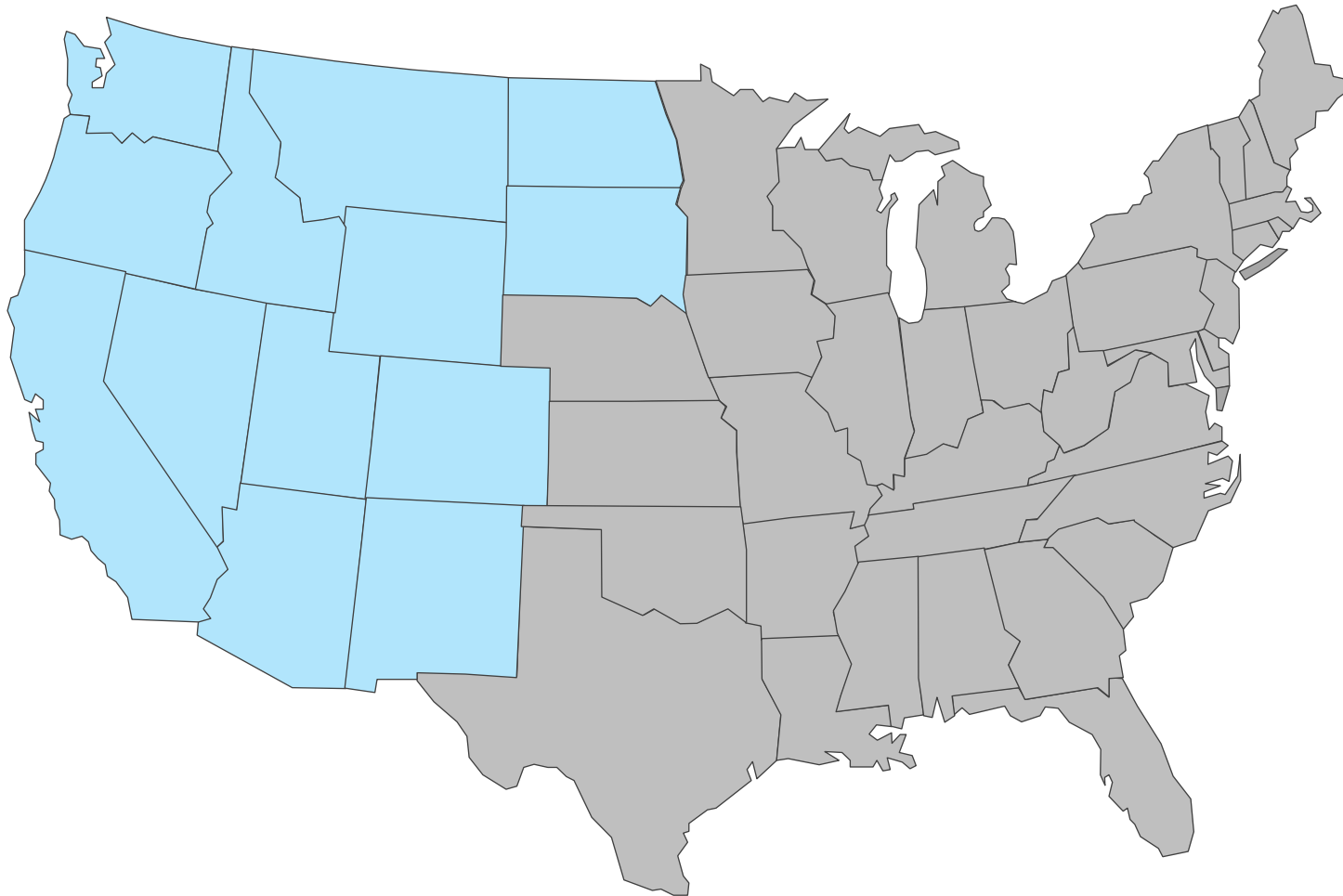
Midcontinent States Environmental and Energy Regulators



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WESTERN STATES IN DISCUSSIONS ABOUT 111(d)



NORTHEAST & MIDATLANTIC STATES PART OF RGGI



Rulemaking Timeline

- Draft guideline published in Federal Register (6-18-2014)
- 120-day Public Comment Period (10-16-2014)
- Extension of comment period?
- Final Rule June 2015



State Planning Timeline

- Final Rule June 2015
- State plan timing:
 - Initial state submittal in June 2016
 - One-year extension possible for adopting single-state plans
 - Two-year extension possible for adopting regional plans
- Programs go into effect upon adoption of state plans, unless superseded by federal plan



Reflections

- States are focused primarily on getting the building blocks analysis right through engagement of EPA, because this is stringency
- Many states are also pursuing a no regrets exploration of regional approaches
- States can develop single-state plans that keep its options open for linking down the line.
- Can put one's state in the best position to keep impacts low



THANK YOU!

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