

Transport Rule State Meeting

US EPA

April 8, 2013

Research Triangle Park, NC

Agenda

10:00 - 10:15	Welcome, Introductions, and Meeting Overview
10:15 - 11:00	Goals in Addressing Transport Within New Legal Context
11:00 - 12:00	State Obligations and Proportionality
12:00 - 12:45	Lunch
12:45 - 1:15	Cost Considerations
1:15 - 2:00	Sub-NAAQS Over Control
2:00 - 2:45	State and EPA Roles and Responsibilities
2:45 - 3:30	Maintenance and Technical Issues
3:30 - 4:00	Wrap-up and Next Steps

Meeting Overview

- Purpose of this meeting, as noted in the March 26 webinar: To obtain input from the states on key technical and policy questions regarding our shared responsibility under the Clean Air Act (CAA) to address interstate transport of air pollution.

Framing Today's Discussion

- Main focus of today's discussion
 - How should EPA define the obligation for each upwind state?
- Context of today's discussion
 - Focus on steps and options for defining states' obligations
 - Discussion must recognize impact of court decisions interpreting the “good neighbor” provision
 - EPA must define obligations for NAAQS on the books
 - Focusing on ozone examples to illustrate some of the basic issues

Addressing Transport in New Legal Context

Legal Context: Review from Webinar

Requirements of Section 110 (a)(2)(D)(i)(I)

- Section 110(a)(2)(D)(i)(I) (the “good neighbor” provision) of the Clean Air Act requires every state’s SIP to:
 - “...contain adequate provisions ... prohibiting, consistent with the provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will ... contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any [NAAQS]”
- “Good neighbor” SIPs are required for each pollutant covered by a NAAQS (including each revision) and must also address identified precursors to those pollutants
- The “good neighbor” provision applies to all states regardless of whether they contain nonattainment areas

Legal Context: Review from Webinar

Transport Obligations and SIP Submissions

- Each state has an obligation to prohibit emissions that “significantly contribute to nonattainment” or “interfere with maintenance” of the NAAQS in another state
- Pursuant to *Homer City*, a state is not required to submit a 110(a)(2)(D)(i)(I) SIP until EPA defines its obligation under that provision
- EPA’s transport rule must quantify states’ 110(a)(2)(D)(i)(I) duties to trigger the SIP submission obligation
 - Under *Homer City*, EPA’s role is to quantify each state’s obligation and the state’s role, in turn, is to satisfy that obligation as defined by EPA -- not to redefine or re-quantify the obligation

State Obligations and Proportionality

Proportionality

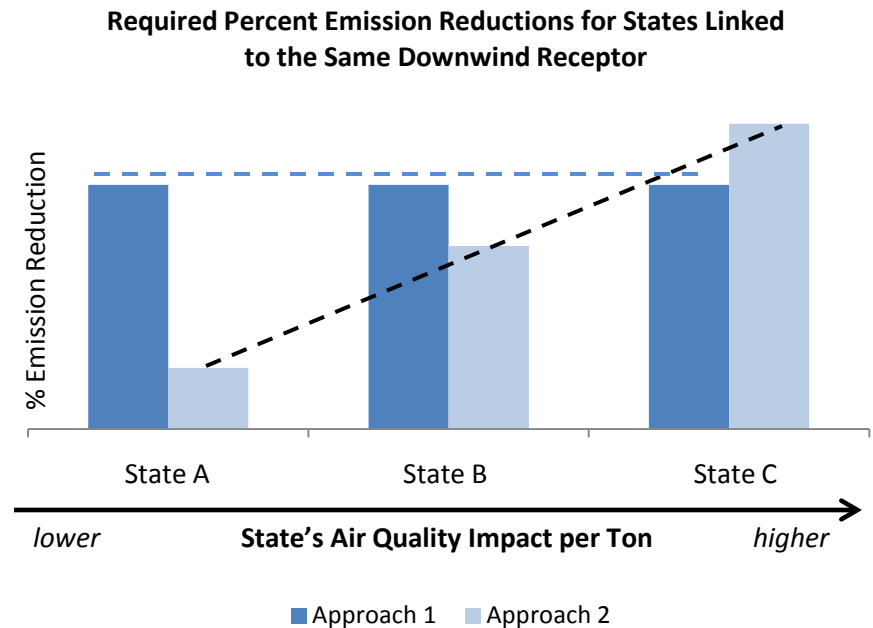
- *Homer City*: “EPA’s Transport Rule violated the statute because it made no attempt to calculate upwind States’ required reductions on a proportional basis that took into account contributions of other upwind States to the downwind States’ nonattainment problems.” (696 F.3d 7, 27, emphasis added)
- Proportionality could apply to either *emission reductions* (e.g., tons of ozone-season NO_x) or *reductions in contributions* (e.g., ppb of ozone)

Proportionality Example in *Homer City*

State	Contribution (NAAQS Units)	Relative Contribution	Proportional Share (NAAQS Units)	Percent Reduction in Contribution
Home State	90 (NAAQS=100)	-	-	-
Upwind A	10	$10/60 = 0.167$	$0.167 * 50 = 8.35$	$8.35 / 10 = 83\%$
Upwind B	20	$20/60 = 0.333$	$0.333 * 50 = 16.65$	$16.65 / 20 = 83\%$
Upwind C	30	$30/60 = 0.500$	$0.500 * 50 = 25.00$	$25.00 / 30 = 83\%$
Total Upwind States	60, but only 50 are above the NAAQS	1.00	50	83 %

Simplified Visualization of Two Proportionality Approaches*

- Approach from Homer City Example: Make required improvement in air quality proportional to the state's relative contribution
- Alternative Approach: Make required absolute emission reductions proportional to the state's relative contribution
- These are two approaches for defining proportionality; there may be others that we could consider



*Conceptual example to illustrate basic proportionality options. Does not reflect cost and over-control adjustments, non-linearities between emissions and air quality, and final significant contribution determinations.

Homer City Example *Excluding* Contributions from the Home State

State	Contribution (NAAQS Units)	Relative Contribution	Proportional Share (NAAQS Units)	Percent Reduction in Contribution
Home State	90 (NAAQS=100)	-	-	-
Upwind A	10	$10/60 = 0.167$	$0.167 * 50 = 8.35$	$8.35 / 10 = 83\%$
Upwind B	20	$20/60 = 0.333$	$0.333 * 50 = 16.65$	$16.65 / 20 = 83\%$
Upwind C	30	$30/60 = 0.500$	$0.500 * 50 = 25.00$	$25.00 / 30 = 83\%$
Total Upwind States	60, but only 50 are above the NAAQS	1.00	50	83 %

Homer City Example Including Contributions from the Home State

State	Contribution (NAAQS Units)	Relative Contribution	Proportional Share (NAAQS Units)	Percent Reduction in Contribution
Home State	90 (NAAQS=100)	$90/150 = 0.600$	$0.600 * 50 = 30.00$	$30.00 / 90 = 33\%$
Upwind A	10	$10/150 = 0.067$	$0.067 * 50 = 3.35$	$3.35 / 10 = 33\%$
Upwind B	20	$20/150 = 0.133$	$0.133 * 50 = 6.65$	$6.65 / 20 = 33\%$
Upwind C	30	$30/150 = 0.200$	$0.200 * 50 = 10.00$	$10.00 / 30 = 33\%$
Total Home + Upwind States	150, but only 50 are above the NAAQS	1.00	50	33 %

Including the contribution from the home state in the calculation reduces the burden on upwind states; home state addresses its share through nonattainment planning.

Expressing Upwind State's Obligation and Addressing Proportionality

- How should each upwind state's obligation be expressed?
 - Air quality targets
 - Emission reduction targets
- How to interpret the *Homer City* concept of proportionality:
 - Amounts of emissions? (e.g., tons of NO_x)
 - Amounts of emissions weighted by air quality impact at downwind receptor? (e.g., ppb of ozone)
- How should multiple linkages be treated in determining proportional shares?
- How should we account for the proximity of upwind states relative to downwind receptors?
- How should we address local and home-state pollution when calculating proportionality?
- Should we use a screening threshold? If so, how does this decision affect proportionality?

Cost Consideration

Legal Background on Cost

- *Homer City*
 - “EPA may consider cost, but only to further lower an individual state’s obligations.” 696 F.3d at 21. EPA must have a methodology for determining each state’s proportional share independent of cost considerations, but then may consider cost to reduce some state’s obligations.

Cost Decisions

WHO considers cost?

- EPA defines cost criteria (e.g., \$X/ton similar to SIP call, or other criteria) in sufficient detail to trigger SIP clock and then:
 - Should states determine what part of the proportional share can be achieved consistent with the cost criteria (e.g., see Paths A and B on slide 25); or
 - Should EPA determine what portion of proportional share can be achieved consistent with criteria (e.g., see Path C on slide 25)?

WHEN is cost considered in the process?

- For example, should cost be addressed before addressing sub-NAAQS over-control?

HOW to consider cost?

- Types of information to consider in picking the cost criteria
- Options for a cost metric
- Data considerations

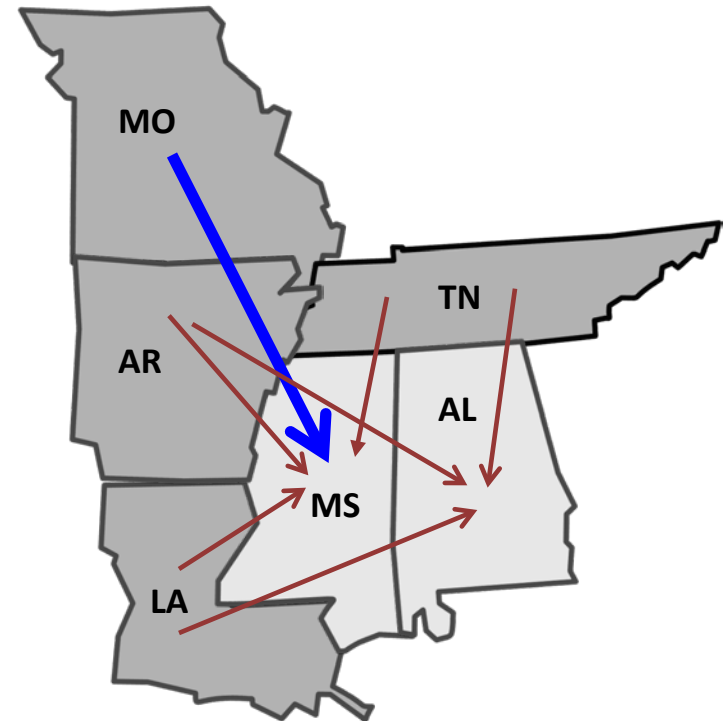
Sub-NAAQS Over-control

Sub-NAAQS Over-control

- Transport obligations must reflect an attempt by EPA to minimize unnecessary collective sub-NAAQS over-control
- The approach to proportionality and cost could affect the extent to which we need to address sub-NAAQS over-control

One Fictional Illustrative Example of How Sub-NAAQS Over-control Occurs

- Three states (AR, LA, TN) significantly contribute to receptors in two states (AL, MS); another state (MO) contributes to only one of those downwind states (MS)
- For AR, LA, and TN, the tonnage emission reductions needed for the AL receptor are larger than those needed for the MS receptor
- Consequently, air quality at the MS receptor may end up significantly below the NAAQS
- AR, LA, and TN cannot have their reductions to MS decreased because the AL receptor would not come into attainment without their full proportional shares being eliminated
- Since MO is only linked to the MS receptor, MO might be able to eliminate less than its full proportional share to MS while still ensuring the MS receptor comes into attainment



Legend

Bold arrow indicates upwind state that significantly contributes to only one downwind state

Addressing Sub-NAAQS Over-control

- Addressing sub-NAAQS over-control can become complex when:
 - Multiple upwind states have obligations to the same receptor as well as different obligations to other receptors
 - States are both upwind states and downwind states (i.e., states that contribute to other states and also have receptors in their own state)

Avoiding Unnecessary Over-control

- How do we determine whether a set of upwind state obligations would lead to unnecessary over-control at a given receptor?
- How do we adjust a state's obligation (or multiple states' obligations) to avoid unnecessary over-control?
- Could states successfully negotiate resolution of this or must EPA decide
 - If EPA must decide, could EPA analyze sub-NAAQS over-control while allowing states to apply cost adjustments afterwards?

State and EPA Roles and Responsibilities

Outline of Steps for Addressing Transport

- Defining the obligation
 - Identify problem receptors (i.e., monitoring sites with nonattainment and/or maintenance problems)
 - Quantify the contribution from emissions in each upwind state to nonattainment/maintenance at downwind problem receptors
 - Determine upwind state responsibility (e.g., emission reductions or air quality improvements) consistent with the *Homer City* decision
 - Quantify each upwind state's proportional share with respect to each receptor, to ensure no upwind state is required to address more than its proportional share
 - If a screening threshold is used (e.g., in CSAPR the threshold was 1% of the NAAQS), ensure no state is required to reduce its emissions below that threshold
 - Consider whether individual state's obligations should be further lowered based on cost considerations
 - Evaluate whether collective reductions would result in unnecessary over-control and, if so, attempt to minimize it
- Once the obligation is defined, implementation requires:
 - Additional SIP regulations to provide enforceable mechanism to satisfy state obligation

Three Possible Structures for Addressing Interstate Transport

Path A

EPA defines obligation as amount of ppb proportional share minus adjustments

Path B

EPA defines obligation as amount of emission reduction target minus adjustments

Path C

EPA defines obligation as emission budget that incorporates cost and sub-NAAQS control adjustments

EPA defines proportional share and adjusts for "1 % threshold" in ppb

EPA defines formula for i) cost adjustment and ii) approach for dealing with sub-NAAQS control

EPA defines three-part obligation as proportional share (ppb) + cost and sub-NAAQS control adjustment formulas

States:

- conduct modeling to convert ppb improvement to emission reductions
- apply cost adjustment
- apply sub-NAAQS control adjustment

EPA:

- converts proportional share (ppb improvement) to emission reductions

EPA defines three-part obligation as emissions reduction + cost and sub-NAAQS control adjustment formulas

States:

- apply cost adjustment
- apply sub-NAAQS control adjustment

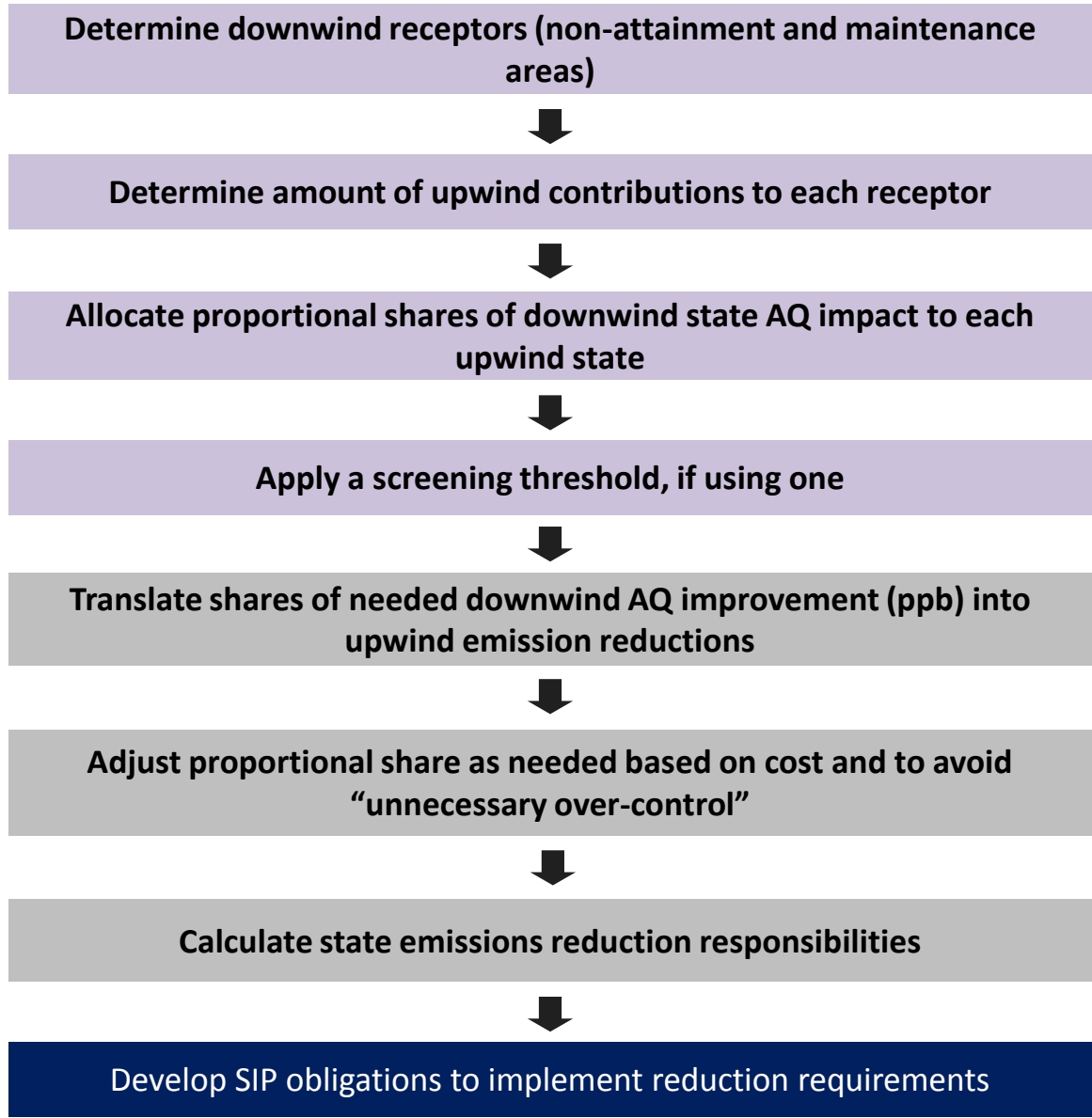
EPA:

- converts proportional share (ppb improvement) to emission reductions
- applies cost adjustment
- applies sub-NAAQS control adjustment

EPA defines single-part obligation as emission reductions that incorporate cost and sub-NAAQS control adjustments

State submits SIP ensuring that obligations are met (content depends on path chosen above)

EPA and State Roles and Responsibilities



Key to Chart

Purple: Makes sense to be an EPA role

Gray: Potentially an EPA or a state role

Blue: Intrinsically a state role

- **What should be the respective roles and responsibilities of EPA and the states in this process?**

Interfere with Maintenance

Legal Background on Maintenance

- In the *North Carolina* decision:
 - EPA must give independent effect to the “interfere with maintenance” prong of 110(a)(2)(D)(i)(I)
- Footnote in *Homer City*:
 - *To require a State to reduce “amounts” of emissions pursuant to the “interfere with maintenance” prong, EPA must show some basis in evidence for believing that those “amounts” from an upwind State, together with amounts from other upwind contributors, will reach a specific maintenance area in a downwind State and push that maintenance area back over the NAAQS in the near future. Put simply, the “interfere with maintenance” prong of the statute is not an open-ended invitation for EPA to impose reductions on upwind States. Rather, it is a carefully calibrated and commonsense supplement to the “contribute significantly” requirement.*
- This passage does not dictate a particular approach to maintenance

Interfere with Maintenance

- How should EPA give independent meaning to “interfere with maintenance”?
- CAA: Upwind state SIPs must prohibit emissions that **either** contribute significantly to nonattainment **or** interfere with maintenance
- Maintenance comprises three separate issues:
 1. What is a maintenance receptor?
 2. Which upwind states are “linked” to a maintenance receptor?
 3. What must upwind states do once linked to a maintenance receptor?

Technical Issues

Getting State Input on Emission Inventories

- Emission inventories will be an important input for this analysis
- Early state input helps improve data accuracy
- Base year modeling inventories will be based on 2011 NEI data
 - 2011 NEI data updates accepted until ~May 8, 2013 as part of NEI process
- 2011 NEI version 1 data to be released in July, 2013
 - Not the same as modeling inventories
- Considering release of inventories used for proposed rule modeling in the fall (prior to the actual proposal) to allow more time for data review and improvements before final rule modeling
- A follow-up call for parties interested in further discussions on emissions inventories will be held

Air Quality Analysis for Transport

- Analysis is needed to:
 - Identify nonattainment and maintenance receptors
 - Quantify contributions in order to:
 - Identify linkages
 - Calculate proportional shares
 - Evaluate sub-NAAQS over-control
 - Develop factors/formulas for translating air quality reductions to emission reductions

Wrap-up and Next Steps

Wrap-up

Summarize what we heard

Suggestions for Next Steps

How do we maximize state input while enabling timely reductions for attainment?

- Follow-up on technical questions raised
- Conference calls on specialty topics of greatest interest
- Further discussion at the commissioner level as needed
- Feedback on inventory
- Send any additional comments to the regions

Thank you for your participation!!