

Regional Haze

LIZ ETHELLS

US EPA, OFFICE OF AIR QUALITY PLANNING AND STANDARDS

AAPCA FALL MEETING - AUGUST 27, 2019

AGENDA

Regional Haze Background

Current Regional Haze Work

Differences Between the First and Second Implementation Periods

Guidance on Regional Haze State Implementation Plans for the Second Implementation Period

Regional Haze Program

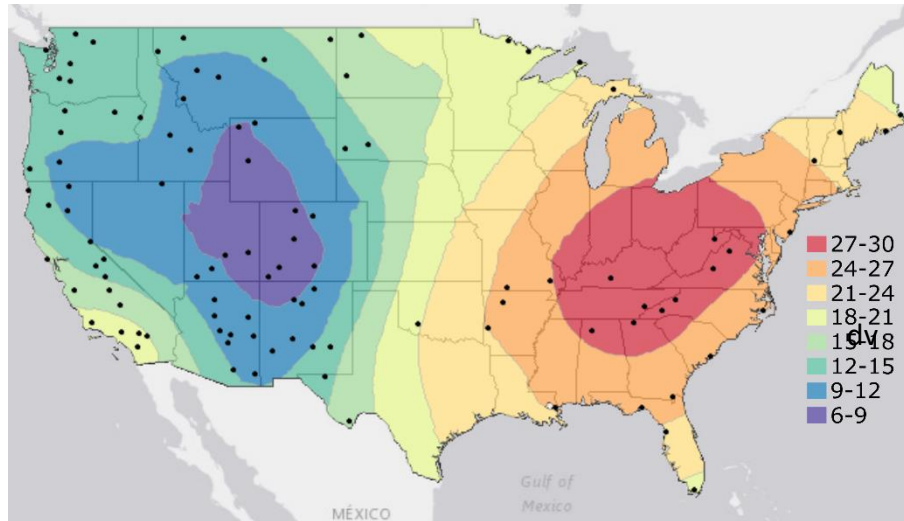
“Regional haze” is defined at 40 CFR 51.301 as “visibility impairment that is caused by the emission of air pollutants from numerous anthropogenic sources located over a wide geographic area.”

The Regional Haze Rule (RHR or Rule) requires states to submit a series of State Implementation Plans (SIPs) to protect visibility in Class I areas and governs states’ obligations and EPA’s review of periodic SIPs developed for the second and subsequent implementation periods.

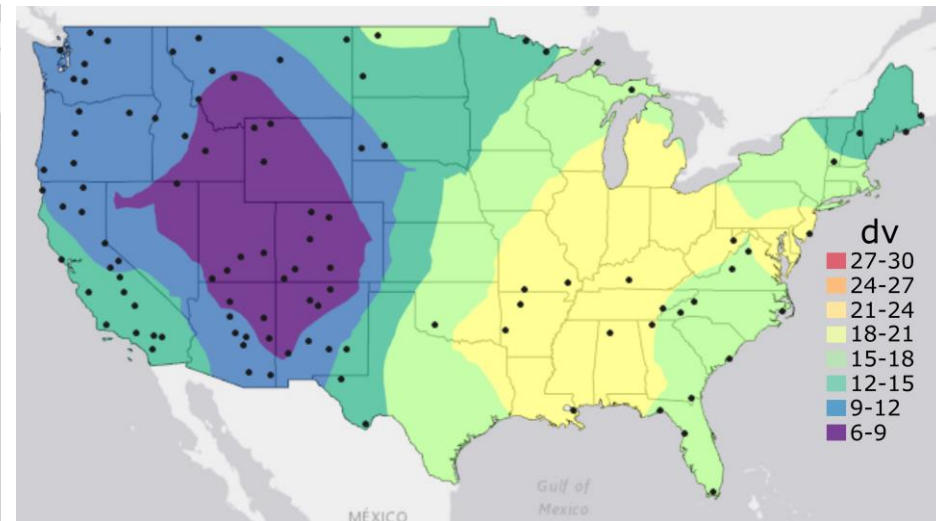
In January 2017, EPA issued a final rule updating the regional haze program, including revising portions of the visibility protection rule promulgated in 1980 and the Regional Haze Rule promulgated in 1999.

First Planning Period: Visibility is Improving

2000-2004
Visibility (dv) on 20% most
impaired days



2013-2017
Visibility (dv) on 20% most
impaired days



The National Park Service estimates that as of mid-2014, emission controls established under the first planning period led to approximately 500,000 tons/year of SO₂ and 300,000 tons/year of NO_x reductions. EPA estimates that visibility has improved significantly with the average visual range increased by 20 – 30 miles in Class I areas.

Ongoing Regional Haze Work

Resolve remaining first implementation period actions, following a SIP path where possible.

Support states for the second and future implementation periods:

- 2018 Technical Guidance (completed Dec. 2018)
- Guidance on Regional Haze State Implementation Plans for the Second Implementation Period (completed Aug. 2019)
- 2028 Modeling (expected Summer 2019)

Key principles for the second planning period include:

- Implementing the program with states in the lead (cooperative federalism).
- Reducing state planning burdens and supporting states in complying with the CAA.
- Leveraging emission reductions achieved through other CAA programs that will further improve visibility in protected areas.
- Ensuring that we are on a path that enables compliance with the CAA and improved visibility in Class I areas.

Key Similarities and Differences: 1st and 2nd Implementation Periods

Similarities: 1st period and 2nd period

- There are no bright lines in the rule for what is reasonable for states to include in their long-term strategies (LTS) for making reasonable progress.
- EPA maintained the approach to SIP development (develop LTS, then project Reasonable Progress Goals (RPGs)).

Differences: 1st period vs. 2nd period

- Focus in 2nd period is on reasonable progress, as opposed to 1st period focus on both BART and reasonable progress.
- Visibility benefits are one of the five factors for BART identified in the first period, but are not one of the four statutory factors identified for reasonable progress.
- Unlike the 2005 BART Guidelines Rule (which described how to quantify the five statutory factors for BART in the first period), the RHR does not dictate an analytical methodology for evaluating the reasonable progress factors and instead provides a flexible process for states to follow in developing approvable submissions.
- Tracking metric uses anthropogenic impairment (vs. worst visibility).
- 51.308(f) is the applicable regulation, rather than 51.308(d) and 51.308(e)

Regional Haze Guidance: Purpose and Goals

Purpose: To help states develop approvable regional haze 2nd implementation period SIPs consistent with the Clean Air Act and the Regional Haze Rule.

The goals of this Guidance Document include:

- Support states in developing SIPs for complying with the CAA visibility requirements
- Highlight the discretion and flexibilities states have within the statutory and regulatory requirements to develop regional haze SIPs
- Reduce state planning burdens
- Leverage emission reductions achieved through CAA and other programs that further improve visibility

The required content of these SIPs is specified in the Regional Haze Rule (RHR) (40 CFR 51.308(f)), which was revised in 2017.

SIP Development Steps in the Guidance

Step 1	Ambient Data Analysis (covered in a December 2018 technical guidance document)
Step 2	Determination of Affected Class I Areas in Other States
Step 3	Selection of Sources for Analysis
Step 4	Characterization of Factors for Emission Control Measures
Step 5	Decisions on What Control Measures are Necessary to Make Reasonable Progress
Step 6	Regional Scale Modeling of the LTS to set RPGs for 2028
Step 7	Progress, Degradation, and URP glidepath checks
Step 8	Additional Requirements for SIPs

Step 1 – Ambient Data Analysis

Applies only to a state with a Class I area.

The separate 2018 EPA Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Program document addresses this step and can be found here:

<https://www.epa.gov/visibility/technical-guidance-tracking-visibility-progress-second-implementation-period-regional>

Step 2 - Determination of Affected Class I Areas in Other States

Applies to all states.

This step addresses how a state determines which out-of-state Class I areas “may be affected by emissions from the state.”

The state then considers these Class I areas (and the areas within their states) in later steps to develop their long-term strategies (LTS) that include the control measures necessary to make reasonable progress.

A state has the flexibility to use any reasonable method for quantifying the impacts of its own emissions on out-of-state Class I areas, and it may use any reasonable assessment for this determination.

Step 3 - Selection of Sources for Analysis

Applies to all states.

The step addresses how states select the emission sources for which an analysis of emission control measures will be completed.

Selection of a source at this step does not mean emission controls will ultimately be required for that source.

A state may consider estimated visibility impacts (or surrogate metrics for visibility impacts), the four statutory factors, the five required factors listed in the RHR (section 51.308(f)(2)(iv)), and any other factors that are reasonable to consider.

The RHR requires SIPs to include a description of the criteria used to determine the sources or groups of sources it evaluated for potential controls and a state must document the basis of its source selections.

Step 4 - Characterization of factors for emission control measures

Applies to all states.

This step addresses how a state should characterize (i.e., collect information on) the relevant factors (four statutory factors and visibility benefits) that are necessary to make reasonable progress.

The Rule provides states with considerable flexibility to decide how to characterize the factors, but the approaches must be reasonable and documented.

Recommends the use of EPA's Air Pollution Control Cost Manual in order to facilitate apples-to-apples comparisons of control options.

If using visibility benefits of controls as a factor, states should analyze the benefits of the control measure using natural background conditions in light extinction units.

Step 5 – Decisions on what control measures are necessary to make reasonable progress

Applies to all states.

This step addresses how a state makes decisions about what emission control measures for a source are necessary to make reasonable progress.

States can consider visibility benefits of potential control measures.

A measure may be necessary for reasonable progress even if that measure in isolation does not result in perceptible visibility improvement.

A state should make control decisions that are reasonably consistent among and across sources within the state.

Consider measures adopted by other contributing states, including all measures that have been agreed upon through interstate consultation.

Step 6 - Regional Scale Modeling of the LTS to Set the RPGs for 2028

Applies only to a state with a Class I area.

In this step, States will determine the visibility conditions in 2028 that will result from implementation of the LTS and other enforceable measures to set the Reasonable Progress Goals (RPGs) for 2028.

The relationship between the LTS and the RPGs for the clearest and most impaired days is a key concept in the regional haze program, as the two RPGs provide a way for the states to check the projected outcome of the LTS against the goals for visibility improvement.

Step 7 - Progress, degradation, and URP glidepath checks

Applies only to a state with a Class I area.

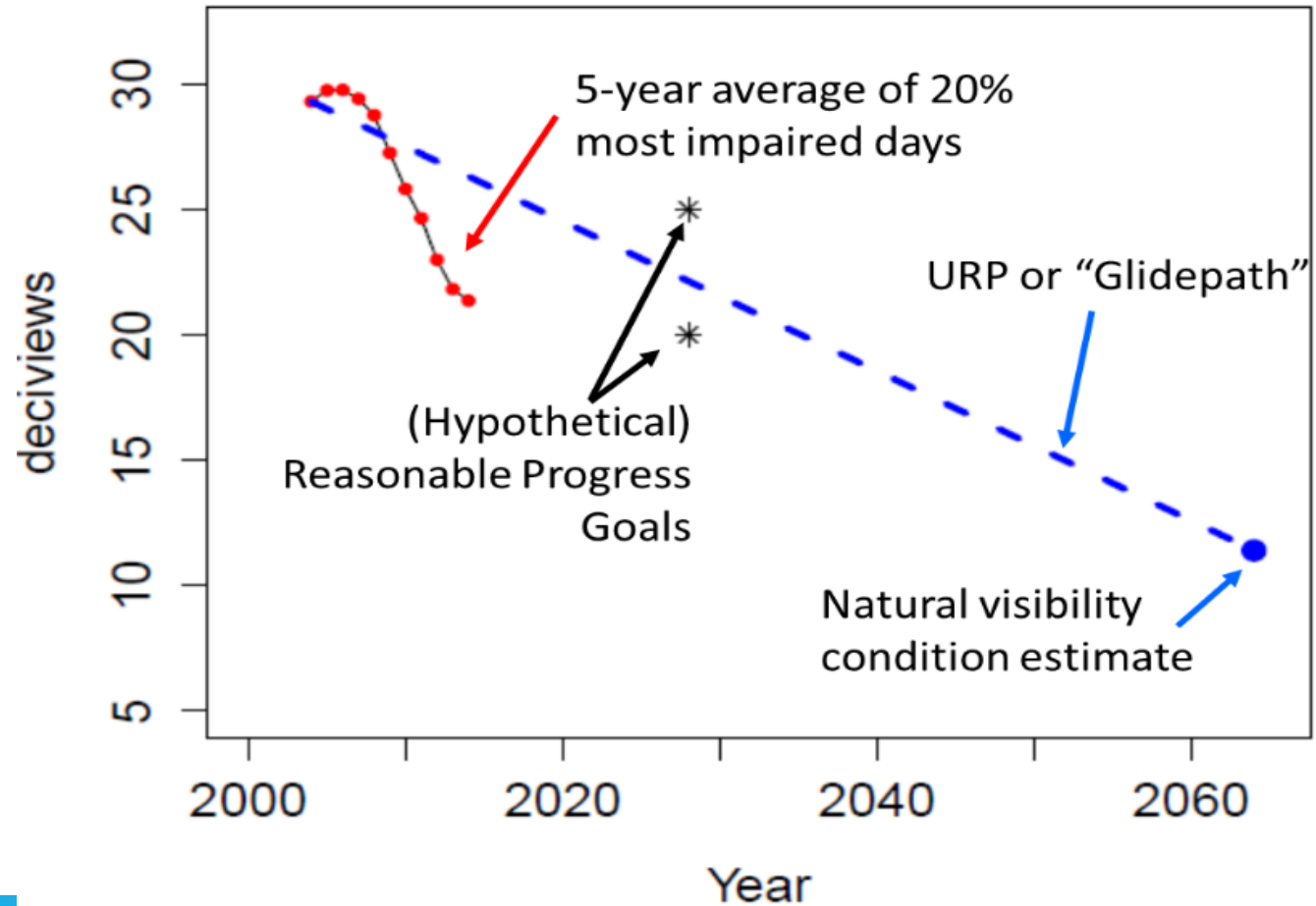
This step addresses how a state compares the RPGs to the baseline period and the Uniform Rate of Progress (URP) glidepath.

The Rule requires:

- Comparing the 20 percent most anthropogenically impaired days and the 20 percent clearest days in 2028 at the in-state Class I area to 2000-2004 conditions.
- Determining the URP that would achieve natural conditions at the in-state Class I area in 2064.
- Comparing the 2028 RPG for the 20 percent most anthropogenically impaired days to the 2028 point on the URP glidepath for the in-state Class I area.

If the RPGs are above the URP glidepath, the guidance offers examples approaches to meeting the Rule requirement to make a “robust demonstration”.

Hypothetical RPGs and Glidepath



Step 8 - Additional requirements for SIPs

Applies to all states.

This step addresses a few additional rule requirements, including consultation with other states and consultation with FLMs.

The second implementation SIP should include a progress report addressing the period since submission of the progress report for the first implementation period.

Monitoring strategy and other elements

- IMPROVE Program
- Baseline and future inventories

Questions and More Information

Liz Etchells at etchells.elizabeth@epa.gov

Guidance on Regional Haze State Implementation Plans for the Second Implementation Period

<https://www.epa.gov/visibility/guidance-regional-haze-state-implementation-plans-second-implementation-period>