

Chapter 1. INTRODUCTION AND OVERVIEW

1.1 Regional Haze (RH) Rule

As noted in the regulatory impact analysis issued with the final rule, under Section 169A and 169B of the Clean Air Act (CAA), 156 Class I Federal Areas are identified for visibility protection. One hundred and forty-seven of these areas are located in 121 counties in 32 States in the continental United States. The CAA requires that “reasonable progress” be made toward achieving a visibility goals of essentially no manmade visibility impairment in areas of concern. Impairment is often due to transport since there are few emission sources within Class I areas.

The final rule provides a planning and implementation timetable which enables integration of the O3/PM National Ambient Air Quality Standards (NAAQS) and RH Programs. This change was fostered by the Presidential Directive issued upon promulgation of the O3 and PM NAAQS and amendments to the Transportation Efficiency Act-21 (TEA-21). The consequences of integrating those programs are revealed in this final RIA. The final rule also recognizes the importance of regionally customized goals. This featured was fostered by the success of the Grand Canyon Visibility Transport Commission and Wester Governors’ Association analytical and planning efforts and further supported by analyses contained in this final RIA.

1.2 Overview of the Final RIA

Chapter 2 of the final RIA addresses the need for the regulation as well as compliance with other statutory authorities and Executive Orders related to this rulemaking. This section is expanded from the previous analysis to address Executive Orders issued and Congressional Mandates enacted since the July 17, 1997 RIA. Chapter 3 describes 4 alternative illustrative visibility improvement goals analyzed in this RIA. Chapter 4 explains the concepts of benchmark visibility conditions and the gains toward achievement of illustrative progress goals as a result of O3/PM NAAQS state implementation plans. Chapter 5 refers to the control measures considered in the previous analysis and notes refinements made since the RIA for the proposal package. Chapter 6 presents the emissions, air quality, visibility and incremental control cost impacts for 4 illustrative visibility progress goals for 2015, a year near the end of the first visibility progress period. Chapter 6 also presents an estimate of costs for the Best Available Control Technology (BART) element of the Regional Haze rule. Chapter 7 assesses the administrative burden hour and dollar cost of the rule for the first planning and implementation cycle. Chapter 8 includes the economic impact, governmental entities, and small entity analyses. Chapter 9 encompasses the incremental benefits of progress toward and/or achievement of illustrative progress goals. Chapter 10 evaluates the net benefits of illustrative goals which are nationally uniform as well as goals which are designed to be optimal from a regional perspective.

1.2.1 Methodological Refinements

The methodology for the RIA which accompanied the proposed rule has been refined in response to public comment and other factors. These refinements are summarized in Table 1-1 and described in the salient chapters.

**Table 1-1
Methodological Refinements**

| ASPECT OF THE ANALYSIS | PROPOSAL ANALYSIS APPROACH | APPROACH USED IN THE FINAL RIA |
|---|---|---|
| Number of Illustrative Goals | Two | Four |
| Visibility Improvement Credits for Partial Attainment of the ozone and particulate matter NAAQS | Limited to improvements from reductions in nitrogen oxides and sulfur dioxide | Also included improvements due to reductions in emissions of particulate matter and volatile organic compounds |
| Control Measure & Cost Data File | Same as that used in the ozone and particulate matter NAAQS RIA | Modified to reflect improved information on nitrogen oxides emission controls developed during the NOx SIP Call rule-making |
| Control Strategies | One: all available measures; cost-effectiveness cap | Also included a strategy which precluded the use of fugitive dust controls |
| Economic Impact Analysis | None | Identify cost relative to revenues for affected entities and economic sectors |
| Visibility Benefits for Class I Areas | Limited to 3 regions where Class I area visibility benefit studies were conducted | Estimates also generated for Class I areas in other regions using methodology reviewed by economics expert |
| Application of Illustrative Progress Goals in the benefit-cost analysis | The same goal applied to all regions: national uniform goal | Also considered adoption different goals among regions |

1.2.2 Analytical Approach

The analytical approach for the final RIA is similar to that identified in the July 16, 1997 RIA for the proposed RH Rule. Illustrative visibility progress goals are first specified. These visibility progress goals are measured from environmental benchmark conditions. These benchmark conditions are estimated using a 1990 emissions inventory and projecting that inventory to a future year. Some factors such as increases in the level of economic activity may foster increases in emissions; other factors such as ongoing implementation of the CAA requirements to meet acidic deposition precursor emission reductions, Maximum Achievable Control Technology Standards for source categories of air toxics, and the NO_x SIP Call objectives result in decreases in emissions over time. The projected emissions inventory is combined with the Source Receptor Matrix air quality model to determine benchmark levels of particulate matter and RH.

Although emissions are only projected to 2010, the future year presumed for the final RIA is 2015. Two thousand fifteen is before the end of the first long term strategy period of 2018. But, the year 2015 does simulate the baseline conditions of partial attainment of the O₃/PM NAAQS. Emission reductions and concomitant improvements in visibility as a result of partial attainment of the O₃/PM NAAQS serve as mechanisms for creditable progress toward achievement of the illustrative visibility progress objectives. The source receptor matrix model is run using these baseline conditions.

By comparing the bench mark and baseline visibility conditions with the illustrative goals, the amount of progress toward achieving or surpassing the goals is determined. Class I areas predicted to achieve or surpass progress goals are identified and counted. For them, there is no incremental cost, impact, or benefit due to the illustrative progress goals. The complementary nature of the O₃/PM NAAQS implementation plan and RH program has resulted in a “windfall” achievement of the illustrative progress goals for those Class I areas.

In many instances, predicted visibility improvement is sufficient to achieve or surpass the illustrative goals. For Class I area/illustrative goal situations where this is not the case, a control strategy model is applied to develop a least cost command and control implementation plan to achieve the illustrative visibility progress goal. For some of these areas, available control measures and cost-effectiveness constraints preclude full achievement of the illustrative target. These areas are noted and counted in the analysis.

To address potential economic impact, the control costs associated with a control strategy aimed at an illustrative goal are compared to sales or revenue on an affected entity and sector basis. These sectors include the profit, not-for-profit, and governmental segments. The higher cost to sales or revenue ratios are used as indicators of where further examination of potential impacts may be warranted. Where the potential impact appears to be relatively large, ways of

averting and mitigating these potential impacts are noted.

An upper bound estimate of the administrative costs to governments from implementing the rule in the first long term progress period are estimated independent of the stringency of the illustrative progress goals. These costs are not included in the economic impact or benefit-cost analyses. Because of the small relative size of the upper bound administrative cost estimate, the omission will not affect the results of those analyses.

The beginning and ending particulate matter concentrations as well as visual range improvements are outputs of the baseline and control strategy runs of the source receptor matrix air quality model. The benefit analysis combines that information together with concentration response and valuation functions for various effects categories to generate monetized benefit estimates.

The monetized benefit estimates are compared with the estimated control costs for the illustrative national uniform goals as well as regionally customized goals.

1.3 Remaining Limitations and Caveats

Despite improvements in the final RIA, many limitations remain. Some of these limitations are identified in Table 1-2. These and other limitations are addressed more completely in RIA chapters 3 through 10. Some of the limitations described in Table 1-2 result in an overstatement of costs and economic impact. Other things remaining the same, the net effect of these limitations is to understate the net benefits of achieving the illustrative goals.

The limitations pertaining to estimated benefits have an unknown effect on net benefits. Some limitations result in an overestimate of benefits; other limitations result in an underestimate of benefits.

**Table 1-2
Consequences of Key Limitations**

| ANALYTICAL COMPONENT: LIMITATION | AFFECT ON CONTROL STRATEGY COST ESTIMATES | AFFECT ON ECONOMIC IMPACT ASSESSMENT | AFFECT ON MONETIZED BENEFIT ESTIMATES |
|---|---|---|--|
| Air Quality Modeling: Overstated Impact of Fugitive Dust; Understated Potential Tier II Effect | Estimates are too high | Impacts overstated | Incremental benefits overstated |
| Control Strategy Design & Costing: Omitted Technological Change; Superior Innovative Strategies Did Not Identify Superior Progress Goals-- More Progress for the Same Cost | Estimates are too high Estimates may be too high | Impacts overstated Impacts may be overstated | Effect Uncertain Visibility benefits may be understated |

| ANALYTICAL COMPONENT: LIMITATION | AFFECT ON CONTROL STRATEGY COST ESTIMATES | AFFECT ON ECONOMIC IMPACT ASSESSMENT | AFFECT ON MONETIZED BENEFIT ESTIMATES |
|--|--|---|--|
| Benefit Estimation: Incomplete Coverage of Pollutants & Effects Categories; No Adjustment for Population & Income Increases | No effect | No effect | Benefits Understated |
| Did not monetize diminishing marginal utility effects or pollutant trade-offs | No effect | No effect | Benefits Overstated |

Recognize that states have the flexibility under the final RH Rule to develop better visibility goals from an economic perspective with improved data bases, emission projection algorithms and models. But, perhaps more importantly, recognize that the States have the discretion to select reasonable visibility progress goals which best suit their objectives. The objectives may consider factors in addition to the cost-effectiveness, economic impact, or allocative efficiency aspects of alternative reasonable progress goals.