

ASSESSMENT OF ECONOMIC IMPACTS
OF VISIBILITY REGULATIONS

U.S. Environmental Protection Agency
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PREFACE

This report is a modification of a preliminary analysis entitled "Preliminary Assessment of Economic Impact of Visibility Regulations" completed in May 1980 for the U.S. EPA. The reassessment is in response to numerous public comments received on the proposed visibility regulations, and additional information received by the Agency.

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INTRODUCTION

In support of the proposed visibility regulations EPA through its contractor, ICF, Inc., prepared a draft report "Preliminary Assessment of Economic Impact of Visibility Regulations," dated May 1980.¹ That draft assessment was prepared during the period of regulatory development and was based on a general knowledge of the concepts of the regulations and not on specific regulatory language.

Based upon public comments EPA reassessed the impact of the regulations and found that the preliminary assessment over estimated the impact of the regulations.

PRELIMINARY ASSESSMENT

The Preliminary Assessment evaluated those existing stationary facilities which met the Best Available Retrofit Technology (BART) age and size requirements as specified in §169A of the Act for their potential effect on visual range and discoloration, two parameters identified as characterizing visibility impairment.

For purposes of this initial analysis, four alternative scenarios were evaluated. This consisted of two separate criteria for identifying those sources potentially affected by visibility regulations and two separate criteria for identifying the level of control required of those sources.

To identify those sources potentially affected, EPA proposed criteria which provided both a minimum distance from the mandatory Class 1 Federal

¹This report is available through U.S. Environmental Protection Agency, Control Programs Development Division, MD-15, Research Triangle Park, N.C. 27711.

area and a de minimus emissions requirement. To be conservative in identifying potential sources, another criteria was applied which used Environmental Research and Technology, Inc. (ERT) screening curves, or models,² consisting of a minimum distance requirement plus estimates of visual range reduction and discoloration based on current annual emissions.

The level of control required was evaluated for the two types of visibility impairment-visual range reduction and discoloration. Values of 5% and 13% were used for visual range reduction and for discoloration, threshold blue-red ratios of .95 and .90 were used. Emissions of particulates and sulfur dioxide were used to estimate visual range reduction. Emissions of NO_x were used for evaluating discoloration. EPA's National Emissions Data System (NEDS) provided the emissions data used in this initial analysis.

The four scenarios identified five power plants as having to reduce emissions to meet a 5% visual range reduction value and one power plant having to reduce emissions to meet a 13% value. Seven power plants were shown as having to reduce NO_x emissions in order to achieve a blue-red ratio of either .95 or .90. No existing industrial sources were identified as being potentially affected by visibility regulations.

The total capital cost estimated in the Preliminary Assessment of retrofitting 10 power plants (two power plants appeared on both lists) to meet the above stated levels of control was approximately \$500 million (1980 dollars). \$350 million of this can be attributed to control of particulate and SO₂ emissions for visual range and \$168 million can be attributed to control of NO_x emissions for discoloration.

²Screening curves were provided by ERT, Inc. from a working draft report submitted to the Office of Environment, Policy Analysis Division, Department of Energy.

Several important qualifications and limitations to this analysis were pointed out in the Preliminary Assessment. The key elements were 1) the reliance on NEDS to identify the sources evaluated, and 2) screening curves measuring the impact of emissions on visibility developed by ERT, Inc. In response to these limitations, and other deficiencies pointed out by many of the public comments received on the proposed regulations, EPA has reassessed the report.

Reassessment

Based on public comments, EPA reevaluated the assumption upon which the preliminary analysis was based. EPA determined³ that:

(1) SO₂ emissions are generally associated with regional haze and are not to be addressed in the visibility regulations promulgated under the initial phases (Phase 1) of the EPA program. No major sources are expected to have to install SO₂ controls.

(2) NO_x emissions, at the present time, cannot be reduced to achieve a substantial improvement in visibility. Therefore, EPA is planning to delay imposition of NO_x controls "until such time as more effective with respect to visibility, controls are available."

(3) Particulate emissions are expected to impact visibility with respect to Phase I concerns only in a single case. The emissions from this source are expected to be reduced as required by current applicable State Implementation Plan provisions to an acceptable level.

³Walter Barber, EPA, to George Eads, Council on Wage and Price Stability, September 17, 1980.

Based upon an examination of the potentially effected sources, only one existing power plant in the U.S. would be identified as potentially having to reduce current particulate emissions to meet a threshold value for visual range reduction of either five or 13 percent. This power plant, the Four Corners plant located in New Mexico near the Mesa Verde Class I area, has particulate emissions which, when using the ERT screening curves, would imply an impact on visual range in excess of five percent.

However, consistent with requirements of the New Mexico State Implementation Plan, the utilities who own and operate Four Corners have agreed to install baghouse collectors on Units 4 and 5 to comply with an emission limit of 0.05 lbs. of particulate per million Btu by 1983. Once installed, the estimated impact of particulate emissions from this power plant, again using the ERT screening curves, is well below either threshold limit.

Therefore, no existing sources have been identified as potentially affected by the initial phase of EPA's regulatory program for visibility. This finding is of course subject to the limitations and caveats of the approach and assumptions used in this analysis.

It should be emphasized that the estimates for this analysis are not intended to be a detailed site-specific analysis which can only be accomplished by the State performing a BART analysis.

This analysis was to address only the retrofit of existing sources related to near-field visibility impairment. Issues such as the effects (a) of State long-term strategies, (b) of new sources review requirements, and (c) of regional haze considerations were explicitly excluded.