Preface

The analysis in this report was undertaken at the request of Senators James M. Jeffords (I-VT) and Joseph I. Lieberman (D-CT), subsequent to the report *Analysis of Strategies for Reducing Multiple Emissions from Power Plants: Sulfur Dioxide, Nitrogen Oxides, and Carbon Dioxide*, published by the Energy Information Administration (EIA) in December 2000. The analysis in the December 2000 report was expanded in the report *Analysis of Strategies for Reducing Multiple Emissions from Electric Power Plants: Sulfur Dioxide, Nitrogen Oxides, Carbon Dioxide, and Mercury and a Renewable Portfolio Standard*, published by EIA in July 2001. Senators Jeffords and Lieberman requested that EIA consider the impacts of technology improvements and other market-based opportunities on the costs of emissions reductions, as noted in the letter in Appendix A.

This study analyzes the costs and impacts of a set of emissions control limits for electricity generators under four different technology cases. Limits are defined for sulfur dioxide, nitrogen oxides, mercury, and carbon dioxide emissions by 2007 and are the same for each case. The limits are analyzed using the reference case and the high technology case assumptions for end-use demand, supply, and generation technologies in EIA's *Annual Energy Outlook 2001*, published in December 2000, and the moderate and advanced policy cases from *Scenarios for a Clean Energy Future* (*CEF*), a publication of an interlaboratory working group, published in November 2000. The projections in this report were produced using the National Energy Modeling System (NEMS), an energy-economy model of U.S. energy markets designed, developed, and maintained by EIA, which is used each year to provide the projections in EIA's *Annual Energy Outlook*. The energy market results are provided in Appendix C for the reference and advanced technology cases and in Appendix D for the cases based on *CEF*.

The legislation that established EIA in 1977 vested the organization with an element of statutory independence. EIA does not take a position on policy questions. It is the responsibility of EIA to provide timely, high-quality information and to perform objective, credible analyses in support of the deliberations of both public and private decisionmakers. This report does not purport to represent the official position of the U.S. Department of Energy or the Administration.

Within its Independent Expert Review Program, EIA arranged for leading experts in the field of energy and economic analysis to review an earlier version of this report. All comments from the reviewers either have been incorporated or were thoroughly considered for incorporation. As is always the case when peer reviews are undertaken, not all the reviewers may be in agreement with all the methodology, inputs, and conclusions of the final report. The contents of the report are solely the responsibility of EIA. The assistance of the following reviewers is gratefully acknowledged:

Dallas Burtraw
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Alex Farrell
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Energy Modeling Forum

Henry Lee
Harvard University

The projections in the reference case in this report are not statements of what will happen but of what might happen, given the assumptions and methodologies used. The reference case projections are business-as-usual trend forecasts, given known technology, technological and demographic trends, and current laws and regulations. Thus, they provide a policy-neutral reference case that can be used to analyze policy initiatives. EIA does not propose, advocate, or speculate on future legislative and regulatory changes. All laws are assumed to remain as currently enacted; however, the impacts of emerging regulatory changes, when defined, are reflected.