Electric Utility Air Pollution Mitigation

RTI International has provided technical leadership in the development and implementation of air pollution regulations for the electric utility sector for decades.

Overview

RTI helps federal, state, and local governments as well as electric utilities identify cost-effective strategies for reducing electric utility air pollution emissions. We have provided technical support to the U.S. Environmental Protection Agency (EPA) for multiple high-profile air pollution regulations in recent years.

Areas of Expertise

RTI's electric utility team members include staff members with hands-on electric utility expertise gained from working (1) in electric utility company environmental departments, (2) as industrial consultants serving the electric utility industry, and (3) as state agency permitting and compliance inspectors.

We have performed research to inform federal air pollution rulemaking projects focused on electric utilities for decades. We conduct information collection requests (surveys); prepare emissions inventories; and research technologies for mitigation of greenhouse gases (GHG), air toxics, and criteria air pollutants such as particulate matter (PM), nitrogen oxides (NOx), and sulfur dioxide (SO_2).

RTI's electric utility team members are familiar with electric utility emissions data sources such as those published by the Energy Information Administration (EIA). We couple public information with additional information we gather and analyze to prepare background documentation for regulatory activities.

RTI's staff of engineers, economists, and risk assessment experts collaborate to assess the economic, environmental, and human health impacts from electric utilities. These staff members analyze energy and environmental data to help government and private-sector clients with strategic planning and operational decision making.

Project Highlights

Clean Power Plan. Under President Obama's Climate Action Plan, the U.S. EPA proposed the Clean Power Plan in June 2014 to cut carbon emissions from existing power plants. RTI used our internally developed proprietary software, Comment Handling and Response Management (CHARM), to quickly process more than 24,000 unique and substantive public comments on the proposed Clean Power Plan. Our team members summarized comments pertaining to a diverse array of issues, such as state goal computation, state plan development, carbon capture and storage, and other GHG abatement measures. The RTI team's industry expertise, engineering skills, and innovative tool were crucial to the successful completion of the comment review, summary, and response.

Carbon Pollution Standards for New, Modified, and Reconstructed Power Plants. RTI's electric utility team provided information gathering, analytical, and public comment processing support to aid the U.S. EPA in setting carbon pollution standards to reduce CO_2 emissions from new, modified, and reconstructed power plants.

National Hazardous Air Pollutant Emission Standards for Coal-Fired Electric Utilities. RTI has supported the U.S. EPA on a continuous series of projects to develop national air emission standards to control hazardous air pollutant emissions from U.S. electric utility power plants. The Mercury Air Toxics Standards (MATS) rule was promulgated in 2012. We prepared industry sector profiles; estimated air emissions using field source test data, mathematical models, material balances, and other techniques; developed emission inventories; identified control options and pollution prevention strategies; estimated the capital and annual costs, non-air impacts, and energy impacts for control options; conducted site visits; conducted nationwide facility surveys; and developed computer air emission models.

New Source Performance Standards (NSPS) Development for Coal-Fired Electric Utilities. RTI supported the U.S. EPA on a continuous series of projects to revise outdated NSPS that regulate the emissions of SO_2, NOx, and PM from electric utility power plants operating in the United States. We assessed applicability of state-of-the-art air pollution control technologies; summarized and analyzed continuous emissions monitoring system (CEMS) data; prepared control option cost analyses of SO_2 controls (flue gas desulfurization [FGD] and dry-scrubber systems), NOx controls (selective catalytic reduction and selective non-catalytic reduction), and PM controls (fabric filters and electrostatic precipitator) for pulverized-coal-fired and fluidized-bed combustion boilers burning characteristic U.S. coals; and provided technical support documentation for preparation of rule requirements for U.S. electric utility power plants.

Shandong Flue Gas Denitrification and Flue Gas Desulfurization. Working with the U.S. Trade and Development Agency (TDA), RTI helped the Shandong Provincial Environmental Protection Bureau initiate demonstration projects to use commercially available NOx control technologies at coal-fired power plants to assess the potential for widespread adoption of the technology. Under a separate TDA project, RTI evaluated the feasibility of the new requirements mandating that all coal-fired power plants install FGD- and PM-removal technologies. RTI focused on assisting electric utility power plant owners and their design institutes to select and specify, based on their site-specific conditions, the most efficient FGD systems to control SO_2 air emissions from 7 coal-fired power plants in Shandong Province. RTI conducted site visits to 10 coal-fired power plants in Shandong Province and evaluated the feasibility of installing FGD systems at each site.

Greenhouse Gas Reporting Program (GHGRP). RTI provides support to the U.S. EPA for implementation of the GHGRP. This program collects annual GHG emissions data from electric utilities and other industrial sectors. RTI reviews and verifies the emissions data and assists in preparation of data summaries to inform various programs.

Past Projects

- Electric Utility Steam Generating Unit: Hazardous Air Pollutants and Mercury Study
- Research and Preparation of Status Report on Mercury Emission Control Technologies for Coal-Fired Electric Utility Boilers
- Characterization and Management of Coal Combustion Residues (CCR) from Coal-Fired Electric Utility Boilers
- Development of Acid Rain Program Rules for Coal-fired Electric Utility Power Plants
- Performance Specifications and QA Procedures for Continuous Emission Monitoring System (CEMS)
- Evaluation of Electric Utility Power Plant CEMS Data
- Development of CEMS Cost Estimation Model
- National Pollution Abatement and Control Expenditure (PACE) Survey for Electric Utilities and Other Industries

More Information
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