Urban Air Quality and Emissions Inventories

RTI International's vast knowledge of residential, commercial, energy, industrial, and agricultural sectors enables us to provide clients with research-driven results for establishing the best legal and technical options in greenhouse gas (GHG) mitigation. We effectively organize ground-level research to create a sustainable strategy approach.

Overview

RTI has developed air emissions inventories for decades. We leverage our expertise in the emission sectors to make sound decisions and to provide valid emissions data on a streamlined, efficient schedule. Standard methodology, area modeling, gap-filling targeted surveys, and development of emission factors promote inclusive, customized inventories. These emission inventories have identified new control technologies and informed governing bodies to adopt effective policy. Viewed as leaders in the emissions inventory realm, RTI has two staff members who supported the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines and who also support the forthcoming 2019 IPCC Refinements.

Project Highlights

We share our best practices and knowledge with clients around the globe. Our depth of experience and knowledge allows us to develop and implement science-based climate change plans. The following key projects highlight our capabilities.

Transportation

Electric Vehicle (EV) Charging Infrastructure Impact Study. RTI investigated the impact of EV charging infrastructure on the utility sector. We inform planning decisions by modeling multiple scenarios to reflect different levels of EV adoption, renewable energy adoption, and charging infrastructure investment.

Uruguay Transportation Carbon Reduction Study. RTI supported Uruguay's government in designing a low-carbon development strategy in the transportation sector by providing decision makers with informative tools to quantify and reduce emissions and climate change impacts while contributing to social and economic development. We evaluated low-carbon emission options, compared mitigation opportunities, and organized stakeholder engagement workshops.

Knowledge Transfer

Capacity Building for Cities: Accra, Ghana, and Dar es Salaam, Tanzania. For the U.S. Environmental Protection Agency (EPA) and U.S. Agency for International Development (USAID), RTI provided the expert assistance and capacity building necessary for monitoring and understanding air pollution, which allowed both cities to monitor emission sources and track air quality improvements.

Shanghai Petroleum Inventory Workshop. RTI provided detailed technical data on developing appropriate emissions estimates and evaluating control options from industrial sources. We conducted hands-on training sessions for modeling software to develop emissions inventories from storage tanks and wastewater treatment.

Residential/Commercial

Residential Lighting Standard for the United Arab Emirates (UAE). RTI developed a residential lighting standard to expedite adoption of energy-efficient lighting and reduce energy consumption. RTI conducted surveys, developed

baselines, completed analyses, and recommended policy options resulting in an estimated energy savings of 2,000 gigawatt-hours.

Abu Dhabi Air Conditioning (A/C) Study. To assess the potential of demand side management, RTI conducted pilot studies, quantified economic and technical potential of A/C unit maintenance, and enacted optimization measures resulting in a base case that is being implemented by local distribution companies.

Energy

Carbon Pollution Standards for Power Plants. RTI delivered technical support to the EPA's effort to reduce power plant carbon emissions. We gathered and analyzed data on the U.S. power sector and addressed 4.3 million public comments received on the rule proposals.

GHG Mitigations Options Database (GMOD) Inventory Development. RTI researched mitigation options for sectors and organized the data into the GMOD database, which is a comprehensive data repository and analytical tool for policy-makers evaluating alternative GHG mitigation options through energy efficiency.

Agriculture, Forestry, and Other Land Use (AFOLU)

Non-CO_2 Mitigation Technology Assessment. RTI estimated costs of reducing emissions for 190 countries using marginal abatement cost curves for agriculture and helped government officials identify the lowest-cost approaches for reducing emissions. RTI developed an emission reduction cost model by considering how technological advancement and learning-by-doing can lower costs and increase efficiency over time.

CLEANEast Livestock Manure Management Best Practices. RTI led a 4-year livestock and poultry assistance program to improve farmer awareness of environmental impacts from farmers' facilities and to understand how to address these impacts. RTI developed emission estimation tools and other resources to make this program effective and accessible.

Waste

Emission Inventory for Landfills. Since 2004, RTI has collected national data on annual waste disposal and landfill gas collection and control systems for municipal and industrial landfills to improve U.S. emissions models. RTI transferred this knowledge to provide capacity-building support to international governments in Malaysia, Bangladesh, Colombia, and Peru.

Biogenic CO_2 Accounting Framework for Waste-Derived Biogenic Feedstocks. For EPA's Climate Change Division, RTI developed a Bioenergy Accounting Framework for Solid Waste Landfills and Waste Combustion Facilities. We delivered a guidance document describing emissions pathways and calculations for the waste sector.

Industrial Processes

Support for U.S. GHG Inventory and GHG Reporting Program. RTI sector experts develop, improve, and verify emission inventories by following the IPCC inventory methodology to deliver accurate emission inventory datasets. RTI conducts verification for annual GHG emissions data uploaded to web reporting on the e-Greenhouse Gas Reporting Tool by facilities in 30 sectors.

Petróleos Mexicanos (PEMEX). RTI assisted with efforts to mitigate GHG emissions from oil and gas activities by integrating the CH_4/CO_2 emissions inventory with abatement measures and cost assumptions. RTI delivered an expanded inventory and model, a tool providing current and future GHG mitigation analyses, and strategy development and implementation efforts.

UAE Sector Reports. RTI authored 13 industrial-sector assessment reports that targeted the largest sectors for the Environment Agency—Abu Dhabi to inform policy and permitting divisions. We developed emissions inventories and presented aggregate information results from a relative risk assessment using tailored tools.

More Information

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