

U.S. Department of Energy Comprehensive GHG Emissions Inventory Assessment and Reduction Action Plan

Need

To comply with Executive Order 13514: “Focused on Federal Leadership in Environmental, Energy, and Economic Performance,” the U.S. Department of Energy (DOE) needed to produce a complete greenhouse gas inventory, encompassing all its direct (Scope 1) and indirect (Scope 2) emissions, as well as establish an agency-wide greenhouse gas (GHG) reduction target for 2020. To further demonstrate leadership in sustainability management, the agency also needed to assess the emissions from its supply chain (Scope 3) and develop reduction targets that were supported by cost-benefit analysis.

Solution

AEA/Project Performance Corporation (PPC) undertook a comprehensive greenhouse gas inventory of DOE’s total operations, analyzing energy, transport, and fugitive emissions data from all agency facilities and processes to determine their 2008 baseline and then develop a framework by which to measure changes in emissions over time.

To determine an optimal reduction target, our experts evaluated all eligible carbon reduction projects to create an agency-wide marginal abatement cost curve (MACC). The project performance was assessed based on the environmental impacts and financial costs of a portfolio of energy conservation, fuel switch, and renewable energy projects.

To assist DOE reduce Scope 3 emissions, we developed a methodology to determine which activities and suppliers contribute most significantly to the agency’s carbon footprint. From this list, we worked with the agency to identify those that could be most easily influenced to reduce Scope 3 emissions. Specific activities that were analyzed included business ground and air travel, employee commuting, solid and liquid waste disposal, and T&D (electricity transmission and distribution) losses from electricity and steam purchases. In the future, the agency will consider additional Scope 3 categories, such as emissions from Tier 1 suppliers.

Value delivered

In total, AEA/PPC reported total emissions of 5.3 million mtCO₂e in DOE’s 2008 Scope 1, 2, and 3 GHG inventory and provided a detailed breakdown of GHGs by agency program, site, and asset categories. With a concrete analysis of the specific sources of the agency’s emissions and the most cost-effective means of reducing them, we helped DOE confidently commit to the ambitious goal of reducing Scope 1 and Scope 2 emissions to 28 percent below 2008 levels by 2020. We also developed a strategy to achieve its goal of reducing Scope 3 emissions by 13 percent, making recommendations of how best to identify less carbon-intense business processes and products procurement.



The assessment quantified the agency’s comprehensive GHG inventory of 5.3 million mtCO₂e and delivered a cost-effectiveness analysis that led to a public commitment to reduce its GHG emissions by 1.4 million mtCO₂e by the year 2020.

Why AEA/PPC?

The Department of Energy chose AEA/PPC because of our unparalleled expertise managing large-scale carbon management and reduction programs. We bring over 20 years of experience in environmental policy analysis and climate change markets and have delivered over 50 enterprise carbon management programs, including carbon footprints, GHG data audits, compliance support, target optimization, abatement assessments, and behavior change programs. We have helped over 300 organizations save \$1.6 billion in energy costs and reduce 2 million tons of carbon dioxide.