



ENERGY AND EMISSION REDUCTION STRATEGIES: **BETTER BUSINESS**

Airport sponsors are increasingly preparing for greenhouse gas (GHG) emissions legislation and regulation. Numerous states have taken action to address GHG emissions, with some mandating specific reduction targets. Such actions—along with the possibility of federal legislation—are likely to result in downstream costs for airport sponsors.

Early preparation and planning for GHG legislation can reduce regulatory risks and provide insight into the fiscal impacts of achieving GHG emissions reductions. One challenge airport sponsors face is the identification and prioritization of projects that should be accelerated based on their energy and GHG benefits.

A systematic and strategic approach to energy and GHG emissions planning can reduce both airport and tenant operating costs. Airport sponsors are discovering that understanding the energy and GHG profile of their facilities can provide immediate benefits through the identification of low-cost opportunities to reduce energy consumption.

LeighFisher offers a strategic and long-term approach that can yield effective cost savings and emission reductions through:

- ➔ Baseline energy consumption and GHG emissions inventory and forecasts
- ➔ Assessment of the potential regulatory effect on airport utility budgets and aviation activity forecasts
- ➔ Life-cycle cost-benefit evaluations of energy reduction and clean energy projects
- ➔ A decision-making framework to prioritize funding and implementation of projects for meeting GHG emissions targets and achieving operational savings
- ➔ A program to reduce the cost of energy procurement by increasing the airport sponsor's purchasing power

Our approach results in a long-term emissions reduction strategy that optimizes efficiency and provides for the generation of renewable energy.

UNDERSTANDING THE TERMS

Greenhouse Gas

Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, but are not limited to: carbon dioxide (CO₂), hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs), methane (CH₄), nitrous oxide (N₂O), ozone (O₃), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and water vapor.

Emissions


Releases of a substance (usually a gas when referring to climate change) into the atmosphere.

Emissions Inventory

Estimates of the amounts of pollutants emitted into the atmosphere from major mobile, stationary, area-wide, and natural sources over a specific period of time, such as a year.

Renewable Energy

Energy obtained from sources that are essentially inexhaustible (unlike, for example, fossil fuels, which are in finite supply). Renewable energy sources include geothermal, photovoltaic, solar thermal, waste, wind, and wood.



A systematic and strategic approach to energy and GHG emissions planning can result in cost reductions for both the airport sponsor and airport tenants.



CASE STUDIES

LeighFisher has worked with leading airport sponsors in the United States to develop GHG and energy reduction programs that have resulted in reduced regulatory risk, emissions reductions, and significant cost reductions. Three such programs are described below.



MASSACHUSETTS PORT AUTHORITY

In this ongoing project, LeighFisher produced a customized decision-making framework that was applied to the Authority's capital and energy improvement program. The decision-making framework enabled projects to be prioritized using multiple criteria, including net carbon emissions and operating costs. The resultant list of prioritized projects demonstrated where the Authority should focus its investment for the best energy and financial returns. The highest priority projects are estimated to reduce energy consumption by 15% and GHG emissions by 17%, ensuring that the Authority meets its 2012 targets in the most cost-efficient manner. The measures, expected to generate savings in utility costs of \$3.4 million annually, yield an investment payback period of 4.2 years for the portfolio.

Our prior work for the Authority included (1) analysis of historical energy use at Boston-Logan International Airport, the Authority's largest facility; and (2) preparation of an energy forecast model, which is being used to assess alternative scenarios for reaching State-prescribed energy and carbon emissions targets. All findings will culminate in an Energy Master Plan that will provide a strategy for the Authority to achieve its GHG emissions and energy targets through 2020.



ALBUQUERQUE INTERNATIONAL SUNPORT

LeighFisher's current work for the City of Albuquerque Aviation Department includes preparation of an energy study with the following components: GHG emissions inventory, evaluation of the financial risk associated with GHG emissions regulations on the airport utility budget, and a cost-effective strategy to minimize GHG emissions and regulatory risks. Study results, anticipated in late 2010, will enable airport management to project utility costs and accelerate energy projects according to economic and environmental costs and benefits.



BUSH INTERCONTINENTAL AIRPORT/HOUSTON

In 2009, LeighFisher secured an \$8.8 million Voluntary Airport Low Emission (VALE) Program grant for the Houston Airport System to undertake its Central Plant Improvement Project at Bush Intercontinental Airport/Houston—the first utilities plant project to be funded through the VALE Program. The project included installation of new electric infrastructure, emissions control equipment, and a new energy-efficient heating system supporting all facilities at the airport. The resulting benefits were estimated at \$500,000 in annual fuel cost savings and an 80% reduction in the emission of ozone precursors.