Performance Track Leading Practices

Denver International Airport's Green Fleet Cuts Fuel Costs and Carbon Emissions

Costs and Benefits of a Green Transportation Fleet*

Costs	Savings and Other Benefits
Nominal costs of AFVs versus conventional gasoline diesel vehicles (can be offset with government grants).	Lower operating costs as fuel consumption decreases—$160,000 savings in 2008.
Infrastructure for CNG fuel.	Reduces harmful emissions from vehicles, including CO_2.
Operator training on idling and fuel efficient driving techniques.	Prepares facilities for a carbon-regulated economy.
*as of Jan. 2009	Provides visible improvements in facility environmental performance.

National Environmental PerformanceTrack
U.S. Environmental Protection Agency

EPA United States Environmental Protection Agency

PERFORMANCE TRACK FACILITY

Denver International Airport, Denver, Colorado

GOAL CATEGORY

Energy Use (and associated improvements in air emissions)

RELATED INDICATORS

Inputs: Transportation Energy Use
(gallons of gasoline used in fleet vehicles)

OVERVIEW

Denver International Airport (DIA) is the first commercial airport in the country to have obtained an ISO-certified environmental management system. In 2006, the 34,000-acre facility joined EPA's National Environmental Performance Track program. As part of an airport-wide energy management initiative, DIA has significantly reduced its transportation energy use through the purchase of alternative fuel vehicles (AFVs) and more effective green fleet management practices. By the start of 2009, 55 percent of the light-duty fleet had been converted from gasoline to alternative fuels. As a result of investments in AFVs and continuous driver training, DIA saved $160,000 in 2008 by lowering diesel and gas consumption.

DIA uses a variety of alternative fuel technologies, including electric/gasoline hybrids, electric only, compressed natural gas (CNG)/gasoline, and CNG-only vehicles. Additionally, the airport is designing and implementing education programs to decrease idling and reduce fuel waste. These fleet performance improvements are tracked as reductions in gallons of vehicle fuel used. Between 2007 and 2008, DIA achieved an overall reduction in gasoline use of almost 4 percent and reduced diesel use by over 13 percent, while increasing CNG use by over 20 percent.

HOW DIA MANAGES ITS ALTERNATIVE FUEL VEHICLE FLEET

DIA operates like an independent company, depending on revenue from airlines and vendors rather than government funding. Green fleet improvements fit within the strategic mission of the airport as an enterprise that seeks to minimize costs throughout its operations and deliver world-class service to its stakeholders. The overall cost-per-vehicle increase for alternative fuel vehicles (AFVs) is nominal, and the savings from reduced fuel consumption have reduced DIA's operating costs while helping the airport reduce emissions of CO_2 and conventional air pollutants.

Through 2008, the percentage of alternatively fueled vehicles at DIA stood at over 75 percent of the total fleet, including heavy-duty and light-duty vehicles powered by CNG and hybrid/electric. One hundred percent of the airport-owned buses at DIA operate on CNG, and, in 2008, 55 percent of light-duty vehicles used alternative fuel. Moving forward, all remaining gasoline vehicles will be retrofitted with compressed natural gas capability or replaced by other available AFVs. Further improvements focus on the purchase of new electric and hybrid light- and heavy-duty vehicles, and assessing the potential for using biodiesel in diesel-powered equipment.

100 percent of DIA's passenger buses run on Compressed Natural Gas (CNG).

The goal of achieving 100 percent alternative fuel for the entire airport fleet is constrained by performance limitations for emergency vehicles (e.g., fire and rescue). The number-one priority at DIA is safety: where performance and reliability are paramount, gasoline and conventional diesel remain the preferred fuel technology for emergency service providers.

IMPLEMENTATION

Energy savings and other environmental benefits from transportation improvements are clearly communicated to key stakeholders, including EPA through Performance Track, as well as to fleet operators and passengers through DIA's annual environmental reports. Drivers understand how their efforts link to overall improvements, which supports and validates continuous operator training. This training involves clear communication on the benefits of reduced idling and how fuel-efficient driving techniques can save fuel and improve air quality.

Infrastructure and planning are also important considerations when implementing a green transportation fleet. Before converting to AFVs, a facility can begin "right-sizing" fleets by reducing vehicle size and eliminating old and underused vehicles. Supplying certain alternative fuels can be costly, so it is important to evaluate the options and the requirements for each type of fuel. DIA's CNG system was installed during original airport construction by outside contractors.

DIA also took advantage of government incentive programs to finance some of its AFV fleet; vehicles were purchased using federal grant money as part of the Federal Aviation Administration's (FAA) Inherently Low Emissions Airport Vehicle program. Other grant opportunities can be found through the Department of Energy's State and Federal Incentives and Laws page at http://www.afdc.energy.gov/afdc/incentives_laws.html.

To track the impact of its green fleet, DIA measures gallons of gasoline used from its fleet vehicle refueling center. Vehicle mileage and hourly use data are recorded to accurately assess fuel use and understand the benefits of AFVs. DIA is currently testing a new hydrogen generator system in gasoline and diesel vehicles that could increase fuel efficiency by 10–20 percent and reduce emissions by 85 percent. After the testing phase for this new technology, DIA will look for state money through the Colorado Governor's Energy Office and/or the FAA Voluntary Airport Low Emissions program to help fund further fleet upgrades to reduce gasoline and diesel consumption.

BENEFITS OF A GREEN TRANSPORTATION FLEET

Driver training programs and conversion to AFVs have combined to cut DIA's transportation fuel consumption by more than 8,000 gallons, with a cost savings of $160,000 by the close of 2008. The business case for AFVs grows every year as higher performance technologies come to market at lower prices.

Converting to low-emission alternative fuels presents high-value environmental benefits as well. An EPA study identifies numerous air quality benefits from using alternative fuels, including significant reductions in carbon monoxide, carbon dioxide, nitrogen oxide, particulate matter, and evaporative emissions.[1]

DIA's green fleet is a model for any airport or facility that uses a variety of vehicle classes in its operations. As one of the largest Performance Track members in terms of size, DIA has dramatically cut its energy use by targeting a sector that aligns with its unique transportation service offerings. DIA's green fleet demonstrates that with nominal investments in key areas, environmental best practices will become business best practices.

RESOURCES FOR MORE INFORMATION

- ★ EPA's Transportation Tools [http://www.epa.gov/climatechange/wycd/tools_transportation.html#gts] provide guidance and analytical tools to determine the environmental and cost benefits of fuel-efficient vehicle fleets for businesses.
- ★ EPA's Alternative Fuel page [http://www.epa.gov/otaq/consumer/fuels/altfuels/altfuels.htm] provides fact sheets on available alternative fuels and their applications.
- ★ DOE's Alternative Fuels and Advanced Vehicles Data Center [http://www.afdc.energy.gov/afdc/about.html] is a comprehensive clearinghouse of data, publications, tools, and information related to advanced transportation technologies.

[1] http://www.epa.gov/otaq/consumer/fuels/altfuels/altfuels.htm#fact