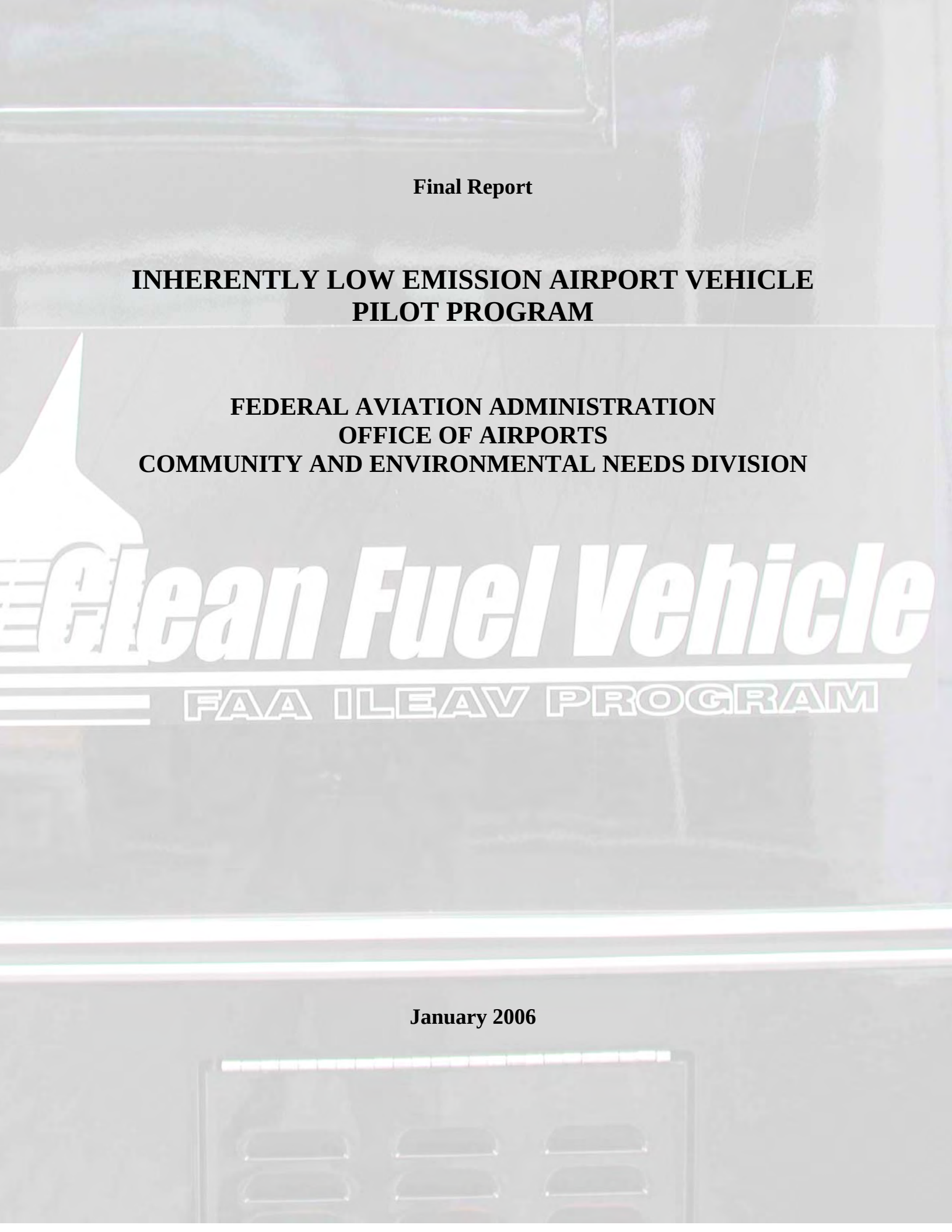
Final Report

INHERENTLY LOW EMISSION AIRPORT VEHICLE PILOT PROGRAM

FEDERAL AVIATION ADMINISTRATION
OFFICE OF AIRPORTS
COMMUNITY AND ENVIRONMENTAL NEEDS DIVISION



January 2006

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GLOSSARY OF TERMS

AFV – alternative fuel vehicle
AIP – FAA Airport Improvement Program
CNG – compressed natural gas
CO – carbon monoxide
DOE – U.S. Department of Energy
EPA – U.S. Environmental Protection Agency
EV – electric vehicle
FAA – Federal Aviation Administration
GAV – ground access vehicle
GSE – ground support equipment
HC – hydrocarbons
ILEAV – Inherently Low Emission Airport Vehicle pilot program
LPG – liquid petroleum gas
NOx – oxides of nitrogen
NPIAS – National Plan of Integrated Airport Systems
PFC – FAA Passenger Facility Charge program
PM – particulates
SO_2 – sulfur dioxide
VALE – Voluntary Airport Low Emission program

PROGRAM DESCRIPTION

This is the Federal Aviation Administration (FAA) final report for the Inherently Low Emissions Airport Vehicle Pilot Program (ILEAV). The report describes the current level of ILEAV project activity based on information provided by participating airport sponsors in their Progress Reports of September 30, 2005.

This report is voluntary and is provided primarily for the benefit of program participants. It will be distributed to ILEAV airport sponsors, FAA regional project managers, advisors from other Federal agencies, and interested members of industry and environmental organizations. It will also be made available to the public on the FAA Airports web site.

The ILEAV Pilot Program was authorized in April 2000 as part of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21).[1] The main congressional sponsors of the ILEAV program were Representative Sherwood Boehlert (NY) and Senator Jay Rockefeller (WV). AIR-21 authorized ten ILEAV project grants for up to $2 million per grant under the FAA Airport Improvement Program (AIP).

The FAA devoted the initial 18 months of the program to technical development, review of applications, and grant preparation. In the process of developing program guidance and methodology, the FAA consulted technical experts from other Federal agencies and met with representatives of the natural gas, electric, and propane industries. The Federal Transit Administration and the Advanced Vehicle Program under the Research and Special Program Administration of the Department of Transportation provided financial and technical assistance. The Department of Energy Clean Cities Program shared materials on alternative fuels, the energy industry, and program organization. The Environmental Protection Agency provided guidance on mobile source emissions and modeling enhancements in support of ILEAV methodology. In addition, representatives from each of the agencies participated on the ILEAV Project Evaluation Team for technical review of airport project applications.

Based on the technical rankings of 21 airport applications, the FAA selected ten projects in the spring of 2001 for FY'01 AIP grants totaling approximately $17.5 million.[2] Between the fall of 2001 and 2005, the FAA monitored airport ILEAV activities twice a year to obtain information about the projects and the use of low-emission technology in the airport environment. While airport sponsors continue to manage their ILEAV projects, the ILEAV grants have been closed out financially. Special agency reporting and monitoring of the program are complete with the publication of this report.

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[1] Codified at 49 U.S.C., Subtitle VII, Part B, §47136.

[2] As required, the FAA completed a Report to Congress on the ILEAV Pilot Program within 18-months of the approved legislation. In November 2001, shortly after the ILEAV grants were issued in September 2001, the Report to Congress was submitted to the U.S. House of Representatives Committee on Transportation and Infrastructure and the U.S. Senate Committee on Commerce, Science, and Transportation.

The ILEAV program fulfilled its main purpose as a pilot program in providing valuable information. It gave participating airports an opportunity to evaluate numerous types of mobile and stationary low-emission technology and to assess its actual performance in the airport environment. Several ILEAV projects contributed to better understanding of alternative fuels and their financial and emission trade-offs. Most alternative fuel use involved the conversion of gasoline and diesel-powered vehicles to new vehicles running on electricity and compressed natural gas (CNG). There were some propane-powered retrofits also. Information was obtained in other important areas, including the commercial availability of alternative fuel vehicles (AFVs), refueling and recharging systems, financial partnerships, and cost-benefit methodology.

The ILEAV program began only weeks after the events of September 11, 2001. The resulting economic downturn in the airline industry had direct consequences on ILEAV commitments. In many cases, airlines and other tenant organizations scaled back their planned acquisitions of equipment, especially aircraft ground support equipment (GSE) using alternative fuels. The projects most affected were in Atlanta (ATL), Chicago (ORD), and New York (JFK and LGA). The sponsors of these airports made repeated good-faith efforts to restructure their projects and to attract new participants, but in the end had to ask the FAA to terminate their ILEAV grants and to redistribute the funding to other eligible AIP projects.

For the other six ILEAV projects, sponsors showed positive results in many areas. These projects are Dallas/Ft. Worth (DFW), Sacramento (SMF), Denver (DIA), San Francisco (SFO), Baton Rouge (BTR), and Baltimore-Washington (BWI). Most of these projects were structured with a larger percentage of airport-owned equipment and were therefore buffered to a greater extent from the loss of airline and third-party commitments. Several of the sponsors were successful in restructuring their projects by enlisting new organizations. In fact, ten airlines are currently involved in ILEAV projects, twice the number of airlines that were involved initially (see Table 2).

The ILEAV program produced a total investment of over $14 million in airport low-emission technology, including Federal grant and local matching contributions. These investments in new technology are helping participating airports to achieve local emission reductions today and to achieve them for several years to come over the useful life of the equipment.

The lessons learned from the ILEAV program have been valuable to the FAA and its development of new air quality initiatives. The FAA relied on the ILEAV experience to design the national Voluntary Airport Low Emission Program (VALE), which was authorized in the Vision 100 – Century of Aviation Reauthorization Act of 2003 (P.L. 108-176). Many of the innovations in the VALE program have a direct connection to the ILEAV program and to the lessons learned from its implementation. These lessons included the need for:

- Individual vehicle low-emission standards
- Enforceable third-party contracts
- Greater federal share and eligibility for Passenger Facility Charges (PFC)
- Airport emission reduction credits

- Simplified cost effectiveness methodology
- Greater eligibility for alternative non-petroleum based fuels

In addition to FAA project managers, several airport project managers provided feedback to the FAA on the effectiveness of the program. Mr. Greg Rowe, who managed a multi-faceted project at Sacramento, offered the most extensive comments in his paper, "Retrospective on the SMF ILEAV Program: Lessons Learned, Obstacles, Program Limitations."[3] Below is a sample of Mr. Rowe's observations and his advice to other airports considering low-emission projects:

- Consult airport accountants, auditors, and legal counsel early in the formulation of a project. Also, consult early with those responsible for equipment and installations: planners, electricians, property departments, contractors, etc. Determine how many personnel will be involved.
- Rely as much as possible on direct airport ownership and control of equipment and vehicles. Partnerships with airlines and other companies require more work and coordination and are more difficult because of the greater financial uncertainties.
- Use knowledgeable consultants or short-term adjunct staff to implement the program and to coordinate fiscal and tracking requirements.
- Make sure that FAA personnel are familiar with eligibility requirements for low-emission projects and that FAA funding and program requirements are managed consistently.
- Be aware of special problems for siting rechargers for electric GSE:

  "Airlines typically lease space from airports, much of it within a terminal building. This space includes offices, baggage rooms, and storage. The airlines pay rent to the airport based upon the square footage occupied. The airlines naturally try to occupy the least amount of space possible, in order to minimize operating costs. While gasoline or diesel powered GSE can be parked virtually anywhere on the ramp while not in use, eGSE must be parked at a battery charger during the charging process. The location of a charger is fixed, because it must be connected to a dedicated electrical supply. The airlines often prefer to place charging units in an area sheltered from the elements (rain and snow). In most cases, this means that chargers must be located beneath a terminal or building overhang.

  The placement of charging units in the leasehold space of America West Airlines and United Airlines involved lengthy discussions because neither airline wished to expand its leasehold--with a corollary lease expense--to accommodate the charging units and eGSE parking. This is an important issue that must be taken into account by airline sponsors when contemplating potential airline emission reduction arrangements."

[3] The SMF Progress Report, Appendix A, September 30, 2005, may be obtained from Mr. Greg Rowe, Senior Environmental Analyst. See the SMF section of this report for contact information.

Another project manager, Mr. Roger Hooson in San Francisco, commented on the cost and reliability of low-emission systems, reporting the following findings for electric and CNG vehicles:

> "For their new electric bag tractors, United reports apparent lifecycle cost savings of 40% over the diesel units replaced. Other carriers report similar savings. In recent months, the greatly increased cost of diesel seems likely to give electric power an even greater cost advantage.
>
> SkyWest reports that their electric units are at least as reliable as diesel. The lack of oil and filter costs on electrics is an advantage, though [operators must monitor the state of charge on the electrics] and battery replacement [will be] a cost item that occurs more frequently than engine replacement on diesels. United says that with proper care and equalization, batteries should last as long as diesel engines. While not specifically documented, operator health should also benefit from the use of electrics.
>
> The manager of the Airport's shuttle bus fleet is very happy with the CNG shuttle buses, especially now that CNG is so much cheaper than diesel. The CNGs are quieter than diesel and highly reliable."

More project findings and information can be found in individual airport Progress Reports, which are available from the airport sponsor, and in the next section of this report, which summarizes the results of the program and each active project. It is divided into two parts:

1) An overview of program results
2) Individual project descriptions with airport contact information.

General information about the ILEAV program can be obtained from the Community and Environmental Needs Division (APP-600), Office of Airports, FAA, 800 Independence Ave. SW, Washington DC 20591. The program contact is Dr. Jake Plante (202) 493-4875. Regional FAA project contacts are:

Dean McMath	Southwest Region (ASW)	(817) 222-5617
Tom Felix	Eastern Region (AEA)	(718) 553-3335
Warren Ferrell	Northwest Mountain Region (ANM)	(425) 227-2612
T.J. Chen	San Francisco Airport District Office	(650) 876-2724
William Gin	San Francisco Airport District Office	(650) 876-2822

Next Steps

ILEAV project grants were provided on a one-time basis to the ten participating airports. ILEAV airports and other commercial service airports that are interested in pursuing low-

emission projects are encouraged to apply for FAA assistance through the VALE program, as authorized by the *Vision 100* – Century of Aviation Reauthorization Act of 2003 (P.L. 108-176).

Low-emission activities similar to the ILEAV program are allowed in the VALE program for airports that are located in air quality nonattainment or maintenance areas. Funding for VALE projects has been expanded to encompass the PFC program in addition to the AIP program. Also, eligible low-emission activities have been expanded under the VALE program for vehicles, infrastructure, and alternative fuels. Further information and application procedures for the VALE program are provided on the FAA Airports web site.

I. PROGRAM RESULTS

Guidelines for the ILEAV program were based on existing AIP procedures and AIR-21 ILEAV provisions such as the 50-50 cost share between the FAA and airport sponsors. To maximize the use of Federal funding, the FAA encouraged sponsors to build local partnerships and to leverage additional funding support from State and local governments, airlines, operators, and equipment manufacturers.

Airport sponsors that successfully implemented ILEAV projects are DFW, SMF, DIA, SFO, BTR, and BWI. These airports used their ILEAV grants to acquire a total of 507 low-emission vehicles as well as supporting infrastructure to refuel or recharge these vehicles.

Table 1 below lists the participating ILEAV airports, the AIP grant awards, final grant expenditures by amount and percentage, and the total project amount, which reflects the grant amount, the required 50 percent local match, and any other local contributions.

Table 1
ILEAV Grants and Total Expenditures by Airport

Code	Airport Name	FAA ILEAV Grant	Final Grant Expenditure	Percent of Grant Expenditure	Total Project Amount (with 50% match, etc.)
ATL	Atlanta Hartsfield International	$1,899,200	$0	0%	$0
BTR	Baton Rouge Metropolitan	$421,832	$421,832	100%	$898,664
BWI	Baltimore-Washington Int'l	$2,000,000	$562,500	28%	$1,125,000
DIA	Denver International	$1,163,870	$1,163,870	100%	$2,494,386
DFW	Dallas/Fort Worth Int'l	$1,999,992	$1,968,337	98%	$4,285,029
JFK	John F. Kennedy International	$2,000,000	$0	0%	$0
LGA	LaGuardia	$2,000,000	$0	0%	$0
ORD	Chicago O'Hare International	$2,000,000	$0	0%	$0
SFO	San Francisco International	$2,000,000	$1,048,209	52%	$2,096,418
SMF	Sacramento International	$2,000,000	$1,704,774	85%	$3,420,794
Totals:		**$17,484,894**	**$6,869,522**	**39%**	**$14,320,291**

Participating Airlines and Other Organizations

Five major airlines were involved in the program initially. These airlines and their project participation in parentheses were Delta Air Lines (ATL, ORD, DFW, JFK, LGA, SFO, SMF), American Airlines (ORD, DFW, JFK, LGA), United Airlines (ORD, DIA, SFO, SMF), Southwest Airlines (SMF), and America West Airlines (SMF). Following September 11, 2001, the airlines with multiple projects (Delta, American, United) scaled back their original program commitments. American and Delta continued to participate at DFW while United Airlines continued to participate at SFO and SMF.

Several participating airports were successful in recruiting new airline participants and other organizations that wanted to take advantage of the program incentives. **Table 2** below lists the ten airlines and the other organizations that are currently involved.

Table 2
Participants in ILEAV Projects

Airport	Participating Airlines	Other Major Participants
ATL		
BTR		Entergy (Utility) Fuelman, Inc. Texaco, Inc. Ford Motor Co.
BWI		BWI Car Rental Consortium
DIA	SkyWest Frontier Mesa Air DHL Worldwide Express	Integrated Airline Services Servisair/GlobeGround Natural Fuels Corp.
DFW	American Delta	
JFK		
LGA		
ORD		
SFO	SkyWest United Continental DHL Worldwide Express	Swissport Corp.
SMF	Southwest United America West	

Emission Reductions

The ILEAV program was designed to reduce airport emissions of criteria pollutants that exceed National Ambient Air Quality Standards. **Table 3** below provides reported airport estimates of project lifetime emission reductions by pollutant in the context of area nonattainment or maintenance designations (highlighted in yellow).[4]

The pollutant of greatest concern nationally is ground level ozone. All ten ILEAV airports are located in ozone nonattainment or maintenance areas. Seven of the airports are also located in nonattainment or maintenance areas for particulate matter: SMF and DIA for PM_{10} and ATL, BWI, JFK, LGA, and ORD for $PM_{2.5}$. In addition, three airports, DIA, JFK, and LGA, are in maintenance areas for carbon monoxide (CO). SO_2 is usually associated with stationary sources and is therefore not a common problem for airports.

Some of the reported emission reductions in Table 3 are sizable. On a lifetime basis, for example, ILEAV projects are expected to reduce nitrogen oxides (NOx) and hydrocarbons (HC), the two precursors for ozone, by 2,984 tons and 3,725 tons, respectively. Several ILEAV airports may be able to use their reductions effectively to meet future general conformity *de minimis* needs of 1 to 100 tons per year for a proposed project.[5]

Table 3
Projected Lifetime Emission Reductions by Pollutant (tons)
(shading denotes nonattainment or maintenance status)

Airport	Ozone Nitrogen Oxides (NOx)	Ozone Hydrocarbons (HC)	Carbon Monoxide (CO)	Particulates (PM_{10}, $PM_{2.5}$)	Sulfur Dioxide (SO_2)
ATL					
BTR	18	3	39	0.23	3
BWI	248	-35	-113	3	14
DIA	451	15	1,356	0.3	30
DFW	1,428	3,135	66,275	21	90
JFK					
LGA					
ORD					
SFO	529	91	1,191	66	14
SMF	310	516	10,893	7	1
Totals:	2,984	3,725	79,641	98	152

[4] Emission reduction estimates have been adjusted in some cases to reflect changes in the reported number and type of low-emission vehicle deployments during the final reporting period.

[5] The Vision 100 FAA reauthorization allows ILEAV airports to receive airport emission reduction credits (AERCs) retroactively from State air quality agencies through the VALE program. A sponsor's VALE application would require an updated estimate of ILEAV annual emission reductions using the most current information and methods. AERCs are airport-specific and cannot be transferred or traded.

Vehicle Deployments

Emission savings are generated from the conversion of conventional gasoline and diesel-powered vehicles to cleaner alternative fuel vehicles (AFVs). Participating airports purchased 507 AFVs, of which approximately 70 percent are GSE and the remaining 30 percent are GAV.

Table 4 describes the number and types of low-emission vehicles acquired by the participating airports. GSE acquisitions are roughly 78 percent baggage tugs and 20 percent belt loaders. A small number of pushback tractors, cargo tractors, forklifts, and lavatory trucks make up the difference. Over 60 percent of the GAV are heavy-duty buses and shuttles, while the remainder is light-duty cars, vans, and pickup trucks.

Vehicle fuel types were roughly 51 percent electric, 33 percent CNG, and 16 percent LPG (propane). Electricity was the leading fuel choice for most of the light-duty GSE. CNG was the fuel of choice for most of the GAV, including all of the heavy-duty buses and shuttles.

Table 4
Deployed Project Vehicles by Fuel Type

Airport	Total Vehicles	Total GSE	Operational GSE	Total GAV	Operational GAV
ATL					
BTR	7*			7	4 pickup trucks (CNG) 3 cars (CNG)
BWI	25			25	25 (40') buses (CNG)
DIA	124	53	40 bag tugs (CNG) 9 belt loaders (electric) 4 cargo tractors (electric)	71	32 (40') buses (CNG) 13 (22') shuttle buses (CNG) 24 pickup trucks (CNG) 2 cars (CNG)
DFW	156	156	146 bag tugs (electric) 10 belt loaders (electric)		
JFK					
LGA					
ORD					
SFO	141	111	81 bag tugs (40 electric, 41 LPG) 27 belt loaders (12 elec, 15 LPG) 2 pushback tractors (electric) 1 lavatory truck retrofit (LPG)	30	4 (40') buses (CNG) 23 van retrofits (LPG) 3 pickup trucks (LPG)
SMF	54	34	2 small passenger vehicles (elec.) 24 belt loaders (electric) 8 bag tugs (electric)	20	20 (30'-35') buses (CNG)
Totals:	**507**	**354**		**153**	

* Delivery of 13 additional CNG vehicles is planned in 2006 and 2007.

II. INDIVIDUAL PROJECT RESULTS

The following descriptions of active projects are based on the final Progress Reports that participating airports submitted for September 30, 2005. Occasional references are made in this section to earlier Progress Reports, which participating airports have filed with the FAA bi-annually since the fall of 2001.

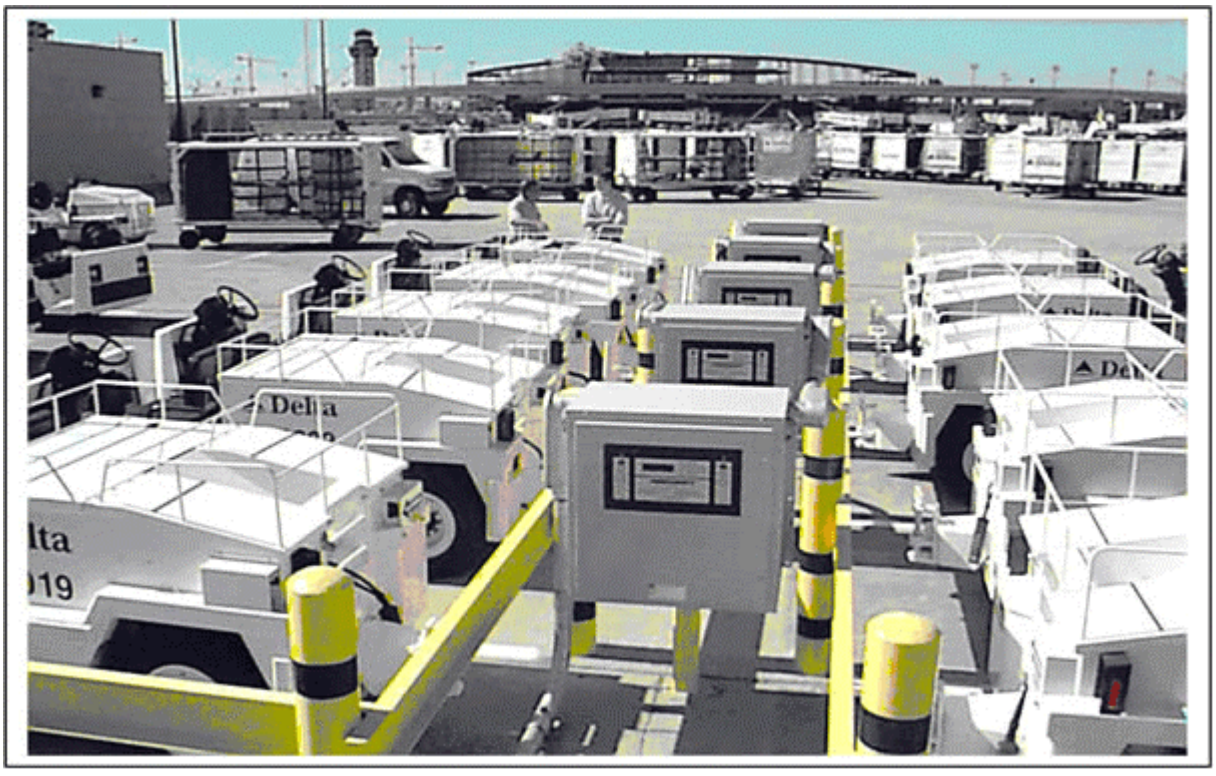
The FAA encourages continued communication and information sharing between participating airports and other airports interested in low-emission projects. ILEAV airports should be contacted directly for more information, including copies of their Progress Reports and additional project information that they may make available in the future. Airport contacts with phone numbers and email addresses are provided in the project descriptions below.

Dallas/Fort Worth International Airport (DFW)

Airport Contact: Tammy Huddleston, phone (972) 574-1319, thuddleston@dfwairport.com
Nonattainment Status: Ozone (moderate)
Project description: All-electric GSE

DFW used the project to deploy 156 electric GSE vehicles. These airline-owned vehicles consist of 146 bag tugs and 10 belt loaders. American Airlines operates 110 of the bag tugs and all ten of the belt loaders. Delta Air Lines operates the other 36 bag tugs.

The airport's engineering team installed 18 state-of-the-art parallel fast-charging systems at designated gates for Delta Air Lines and American Airlines. Each fast-charge system includes either five or eight ports that have the capability to charge up to ten or sixteen vehicles simultaneously.



Layout of installed fast-charging systems to support Delta Air Lines operations in the DFW ILEAV project. In the background, David Patton of AeroVironment explains to Jim Dunning of Electricore, Inc., AeroVironment's state-of-the-art battery management system installed in Delta's electric GSE. DFW, with Electricore technical support, successfully installed 4 fast-charging systems for Delta Air Lines and 12 fast-charging systems for American Airlines.

Gate D18

Gate D28

Gate D22

Gate D31

Gate D24

Gate D33

Gate D25

Gate D36

American Airlines installed fast-charging systems at the following 8 locations around Terminal D. All chargers are configured with 8 dual stations, each with the capacity to charge 16 vehicles, or a total of 128 vehicles at Terminal D.

Sacramento International Airport (SMF)

Airport Contact: Greg Rowe, phone (916) 874-0698, roweg@saccounty.net
Nonattainment Status: Ozone (serious) and PM10 (moderate).
Project description: Mixed fuel and vehicle type

In recognition of its active and forward-looking approach to emission reductions, SMF received a "Clean Air Champion" award from the American Lung Association in May 2005. The emission reduction benefits of the ILEAV program were cited as an important contribution to the airport's clean air efforts.

SMF used the ILEAV program to deploy 54 AFVs, including 20 CNG shuttle buses, 2 small airport-owned electric passenger vehicles, and 32 electric GSE. The GSE is owned and operated by three airlines: Southwest (4 bag tugs, 16 belt loaders), United (4 bag tugs and 4 belt loaders), and America West (4 belt loaders). The vehicles are new except for the 20 electric belt loaders purchased by Southwest and America West. These vehicles were converted from gasoline belt loaders to electric technology at Southwest's maintenance facility in Phoenix. This practice saved the airlines about $10,000 per vehicle.

AFV acquisition was complemented by investment in supporting infrastructure, including an upgrade to an existing CNG refueling station and several electric fast-charging systems.

Refueling of one of the project's 20 (30-35') operating CNG buses.

Rick Waugh, Southwest Airlines' Western Region Manager, Ground Support, explains operation of a new SWA electric belt loader to Mustapha Janneh of International Group Technologies and ILEAV consultant to SMF. Below, Rick shows battery location.

Denver International Airport (DIA)

Airport Contact: Pam Armstead, phone (303) 342-2887, pam.armstead@diadenver.net
Nonattainment Status: Ozone (Early Action Compact), CO (maintenance), PM_{10} (maintenance)
Project description: Mixed fuel and vehicle type

The DIA project supports 124 AFVs, of which 71 are GAV owned by the airport and 53 are GSE owned by tenants. The GAV are CNG powered and consist of 32 (40') buses, 13 (22') shuttles, 24 pickup trucks, and 2 cars. The GSE consist of 40 CNG bag tugs, 9 electric belt loaders, and 4 electric cargo tractors. The GSE is owned by various airlines and partners, led by SkyWest owning 9 belt loaders, 4 cargo tractors, and 4 bag tugs. Other bag tug owners and operators are Frontier (25), DHL Worldwide Express (6), Integrated Airline Services (2), Servisair/ GlobeGround (2), and Mesa Air (1).

The project also supported a CNG station capacity upgrade at Concourse B, which was completed in 2002, and the acquisition of three fast-chargers by SkyWest.

The airport sponsor is using vehicle mileage and hourly usage data to more accurately assess annual and lifetime project emission savings. The sponsor also labeled vehicles, developed public information, and implemented CNG fuel maintenance and training.

One of the 27 40-foot CNG buses in the project being used for passenger service at DIA.

San Francisco International Airport (SFO)

Airport Contact: Roger Hooson, phone (650) 821-6511, roger.hooson@flysfo.com
Nonattainment Status: Ozone (marginal), CO (maintenance)
Project description: Mixed fuel and vehicle type

The airport sponsor used the ILEAV grant to purchase 141 AFVs and 31 units of infrastructure operated by six firms. Three fuels power the AFVs: electricity (54), propane (83), and CNG (4).

The vehicle acquisitions by organization are as follows:

Airport Commission	4 shuttle buses (CNG)
SkyWest Airlines	17 bag tugs, 7 belt loaders, 2 pushback tractors (electric)
United Airlines	23 bag tugs (electric)
Continental Airlines	5 belt loaders (electric)
DHL Worldwide Express	11 bag tugs, 2 belt loaders, 8 vans (propane)
Swissport Corporation	30 bag tugs, 13 belt loaders, 1 lav truck, 3 pickup trucks, 15 vans (propane)

For supporting infrastructure, the project enabled the purchase of various sized recharging systems for electric vehicles, including several small 1-2 port fast-charging systems acquired by SkyWest and 23 1-port conventional systems acquired by United.

A noted feature of the project is the gasoline-to-propane conversions of 83 vehicles, which will enter service in 2006.[6] The sponsor states that propane conversions of gasoline-powered vehicles are relatively inexpensive and proven to be reliable.

Also under the project, United developed a vehicle tracking system to improve their monitoring and assessment of electric bag tugs, actual emission reductions, and the comparative performance of diesel and electric units.

[6] The propane conversion program is described in an addendum to the SFO Progress Report includes an addendum, "ILEAV-SFO Propane GSE Project." This report may be obtained from Mr. Hooson.

One of the four operating 40-ft. CNG buses for passenger service at SFO.

ETEC recharging stations for SkyWest electric GSE vehicles.

Baton Rouge Metropolitan Airport (BTR)

Airport Contact: Ralph Hennessy, phone (225) 355-0333, rhennessy@ci.baton-rouge.la.us
Nonattainment Status: Ozone (marginal)
Project description: All-CNG GAV

In 2004, the airport sponsor completed and began operating a new CNG refueling station, which is managed under lease with Texaco at its existing fuel station. Four new Ford F-150 CNG pickup trucks and three CNG Crown Victoria police interceptors have been deployed under the project. Another 13 vehicles are scheduled for operation.

Public access to the CNG refueling station is permitted. Vehicle fleets owned or operated by the City, Entergy (the local utility provider), East Baton Rouge Parish School System, Cox Communications, and the Baton Rouge Water Company use the station currently. This usage provides additional emission reduction benefits for the region while the airport sponsor implements future plans to convert its entire fleet of gasoline/diesel vehicles to CNG.

The project has broad community and industry support from the City of Baton Rouge, the local Chamber of Commerce, the Capital Region Planning Commission, the Baton Rouge Clean Air Coalition, the Baton Rouge Ozone Task Force, the Greater Baton Rouge Clean Cities Coalition, and the State departments of Environmental Quality and Natural Resources.

Additional contributions to the project have come from the Ford Motor Company, Entergy, and Fuelman, Inc., which provided a card-reader system to track vehicle mileage, quantity and time of fuel use, fuel costs, and other elements of fleet data. The Louisiana Technical College, which is certified as an Alternate Fuel Regional Training Facility, is available for emissions and performance monitoring and for additional mechanic training.

Baltimore-Washington International Airport (BWI)

Airport Contact: Richard Keen, phone (410) 859-7662, rkeen@mdot.state.md.us
Nonattainment Status: Ozone (moderate), $PM_{2.5}$
Project description: All-CNG GAV

Currently, 25 low-floor 40 ft. Neoplan buses operate daily, ferrying passengers from the airport terminal to the consolidated rental car facility. The airport sponsor reports that the buses have operated successfully with no major CNG-fuel related problems and a good reception by the public. The total project expenditure of $1.125 million represents the incremental costs for the CNG buses ($45,000 per vehicle).

The car rental consortium at BWI is comprised of eight national car rental firms: Hertz, Avis, National, Alamo, Budget, Enterprise, Dollar, and Thrifty. The rental car companies collect customer facility charges to reimburse the airport sponsor for purchase of the buses. The Consortium is contracting with two companies (IMPARK and FleetPro) to operate and maintain the fleet.

One of 25 40 ft.CNG buses that are shuttling the public and employees from airport parking lots to BWI terminals.

Current BWI CNG refueling station and a 40 ft. bus used for passenger service to parking lots.