



# Voluntary Airport Low Emissions (VALE) Program

## FEDERAL SUPPORT FOR CLEAN AIR AND AIRPORT EMISSIONS REDUCTION INITIATIVES

**In 2004, *Vision 100* legislation established the Voluntary Airport Low Emissions (VALE) Program to encourage airport sponsors to implement clean technology projects that improve air quality.**

VALE is available to commercial service airports located in areas that are in non-attainment or maintenance of National Ambient Air Quality Standards (NAAQS). Eligible project types include mobile and stationary equipment that reduce on-airport emissions, such as low-emission vehicles and infrastructure upgrades.

Airport sponsors can fund VALE projects using Passenger Facility Charges (PFCs) or Airport Improvement Program (AIP) grants. Both entitlements and discretionary AIP funds may be available for VALE projects.



Fees associated with preparing the VALE application and project engineering/design are reimbursable if a grant is ultimately awarded.

VALE projects also generate Airport Emission Reduction Credits (AERCs) that are recognized by the Environmental Protection Agency (EPA) and State Air Quality Agencies. Airport sponsors can use AERCs to meet future air emission regulation requirements for future capital projects.

In addition to standard FAA airport improvement grant assurances, airport sponsors must also agree to the following special conditions when implementing a VALE project:

1. All VALE-funded equipment must remain at the airport for its useful life,
2. The airport sponsor must track and maintain records of VALE-funded equipment use, and
3. The airport sponsor must maintain VALE-funded equipment in use during the equipment's useful life. This includes replacing damaged or inoperable equipment.

### ELIGIBLE PROJECT TYPES

- **Alternative Fuel Vehicles**—VALE incentivizes airport sponsors by funding the incremental cost of alternative fuel vehicles instead of conventionally-powered diesel and gasoline vehicles. Alternative fuels include compressed natural gas (CNG), electricity, hybrid technologies, and hydrogen. The supporting recharging/refueling infrastructure is also eligible for funding.
- **Gate Electrification**—Electric Pre-conditioned Air (PCA) (point-of-use or centralized) and ground power converter units (mobile or fixed) significantly reduce emissions associated with aircraft auxiliary power unit (APU) usage. Necessary upgrades to the supporting electrical infrastructure to operate the equipment are also eligible for funding.
- **Remote Ground Power**—Electric ground power converter units reduce aircraft APU emissions by providing clean electricity to remote parking positions for remain-over-night (RON), cargo, and maintenance operations. The necessary upgrades to the supporting electrical infrastructure are also eligible for funding.

## ELIGIBLE PROJECT TYPES

- **Ground Support Equipment (GSE)**—Replacing airport sponsor-owned conventionally-fueled belt loaders, cargo loaders, bag tugs, and pushback tractors with electric or hydrogen-powered counterparts can significantly reduce on-airport emissions. Refueling stations and/or re-charging equipment, and necessary infrastructure are eligible for funding.
- **Geothermal Systems**—Geothermal improves air quality and reduce emissions by utilizing the earth’s underground temperature to supply airport buildings with cooled air in the summer and warmed air in the winter. VALE funding can be provided for the pro-rated share of the geothermal system that directly offsets conventional fuel use.
- **Solar Thermal Technologies**—Utilizing solar thermal technologies can offset or eliminate the use of fossil-fuel hot water systems. These projects are eligible for VALE funding inasmuch as they offset heating and cooling emissions produced by on-airport gas and oil-fired burners.
- **Underground Fuel Hydrant Systems**—Underground fuel hydrant systems eliminate the use of diesel or gasoline-powered refueling vehicles.

Between 75% and 90% of a project’s eligible costs may be reimbursable through VALE, including fees associated with preparing the application and engineering/design costs.

## VALE Program Case Studies

### Electric GSE—Philadelphia International Airport

The City of Philadelphia partnered with US Airways and United Airlines to implement an airport-wide initiative to replace 228 pieces of conventionally-powered Ground Support Equipment (GSE) with zero-emission Electric Ground Support Equipment (eGSE) at Philadelphia International Airport. The FAA awarded a total of \$7.9 million in VALE funds in two grants in FY 2008 and FY 2009 for the purchase and installation of rechargers and necessary upgrades to the electrical infrastructure to support the eGSE, while the electric bag tugs and belt loaders were purchased by the airlines. Due to the sheer size of the project, the City funded the project using four VALE grants and implemented the project in phases to correspond with the airlines’ schedule for the purchase and delivery of the eGSE.

The City’s electrification initiative demonstrates (1) a successful low-emission partnership between an airport and multiple airlines and (2) the magnitude of environmental benefits resulting from a large scale clean technology project. Over 730 tons of oxides of nitrogen (NO<sub>x</sub>) are expected to be avoided during the life of the project.

### Gate Electrification—Seattle-Tacoma International Airport

In FY 2010 and FY 2011, the FAA awarded the Port of Seattle VALE grants for \$18.3 million and \$3.6 million, respectively, to assist in the purchase and installation of a central PCA system at Seattle-Tacoma International Airport. PCA units provide heated/cooled air to a parked aircraft, while ground power

converter units provide electricity to parked aircraft to power lighting and navigational equipment. When both are available to an aircraft, the PCA and ground power – known collectively as gate electrification equipment – allow for the nearly complete avoidance of jet fuel consumption by APUs while aircraft are parked at the gate. The PCA system at the Airport was constructed in two phases, serving a total of 73 gates at Concourses A -D and North and South Satellites. The project is expected to avoid over 2,900 tons of NO<sub>x</sub> during the course of the equipment’s useful life.

### Remote Ground Power – Metropolitan Oakland International Airport

In FY 2010, the Port of Oakland sought VALE funding to reduce on-airport emissions resulting from remain-over-night and cargo operations. The FAA awarded a \$2.5 million grant to support the purchase and installation of ground power converter units and supporting electrical infrastructure at cargo and remain-over-night parking positions. The equipment provides a zero-emission power source for cargo airlines during loading/unloading of aircraft and for



passenger airlines during overnight cleaning or maintenance activities.

If VALE funds had not been available, the power needs would have been met via diesel ground power units and/or aircraft APUs, resulting in significant emissions

and consumption of diesel and jet fuel. In total, 18 parking positions were electrified, and over 400 tons of NOx are expected to be avoided over the lifetime of the project.

### Underground Fuel Hydrant – Detroit Metropolitan Wayne County Airport

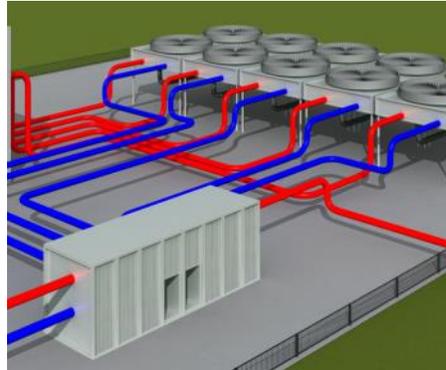


In FY 2007, the FAA awarded Wayne County Airport Authority \$3.7 in VALE Program funding for the purchase and installation of an underground hydrant fueling system.

The purpose of any hydrant fueling system is to provide fuel to aircraft via valves in

underground structures located at the terminal gates. While parked at the terminal, an aircraft is connected to the valves via a hose and a hydrant cart. At the Airport, the hydrant fueling system project services aircraft at the Airport's North Terminal. Emission reductions are achieved by replacing large fuel trucks with zero-emission, electric fueling carts.

### Geothermal Heating—Portland International Jetport



In FY 2010, the City of Portland sought VALE Program assistance to incorporate “green” components into a new terminal expansion at Portland International Jetport. The FAA awarded \$2.5 million in

VALE Program funding to support the purchase and installation of a geothermal heating system. Geothermal systems use a heat pump mechanism similar to that found in air conditioners, but are more efficient because they utilize the earth's latent heat as a temperature reservoir. The City's geothermal system consists of 120 500-foot wells that circulate fluid through a 22-mile closed loop piping system between the well field and the nearby terminal expansion. The geothermal system significantly reduces fuel oil consumption and associated air emissions.

As with the Portland project, a well field can be located beneath pavement, thus its presence will not preclude most future aeronautical uses. Because the piping was installed during the terminal expansion construction project, the City's geothermal project is an example of how an airport sponsor can successfully incorporate a VALE project into an ongoing development project.

## Overview of the VALE Application Process



Airport sponsor discusses proposed VALE project with FAA

Airport sponsor submits pre-application to FAA for review

Airport sponsor submits full VALE application to FAA for review

Airport submits application to local air quality agency for AERC letter of assurance

FAA approves VALE funding request

An airport sponsor must prepare a VALE application in accordance with the guidelines set forth in the VALE *Technical Report*, which can be found at <http://www.faa.gov/airports/environmental/vale>.

A letter of assurance from the EPA-designated Air Quality Agency overseeing the airport is required before the FAA can approve funding. This letter of assurance is required by legislation and assures the FAA and airport sponsor of the ability to use AERCs in the future.

A sample letter of assurance meeting FAA and EPA requirements is included in the *VALE Technical Report*.

The FAA must approve the VALE application prior to the airport sponsor receiving an AIP grant or collecting PFCs for the project.

The following outlines key steps in the process to implement a VALE project:

#### STEP 1 – Early Coordination with FAA

Airport sponsors should discuss their proposed VALE projects with the FAA Office of Airports Regional Office (RO) or Airports District Office (ADO) prior to submitting a pre-application or full application. This early coordination allows the airport sponsor and the

# Overview of the VALE Application Process



FAA to determine the scope of the project, discuss application requirements, and review project eligibility prior to the airport sponsor's commitment of financial resources for application preparation.

Airport sponsors are encouraged to include proposed VALE projects in their Capital Improvement Program (CIP) submittals to the FAA.

## STEP 2 – Pre-Application

Airport sponsors submit a 2-3 page pre-application that describes the project proposal, emissions reduction benefits, and the funding request to

FAA. After review, the FAA will tell the airport sponsor if they should prepare a full application.

## STEP 3 – Full VALE Application

Prior to coordinating with the Air Quality Agency, the airport must submit a complete VALE application to the FAA RO or ADO. The FAA must concur with the scope of the project and the emissions reductions estimates and methodology.

## STEP 3 – Air Quality Agency Concurrence

The revised draft should then be submitted to the local air quality agency to request an Airport

Emission Reduction Credit (AERC) letter of assurance. The letter should (1) approve the emission reduction calculation methodology and (2) outline the agency's commitment to providing a timely determination of AERCs when requested.

## STEP 4 – Project Approval

FAA approval follows receipt of the AERC letter of assurance, and FAA concurrence with the project scope and VALE application. VALE projects must also meet regular AIP grant requirements. This includes, but is not limited to, Buy American, consultant selection, and bidding requirements.

## APPLICATION TIMELINES

Application timelines and processing differ according to the funding source desired for the VALE project. The FAA will accept and process VALE application documents throughout the Federal Fiscal Year for projects funded solely with Passenger Facility Charges (PFCs). AIP entitlement and discretionary funding follows established AIP grant timelines:

- Pre-Applications: Typically due in January of the Fiscal Year of funding.
- FAA Decision on Pre-Applications: Between late-March and early-May.
- Full Applications: Typically due between early-May and late-June.
- Grant issued: Before the end of the Federal Fiscal Year.

Contact your local Airports District Office (ADO) or Regional Office (RO) for specific deadlines during the Fiscal Year you plan to apply for a VALE grant.



*For more information please contact:*

### **VALE Program Managers**

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### **VALE Website:**

Includes program guidance and forms,  
and information on previous projects:

[http://www.faa.gov/airports/  
environmental/vale/](http://www.faa.gov/airports/environmental/vale/)