Final Technical Report
For the Alternative Fuels Station
At Albuquerque International Sunport
Albuquerque, New Mexico
DE-FG07-01ID14057

Project Description

The City of Albuquerque Aviation Department began planning for an alternative fuels facility in 1999 and began actively pursuing funding for the project in 2000. The original project scope was intended to provide a fueling station that provided unleaded gasoline, E-85, diesel, compressed natural gas (CNG) and propane.

When the tragedy of 9/11 occurred, all capital projects were put on hold and then reassessed to validate needs and priorities. The alternative fuels station was scaled back to a CNG facility to:

- Provide fuel for the common shuttle that served the rental car facilities at the airport
- Provide a CNG fuel center for use by all levels of government for vehicle fueling
- Provide another CNG facility near the interstate to improve the State network for CNG fueling
- Provide a backup fueling facility for the University of New Mexico and the City of Albuquerque Transit Department who were also using CNG vehicles
- Provide another fueling facility accessible to the general public

Federal AFV USER Infrastructure Statement of Objective

The overall objective of this financial assistance award is to support the U.S. Department of Energy (DOE), Office of Transportation Technologies' Federal Alternative Fuel Vehicle (AFV) USER Program through completing alternative fuel infrastructure projects. The Federal AFV USER Program has been established to support the expansion of alternative fuel infrastructure by concentrating large quantities of federal AFV's and substantially increasing the use of alternative fuels in six selected cities. The six Metropolitan Statistical Areas (MSA's) selected by the Federal AFV USER Program are San Francisco, CA, Denver, CO, Albuquerque, NM, Minneapolis, MN, Salt Lake City, UT, and Melbourne-Titusville, FL.

The awardee shall develop and deploy new infrastructure projects (including alternative fuel market promotion and customer education projects) in one or more of the six MSA's, primarily for the benefit of alternate fuel vehicles in federal fleets, and secondly for state and local government fleets, commercial fleets, and alternative fuel vehicles owned and operated by the public. This project will aid in the removal of the "infrastructure availability" barrier to alternative fuel use, thereby supporting the marketability of alternative fuel vehicles.

Cost Data & Funding

- Initial cost estimate for the multiple alternative fuels station prior to 9/11 was $2,400,525
- Cost estimate for CNG facility that was final project was $342,640.00 as shown below.

CNG ALTERNATIVE FUELING STATION
CONSTRUCTION COST ESTIMATE

Work By	Item	Cost	Basis	DOE Grant	AD Match	
Mechanical Contractor	valves & fittings	$ 2,400.00	estimate		$2,400.00	
Mechanical Contractor	move & set eqpt	$ 1,850.00	estimate		$1,850.00	
Mechanical Contractor	card reader	$ 13,500.00	estimate		$13,500.00	
Mechanical Contractor	island forms	$ 750.00	estimate		$750.00	
Mechanical Contractor	filters	$ 200.00	estimate		$200.00	
Construction concrete etc.	construction contractor	$ 55,000.00	estimate	$55,000.00		
Electrical Contractor	electrical systems	$ 35,000.00	estimate	$35,000.00		
State of NM	permit	$ 60.00	estimate		$60.00	
Electrical Contractor	lamp	$ 3,300.00	estimate		$3,300.00	
Mechanical Contractor	programming for card reader	$ 1,600.00	estimate		$1,600.00	
General Contractor	fire extinguishers/safety supplies	$ 580.00	estimate		$580.00	
Mechanical Contractor	startup expenses	$ 3,600.00	estimate		$3,600.00	
A/E Firm	engineering exp - dwg's etc.	$ 7,500.00	estimate		$7,500.00	
PNM electric	electric service	$ 3,500.00	estimate		$3,500.00	
gas	gas service	$ 1,700.00	estimate		$1,700.00	
Mechanical Contractor	low pressure piping welding	$ 2,300.00	estimate	$2,300.00		
Mechanical Contractor	CNG tubing	$ 4,500.00	estimate	$4,500.00		
Mechanical Contractor	PE Conduit	$ 2,100.00	estimate	$2,100.00		
Mechanical Contractor	dispenser weights and measures	$ 7,000.00	estimate		$7,000.00	optional
Mechanical Contractor	molecular sieve filter	$ 8,200.00	estimate		$8,200.00	optional
General Contractor	building rehabilitation	$38,000.00	estimate		$38,000.00	
General Contractor	site paving and improvements	$20,000.00	estimate		$20,000.00	
	SUB TOTAL	**$ 212,640.00**		**$98,900.00**	**$113,740.00**	
CNG Compressor		N/C	PNM Supplied			
CNG Dispenser		N/C	PNM Supplied			
CNG Dryer		N/C	PNM Supplied			
CNG Storage		N/C	PNM Supplied			
	CLAIMED VALUE	**$130,000.00**				
	ESTIMATED PROJECT TOTAL	**$ 342,640.00**				

11/07/02

✈ Final cost for CNG facility that was $435,645.06 as shown below.

CNG ALTERNATIVE FUELING STATION
FINAL COSTS

Description	Value	DOE Grant	AD Match	PNM
General Requirements	$ 26,569.00		$ 26,569.00	
Site Work/Demolition	$ 40,218.00	$ 40,218.00		
Concrete	$ 47,141.00	$ 47,141.00		
Masonry	$ 2,728.00	$ 2,728.00		
Metals	$ 120.00	$ 120.00		
Wood & Plastics	$ 360.00	$ 360.00		
Thermal/Moisture Protection	$ 2,203.00	$ 2,203.00		
Doors & Windows	$ 8,530.00	$7,230.00	$1,300.00	
Finishes	$ 12,302.00		$ 12,302.00	
Specialties	$ 882.00		$ 882.00	
Equipment	$ 130,000.00			$130,000.00
Mechanical	$ 21,301.00		$ 21,301.00	
Electrical	$ 70,281.00		$ 70,281.00	
Gas Service Allowance	$ 3,000.00		$ 3,000.00	
Electrical Allowance	$ 3,000.00		$ 3,000.00	
Murphy	$ 10,000.00		$ 10,000.00	
Change Order #1	$ 14,471.56		$ 14,471.56	
Design	$ 42,538.50		$ 42,538.50	
Subtotals		**$100,000.00**	**$205,645.06**	**$130,000.00**
Grand Total	**$ 435,645.06**			

Site Information

- The site for the CNG facility is located adjacent to and east of the Standard Parking facility north of the parking structure at Albuquerque International Sunport. The site was the former service center for Dollar Car Rental (moved to a new centralized facility), and had an existing structure that was modified to accommodate the CNG equipment and greatly deteriorated asphalt paving surrounding the structure. Power and natural gas were readily available at the north boundary of the site. An aerial photo/map depicting the site and surrounding facilities is shown below.

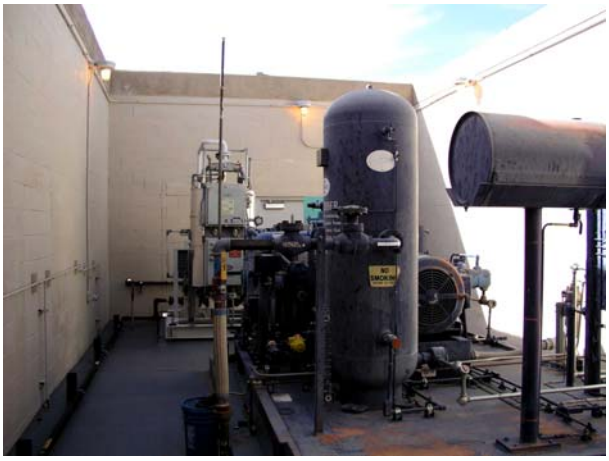
CNG Fueling Facility Site and Area Map

Construction

- Components
  - Demolition and renovation on an existing structure (former Dollar Car Rental Service Center) to accommodate equipment installation
  - Installation of new gas and electric service for compression equipment
  - Installation of fuel island, card readers, compression equipment (provided by PNM Electric & Gas, a local utility provider) and computer operation system
  - Paving of portions of the site to accommodate ingress and egress of vehicles to the fuel island
  - Installation of fencing and gates for security purposes
- Issues
  - Experienced difficulties with the Murphy control system that provided the communication between the compressor equipment and the fuel island, required several circuit/mother board changes and some software modification, system has worked well since
  - Experienced difficulties scheduling PNM to assist with the installation of the compression equipment, appeared to be a difference in level of desire between their corporate administrators and the field service personnel, nonetheless the equipment was installed on schedule

- Site Photos


DRYER



Fuel Use

Operation of the CNG facility was begun December 29, 2004. Fuel use was primarily by the common shuttle that serves the rental car facilities at the Sunport, but private users and the City of Albuquerque Transit Department also purchased fuel. Fuel use has averaged 11,538 gallons per month.

Albuquerque
International Sunport
CNG Fueling Station
Fuel Use Summary

Date	Quantity in Gallons	Total to Date
1/28/05	22419	22419
2/28/05	3750	26169
3/28/05	8952	35121
5/31/05	22729	57850
7/29/05	23226	81076
8/31/05	12506	93582
9/30/05	10836	104418
10/31/05	10962	115380

Summary

- Facility, although significantly scaled down from the original scope, has been very successful in providing for alternative fuel use support at the airport through the rental car common shuttle and within the city through the Transit Department bus use
- North portion of the site is now being looked at for a demonstration project for hydrogen fuel production (using natural gas) and is showing promise as an avenue for additional alternative fuel use
- Priority objectives identified by the Aviation Department as part of the annual budget process have mandated the initiation of a vehicle replacement program that will require new vehicles to use alternative fuels, department has begun research on availability, utility and cost of CNG vehicles to take advantage of the onsite presence of the facility