

VII.9 Southern Nevada Alternative Fuels Demonstration Project*

Dan Hyde (Primary Contact), Carol Diaz
City of Las Vegas
City Hall, Second Floor
400 Stewart Avenue
Las Vegas, NV 89101
Phone: (702) 229-6971; Fax: (702) 464-5735
E-mail: dhyde@lasvegasnevada.com

DOE Technology Development Manager:
John Garbak
Phone: (202) 586-1723; Fax: (202) 586-2373
E-mail: John.Garbak@ee.doe.gov

DOE Project Officer: Lea Yancey
Phone: (303) 275-4944; Fax: (303) 275-4753
E-mail: Lea.Yancey@go.doe.gov

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*Congressionally directed project

- The mechanics received training on the maintenance and repair of the buses, and on documentation procedures.
- The leased hydrogen buses were placed in service August 22, 2007 and are still operating in the Las Vegas downtown area.
- The hydrogen buses were used to help transport attendees of the 2008 Alternative Fuels and Vehicles National Conference and Expo held in Las Vegas, between the conference site and the City of Las Vegas Fleet department's northwest service area.
- Data collection:
 - The City keeps manual log sheets for fuel and mileage data and tracks maintenance information both manually and in an enterprise software program.
 - Real time and automated information is available to Ford Motor Company with on-board diagnostic devices.



Objectives

- Lease two Ford H2ICE (hydrogen internal combustion engine) buses, based on the Ford E450 platform.
- Demonstrate the reliability and efficiency of a hydrogen bus in a day-to-day operation under extreme conditions over a two-year period.
- Collect and report vehicle performance and fuel efficiency data.

Technical Barriers

This project addresses the following technical barriers from the Technology Validation section of the Hydrogen, Fuel Cells and Infrastructure Technologies Program Multi-Year Research, Development and Demonstration Plan:

(D) Maintenance and Training Facilities

Accomplishments

- The contract with Ford Motor Company is signed.
- The buses were delivered and training is completed:
 - The mechanics, bus drivers, and first responders received safety training.
 - The bus drivers and mechanics received training on fueling the hydrogen buses.

Introduction

The City of Las Vegas is leasing two experimental H2ICE buses for two years from Ford Motor Company for the purpose of helping both Ford and the City demonstrate and evaluate the performance characteristics of these types of vehicles. The buses will be operated in the City's downtown corridor. Operating the buses in the summer heat of Las Vegas and the cold of our winters will provide a good indication of performance under the effects of widely varying temperatures. Reliability of the technology is also a key component of this demonstration project.

Ford Motor Company trained City of Las Vegas staff on how to perform diagnostics and repairs on the buses as directed by Ford. Bus drivers and fleet personnel were trained on how to fuel the vehicles and on maintenance and documentation procedures. First responders were given an overview of the H2ICE bus system and specific information related to handling possible emergency situations.

Approach

The City of Las Vegas will operate the two leased hydrogen buses on a regularly scheduled bus route in the downtown area. Information related to vehicle performance and fuel efficiency of the buses will be reported by the City via manual log sheets and an enterprise software program. Ford Motor Company will

track limited real-time diagnostic information, along with additional diagnostic information collected with on-board devices. Data collected is reported to the National Renewable Energy Laboratory on approved data reporting templates.

Fuel is trucked in from various locations by the vendor and delivered to a hydrogen fuel site previously built on City of Las Vegas property at the Fleet West Service Center.

Results

The buses were placed in service August 22, 2007. The City of Las Vegas and Ford Motor Company are tracking vehicle performance and fuel efficiency information (Figure 1). The City continues to perform daily and routine scheduled maintenance on the buses. The City mechanics perform repairs and Ford service requests with the assistance of Ford as needed.

Conclusions and Future Directions

There is approximately one year left on the lease for the two hydrogen buses. The City of Las Vegas and Ford Motor Company will continue tracking performance and fuel economy data until the end of the lease period. The City's mechanics will continue performing maintenance and repairs on the vehicles while they are in service.

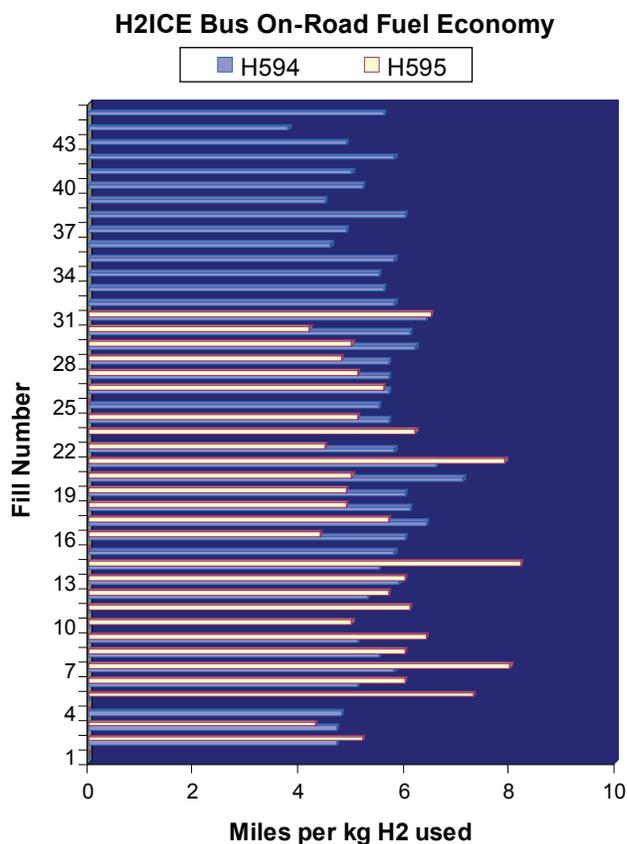


FIGURE 1. H2ICE Bus On-Road Fuel Economy