



ADVANCED GENERATION FUEL CELL BUS DEVELOPMENT

FINAL REPORT

Background

This report provides an overview of the development and demonstration of the Advanced Generation Fuel Cell Bus, a 60-ft articulated fuel cell electric bus (FCEB). This bus, funded by the Federal Transit Administration (FTA) National Fuel Cell Bus Program, was developed by New Flyer and demonstrated at Alameda-Contra Costa Transit (AC Transit) in California.

Objectives

The objectives of this project were to build an articulated 60-ft FCEB that is Buy America compliant, complete a full FTA Altoona bus test, and demonstrate the bus in revenue service. Ultimately, this project was intended to advance the commercialization of FCEBs and create a new FCEB model that can be released on the market.

Findings and Conclusions

Testing and demonstration of the New Flyer XHE60, an 60-ft articulated Advanced Generation Fuel Cell Bus, led to its commercialization and helped to develop the market for FCEBs.

This project resulted in development of the first articulated 60-ft articulated bus. The bus has a rear and center drive axle, which was designed to increase reliability and traction. The bus passed Altoona testing as the New Flyer XHE60 and was later demonstrated in revenue service at AC Transit. During operations, technical deficiencies in radiators, sway bars, and articulations joints were discovered and were addressed to improve the bus design.

The in-service demonstration began in December 2019, and AC Transit began using the bus to train drivers in November 2020, operating it through June 2021. Over the course of the demonstration, the bus accrued a total of 4,244.3 miles. During the pilot operation, the transit agency generated a cost of \$103,263.48. In the pilot period of bus service, fuel economy averaged 4.6 miles per kilogram with a fuel cost per mile of \$1.69. Materials cost was \$1.26 per mile, resulting in a combined cost per mile of \$2.95, excluding labor.

Benefits

This project was beneficial to the industry, as it led to commercialization of a 60-ft articulated bus that was Altoona and in-service tested. The project helped to develop the market for FCEBs and led to a fully commercialized product.

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This project was performed by a project team of CALSTART, New Flyer, Ballard Power, Siemens, and AC Transit. For more information, contact FTA Project Manager Sam Yimer at (202) 366-1321, samuel.yimer@dot.gov.

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