

SunLine Fuel Cell Buses & Hydrogen Onsite Generation Refueling Station Pilot Commercial Deployment Project

The SunLine Fuel Cell Buses & Hydrogen Onsite Regeneration Fueling Station Pilot Commercial Deployment Project has deployed five new 40-foot fuel cell electric transit buses (FCEBs) in daily service in the Coachella Valley. The project also includes an upgrade to SunLine's existing hydrogen refueling station with a new electrolyzer hydrogen production plant, supporting compression and storage equipment, and two 350-bar fueling dispensers. The station will have a total fueling capacity of 900 kg/day. Data will be collected and analyzed for both the station and buses for the period of operation.



SunLine Transit Agency provides service in the Coachella Valley and is a leader in zero-emission bus technology. SunLine shares knowledge with other transit agencies through the West Coast Center of Excellence in Zero Emission Technology. The five New Flyer XHE40 Xcelsior® FCEBs will expand SunLine's fleet of zero emission buses to a total of sixteen FCEBs plus four BEBs.

Dates: 02/09/2017 – Winter 2020
Grantee: SunLine Transit Agency
Partners: New Flyer Industries
Nel Hydrogen Inc.
Zen Clean Energy Solutions

Grant Amount:

CARB Contribution: \$12,586,791
Matching Funds: \$5,714,619
Project Total: \$18,301,410



Vehicles/Equipment Funded

Five New Flyer Xcelsior® XHE40 Buses

- Hydrogen-powered 40' fuel cell electric buses
- Powered by Ballard FCveloCity-HD 85 kilowatt modules
- Based on standard Xcelsior® CHARGE electric propulsion system

Nel Hydrogen Production and Fueling Station

- 900 kg/day capacity
- M400 series modular PEM electrolyzer
- H2Station® modules deliver 350 bar hydrogen
- Supplied as complete turnkey solution

Lessons Learned

- Site civil costs much higher than budgeted, including utility upgrade costs to bring new power line to site
- Commissioning plan and site acceptance criteria for station need to be clearly defined, and collaborative effort required; redundant hydrogen supply is critical during early operation
- Fuel cell bus technology is mature, leveraging reliability improvements from previous generations

Status Updates

- All 5 buses delivered by January 2019, in regular service
- Hydrogen production and fueling station completed December 2019, in daily operation
- Data collection and analysis is underway and will continue until December 2020

