

New Locomotives for the NEC

By 2010, the electric locomotives to pull all trains on Amtrak's NE Corridor Regional Service between Boston and Washington, DC, as well as on the Keystone Corridor between Harrisburg and Philadelphia, were reaching the end of their useful life. Each had been in service for 25 to 35 years and had logged an average of 3.5 million miles traveled with some approaching 4.5 million miles.

The aging equipment hindered Amtrak's profitability and future growth. The cost of maintaining the older locomotives was becoming greater each year and the aging fleet threatened Amtrak's ability to offer reliable service in the Northeast due to en-route failures.

Project

Amtrak decided it was time to replace its electric locomotive fleet with state-of-the-art technology and chose Siemens as its technology partner to manufacture 70 electric locomotives. The locomotives were built at Siemens' 1,000-plus person solar-powered rail manufacturing plant in Sacramento, CA.

Funding

In 2011, the Federal Railroad Administration awarded a \$563 million Railroad Rehabilitation & Improvement Financing (RRIF) loan to Amtrak for the purchase of these locomotives.



Results

The full fleet of 70 locomotives was in service by early 2016 and Amtrak's customers in the Northeast are seeing the benefits.

Improved Service

Delays declined by one third in 2016 compared to 2015.

Jobs

The RRIF loan supported U.S. rail manufacturing jobs. Buy America provisions ensured that the locomotives would be made in the USA. Siemens built the locomotives in Sacramento, CA with components from more than 60 U.S. suppliers in over 20 states. Highly-skilled Siemens employees spent an average of 7,000 hours building each locomotive, or nearly half a million hours total for all 70 vehicles. To ensure the locomotive engineers and mechanics would be properly trained, Siemens and Amtrak developed a multi-pronged approach that included classroom instruction, software-based training simulation, and hands-on field training at Amtrak's Wilmington, DE test track.



Lower Maintenance Costs

Working with Siemens to capitalize on their private-sector expertise, Amtrak is able to lower its maintenance costs while improving reliability and optimizing life-cycle costs. Today, Siemens works with Amtrak to monitor and analyze data from the locomotives with "Smart Cockpit" software, helping Amtrak reduce maintenance costs.

Reduced Energy Use

More environmentally friendly than their predecessors, the new electric locomotives feature the latest regenerative braking technology can feed up to 100 percent of energy generated during braking back to the power grid. With this technology, the 70 locomotives will save an estimated 3+ billion-kilowatt hours of energy resulting in approximately \$300 million in energy cost savings over 20 years.