TIGGER Transit Investments for Greenhouse Gas and Energy Reduction

U.S. Department of Transportation
Federal Transit Administration


Courtesy of AC Transit

Project name: AC Transit Photovoltaic Installation

Transit agency: Alameda-Contra Costa Transit District

Location: Oakland, California

TIGGER goal: Energy and GHG emissions reduction

FTA region number: IX

Award amount: $6,400,000

Congressional district: CA-7, CA-8, and CA-9

Funding mechanism: Recovery Act (ARRA)

AC Transit Photovoltaic Installation Produces Renewable Electricity

AC Transit is no stranger to renewable energy and advanced vehicle technologies. It has been producing hydrogen for its fuel cell buses since 2006.


Solar Project


Facility Project

As part of a Phase 1 TIGGER project, this progressive transit agency installed 510 kW of PV on the roof of its Central Maintenance Facility in Oakland, California. Powered by the sun, this system generates approximately 697,000 kWh of renewable electricity a year. This electricity will be used to renewably generate hydrogen for fueling fuel cell powered buses.

Because the cost of solar equipment dropped significantly during this first phase of this project, AC Transit realized a $2 million savings. This savings will enable the transit agency to purchase an additional 200 kW of PV for one of its other operating divisions, either in Emeryville or Hayward. This second installation is expected to generate about 273,000 kWh of renewable electricity a year.

The Alameda-Contra Costa Transit District (AC Transit) is one of the largest bus-only transit agencies in the United States, serving 13 cities in the San Francisco Bay Area with nearly 600 buses. AC Transit carries more than 61 million people annually, many of whom are from Title VI Environmental Justice neighborhoods. Since 1999, AC Transit has been building the most comprehensive zero-emission fuel cell program in North America, complete with zero-emission vehicles, on-site fuel production and dispensing, public outreach and education, and on-site maintenance. Since 2006, AC Transit's fuel cell fleet has carried more than one million people in everyday passenger service.

AC Transit is also the lead agency in Zero Emission Bay Area (ZEBA), a coalition of regional transit agencies operating fuel cell buses in real-world service. Other ZEBA members include Golden Gate Transit, San Francisco Municipal Transportation Agency, San Mateo County Transit, and Santa Clara Valley Transportation Authority. Together, these agencies serve seven California counties with a combined population of more than 6.8 million people.

Top: Courtesy of NREL; Bottom: Courtesy of AC Transit

(Clockwise) The historic façade of the Central Maintenance Facility, the power controller for the solar PV array, and the completed installation of the rooftop solar PV array.

Project partners include designers from Jacobs Engineering and installers from Cupertino Electric.

This new system will produce more than enough electricity to offset the energy required to operate AC Transit's electrolyzer, which uses electricity to split water into hydrogen and oxygen and is capable of making 66 kg of hydrogen a day.

Impact:

By replacing 970,000 kWh of grid electricity consumption with solar energy, AC Transit is reducing its greenhouse gas emissions by about 514 metric tons of CO_2 a year.

AC Transit's PV systems, which are expected to be in service for more than 25 years, along with its growing fleet of zero-emission fuel cell buses serve as a technology showcase for other transit agencies interested in reducing energy use and greenhouse gas emissions without sacrificing safety, comfort, or convenience.

By replacing 970,000 kWh of grid electricity consumption with emissions-free energy produced by the sun, AC Transit will reduce its greenhouse gas emissions by approximately 514 metric tons of CO_2 a year.

Additionally, locally produced electricity, referred to as distributed generation, saves energy by eliminating the losses associated with electricity transmission from distant, centralized production facilities.

About TIGGER

The Transit Investment for Greenhouse Gas and Energy Reduction (TIGGER) Program *was established in 2009 by the U.S. Department of Transportation's Federal Transit Administration (FTA). Designed to reduce energy use and greenhouse gas emissions in transit agencies around the country, the TIGGER Program made funds available for capital investments that would reduce greenhouse gas emissions or lower the energy use of public transportation systems. An initial $100 million in American Recovery and Reinvestment Act grants funded 43 competitively-selected transit projects. In 2010, the FTA provided an additional $75 million in grants to fund 27 new TIGGER projects. These 70 projects are employing a variety of technologies to meet the program goals, including solar installations, building efficiency improvements, wind technology, wayside energy storage for rail, and purchase of more efficient buses. In fiscal year 2011, FTA provided an additional $49.9 million to continue the program.*

For More Information

AC Transit:
www.actransit.org

FTA TIGGER:
www.fta.dot.gov/TIGGER

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TIGGER - FS - CA-77-0003 - October 2011