



Cleaner Fuels Test Program

FACT SHEET

Project Overview

- On October, 23, 2007, the Alameda-Contra Costa Transit District (AC Transit) and Chevron Products Company launched the Cleaner Fuels Test Program consisting of two alternative fuels and 22 buses that travel Bay Area roadways.
- AC Transit is fueling a fleet of 22 buses with a biodiesel fuel blend (B20), gas-to-liquids (GTL) diesel, or – as a reference fuel – ultra-low-sulfur diesel (USLD). The fuels are being provided by Chevron. Engine manufacturer Cummins is providing engine assessments and technical consulting during the study.
- This partnership provides the opportunity for an end user, a fuel provider and an engine manufacturer to collectively learn more about the characteristics, distribution, efficiency and emissions of biodiesel and GTL diesel. In addition to understanding the potential emissions benefits of these fuels, the program will help guide future alternative fuel solutions by giving participants invaluable operational experience in such areas as fuel handling, blending and storage.
- The Cleaner Fuels Test Program builds on AC Transit's groundbreaking HyRoad Fuel Cell Demonstration Program, for which Chevron built hydrogen production and fueling facilities that have been powering AC Transit's zero-emission, hydrogen fuel cell buses since January 2006.

Study Parameters

- During the six-month period, the 22 AC Transit test buses are expected to transport more than 1.5 million passengers, travel more than 400,000 miles and use more than 100,000 gallons of alternative fuels.
- A test matrix has been developed to eliminate driver variability, route variability, bus-to-bus variability, and traffic variability – resulting in a true comparison between GTL, B20 biodiesel and USLD.
- Test parameters include fuel mileage, engine performance, impact on lubricants, tailpipe emissions, impact on engine after-treatment (diesel particulate filters), engine noise as well as driver feedback.





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Biodiesel

Unblended, 100 percent biodiesel (B100) is an alternative fuel made from renewable resources, such as vegetable oils or animal fats. Using biodiesel can decrease overall greenhouse gas emissions, and in certain engines, it can reduce particulate pollution, such as soot. Biodiesel also:

- can be produced domestically,
- helps diversify the U.S. energy supply
- can potentially be made from renewable crops, used vegetable oils, or even algae, and
- is biodegradable.

AC Transit's test fleet is using a B20 biodiesel blend, which includes 20 percent biodiesel and 80 percent USLD. B20 can technically be used in diesel vehicles already on the road, without modifications to engines, fuel systems, or refueling infrastructure. However, most car manufacturers only currently warranty their vehicles for biodiesel blends up to 5 percent. This partnership provides the opportunity to study the impact of B20 biodiesel blends on engines.

GTL Diesel

GTL diesel is a liquid fuel made from natural gas, rather than from crude oil. Natural gas is abundant, yet is difficult to transport simply because it's a gas. Converting the gas to liquid solves that problem. Additional benefits include:

- being virtually sulfur-free
- being almost odorless
- offering the potential to reduce particulate emissions, such as soot, from many diesel engines on the road today
- utilizing the existing distribution infrastructure, and
- helping to diversify the transportation fuel supply.

Hydrogen Fuel Cells

Fuel cell vehicles are zero-emission, electrically propelled vehicles:

- Only odorless, non-toxic water vapor from the tailpipe
- No smog-forming nitrogen oxides, particulates or hydrocarbons
- Silent vehicle operation
- As much as twice the fuel efficiency of diesel-powered vehicles

As part of AC Transit's HyRoad program, Chevron produces hydrogen from natural gas at the same location where the vehicles are fueled. By demonstrating fuel cell technology today, AC Transit and Chevron are exploring the potential for hydrogen as a transportation fuel of the future.

Partner Roles & Responsibilities

- **AC Transit:** Deploying test buses; collecting and recording test data
- **Chevron:** Designing and installing fueling infrastructure at the AC Transit depot; developing test design; providing fuel; analyzing test results
- **Cummins:** Contributing to test design; extending engine warranty to GTL
- **Sasol Chevron:** Assisting with test design; providing GTL fuel