



WEST COAST COLLABORATIVE

Public-private partnership to reduce diesel emissions

Fields to Fuel San Joaquin Valley Biodiesel Project: Cleaner Air, Local Jobs & Greater Energy Security

The goal of the Collaborative is to leverage significant federal funds to reduce emissions from the most polluting diesel sources in the most affected communities. The Collaborative seeks to significantly improve air quality and public health by targeting the highest polluting engines with the most cost effective control strategies.

The West Coast Collaborative is pleased to announce that EPA has selected the Fields to Fuel San Joaquin Valley Biodiesel Project: Cleaner Air, Local Jobs & Greater Energy Security for \$100,000 in EPA funding. This project will be implemented with \$160,000 in matching funds from other organizations.

What is the Fields to Fuel Biodiesel Project?

This innovative project will test the effectiveness of a new fuel additive in reducing nitrogen oxide (NO_x) emissions from biodiesel use. Biodiesel is a renewable fuel produced from crops such as sunflowers, canola and soybeans. Used in place of – or blended with – petroleum-based diesel (“petrodiesel”) in vehicles, farm equipment and industrial machinery, biodiesel emits far less air pollutants and greenhouse gases. However, current formulations of biodiesel produce slightly more NO_x – a precursor to ozone or smog – than does petrodiesel, which has slowed market acceptance of biodiesel. The Fields to Fuel Biodiesel Project will verify preliminary findings that a new “True Blue” blend of biodiesel effectively reduces NO_x emissions as well as other air pollutants. If verified as effective in meeting California Air Resources Board NO_x standards, this biodiesel formulation can enhance both the environment and the economy of California’s San Joaquin Valley and other comparable regions.

Why is this project important?

By effectively substituting biodiesel for petroleum-based diesel to power vehicles and machinery with little or no engine modification, the significant benefits of biodiesel can be realized far more quickly than with other alternative energy technologies. Some of the benefits of using biodiesel include:

- Improved air quality in California’s San Joaquin Valley, which doesn’t meet EPA’s ozone or particulate matter (PM₁₀ or PM_{2.5}) standards
- Reduced greenhouse gas emissions
- Local economic benefits for farmers and rural communities

- Safe handling (non-toxic, biodegradable)
- Increased energy security by displacing diesel derived from imported petroleum
- Easy and immediate implementation because biodiesel is compatible in many existing diesel engines

Farmers in California's San Joaquin Valley can easily grow sunflowers, canola or safflower. Seeds from the plants then can be pressed and processed to produce biodiesel. The biodiesel can be used on-site to fuel tractors, irrigation pumps and other farm equipment or transported to centralized fueling stations for public or school buses, private-sector fleet vehicles and other vehicles. The biodiesel production process also yields a high-protein "meal" byproduct which is ideal for cattle (and other ruminants); and the plants themselves improve the quality of the soil by removing excess selenium, which can reduce soil productivity. In addition, high-grade glycerin is extracted as a part of the biodiesel process, which can be sold and used in a wide variety of health and cosmetic products. These additional benefits enhance the economic value of the Fields to Fuel model. If all farm equipment in the San Joaquin Valley switched from petrodiesel to biodiesel blend, the region could experience reduced carbon monoxide emissions of about 2,000 tons per year and reduced particulate matter emissions of about 600 tons per year, plus reduced nitrogen oxide emissions.¹

Emissions from diesel engines—especially the microscopic soot known as "particulate matter" (PM)—create serious health problems for adults and have extremely harmful effects on children and the elderly. Children are especially adversely affected by diesel emissions because their respiratory systems are still developing, and they have a faster breathing rate. Public health authorities associate exposure to PM with an increased risk of premature death, greater number of hospital admissions for heart and lung disease, and amplified adverse respiratory symptoms such as asthma. Long-term exposure to diesel exhaust may also pose a lung cancer hazard to humans.

Diesel exhaust also contains nitrogen oxide (NOx), which is a precursor to ozone, or "smog." In sufficient doses, ozone increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. Recent evidence links the onset of asthma to exposure to elevated ozone levels in exercising children.²

What are the estimated environmental benefits of this project?

- Improved air quality³
 - 15 per cent reduction in particulate matter emissions
 - 10 per cent reduction in hydrocarbon emissions
 - 10 per cent reduction in carbon monoxide emissions
 - 20 per cent reduction in sulfate emissions
- Reduced greenhouse gas emissions (carbon dioxide)

¹ This is a comparison of pure petrodiesel to a B20 blend (20% biodiesel and 80% petrodiesel).

² "Recent Research Findings: Health Effects of Particulate Matter and Ozone Air Pollution," California Air Resources Board and American Lung Association, January 2004, <http://www.arb.ca.gov/research/health/fs/PM-03fs.pdf>.

³ *ibid*



- Safe handling since biodiesel is non-toxic and biodegradable

How is this project funded?

The West Coast Collaborative is providing the following support for the Fields to Fuel San Joaquin Valley Project: Cleaner Air, Local Jobs & Greater Energy Security.

- ✦ \$100,000 from EPA, and
- ✦ \$160,000 in matching funds for this project comes collectively from other partners.

What is Sustainable Conservation?

Sustainable Conservation partners with business, agriculture and government leaders to find practical ways that the private sector can protect clean air, clean water and healthy ecosystems. The independent nonprofit organization leads revolutionary collaborations that produce realistic solutions, sustaining the vitality of both the environment and the economy. For more information about Sustainable Conservation, go to www.suscon.org.

What is the Collaborative?

The West Coast Collaborative is an ambitious partnership between leaders from federal, state, and local government; the private sector; and environmental groups in California, Oregon, Washington, Idaho, Arizona, Alaska, Canada and Mexico committed to reducing diesel emissions along the West Coast. The Collaborative is part of the National Clean Diesel Campaign.

How can I find out more about the Collaborative?

For more information about the West Coast Collaborative, please contact Peter Murchie (murchie.peter@epa.gov, 503-326-6554) or Michelle Roos (roos.michelle@epa.gov, 415-947-4187), or visit our website at www.westcoastcollaborative.org.