

# West Coast Diesel Emissions Reductions Collaborative

## Project Description: Marine Biodiesel Fueling Station

Submitted by Teri Shore, Bluewater Network  
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Working with leaders from government, the private sector, and environmental groups the West Coast Diesel Emissions Reduction Collaborative (Collaborative) brings attention to the need for additional funding for diesel emissions reduction on the West Coast and encourages voluntary and incentive based projects that reduce diesel emissions. The Collaborative is focused on projects that are regional in scope, leverage funds from a variety of sources, result in real measurable reductions/results, and create momentum for future diesel emissions reductions.

*This document describes an important potential diesel emissions reduction project in the Region 9, San Francisco Bay Area.*

**Summary:** Bluewater Network seeks consideration and funding from the West Coast Diesel Emissions Collaborative to support and potentially fund the installation of marine biodiesel fueling stations in San Francisco Bay and along the West Coast of the U. S. and beyond. This marine diesel emissions reduction effort would be a joint project with private ferry operators to install a biodiesel fueling station to provide ferries, fishing boats, yachts, tugboat operators and other marine vessels access to renewable, low-emissions biodiesel.

Bluewater Network expects to receive seed money from a local foundation early next year to investigate the feasibility of installation of a marine biodiesel fueling dock at Pier 47 in San Francisco. We have commitment from the Red and White Fleet to use 100 percent biodiesel if it is available and competitively priced. Recently, fishing groups have expressed interest in using this fuel if it is competitively priced and available. Support from the West Coast Diesel Emissions Collaborative could help speed the implementation.

### Project at a Glance

#### Biodiesel Marine Fuels Emissions Reductions Below Diesel For 100 percent biodiesel

- Particulate Matter: 50 to 60 percent reductions
- Sulfur Oxides: 99 percent reductions
- Carbon Dioxide Emissions: 78 percent life-cycle reductions
- Unburned hydrocarbons: 67 percent
- Nitrogen Oxides: neutral or slight increase, which could be mitigated with additives

People that would benefit include ferry and marine vessel crews, passenger ferries and Bay Area residents that are directly exposed to diesel exhaust generated by ferries and other marine engines. The project would reduce diesel particulate emissions from the ferry and other marine vessel fleets. Ultimately, this would be extended as more marine vessels participated in San Francisco Bay and beyond. Once the viability of a marine biodiesel fueling station is established here, it could be replicated through the West Coast and beyond. Currently, no public biodiesel fueling station exists for marine vessels.

## **Problem Statement**

Ferries and other commercial harborcraft operate on diesel engines that are 10 to 100 times more polluting per passenger mile than cars, buses or other landside transit. As a result, passenger ferries directly expose passengers to harmful diesel exhaust while also contributing to degradation of regional air quality. In San Francisco Bay and elsewhere, existing ferries operate on uncontrolled diesel engines that produce large volumes of deadly particulate matter, smog-forming nitrogen oxides and problematic sulfur oxides.

Because ferry engines are long-lived, it will be decades before current fleets will convert to cleaner technologies. The first US EPA regulations for ferry-sized engines don't go into effect until 2007. Most vessels operate on dirty diesel fuel, though new fuels regulations will begin to address this problem beginning in 2007 in California and 2016 nationally. In the interim, air quality continues to suffer.

Simply by switching from petrol-diesel to 100 percent biodiesel or a biodiesel blend, we can immediately achieve significant reductions in diesel particulate matter and sulfur oxide emissions from existing ferry engines, particularly older charter fleets, as well as other harborcraft. Nitrogen oxide emissions remain the same or, depending on the fuel stock, may rise slightly. For older engines that will remain in service without any air pollution controls or other improvements, the net benefit of switching to biodiesel is significant.

The main hurdle for ferries utilizing biodiesel has been price and infrastructure. Recent federal excise tax credits for biodiesel recently signed into law by President Bush now makes the price of 100 percent biodiesel or a blend competitive with on-road diesel. Supplies are increasingly available in California and elsewhere.

The remaining obstacle is a marine biodiesel fueling station. The Red & White Fleet in San Francisco is committed to using biodiesel if it can be provided at the dock at a competitive price.

## **Proposed Actions**

Part 1: Marine Biodiesel Fueling Dock

So far, no petroleum diesel supplier has been willing to dedicate a part of existing tankage to biodiesel, nor to build new tankage. So it may fall upon air quality agencies, cities and other public agencies to help foot the bill for a marine biodiesel fueling station and/or to convince petrol distributors to supply it. Here is where the West Coast Diesel Emissions Collaborative could play an important role, by providing funding and/or outreach and collaboration. It is an appropriate role considering the Bush administration's support of biodiesel.

Not only does biodiesel provide air quality benefits, but could trigger a new industry in California, providing new jobs in the production and distribution of a renewable fuel.

## Part 2: Biodiesel Demonstration on the Bay

To celebrate World Environment Day in San Francisco, Bluewater Network hopes to work with ferries on the Bay to operate on renewable biodiesel that is made from vegetable oil and smells like French fries! This would be the first time ever that a fleet of ferries will run simultaneously on this clean, green fuel. Mayors and VIPs from around the world invited here for WED will cross the Bay on vessels burning biodiesel in their engines instead of dirty diesel. The public can also go for a ride and learn about this fueling the world with biodiesel from on-board experts while hob-knobbing with dignitaries on selected routes.

The goal of the Biodiesel on the Bay is to demonstrate the ease and air quality benefits of switching to a renewable fuel produced in the United States while reducing the nation's reliance on fossil fuels. The objective would be to get as many vessels as possible to burn biodiesel for the week (since doing it for just one day may not be feasible for technical reasons) on regular runs across the Bay and on Bay tours and cruises. The vessels operating on the biodiesel would be announced to the media and the public. Certain commuter runs and/or Bay cruises could be featured routes where the mayors and VIPs would be on board, along with experts on biodiesel and Bluewater staff.

Costs could include incremental ferry operator costs to buy and burn the biodiesel for the week, preparing engines as needed to burn the fuels, vessel operating costs, and marketing and advertising materials. These costs could be shared by the ferry operators, biodiesel producers, fuel distributors and organizers of World Environment Day.

### **Anticipated Benefits**

The anticipated air emissions benefits are stated above, as are the populations that would benefit.

**Funding:** Amount of funding needed has not yet been established. So far, no one has been willing to fund a marine biodiesel fueling station. A partnership involving ferry operators, petrol suppliers, biodiesel suppliers, air districts and public agencies could make it happen.

Demonstration project would leverage permanent biodiesel fueling station and use by ferries, tugboats and other harborcraft in advance of new fuels regulations and engine standards.

### Economy and Jobs

Making biodiesel available to the marine sector would significantly expand the market for biodiesel in California, benefiting existing and new producer of biodiesel. It would provide incentives for new producers to enter the market and for existing producers in the Mid-west to produce and ships more to the West Coast.

### Estimated Costs

The estimated cost of a marine biodiesel fueling station has not been established, but a ferry operator has estimated it might cost \$40,000 or \$50,000. This cost could be recouped by a petrol distributor through sales, partnerships or grants. The cost could also be eliminated if petrol suppliers were willing to dedicate existing tankage for biodiesel. The cost of the biodiesel itself would be borne by the purchaser.

### Collaborative Partners

Partners would include the Red and White Fleet and could be extend to include other marine vessel operators, biodiesel producers, the national biodiesel board, the Port of San Francisco, City of San Francisco, air districts, public agencies and environmental groups.

For more information on this project, contact Teri Shore, Bluewater Network, 311 California St., Suite 510, San Francisco, CA 94104, 415-544-0790, ext. 20.

[tshore@bluewaternetwork.org](mailto:tshore@bluewaternetwork.org), [www.bluewaternetwork.org](http://www.bluewaternetwork.org)