West Coast Diesel Emissions Reductions Collaborative
Federal Network for Sustainability

Federal Agency Biodiesel Collaborative Project Proposal

Submitted by:

National Park Service, Alaska Region

Problem Statement:

Denali National Park utilizes 40,000 gallons of diesel fuel per year for operating heavy equipment, including rotary snow plows. The equipment operates on a 80 mile long gravel road with heavy bus traffic, a Class I air shed, and 300,000 visitors per year. No private vehicles are allowed in the park and the park's bus fleet (80 buses) is the largest in the National Park system. The heavy equipment and buses are the primary sources of particulate matter and emissions and reduction of those sources is of primary importance to the visitor and the National Park Service. The potential for fossil fuel spills is a concern to the park that could be improved by the use of biodiesel.

Proposed Actions:

Evaluate the viability, both economically and logistically, of using biodiesel (B20 to B100) in lieu of conventional diesel fuel for the operation of heavy equipment and buses in Denali National Park. The park is currently demonstrating the use of syngas in buses as a means of reducing the emissions and is interested in demonstrating biodiesel as well. The buses operate during the temperate part of the season, but the heavy equipment works year round. Snow is allowed to build up on most of the road during the winter and the spring plowing is done in inclement weather and road conditions when the chances of a fossil fuel spill are the highest. Using biodiesel during spring opening would provide a venue for demonstrating biodiesel under heavy engine loads and temperatures down to minus 10 degrees, Fahrenheit. A successful test would show that biodiesel can be utilized where temperatures drop well below freezing.

Partnering Agencies/Groups:

Alaska Energy Authority
Department of Energy
Arctic Energy Technology Development Laboratory (AEDTL)
University of Alaska, Fairbanks

Benefits/Measurements of Success for the Project

- **Potential Fossil Fuel Reductions (three years)** **Gallons: 120,000**

  - Denali National Park approximately 40,000 gallons of fuel per year in heavy equipment. Using B100 would eliminate that much fossil fuel in a three year period. There are potentially more savings with the bus fleet.

O Potential for Market Transformation

- Demonstrate the use of biodiesel in an interior Alaska location where lower temperatures are common. Using biodiesel in heavy equipment working under these conditions and under full load is necessary for the long viability of biodiesel in the interior of Alaska. Having Defense Logistics supply biodiesel would make this economically viable**.**

O Other Savings

- Clean up costs associated with potential fossil fuel spills.
- Long-term competitive prices, especially if Defense Logistics can supply it or local materials can be used.

Estimated Costs, with other Possible Funding Sources

- Short Term - $75,000 for evaluating the results of the tests in various engines.
- Short Term to Medium - $100,00 per year for a cost differential in fuel costs. This is based on a mix of B100 and B20.
- Short Term - $10,000 for a separate storage tank for biodiesel.
- Short Term – The park is willing to use their equipment for the tests in heavy equipment.
- Short Term – Support for some testing may be available from Alaska DEC.
- Medium - $25,000 for bus engines that can be tested after the demonstration period is over.

What Is the Project Timeframe:

Short (September Announcement) : Testing of syngas is underway. The heavy equipment testing can be done as soon as a dedicated tank is on site.

Medium (FY05): On-site testing of product in vehicles: Purchase of additional biodiesel and testing in buses can begin.

Long-term (> FY05): Installation of additional biodiesel tanks and contracts with Defense Logistics to provide a reliable source of biodiesel.

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