



Clean by Nature
Powerful by Design

ALTERNATIVE HYBRID LOCOMOTIVE TECHNOLOGIES

DOCKET

10-ALT-01

DATE MAY 11 2011

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May 11, 2011

California Energy Commission
Dockets Office, MS-4
Re: Docket No. 10-ALT-1 / 2011-2012 Investment Plan
1516 Ninth Street
Sacramento, CA 95814-5512

To Whom It May Concern:

Having reviewed its *2010-2011 Investment Plan for Alternative and Renewable Fuel and Vehicle Technology Program*, Alternative Hybrid Locomotive Technologies (AHL-TECH) hereby requests that the California Energy Commission consider including funding for renewable fuel locomotive research and demonstrations in its 2011-2012 budget. While the California Air Resources Board (CARB) has provided some funding for clean locomotive research in its current budget, the focus of the CARB research has been the adoption of cleaner diesel engine technology, with no emphasis on renewable fuel use or greenhouse gas (GHG) reduction. AHL-TECH believes that providing funding for renewable fuel locomotive technology supports California's AB 118 goals of reducing GHG emissions and increasing the use of alternative fuels.

For example, AHL-TECH locomotives are specifically designed to use fully renewable bioethanol fuel as a 100% replacement of liquid fossil fuels. Several California companies have been developing next generation cellulosic ethanol production technologies and plants, including BlueFire Ethanol, and EdeniQ, who expects to have its pilot cellulosic plant in Visalia, CA on-line by the first quarter of 2012. Ethanol fueled locomotives can run on these next generation, low carbon, biofuels, greatly reducing the GHG footprint of these large vehicles.

We therefore urge CEC to provide financing to demonstrate the ability of high horsepower, high fuel consumption vehicles, such as locomotives, to take advantage of these advanced biofuels. CARB estimates that a single switcher locomotive in California consumes 50,000 gallons of fuel per year and estimates that there are at least 244 of these locomotives operating in California. This represents a potential to replace over 12 million gallons of diesel fuel each year with renewable fuel. These locomotives produce over 136,500 tons of CO₂ per year. By using low carbon fuel, such as cellulosic ethanol, almost 110,000 tons of GHG emissions could be eliminated.

In addition to switcher locomotives in California, CARB estimates there are at least 290 medium horsepower (MHP) freight locomotives of 2,300hp to 4,000hp operating in the state. These locomotives consume anywhere from 50,000 to 300,000 gallons of diesel fuel each year. Using a conservative fuel value of 100,000 gallons per locomotive per year, this represents a potential to replace an additional 29 million gallons of diesel fuel each year with renewable fuel. These locomotives produce almost 325,000 tons of CO₂ per year. By using low carbon renewable liquid fuels, such as cellulosic ethanol, almost 260,000 tons of GHG emissions could be eliminated.

This intrastate California fleet of approximately 534 locomotives consumes in the aggregate some 41 million gallons of diesel fuel and generate almost half a million tons of CO₂ emissions. We believe these levels of fuel use and GHG emissions should not be ignored, and thus we

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encourage CEC to make funding available in its 2011-2012 Investment Plan to develop and demonstrate renewable fuel locomotive technology.

AHL-TECH is hereby requesting that CEC consider allocating between \$1 million and \$1.5 million in its 2011-2012 budget for one or more demonstration projects involving the use of clean alternative fuels in locomotives to reduce GHG emissions.

In conclusion, we would also like to point out that although the major thrust of the CEC AB 118 funding is to reduce GHG emissions and increase the use of renewable or alternative fuels, ethanol fueled locomotives are projected to reduce NOx emissions to 1/10th the EPA's Tier 4 Locomotive requirements (which take effect in 2015) and virtually eliminate particulate matter emissions. Thus both CEC and CARB goals for AB 118 funded projects are equally supported by the move to GHG reducing renewable ethanol fuel.

We further recommend that any funding CEC provides for locomotive research and/or demonstrations include a stipulation that these locomotive demonstration projects must also support CARB goals for criteria emissions (NOx and PM) reduction. These goals were most recently outlined in CARB's AQIP Advanced Technology Demonstration Project solicitation released April 11, 2011 for Ultra Low-Emitting Locomotive Emission Levels (see <http://www.arb.ca.gov/msprog/aqip/solicitations.htm>).

In AHL-TECH's opinion, which is supported by the objectives of government and industry alike, the demonstration of this fuel and locomotive engine technology in the California railroad sector would bring potentially large benefits for air quality, climate change mitigation, reduction of health risks associated with railyards, and a wealth of other advantages associated with the reduction of fossil fuel consumption.

We appreciate your consideration of these comments and stand prepared to address any questions you may have about this proposal.

Sincerely,

A handwritten signature in blue ink that reads "Tom Mack". The signature is written in a cursive, flowing style.

Tom Mack
President/CEO
Alternative Hybrid Locomotive Technologies