



Re: 2014-2015 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program

To Whom it May Concern:

**Oberon Fuels, a California company, respectfully submits these comments in response to the California Energy Commission's 2014-2015 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program ("Report").**

The need for a diesel alternative has never been more important, and DME (dimethyl ether) is a promising solution that has been largely overlooked.

DME is a clean-burning, non-toxic, potentially renewable fuel. Its high cetane value and quiet combustion, as well as its inexpensive propane-like fueling system, make it an excellent, inexpensive diesel alternative that will meet strict emissions standards.

DME has been used for decades as an energy source in China, Japan, Korea, Egypt, and Brazil. It can be produced domestically from a variety of feedstocks including biogas and natural gas. Ideal uses in North America are in the transportation, agriculture, and construction industries. Because production is not dependent upon the price of crude oil and can be made from multiple feedstocks, DME will have more stable pricing than diesel.

DME can be produced from both natural gas and biogas. Oberon Fuel's DME plants run most efficiently with CO<sub>2</sub> in the feedstock. Therefore, DME can be made from feedstocks such as landfill gas, wastewater treatment plant gas, and digester gas (animal waste and food waste), which contain both CO<sub>2</sub> and methane. Since our plants can utilize the CO<sub>2</sub> in the process and it does not need to be removed, the costs to convert this gas to fuel are reduced.

Oberon Fuels' first facility in Brawley, California is currently producing fuel-grade DME from methanol (Phase 1) to be used in DME demonstration trucks in North America. Phase 2—complete process from methane to DME—will be online in 2014.

On June 6, 2013, Volvo Trucks North America announced that it would be commercializing DME heavy-duty trucks in 2015. In addition, Volvo, Safeway, and Oberon were awarded a grant which will enable Safeway to test Volvo DME-powered trucks running on Oberon DME and operating in regular, commercial operations in 2014.

### **General**

The purpose of these comments is to ask the CEC that DME be considered eligible for the solicitations that are derived from the Report.

### **Recommendation 1:**

We ask that the Energy Commission include DME in Chapter 3, “Biofuels Production and Supply,” of the Report (page 15). Gasoline Substitutes, Diesel Substitutes (including Biodiesel), and Biomethane are all discussed. DME is currently being produced in California (see above—at our Brawley, CA plant). Oberon is currently navigating Tier 1 of CARB’s Multimedia Assessment as part of its fuel certification pathway. Additionally, an ASTM taskforce developed a draft specification for DME as a transportation fuel. Voting on the specification (concurrent Subcommittee H and Committee D02 ballots) closed on November 4, 2013 and will be presented at the December ASTM Committee D02 meeting. Oberon Fuels has submitted biogas to DME pathways to the EPA for consideration under the Renewable Fuel Standard to be eligible for RIN credits.

The production and use of DME has surpassed the research phase and is now solidly in the development phase with DME truck commercialization in 2015. DME can be used to assist in GHG reduction, as DME will assist in the displacement of the 2.6 billion gallons of diesel used in California. Finally, DME can be made from biomethane, further reducing GHG emissions in California.

We also ask that the Report specifically address solicitations for biofuel production projects that will allow lower fuel volume projects. We appreciate that the new funding will “likely be used in combination with the remaining FY 2013-2014 funds to issue a new solicitation that will include pilot and demonstration-scale production facilities.” In light of the growing trend in distributed fuel production that is being observed, where small-scale equates to commercial scale, we ask that the CEC recognize and support this larger trend across the energy space. Advantages for distributed energy production include fuel supply stability (e.g. catastrophic weather events can unpredictably interrupt fuel supply), issues of national security, utilization of smaller volume previously waste resources, and reduced costs, logistics, and GHG impact of transporting feedstocks and delivering fuel to customers. While we work within the DME community, distributed fuel production and smaller plants are being observed in other fuel sectors including hydrogen and ethanol due to the advantages listed above. Defining commercialization simply by the volume of one production unit eliminates the exciting opportunities in small-scale production and the ability to utilize currently wasted feedstocks.

**Recommendation 2:**

We ask that the Energy Commission include DME in Chapter 4, “Alternative Fuel Infrastructure.” The Report discusses the importance of expanding Electric, Hydrogen, and Natural Gas infrastructure. As Oberon Fuels continues to produce DME and the DME truck market grows, Oberon will also be building out fueling infrastructure in California. Fueling stations for DME will be more similar to propane fueling infrastructure, and considerably less expensive than LNG and CNG. However, money will need to be expended to provide enough fueling stations for early demonstrations in 2014 and for commercial use in 2015. As discussed above, both Volvo and Mack Trucks will be making a DME engine for commercial use in 2015. Therefore, the infrastructure needed to provide adequate fueling for commercial DME trucks will need to be evaluated and invested in over the next five – six months.

**Recommendation 3:**



As a general comment, we ask that you consider including DME trucks to be eligible for funding in Chapter 5, "Alternative Fuel and Advanced Technology Vehicles" because DME is a clean burning diesel alternative for the heavy-duty trucking industry. Because DME does not produce particulate matter or SO<sub>x</sub>, use of DME in heavy-duty trucks will help reduce GHG emissions. Additionally, DME trucks provide fleets a renewable fuel option that maintains true diesel-like performance since it is a compression ignition fuel (cetane 55-60). We hope that DME trucks will be included in the Energy Commission's investments into demonstration projects including the \$15 million the Commission proposes to use to support heavy-duty truck advanced technology vehicles.

**Recommendation 4:**

We ask that DME be included in Chapter 6, "Related Needs and Opportunities." The CEC focus on allocating funds to manufacturing, workforce training and development, and fuel readiness could assist Oberon in its objective to bring DME to commercial markets. The DME plants support approximately 10 full time operators per plant (this does not include the people who would build the plants.). Therefore, allowing DME production facilities to be eligible for CEC funding under this Report, will allow Oberon to continue its development of plants and continue to educate the DME workforce. Finally, we believe that support for our fuel readiness plan will allow us to roll-out DME plants in sync with the Volvo trucks.

**Recommendation 5:**

Finally, we ask that DME be included as a line item in Table 16 in Chapter 7 "Funding Allocations." The Report singles out Electric, Hydrogen, and Natural Gas. We respectfully ask that DME be included for specific funding as well. As noted above, Volvo DME trucks will be commercial in 2015; therefore, commercialization of DME is imminent. Additionally, Oberon Fuels has submitted biogas to DME pathways to the EPA for consideration under the Renewable Fuel Standard to receive RIN credits. Any assistance by the CEC will only allow us to move more quickly to provide this clean burning diesel alternative, which can be made from a bio-based feedstock (biogas), for the market.

Oberon Fuels appreciates the opportunity to offer these comments and suggestions.

Sincerely,  
*Brittany Applestein Syz*  
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Vice President of Business Development & General Counsel  
Oberon Fuels, Inc.