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California Energy Commission

DOCKETED

13-IEP-1A

TN 72286

OCT 29 2013

Re: 2013 Integrated Energy Policy Report

To Whom it May Concern:

Oberon Fuels, a California company, respectfully submits these comments in response to the California Energy Commissions' October 2013 Integrated Energy Policy 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, and 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 that is competitive with that of diesel.

DME can be produced from both natural gas and biogas. Oberon Fuel's DME plants run most efficiently with CO₂ in the feedstock. Therefore, DME can be made from feedstocks such as landfill gas, wastewater treatment facility gas, and digester gas (animal waste and food waste), which contain both CO₂ and methane. Since our plants can utilize the CO₂ in the process and 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 biogas 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 for Safeway to test drive to Volvo trucks running typical routes for six months in 2014.

Recommendation 1:

We ask that the Energy Commission include DME in the "Biofuels Production" section of the report (page 62). The last sentence of the first paragraph of that section discusses "other fuels," such as biomethane, drop in hydrocarbons, and renewable hydrogen as fuels that are being developed in California. DME is also currently being produced in California (see above—at our Brawley, CA plant) and Oberon is currently navigating the Tier 1 Multimedia review performed by CARB for fuel certification. Additionally, Oberon has submitted concurrent subcommittee and committee ballots for an ASTM specification for DME as a





fuel. The production and use of DME has surpassed the research phase, and is not solidly in the development phase, soon to be in commercialization production (2015).

We also ask that the IEPR include a paragraph about DME on page 66, after the paragraph about hydrogen fuel testing and before the section titled, "New Developments." DME is currently being produced and tested in the United States, and we believe that it is not far behind other technologies mentioned in this section. Additionally, we have received public support in the form of a large grant from San Joaquin Valley Air Pollution Control District. Therefore, we respectfully ask that a paragraph that discusses the following be added to this section:

The use of DME as a diesel alternative for heavy-duty trucks is currently being tested in the United States. In 2013, Oberon Fuels, a California company, was awarded a \$500,000 grant from the San Joaquin Valley Air Pollution Control District to partner with Volvo Trucks and Safeway, Inc. to demonstrate DME trucks in the San Joaquin Valley area. This grant, which was also partially funded by the EPA, will enable two Volvo DME trucks to be employed by Safeway, Inc. in its commercial distribution operations. These trucks will be powered by DME produced by Oberon Fuels at its Imperial Valley plant.

Finally, we ask that you include DME on page 71 under "Recommendations: Biofuels." The report specifically states that the Energy Commission should continue its R&D for "algal and other advance biodiesel fuels." DME should be included for the following reasons:

- **R&D:** DME is currently being produced at Oberon's plant in Brawley, CA.
- **Certification/Regulatory:** Oberon has engaged CARB in the multimedia assessment process as well as in the advanced stages of ASTM specification development (concurrent subcommittee and committee ballots for an ASTM specification for DME as a fuel close on November 4, 2013). In regards to the LCFS, Oberon is in the process of developing a bio-DME pathway for submittal to State of California in order to receive LCFS credits. The anticipated completion date is Q3 2014.
- **Additional Plants Coming Online:** Two additional plants have been commissioned and are currently being built.
- **Test Trucks on the Road:** There are three test trucks in Texas.
- **Test Trucks are Being Built to Deploy in mid-2014:** Two Volvo, DME-powered trucks will be on the road in 2014 and employed by Safeway in commercial operations.
- **Commercialization of Vehicles 2015:** Volvo Trucks and Mack Trucks announced that DME-powered, heavy-duty trucks will be commercialized in 2015.



The timeline for DME production and DME trucks coming to market is short, and we believe that DME is an excellent biofuel that will enable California to reduce emissions and improve air quality.

Recommendation 2:

We ask that the Energy Commission continue to evaluate Assembly Bill 1900 to find ways to ease restrictions on putting biogas into the pipeline. If the restrictions were eased, landfill gas could be scrubbed to pipeline quality and injected into the pipeline for use in DME production. This solves two problems: 1) flaring of landfill gas into the atmosphere, and 2) producing DME from a wasted renewable source.

Recommendation 3:

As a general comment, we ask that you consider including DME in Chapter 8: Transportation Energy because DME is a clean burning diesel alternative for the heavy-duty trucking industry. The report states that diesel-fueled trucks are “responsible for a disproportionately large amount of fuel consumption and vehicle emissions.” Because DME does not produce particulate matter or SO_x, use of DME in heavy-duty trucks will help reduce emissions.

In particular, we ask that you include DME on page 179, bullet point two, of the section titled “Program Impacts and Changes to California’s Alternative Fueling Infrastructure, Vehicle Fleets and Biofuels Industry: 2008-2013.” The bullet point discusses the Energy Commission’s activity in regards to the ARFVT Program. While DME has not yet received any funds from this program, we respectfully ask that DME be included as another option for investment of these funds in the future, along with the funds already allocated to natural gas.

We also ask that on page 182, in the “Trends” section, that the paragraph that starts with “Trends show increases in other transportation Fuels,” DME be discussed as an additional option to address goods movement growth. DME is clean burning and can be used in similar applications as natural gas or renewable diesel.

We ask that DME be included in the last paragraph on page 182 where liquid biofuels are listed. The paragraph lists B100, 100% biodiesel and renewable diesel. DME could also be added to this list as it is an alternative fuel that replaces diesel.

On page 191, we ask that you include DME in the section titled “Diesel Substitutes (biodiesel and Renewable Diesel).” Not only can DME be made from a bio-based feedstock (biogas), it is made domestically, so unlike renewable diesel, it does not need to be imported. Additionally, Oberon Fuels has submitted biogas to DME pathways to the EPA for consideration under the Renewable Fuel Standard to receive RIN credits.





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We believe that DME offers a solution to the problem highlighted on page 200 in the section titled, "Limited number of natural gas vehicle models." This section states that only one major engine manufacturer produces a natural gas engine for trucks. DME, which can be made from either biogas or natural gas, will add to the supply of clean burning fuels that are made from natural gas. Additionally, as mentioned above, Volvo will be making a DME engine for commercial use in mid-2015.

Finally, we ask that under "Recommendations" (page 201) you add DME to the bolded title in bullet point #4--"Develop a multi-year strategy to fund electric, hydrogen, and natural gas vehicle rebates." By adding DME vehicles to this list, the DME market will be encouraged to grow more quickly as early adopters have an incentive to invest in this new clean burning technology.

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

Sincerely,

Brittany Applestein Syz

Vice President of Business Development & General Counsel
Oberon Fuels, Inc.

