

## ***Assessment of Critical Barriers and Opportunities to Accelerate Biofuels and Biomethane as Transportation Fuels in California***

### **Agenda & Attendees**

**September 17, 2015**

9:00 am - 5:00 pm

1605 Tilia Street, Davis, CA 95616

Institute of Transportation Studies, UC Davis-West Village

The California Energy Commission (CEC) and UC Davis Institute of Transportation Studies (ITS-Davis) will conduct joint workshops on September 17-18, 2015 to seek and discuss insights on the growth of biofuels and biomethane in California, progress achieved to date, critical barriers, and requirements needed to boost commercialization. The workshops will be held at the UC Davis on Sept. 17 and at the CEC on Sept. 18.

#### **Objective - Sept. 17 Workshop**

This workshop invites industry participants to estimate the growth of biofuels and biomethane in California, highlight critical barriers, and recommend actions to maximize and accelerate commercialization.

#### **Agenda - Sept. 17 Workshop**

8:45 – 9:00am	<b>Registration &amp; Coffee</b>
9:00 – 9:10	<b>Welcome and Introduction</b> ( <i>Janea Scott</i> , Commissioner, California Energy Commission; <i>Paul Gruber</i> , STEPS Executive Director, UC Davis) Welcome, project objectives, overview of the day
9:05 – 10:35	<b>Session 1: Biofuel and Biomethane Transportation Fuels - Setting the Stage</b> Present information and elicit feedback on the amount of liquid biofuels and biomethane that are projected to be consumed and produced in California in five year increments for the short, mid and long term by 2030. Obtain insights about the existing and projected potential to help fulfill the AB 32 greenhouse emission reduction goals and the 2030 proposed 50% petroleum reduction goals.  Presentations – 9:05 am to 9:50 am: <ul style="list-style-type: none"> <li>• Russ Teall, President, California Biodiesel Alliance – Prospects for Biodiesel</li> <li>• Jeff Reed, Southern California Gas Company – Potential Development of</li> </ul>

	<p>Biomethane as a Transportation Fuel and Clean Up and Injection into Natural Gas Pipelines</p> <ul style="list-style-type: none"> <li>• Reinhard Seiser, UC San Diego – Prospects for the development of drop-in liquid biofuels (especially gasoline) from sustainable feedstocks</li> </ul> <p>Responses and Group Discussion – 9:50 am to 10:35 am:</p> <ul style="list-style-type: none"> <li>• Steve Kaffka, UC Davis and Biomass Collaborative</li> <li>• Anil Prabhu, California Air Resources Board</li> <li>• Tom Fulks, Diesel Technology Forum, MightyComm</li> <li>• Marshall Miller, UC Davis</li> </ul>
<p>10:35 – 12:30</p>	<p><b>Session 2: Critical Barriers Impeding the Development and Commercialization of Liquid Biofuels and Biomethane.</b></p> <p>Present information from industry surveys and meetings and obtain feedback to assess barriers that inhibit increasing the supply of various types of biofuels – technology, capital investment, achieving cost/price stability of the feedstock and resultant biofuels, government regulations, and customer acceptance.</p> <p>Presentations – 10:35 am to 11:15 am</p> <ul style="list-style-type: none"> <li>• Ethan Elkind, UC Berkeley and UCLA Law Schools – Boosting California Biofuels: Critical Barriers and Recommended Actions</li> <li>• Evan Williams, Executive Director, Renewable Natural Gas Coalition – Critical Barriers Impeding Biomethane as a Transportation Fuel</li> </ul> <p>Responses and Group Discussion – 11:15 am to 12:30 pm</p> <ul style="list-style-type: none"> <li>• Andy Foster, Aemetis, Inc.</li> <li>• Evan Edgar, Edgar and Associates</li> </ul>
<p>12:30 – 1:30</p>	<p>Lunch</p>
<p>1:30 – 4:30</p>	<p><b>Session 3: Ideas and solutions to overcome the barriers for each of the biofuels.</b></p> <p>With the aid of a moderator/facilitator, the following topics will be discussed. In addition, stakeholders in the audience will contribute their ideas based on their experience in developing various biofuel technologies.</p> <p>Topics to be discussed by invited experts and commented on by workshop attendees:</p> <p>a. The necessity to maintain continuity and certainty of regulations, incentives and other government activities.  <i>Discussants: Michele Wong, CleanWorld; Joe Gershen, California Biodiesel Alliance</i></p>

	<p>b. Combinations of incentives to maximize and accelerate commercialization and reflect evolving technology, project size and feedstock flexibility.  <i>Discussants: Lyle Schlyer, Pixley Biogas; Dayne Delahoussaye, Neste Oil; Harry Simpson, Crimson Renewable Energy</i></p> <p>c. The support and facilitation of the development of key business factors and models to increase industry capacity, price affordability for customers and attraction of private investment.  <i>Discussants: Diane Cummings, CA Infrastructure &amp; Economic Development Bank; Tim Olson, CA Energy Commission</i></p> <p>d. Exploration of methods to stabilize availability and acquisition of low carbon intensity feedstocks and longer term offtaker agreements.  <i>Discussants: Paul Relis, CR&amp;R Incorporated; Tom Koehler, Pacific Ethanol</i></p> <p>e. The stimulation and acceleration of technology using cellulosic feedstocks and other advanced technologies.  <i>Discussants: Corinne Drennan, Pacific Northwest National Lab; Jim Boyd, Boyd Consulting; Dan Goodwin, Oberon</i></p> <p>f. Approaches to increase customer demand for biofuels and biomethane fuels and enhance investment in fueling systems, infrastructure, vehicle cost reductions and retail exposure to customers.  <i>Discussants: Tim Carmichael, CA NG Vehicle Coalition; Graham Noyes, Keyes Fox Weidman LLP; Mike Lewis, Pearson Fuels</i></p>
4:30 – 5:00	<b>Wrap-up and next steps</b>
5:00 – 7:00	Reception

**Registrants**

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## **Sustainable Transportation Energy Pathways Program (STEPS)**

[www.steps.ucdavis.edu](http://www.steps.ucdavis.edu)

STEPS is the major multidisciplinary research consortium within the Institute of Transportation Studies at the University of California, Davis. The consortium is comprised of 40+ PhD-level faculty and researchers and graduate students from UC Davis, 20+ industry and governmental partners, and 20+ outside expert organizations. Our mission encompasses research, outreach, and education:

- generate new insights and tools to understand the transitions to a sustainable transportation energy future for California, the US and the world,
- disseminate valued knowledge and tools to industry, government, the environmental NGO community, and the general public to enhance societal, investment, and policy decision making,
- train the next generation of transportation and energy leaders and experts.

The STEPS 2015-2018 program is generously supported by these sponsors:

- Auto: BMW, Cummins, Daimler, Fiat Chrysler, Ford, GM, Honda, Renault, Toyota, Volkswagen, Westport
- Energy: Aramco, Chevron, Centre for High Technology (India), Shell, San Diego Gas & Electric/SoCal Gas Co., Sinopec
- Government: California Air Resources Board, Caltrans, South Coast AQMD, U.S. DOE, U.S. DOT, U.S. EPA
- NGO: FIA Foundation

STEPS has initiated a 2015-2018 research program. The main program areas and overarching research questions are:

- **Initiating Transitions 2015-2030:** What is required for early alternative fuel/vehicle transitions to succeed?
- **The Future of the Fuels and the Oil & Gas Industry:** How will changing geopolitical landscapes and disruptive technology in the oil and gas and clean technology industry impact future business models and the competition of fuels?
- **Global Urban Sustainable Transport (GUSTo):** How will a rapidly urbanizing world affect demand for transport and energy? How can we transition to sustainable transportation in a rapidly urbanizing world with ever-growing need for mobility?
- **Modeling Analysis, Verification, Regulatory and International Comparisons (MAVRIC):** What do improved and cross-compared economic/environmental/transportation/energy models tell us about the future of sustainable transportation?