

WGA BIODIESEL TEAM REPORT

PUBLIC COMMENTS

Neville Fernandes, *Neste Oil*

Page 2, Executive Summary:

1. Life cycle analysis for renewable diesel has been conducted, and I have attached here one such study commissioned by Neste and conducted by the Institute for Energy and Environmental Research (IFEU Germany).
2. Report states "biodiesel may provide support to rural economies". Suggest that this should be changed to "both biodiesel and renewable diesel provide support to rural economies."

Page 4, Introduction, Renewable Diesel

3. Comment: Because renewable diesel meets all the requirements of ASTM D-975 (fossil diesel standard), it could be used in diesel engines without any concentration limit (unlike biodiesel ester). Another conclusion: every diesel vehicle is a "flexible fuel vehicle".
4. In the Technology Section (starting at Page 6), there should be a distinction between (i) "Co-Processing" renewable diesel production; and (ii) "Stand-Alone" renewable diesel production. This is an important distinction for many reasons.
 - a) "Co-processing" is where renewable feedstock (fats and oils) is co-mingled with a distillate stream and fed as input to an existing hydrotreater at an oil refinery. There is no new plant that is built. The renewable diesel product from the unit is already diluted with petroleum diesel (at a blend at about 5% depending on the input stream). There is no way to get 100% renewable diesel by this method. This is the method used by Conoco-Phillips, B-P, and Petrobras. Figure 2: Schematic Diagram of Renewable Diesel Hydrotreating Process on Page 7 shows the co-processing method of renewable diesel production
 - b) Stand-Alone renewable diesel production requires new plants to be built - i.e. new production capacity. Existing refinery equipment cannot be used. Fossil diesel is not introduced into the hydrogenation (or more accurately the hydrodeoxygenation) process, and 100% renewable diesel is produced. This may then be blended with petroleum diesel (on-site or at customers' facilities) to make various blends. Neste Oil and UOP have stand-alone renewable diesel technology, and Neste Oil has completed its first plant at

Porvoo, Finland. Suggest also including a Figure 3: Renewable Diesel Stand-Alone process (similar to "co-processing", but without the petroleum diesel stream).

The Energy Bill proposed by the US House would eliminate the renewable diesel tax credit for renewable diesel produced by "co-processing", but not for "stand-alone" plants. (You may wish to mention this as a footnote to your comments on page 16).

Jack Whittier, *Mcneiltech*

My concern is the omission of bio-oils, produced via fast pyrolysis. I have read both the biodiesel report and the biofuels report and only find pyrolysis mentioned once, in Appendix A of the biofuels report. Others have taken a look at the potential for bio-oil (see for example, "American Energy Security Study" published by the Southern States Energy Board, <http://www.sseb.org/AES/AES.htm>) and found bio-oil to have considerable promise. For WGA states bio-oil has far greater market potential than biodiesel because the feedstock base is much greater. Bio-oil may be produced from all biomass feedstocks whereas biodiesel (a great fuel) is limited by definition to certain feedstocks. Indeed bio-oil may have a greater market potential than ethanol because of the fuel's applicability to critical national infrastructure, specifically diesel engines used in barges, trucks, trains and farming. Also, the co-product char has considerable potential as a fertilizer carrier.

Bio-oil development needs the support of organizations such as WGA. There are clear pathways for technology and market development that require the concerted effort of multiple players in the energy arena. Biodiesel development over the past 15-20 years provides a good template. We can learn from the biodiesel industry and apply the lessons to the bio-oil sector.

I have performed several studies for bio-oil development for our clients. I believe I have a good grasp of the technology, markets, and economics. As appropriate, please let me know if you would like further information.

WGA ELECTRIC TEAM REPORT PUBLIC COMMENTS

Luke Langston, *Xcel Energy* –

Electric Fueled vehicles have the additional benefit of returning unused electricity to the utility grid, supporting grid stability and emissions levelization. These vehicles may eventually serve the owner as an additional revenue stream or be used to help manage their household energy use and resulting carbon footprint.

Felix Oduyemi, *Southern California Edison*
Dave Modisette, *California Electric Transportation Coalition*

I actually thought the report was pretty good. There is a lot of good info in a relatively compact package.

See Recommendations #4 and maybe #3 from attached document "Top 6 Priority Recommendations for Fuel Electricity" that CalETC sent to the CEC. Or maybe use all 6? Or just re-word some of the recommendations to be less CA-specific and more regional or national in nature.

Other minor comments:

1. Advanced battery timeline seems long; looks like 2013 for "Prototype Quantity in Operation". We made a similar comment to the CEC, we could just use that response for the WGA as well.
2. A lot of discussion about GREET. However, they do identify some of the shortcomings of GREET. And they talk about how the CEC modified GREET for its analysis. So maybe this is OK. Maybe we just want to comment that the CEC has made the modified GREET publicly available, so that everyone can see the revisions and use this version of the model.

Suggested additions: under "V: Suggested State, Regional and Federal Actions..."

Near Term:

- Implement the President's Executive Order requiring procurement of clean transportation technologies in federal fleets. Adopt similar Exec Orders for state fleets in order to reduce petroleum consumption, criterion pollutants and greenhouse gas emissions, while also considering fuel and maintenance savings in

the process. This will help to provide market certainty to manufacturers and promote technology demonstration.

- Each State should establish a coalition of utilities, original equipment manufacturers and other industry leaders seeking to expand the research, development, deployment and commercialization of PHEVs and other battery electric vehicles. These coalitions can sponsor relevant research, legislative and regulatory initiatives to facilitate market penetration of PHEVs.

- Encourage or require utilities to propose and utility governing bodies to approve:
 - Off-peak rates and interruptible programs for electric transportation
 - Programs that link electric transportation to renewable energy, energy efficiency, demand response and advanced meters.
 - Utility electric transportation departments including an expanded role for utilities to assist customers in reducing petroleum, greenhouse gases, and air pollution by switching to electric transportation (e.g., education programs, assistance in filling out grant and loan applications, etc).
 - Support electricity as a low-carbon fuel by allowing low carbon fuel providers to earn GHG credits and not create disincentives by counting electric transportation emissions against electric providers.

- Create deployment incentives (grants, loans, loan guarantees or tax credits) for deployment of electrified goods movement.
- Identify and remove barriers to deployment of electrified goods movement.