



Western States Petroleum Association
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Joe Sparano
President

July 21, 2008

California Energy Commission
Dockets Office, MS-4
Re: Docket No. 08-OIR-1
1516 Ninth Street,
Sacramento, CA 95814-5512

08-ALT-1

DOCKET 08-OIR-1
DATE JUL 21 2008
RECD. JUL 21 2008

Re. Proposed Adoption of Regulations for the Administration of the Alternative and Renewable Fuel and Vehicle Technology Program
Docket 08-OIR-1

On behalf of the Western States Petroleum Association (WSPA), we appreciate this opportunity to comment on the documents released by the Commission as part of the July 8 Committee Workshop and July 9 Advisory Committee meeting.

WSPA is a nonprofit trade association representing 26 companies that explore for, produce, transport, refine and market petroleum, petroleum products and natural gas, as well as other energy products in California and five other western states.

Overall, we have serious concerns about the proposed adoption of these regulations. To highlight and potentially address these concerns, we offer the following comments and recommendations.

Regulation Scoping Paper

Full Fuel Cycle Assessment

Based on the Scoping Paper and discussions with CEC Staff it appears the Commission is not planning on including direct and indirect land use change (LUC) factors in the full fuel cycle assessment for the implementation of the program at this point in time.

One of the reasons provided for this omission is that CA-GREET does not yet include LUC factors. Although the CEC has a multi-year contract in place to update the AB1007 GREET model to include these factors, it will not be completed in time for the initiation of this AB118 program.

Another reason provided is that LUC is currently not at the stage of scientific consensus - enough at least for the CEC to feel comfortable inserting LUC factors now.

In addition, the Scoping Paper states that AB109 and SB1240 contain language that would expand the full fuel cycle assessment definition to include activities such as “feedstock cultivation, fuel manufacturing and marketing, transportation and use of water and changes in land use and land cover.” Therefore, the clear intent of CEC is to hold off until some future time when additional factors will be raised for inclusion.

WSPA strongly recommends that the Commission include land use change factors in the AB118 program’s full fuel cycle analysis. Consistent with our position during the ARB’s LCFS workshops, our industry wants the state to avoid misdirecting resources at fuel technologies that may possibly not achieve the carbon intensity goals, and may also worsen the overall global warming situation. In addition, the Commission might want to consider directing some of the program resources to projects that have no or limited land use change impacts, compared with others that do.

This outcome is possible if the state encourages the use of certain fuels that are carbon intensive if the land use change factor is incorporated in the analysis.

We recognize the science will always be better in the future, and stand ready to assist with the development of that science. However, we believe the state needs to avoid a situation where certain fuels are allowed and promoted in the near-term and then found to have been detrimental after several years more study on all of the full fuel cycle factors.

We have made additional comments on this issue under the Sustainability section.

Fuel and Technology Definitions

The last paragraph of this section says the statute refers to projects that will develop, demonstrate and deploy advanced fuels and technologies. It goes on to say staff believes eligibility should extend to projects that would produce or manufacture these fuels and technologies in California.

WSPA believes this is an inappropriate expansion of legislative intent, and may have unintended negative consequences. We believe the state should not be in the business of providing funds directly to the production or manufacture of certain fuels and vehicles, thus picking winners and losers. Rather, the funds should be provided for projects that will develop, demonstrate and deploy the environmental improvements intended in the program design. The focus should be on clear and defined end-points for technological innovation. Once a fuel or vehicle technology has been proven to work, incentives need to be removed. In addition, we would not support the funding of a multitude of very similar demonstration projects, with the objective being to show that a certain technology works.

Revenue Streams

None of the petroleum industry companies or organizations is listed in the potential funding sources section. There is a great deal of emphasis in both this section and the Investment Plan on leveraging and maximizing the available state funds through matching and private-public partnerships.

WSPA believes it is unacceptable that the CEC has omitted our industry in the list of potential partners, since it is well recognized that the petroleum industry is likely to have significant resources available for the development of advanced technology fuels. By including our industry, the state would be able to maximize its funds and increase the likelihood that future low carbon, cleaner transportation fuels will be realized.

WSPA requests that the CEC add the petroleum industry to the list of potential funding sources.

Existing Law, Rules, and Regulations

Under the “Rationale” section the Scoping Plan states, “...obligated entities are ineligible for AB118 funding for projects that they are required to carry out under existing law. Examples of relevant existing rules and regulations include the LCFS, the ZEV mandate, and regional air district programs...”

“The LCFS is intended to regulate refiners, importers, and marketers of transportation fuels. These entities will be ineligible for AB118 funding for projects that are required for LCFS compliance. The Energy Commission however, has latitude to fund projects that are upstream of the LCFS regulation (such as alternative fuel producers) and downstream of the LCFS regulation (for example, alternative fuel retailers or alternative fuel consumers).”

While WSPA acknowledges the Commission’s desire to restrict funding to those entities that aren’t required by law to already perform a certain act, we do not agree with the explanation provided in the Scoping Plan relative to the LCFS. The LCFS, although it will become an ARB regulation in several months, is unlike a traditional regulation where a specific type of fuel, fuel reformulation, or set of graduated standards is specified.

Instead, since the LCFS is a carbon intensity reduction target, there is no specific fuel or standards but rather a recognition that significant technology innovation will be required in order to bring online one or more new fuels to reduce the impacts of climate change. It is this innovative fuel advancement activity that is perfectly matched with the intent of the AB118 funds.

In addition, we do not see the logic of the statements in italics above. The text states the LCFS is intended to regulate refiners, importers, and marketers, but then goes on to say the CEC can fund alternative fuel producers and alternative fuel retailers.

Both of the latter entities can be defined as refiners and marketers. We take exception to the obvious attempt to exclude petroleum refiners (even though in many cases the petroleum refiners will likely also be alternative fuel producers), and the petroleum marketers (even though in many cases they will also likely be alternative fuel retailers).

WSPA requests that the LCFS be deleted from this section and be recognized as a viable candidate for AB118 funds. Please also see our comments under the Investment Plan section.

Investment Plan

Further to the comments above, WSPA finds it interesting that a list on page 1 of the Investment Plan contains activities and projects that, by virtue of the legislation, are claimed to be eligible for funding under the Program. There is no mention of a prohibition of any funds being directed to the petroleum industry in order to carry out the activities in the list.

On page 2 the Investment Plan states, “The legislation allows the Energy Commission to use grants, loans, loan guarantees, revolving loans, and other appropriate measures and provide funding to a broad suite of entities...” As mentioned above, the Plan emphasizes partnerships and leveraging of funds to maximize the impact.

In addition, on page 9 under “Building on Existing Investments” it states the plan can and should allocate funds to existing assets such as infrastructure for natural gas and propane – both petroleum products.

The Investment Plan doesn’t explicitly say the petroleum industry is excluded from being a participant in the AB118 Plan. However, the tenor during the July 9 meeting seemed to presuppose our industry would be excluded.

As stated above, the reality is our industry will likely have potentially significant matching funds to provide which would lead to better advancements in the alternative fuel arena. We believe the state should reassess its stance on this issue, or face considering petroleum industry alternative fuel projects submitted for AB118 funding via academic institutions or other entities with which we’ve partnered.

Table 3: Recommended Funding Areas for the First and Second Years

On page 13, under the Second Year Recommendations “Fuel” column, the first entry bullet is “Create an ‘Alternative and Renewable Fuel Reserve’ to help stabilize supply and prices.” During the July 9 meeting and subsequent discussion with CEC staff, it appears this bullet is not meant to be a normal fuel reserve.

The proposal is to create a paper reserve administered by CEC, and the intent is to make it analogous to the California Methanol Demonstration program. Further details of what this proposed fuel reserve would look like and how it would operate are needed before WSPA can provide comments; however, on the surface it does not appear to be something we would support.

Compliance & Enforcement

The Commission needs to ensure there are compliance and enforcement requirements for those parties receiving funds. The program needs to be audited and annual reports given by recipients to the CEC (similar to the MSRC program at the SCAQMD). The CEC needs to publish its own annual reports on the results of the audits and the progress of the program, that allows public and legislative review and comment on the report.

In terms of any fuel-related projects to be funded under AB118's program, we recommend for currently known fuels the CEC wants to deploy, that compliance with all applicable laws and regulations regarding fuel specifications and standards be required in order to ensure compliant fuel. In cases where the state does not have specifications/standards for a fuel, the applicant must specify the properties of the fuel they are receiving funding for. An applicant should not be provided funding if they have, or subsequently obtain, any state waivers from ASTM standards.

Existing Public and Private Investments

Although this section is currently under construction, WSPA has attached a recent paper that collates a number of alternative and renewable fuel projects in which our industry is engaged.

Regulatory Concepts on Sustainability Goals

On page 2, under Staff Goals for an AB118 Sustainability Program, there is a bullet which states, "Continue to understand and incorporate new information on indirect land use changes and fuel versus food issues." In relation to our statements under Full Fuel Cycle Assessment above, WSPA reiterates the importance of incorporating land use change factors both now as well as in the future in order to assure the new fuels will be sustainable. They should not "carry the risk of encouraging or promoting environmentally and socially destructive production practices..." as stated in the lead preamble.

If you have any questions, please feel free to contact me at this office.

Sincerely,



c.c. James Boyd, Presiding Member of the Transportation Committee - CEC
Karen Douglas, Associate Member of the Transportation Committee - CEC
Peter Ward, AB118 Project Manager - CEC
Aleecia Macias, Emerging Fuels and Technology Office – CEC
Bob Fletcher, Stationary Source Division - CARB



ALTERNATIVE TRANSPORTATION FUELS AND ENERGY EFFICIENCY



Western States Petroleum Association

March, 2008

PETROLEUM COMPANIES - ALTERNATIVE TRANSPORTATION FUELS AND ENERGY EFFICIENCY

Future energy demand will make it likely, if not certain, that petroleum-based energy supplies will continue to play an important role for many decades. Nevertheless, WSPA companies recognize that alternative sources of energy are a growing part of the world energy mix. They are investing dollars and manpower to help make that happen.

Much of their current activity is directed towards stationary power generation – such as the development of new, more efficient and/or cleaner ways to generate electricity (e.g., solar, wind, geothermal). This report focuses on the petroleum industry's work on the development and commercialization of alternative transportation fuels. Many WSPA companies have created and staffed new organizations to spearhead these efforts. There are a few areas of special emphasis: hydrogen, biofuels, research, and energy efficiency.

HYDROGEN

Some consider hydrogen an ideal future transportation fuel. It can be used to power conventional, internal combustion engines, promising water as the only vehicle emission. But, its use in fuel-cell powered electric vehicles promises to be much more efficient. Two disadvantages are that hydrogen is difficult to distribute from a centralized production facility, and it is difficult to store, especially on-board a vehicle.

Many WSPA company efforts involve participating in programs to evaluate the viability of fuel-cell powered vehicles. Some companies provide refueling stations where hydrogen is produced from natural gas on-site, often using technology developed in-house. Some company projects involve technology to produce hydrogen from liquid fuels on board the vehicle itself.

Shell has built hydrogen refueling infrastructure for fuel-cell powered vehicle demonstration projects in Washington DC, Amsterdam, Reykjavik, Tokyo, Shanghai, New York, and California.


Shell also recently announced a 5-year agreement with Virent Energy Systems Inc. to further develop and commercialize Virent's BioForming technology for renewable hydrogen production. Joint development will be targeted for fueling station applications at Virent's facilities in Madison, Wisconsin and at the Shell Westhollow Technology Center in Houston, Texas.

BP has partnered with Ford, General Motors, and Daimler Chrysler to provide hydrogen for fuel-cell powered demonstration vehicles in London, Barcelona, Oporto, Sydney, Beijing, Michigan, Florida, and California. They also plan to provide hydrogen refueling facilities for fuel cell buses operating in public service in the cities of London, Hamburg, Barcelona, Oporto, and Perth.

BP also has a joint project with BMW to demonstrate the use of hydrogen in specially modified internal combustion engines.

Chevron is currently operating five hydrogen demonstration refueling stations across the U.S.; three stations in California, one in Michigan, and one in Florida. Each is demonstrating and evaluating a different technology for on-site production of hydrogen.

- Two of the California stations are located in Southern California and were designed to support a fleet of Hyundai-Kia fuel cell vehicles.
- In Northern California, Chevron has built a prototype hydrogen refueling station as part of the Bay Area HyRoad project. The station will provide fuel for small fleets of fuel-cell powered buses and automobiles operated by the Alameda-Contra Costa Transit District (AC Transit).
- In Florida, Chevron is collaborating with Ford and the State of Florida on the evaluation of hydrogen-fueled internal combustion engine buses.
- In Michigan, Chevron is collaborating with the Air National Guard to demonstrate and evaluate Chevron's advanced steam methane reforming and pressure swing adsorption technologies to convert natural gas into purified hydrogen.

 As part of a collaboration with the U.S. Department of Energy, Chevron has partnered with the Gas Technology Institute on a pilot-scale partial oxidation gas turbine project to evaluate the simultaneous production of hydrogen and power.

ExxonMobil is active in the Department of Energy's Freedom Car and Fuel Partnership activities. The company has also announced that it is carrying out R&D on a new process for generating hydrogen from hydrocarbon fuels. If successful, they believe it could impact future use of fuel-cell powered vehicles via improved ways to generate hydrogen, either at retail refueling stations or on-board the vehicle.

ConocoPhillips is working with a number of California companies to develop a hydrogen refueling infrastructure in the state. The company plans to test several approaches for producing hydrogen and providing infrastructure at twenty-four refueling stations throughout the state.

Several WSPA member companies, including BP, Chevron, and Shell are also members of the California Fuel Cell Partnership, a private-public consortium targeted at addressing the technological challenges that are presented by hydrogen fuel cells when used as transportation power sources.

ETHANOL

Many petroleum companies are blending more and more ethanol into gasoline. Some are also investing to reduce the cost and increase the benefits of ethanol production, and to investigate its more widespread use in gasoline.

BP, for example, is partnered with Dupont and Associated British Foods to construct a world-scale bioethanol plant in Hull, England. The plant will use locally grown wheat as feedstock.

Shell is investing in new methods of producing ethanol through the use of 2nd generation enzymatic technology for converting cellulose into sugars which can then be fermented into ethanol. They and their partner Iogen Energy are at present operating a pilot plant in Ottawa, Canada, with plans to build the first commercial plant in Canada.

Shell and Iogen Energy are also working with Volkswagen to assess the economic feasibility of building a commercial cellulosic ethanol facility in Germany.

ConocoPhillips is conducting R&D on the production of ethanol from coal via intermediate synthesis gas produced using ConocoPhillips' EGAS technology. That work is being done in collaboration with the Department of Energy, Oak Ridge National Laboratory, and the universities of Louisiana State and Clemson.

Chevron collaborated with the state of California, General Motors, and Pacific Ethanol to evaluate the use of E-85 as a vehicle fuel. Over a one-year period, Chevron provided E-85 (a mixture containing 85% ethanol and 15% gasoline) at two refueling sites to refuel a fleet of 50-100 vehicles owned by the state of California.

BIODIESEL

In 2006, ConocoPhillips began commercial production (1000 bpd) of biodiesel produced from soybean oil at their Whitegate refinery in Cork, Ireland. They have also formed a strategic alliance with Tyson Foods to produce in their refineries and market next-generation biodiesel, or renewable diesel, derived from processed animal fats.

BP has announced that its Bulwer refinery in Queensland, Australia will produce commercial quantities of biodiesel from tallow feedstock.

Shell has partnered with CHOREN Industries in the development of a new process for producing diesel fuel from wood chips, straw, and other sources of biomass. The biomass is first used to produce synthesis gas, which is then converted to biodiesel using Shell's GTL process for converting gas to liquids. Following successful pilot production, CHOREN industries is building a demonstration plant and planning a commercial plant.

OTHER BIOFUELS

BP has entered an alliance with Dupont to commercialize the production of biobutanol for use as a gasoline component. The partners will begin infrastructure and vehicle testing this year.

In June of this year, BP announced the formation of a 50/50 joint venture with D1 Oils to accelerate the development of Jatropha plantations in South East Asia, Southern Africa, India, as well as Central and South America. Jatropha is an inedible, oil-bearing crop that can be grown successfully on marginal land, unsuitable for food crops. Jatropha oil produced from the plantations will be used to meet local biodiesel requirements and for export to European markets.

Previously, BP had announced that it was funding studies in India to explore using products derived from Jatropha as components of biofuels.

Chevron has entered into a partnership with the National Renewable Energy Laboratory (NREL) to explore the production of liquid fuels from algae.

In February 2008, Chevron and the Weyerhaeuser Company created a 50-50 joint venture company that will focus on developing the next generation of renewable transportation fuels from nonfood sources. The joint venture, Catchlight Energy LLC, will research and develop technology for converting cellulose-based biomass into economical, low-carbon biofuels. The formation of Catchlight Energy is the first milestone of a biofuels alliance announced by

Chevron and Weyerhaeuser in April 2007, and reflects the companies' shared view that nonfood biofuels will play an important role in diversifying the nation's energy supply.

ConocoPhillips and Archer Daniels Midland Company have announced they will collaborate on developing renewable transportation fuels from biomass. The alliance will research and seek to commercialize the conversion of crops, wood or switchgrass into biocrude, which would then be converted into fuels.

UNIVERSITY RESEARCH

The biofuel production technologies in widest use today require feedstocks that are also food crops (e.g., corn, sugar cane and soybeans). These feedstocks may be comparatively expensive and their use sets up competition between the food and energy markets for the same agricultural resources.

Economic processes able to produce biofuels from cellulose (biomass) on a commercial scale would be a major step forward. Scientific breakthroughs are needed to make this a reality. For this reason, a substantial part of petroleum industry attention is focused on appropriate University R&D. Examples include the items below.

BP founded the BP Energy Biosciences Institute combining the efforts of UC Berkeley, the Lawrence Berkeley National Laboratory, and the University of Illinois. Funding is expected to be in the hundreds of millions of dollars, and up to fifty BP scientific staff will locate at the two university campuses.

BP is also helping fund unique research at Arizona State University which is aimed at producing biofuels from containers filled with bacteria.

ExxonMobil founded the Global Climate and Energy Project at Stanford University in 2002. Funding is also expected to be in the hundreds of millions of dollars.

ConocoPhillips began an 8-year program at Iowa State University to develop new biofuel technologies. They are focusing on converting biomass to oil through pyrolysis, a process that uses heat in the absence of oxygen to decompose biomass into a liquid product. This "bio-oil" can be converted to transportation fuels at petroleum refineries.

ConocoPhillips and the US DOE are co-funding a \$2.9 million research effort on the conversion of coal-derived synthesis gas to ethanol. The research involves the universities of Clemson and Louisiana State, as well

as the Oak Ridge National Laboratory. The study will use ConocoPhillips EGAS technology to produce synthesis gas from coal.

Chevron and the Georgia Institute of Technology formed a strategic research alliance to pursue advanced technology aimed at making cellulosic biofuels and hydrogen viable transportation fuels. The alliance is focusing its research on four areas: production of cellulosic biofuels; understanding the characteristics of biofuel feedstocks; developing regenerative sorbents; and, improving sorbents used to produce high-purity hydrogen.

Chevron and UC Davis executed a research agreement directed at the development of technology for production of liquid transportation fuels from biomass feedstocks. The objective of the Chevron-UC Davis research is to develop commercially viable processes for the production of transportation fuels from renewable resources such as new energy crops, forest and agricultural residues, and municipal solid waste.

The collaboration is expected to focus its research on four areas: understanding the characteristics of current California biofuel feedstocks; developing additional feedstocks optimized for features such as drought tolerance, minimal land requirements, and harvesting technology; production of cellulosic biofuels; and, design and construction of a demonstration facility for biochemical, and thermo chemical production processes.



Chevron and Texas A&M University executed a strategic research agreement to accelerate the production and conversion of crops for manufacturing ethanol and other biofuels from cellulose.

Chevron will support research initiatives that will focus on several technology advancements to produce biofuels including: identifying, assessing, cultivating, and optimizing production of second-generation energy feedstocks for cellulose and bio-oils with a focus on non-food crops; characterizing and optimizing the design of dedicated bioenergy crops through advances in genomic sciences and plant breeding; developing integrated logistics systems associated with the harvest, transport, storage, and conversion of bioenergy crops; and, developing advanced biofuels processing technologies.

Chevron, ConocoPhillips, and Shell are founding members of the recently formed Colorado Center for Biorefining and Biofuels. Other participants include the University of Colorado, Colorado State University, the Colorado School of Mines and the National Renewable Energy Laboratory. The mission of C2B2 is to improve fundamental understanding and develop new technologies in areas relevant to the

future commercialization of integrated, sustainable biorefining and biofuels processes.

ELECTRIC AND ENERGY EFFICIENCY

ExxonMobil has developed a battery separator film technology to allow lithium-ion batteries to be used to power drivetrains of all electric or hybrid vehicles. This may result in increased safety, power, efficiency, and reliability of next generation battery technology for vehicles. ExxonMobil has signed an agreement with an all-electric auto manufacturer to apply the technology in actual commercial operations.

Valero is implementing advanced control technologies to improve combustion efficiency at refineries nationally. That new technology is expected to reduce CO₂ emissions by 1.8 million tons per year by approximately 2008. Project upgrades at its Benicia and Wilmington refineries are planned to decrease CO₂ emissions by more than 140,000 tons per year.

Tesoro installed two state-of-the-art flare gas compressors at its Golden Eagle Refinery in Concord, CA. This equipment takes flare gases – hydrogen, nitrogen, methane and other hydrocarbons – compresses them and returns them to the refinery for use as fuel. The project reduced flaring by 90 percent, which in turn reduced flare emissions by 94 percent.

At its Salt Lake City Refinery, Tesoro's cogeneration operation (using natural gas to generate both electricity and steam), reduces emissions at that facility by more than 500 tons each year.

SOURCES

The activities described in this report were found on the public web sites of the individual companies. Most were found in recent, publicly available press releases archived by each company.

Chevron:

www.chevron.com/news/press contains a search function. Entering “biofuels”, “hydrogen”, and “alternative fuels” led to the information cited.

www.chevron.com/globalissues/climatechange/actionplan was also useful.

ConocoPhillips:

www.conocophillips.com/newsroom/news_releases provided most information.

The home page also has a major heading called “Technology & Innovation”, with a subsection “Emerging Technologies” which was helpful.

ExxonMobil:

www.exxonmobil.com/corporate/files/corporate/tomorrows_energy.pdf leads to a report in which pp. 14-17 contain the information cited.

BP:

www.bp.com provides a search function. Entering “biofuels” and “hydrogen” led to all the information used.

Shell:

www.shell.com

Selecting the major heading “Technology and Innovation”, then the subsection “New Energy Sources” leads to sections on hydrogen and biofuels.