



Western States Petroleum Association
Credible Solutions • Responsive Service • Since 1907

DOCKET
06-AFP-1

DATE NOV 06 2006
RECD. NOV 07 2006

Joe Sparano
President

November 6, 2006

California Energy Commission
Docket Office
Attn: Docket 06-AFP-1
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
Via e-mail to docket@energy.state.ca.us

Re.: **Docket No. 06-AFP-1 Alternative Transportation Fuels Plan Workshop**

The Western States Petroleum Association (WSPA) is submitting comments on the Joint Workshop on the Alternative Transportation Fuels Plan. Attached to our cover letter are the following documents:

- WSPA's oral testimony as provided at the October 16 Workshop
- WSPA's critique of the draft Market Assessment document
- WSPA's brief critique of the TIAX presentation on their Full Fuel Cycle Analysis

There are basic overview comments we want to make before providing you with our specific comments on the draft "California Alternative Fuels Market Assessment" document, and the TIAX workshop presentation entitled, "Full Fuel Cycle Analysis Assessment".

WSPA companies are supportive of the inclusion of renewable fuels in the nation's transportation fuel portfolio. Many of the companies are making significant investments in the technology and infrastructure to increase their use. Thus, we are vitally concerned that government action should be based on a consensus for need and include a focus on removing impediments to market forces. For government to act wisely, a solid basis of technical fact is of paramount importance. We urge both agencies to view our comments in that spirit.

Revise the AB 1007 Process to Focus on Feedstocks, not Resulting Fuel Types

WSPA understands AB1007 pre-selected a number of alternative fuels for the CEC and CARB study, which were then added to by the two agencies. However, we believe the state would be better served by taking a different approach to the study.

Instead of listing a number of discrete fuels which then go through the multi-faceted analysis process, we strongly recommend the state consider reformatting the study by listing all the feedstocks, determining which of those feedstocks the state would like to encourage (based on a range of criteria) and then focusing on the fuel types that could be produced from those feedstocks.

1415 L Street, Suite 600, Sacramento, California 95814
(916) 498-7754 • Fax: (916) 444-5745 • Cell: (916) 599-2716
jsparano@wspa.org • www.wspa.org

The existing report does not present the alternative fuel programs in their proper technological and economic context, and the applied criteria and context of the report's conclusions are not explained or adequately supported. A true cost-benefit analysis should be provided.

Finally, based on the report, air emissions reduction, energy security, commercial infrastructure and cost appear to be analysis factors, but very few, if any, practical evaluations are made or offered.

WSPA appreciates this opportunity to provide our input to both the Energy Commission and California Air Resources Board on the Alternative Transportation Fuels Plan. We look forward to working with the Commission on this important issue.

Sincerely,

A handwritten signature in black ink that reads "Joe Sparano". The signature is written in a cursive style with a large, prominent initial "J".

**WSPA Comments on CEC/CARB 10/16/2006 TIAX Presentation,
“Full Fuel Cycle Analysis Assessment”**

Slide 9

- If E85 is applied to PHEVs, it should also be applied to HEVs.

Slide 12

- Legends for arrows at the bottom both say the same thing. We cannot tell what they mean.

Slide 15

- The chart appears to illustrate something different than what is described in the text.

Slide 20

- Re: 10% defect rate for fuel station vapor recovery, see comment on slide 21 (below)
- Should clarify that the renewable portfolio standard (RPS) generation will be included in the marginal generation mix, not added to it.

Slide 21

- The evaporative emissions factor values shown here are older values; ones that reflect the Phase II EVR requirements in 2009 should be used instead—since it appears the results will be applied to the 2012-2030 time frame.

Slide 23

- A verifiable source needs to be provided for the assumption in the presentation that most EV/PHEV charging will occur off peak. Some may feel this is at variance with demonstrated actual EV owner behavior. Also, a more realistic charging scenario, based on actual data, should be used.

Slide 24

- Similar comment to slide 20; need to clarify how RPS power will be applied to the marginal power mix.

Slide 25

- Request that a source be provided for fuel economy for ICEV and HEV technology since it appears understated, especially for the 2012-2030 time being considered here. Request a source also be provided for relative fuel economy of H2 ICEs, H2 FCVs, battery EVs, and gasoline PHEVs since they appear overstated.

Slides 26 and 29

- **Same comment as slide 25**

Slide 31

- **Request a source for the GHG emissions for the RFG ICEV and HEV cases since they appear to be high. Also, for the RFG ICEV, no improvement is shown between the “Existing Vehicle Strategy” case and the “New Technology Strategies” case.**
- **As was noted for slide 25, we request an accounting for future efficiency improvements for ICEV or HEV technology for the 2012-2030 time frame being considered.**

Slide 32

- **The relative WTW GHG emissions shown, for ethanol from corn, are low compared to results from most other studies; for example, those by Michael Wang (Argonne) and Mark Delucchi (UC Davis). Also, agricultural N₂O and other nitrogen compound emissions, not just those from the vehicle, should be considered.**

WSPA Comments on TIAX Report, “California Alternative Fuels Market Assessment 2006

General Comments

Market Assessment Report Scope and Title Problems

While the TIAX Market Assessment report includes a significant amount of information, the study does not appear to follow a clear definition of scope and its objectives remain unclear. Most of the issues found in the first section were a broad discussion of the international, domestic and California petroleum markets.

While Sections 2 through 8 provide more focused discussions on the various alternative fuel options, the content in Section 1 appears to have the greatest potential for misuse. This is because it occasionally provides apparently unsupported assertions regarding the petroleum industry based on what appears to be a limited amount of analysis.

A major shortcoming of the study is that it fails to provide consistent economic analysis regarding the potential costs for commercializing each alternative fuel. Instead, assessments are made based on qualitative factors alone, which render the study largely inconclusive.

Since we now understand the agencies intend to conduct substantially more work on economic and scenario analyses, and this report was meant to be a baseline of current market conditions upon which the later work will build, we recommend any prospective statements be stripped from this document.

In addition, we believe the title of the Market Assessment report needs to be revised to better reflect its contents, which are not a true market assessment of alternative fuels. Perhaps “Current Alternative Fuels Situation in California” would be more appropriate.

Costs/Incentives Not Adequately Identified

Each of the alternative fuels sections discusses the current success of each alternative fuel in replacing a gallon of gasoline or diesel. There is no qualitative or quantitative comparison made as to the cost required to achieve that reduction or how the cost of one fuel compares to another.

Such costs are necessary to quantify the costs of reducing criteria or GHG emissions from each fuel. Without them, the study is far less meaningful and certainly not conclusive.

We suggest each Section specifically highlight the incentives that are currently provided each fuel - for example, DOE funding for infrastructure or state or federal tax incentives. Public funds to provide incentives to such fuels need to be included in their costs as they represent a cost to the public and such funds could be used for other worthwhile projects, such as subsidizing housing, or health care costs.

Fuel Standards/Specifications

We also suggest each Section discuss current fuel standards for each fuel type and whether there is a need to update these specifications. This would include both emissions-based and performance-based standards adopted by EPA, ARB or the Department of Weights and Measures.

Also, the ability of ARB and other agencies to enforce fuel quality and infrastructure standards should be discussed. For example, currently ARB does not have the resources to sample and test CNG, LNG, LPG or hydrogen.

Section 1: California's Transportation System

WSPA suggests a discussion be added of the national efforts to deal with alternative and renewable fuels, including the federal Renewable Fuels Standard. Table 1-1 has a brief reference to federal programs, but there is little or no discussion in the text. It is important to discuss how any state program will interact with the federal program when it comes to assessing its potential impact and benefits.

We also suggest adding a table to Tables 1-2 & 1-3 that illustrates the level of imports of petroleum over the last several years, and the projected need for imports of crude, finished products, and blend stocks. The report needs to evaluate the current infrastructure's ability to meet current and future needs. The report also needs to identify publicly announced projects to expand the current infrastructure including LNG delivery and import sites, pipelines, terminals and refineries.

Figure 1-2 needs to recognize the ability to bring products into Arizona on the Longhorn Pipeline that has recently started up, and its impact on California supply.

Table 1-4 has no units.

Page 1-14 – Global Warming – Conventional fuels are not the only ones that may have increased emissions as a result of global warming. In theory, warmer temperatures could have an adverse impact on criteria emissions related to the use of alternative fuels, since warmer temperatures may increase the amount of emissions from evaporative processes, or from other portions of the fuel cycle. This concept should be included in the report.

CAFÉ Incentives – Although automakers have begun to produce FFV's, they have no ability to ensure these vehicles actually use the alternative fuel. As such, the report needs to consider the real impact of the CAFÉ incentives on fuel use and emissions if they do not use the alternative fuel.

Page 1-20. The role of current ethanol tax credits along with the new biodiesel tax incentives needs to be discussed, including whether the credits get reflected in the price of the renewables.

Figure 1-17 GHG Benefits – The report needs to clarify what fuels are being listed. This figure and the associated discussion do not adequately describe the variations of GHG benefits depending on how these fuels are produced. Instead of having one number, the report should provide a range depending on the assumptions.

Section 2: Natural Gas

The report needs to identify natural gas sources as primarily petroleum-related and normally not renewable.

With the potential for LNG imports there is an increased concern that the resulting CNG will not meet current motor vehicle quality standards. The consultant should include information on the current CNG fuel dispensers that we understand have been given waivers by ARB.

The impact on emissions from CNG powered engines when using off-spec fuel has not been seriously evaluated and raises questions about the environmental benefits that are normally attributed to natural gas vehicles. In addition, the purported improvement in GHG emissions, as shown in Figure 1-17, is expected to be relatively minor, unless natural gas can be used as a mainstream vehicle fuel.

The use of home refueling using natural gas intended for home use raises another question as well. Who will ARB take enforcement action against if the home-refueled vehicle is found to be using noncompliant fuel? Public funds are being used to subsidize these home-refueling stations with little or no way to ensure fuel quality.

The figures and tables in Section 2 use a variety of units such as mmscf/yr, trillion cf/year and billion cf/year. It is almost impossible for the reader to quickly compare the results. For example, Figure 2-3 projects future imports of natural gas showing increasing dependence on LNG imports. It is difficult to tell how much of the total natural gas used in the future will be coming from LNG. Table 2.4 needs to include the % of petroleum fuel displaced by natural gas as well as the gasoline gallon equivalent (gge).

Section 2 talks of heavy-duty LNG/CNG powered vehicles. It describes the SCAQMD fleet rules as “encouraging” their use. This is misleading since the SCAQMD rules essentially “mandate” alternative fuel use over diesel. The report needs to accurately reflect these facts.

Table 2-12 supposedly presents average CNG prices paid by retail and contract customers and posted CNG retail price. The report suggests that the actual price for CNG is much lower. This comparison should be justified. The report does not address the taxes imposed on CNG and LNG fuels. Do these fuels pay the same taxes as gasoline and diesel?

Figures 2-15 and 2-18 provide capital costs for CNG and LNG fueling stations but don't provide any information on the number of dispensers per station or the volume of fuel dispensed at the station. As in the previous sections, the CNG and LNG infrastructure costs need to be compared with both diesel and gasoline infrastructure costs.

CEC should require all alternative fuel providers to provide them the same information as petroleum companies are required to provide, for the same reasons.

One practical concern regarding the use of any compressed or liquefied gas is the potential for leakage. The study briefly mentions (page 2-33) that “losses as high as 10% have been estimated.”

In practice, many commercial gas-handling systems are prone to some leakage, so commercial and environmental allowances for gas leakage should be made when considering expansion of a CNG or LNG vehicle fueling system. The report fails to

address the cost to either retrofit or build new maintenance facilities to service the CNG or LNG powered vehicles due to the potential for escape of gaseous fuels.

The consultant needs to investigate how often fleet operators using CNG powered vehicles have had to replace their fuel tanks, since we understand they have a life of ~5 years. This results in additional costs that were not included in the initial assessment.

WSPA suggests the report attempt to estimate the current cost to replace a gallon of gasoline with a gge of CNG or LNG so that the alternative fuels can be compared against each other. Likewise, we suggest the report attempt to identify the cost of reducing emissions by using CNG and LNG powered equipment. Venting from these alternatively fueled vehicles and refueling facilities should be included in such cost estimates.

Section 3: LPG

In the first section, the number of LPG powered vehicles is discussed, but the vehicle types are not presented. Are these on-road vehicles, or do they include some off-road forklifts and other such equipment?

The report does include a discussion of LPG fuel quality, but doesn't discuss the fact that ARB does not currently have the ability to enforce this standard. ARB is reportedly looking at trying to assemble the necessary equipment to perform the sampling and testing of LPG fuel. The report should discuss this issue.

Future emission standards for LPG and other alternative fuels may increase the burden associated with providing compliant fuel. The report should determine if this is a potential barrier to LPG use.

Section 4: Electric

The report fails to discuss that incremental electricity supply is not free of GHG emissions, since natural gas is typically used for generation in the state. On an equivalent vehicle-mile basis, the overall level of GHG emissions for electric-powered vehicles may be similar to that of CNG or LNG powered vehicles. This oversight should be corrected.

Section 5: Ethanol

The report lacks a discussion of the current blending economics of ethanol at the low and high levels, and market value adjustments. The corresponding heat content and fuel mileage issues need to be addressed as well.

Ethanol is one alcohol that can be produced through the fermentation of corn and other sugars. Butanol is another alcohol that can be produced, and other such alcohols could be used as a renewable fuel as well. We suggest a butanol/other alcohol section be added to the report.

Quantity of use - The report needs to clarify that the federal oxygenate mandate for RFG has been removed.

In California, a case can be made that the CAFÉ credit for a FFV has resulted in higher consumption of gasoline since FFV's are almost always operated on 100% gasoline due to the lack of E-85 stations in the state. As such, the automakers' fleet average MPG is likely overstated and results in more gasoline consumed rather than less.

The report needs to estimate the increased gasoline consumed, if any, in California as a result of the current CAFÉ credit along with the resulting fuel economy penalty for E-85. In turn, with projected increases in FFV sales the impact from these vehicles possibly using gasoline needs to be included.

On the issue of air emissions, we question the statement that, “No issues with exhaust emissions have developed regarding E85 issues” (ARB has already raised the issue of emissions from FFV vehicles when burning various mixtures of E85 and normal gasoline that result in mixtures of E20 – E70). In addition, in terms of increasing the low level blends, although permeation does not appear to increase if the ethanol content is increased to 10 % it also doesn’t decrease – per the CRC emission studies.

The statement that, “Technical requirements for E85 delivery and fueling infrastructure are not a significant barrier” should be supported via references. At this time there is no vapor recovery system certified for use with E85 and there may not be any dispensing systems that are UL certified. UL certification is required by most Fire Departments for such systems.

The issue of possible mis-fueling of E85 into cars not designed to burn it should also be fully addressed in the report. As far as we are aware, the mechanical and emissions impacts on consumer vehicles from mis-fueling with E-85 are not well understood but potentially significant.

Distribution infrastructure at the wholesale level is not adequately addressed. Delivery of the current 900 million gallons of ethanol annually to California by rail cars is a large and complex operation. Significant expanded use of ethanol would likely require a significant expansion in the number of rail and tank cars required to handle the increase. In addition, extra terminal storage tanks and blending system revisions may be required, as will infrastructure for adding high volatility components to meet E85 specifications.

Therefore, significant expansion of the use of ethanol via E85 may have a number of significant barriers and costs. These may include, but are not limited to:

1. Additional rail cars and rail infrastructure to move required ethanol into California.
2. Additional terminal tankage to store ethanol for E85 blending.
3. Separate terminal tankage for base gasoline for E85 blending since normal gasoline will not be acceptable.
4. A means to bring E85 to vapor pressure specifications.
5. New CBG fuel specifications for E85 base gasoline.
6. Changes in pipeline standards and schedules to handle the shipment of normal CARBOB and the new E85 CARBOB’s.

These costs/barriers should all be dealt with in the report.

Section 6: Alternative Diesel Fuels

Biodiesel is defined as any diesel fuel substitute derived from renewable biomass. This is currently not the definition used by ARB, or ASTM, which refer only to fatty-acid methyl ester (FAME). The report later provides a different definition as the official definition.

The report should discuss the different ways that biodiesel is defined and the impact of these differences. We prefer a definition that provides broad and flexible coverage of biodiesel that doesn't exclude any materials made from renewable feed stocks. In this light, we request the report include renewable diesel that is based on renewable feedstocks, and which is a viable alternative fuel for the state.

The report states that B5 can be used "...in any diesel engine without modification." This may be true, but cold weather and warranty issues, among others, should be recognized in the report.

Likewise the report says that B20 can be used in some engines without modifications, but fails to raise the other issue of meeting ARB emission standards. Normally B20 blends cannot meet ASTM standards for diesel. B20 blends have also not been able to be certified to show equivalent emissions to a current non-biodiesel blend CARB Diesel.

CARB has announced plans to run a 2-3 year study of biodiesel and its impact on emissions. Until such a study is completed it is premature to make any recommendations on the expanded use of biodiesel in California.

Section 7: Hydrogen

The report's discussion of the economic and energy security aspects of hydrogen production is quite limited, and needs additional work.

The report fails to identify hydrogen leakage as a potential cost and environmental issue. As mentioned above, leakage should be anticipated for all vehicle systems involving compressed gas.

The most significant barrier to hydrogen fuel commercialization is hydrogen distribution and storage. This presents a large technology barrier and should be clarified further in this section. The author makes a questionable claim in the middle of page 7-11 when he states that fueling station standards and codes are "one of the most challenging existing barriers to using hydrogen as a mainstream transportation fuel." The contractor needs to support this claim.

The report states that, "Fuel standards will need to be adopted before significant numbers of fuel cell vehicles are deployed." Current law requires the Department of Agriculture to develop such a fuel standard by 1/1/08.

The report appears to conclude that significant numbers of hydrogen fuel cell vehicles will not be available for at least 10 years. As such, we question the need for a state hydrogen fuel standard by January 2008. We are especially concerned that setting numerical hydrogen fuel specifications by 2008 is much too early and may adversely impact the introduction of this technology.

Fuel and engine standards must be developed together. Fuel standards established without justification may adversely affect the economic production of the fuel. Also, as in the case of the currently proposed standard, there are no analytical methods available to determine compliance with the proposed standards.

The report's sweeping conclusion (that "many ... experts believe that direct-hydrogen fuel cell vehicles will gradually replace internal combustion engine vehicles as the predominant mode of transportation ...") is of little practical significance since the timeframe is unspecified and the "experts" are not referenced.

SECTION 8: DME (DIMETHYL ETHER)

The discussion surrounding DME is relatively short and does not contain much specific information. This fuel needs further analysis performed by the contractor.

WSPA Testimony for CEC/CARB Public Workshop on AB 1007
Monday October 16, 2006

Good afternoon Vice Chair Boyd, Commissioner Byron, and Chairman Sawyer. My name is Gina Grey and I'm here today representing the Western States Petroleum Association or WSPA. WSPA's 26 member companies are engaged in the exploration thru marketing of a variety of energy and transportation fuels products. We have nearly 100 years of experience and infrastructure developed, in order to reliably serve west coast consumers with the fuel they need. Many aspects of the State Plan deal directly with our business interests.

We looked at the key issues and questions listed for today's workshop and determined that several are not within the realm of our ability to respond, so we've asked our individual members to provide their input. Some of the questions, however, ARE issues we'd like to weigh in on – in particular with respect to what role government has to play in increasing alternative fuels in the state. We are hopeful this State Plan will help corral all of the separate government efforts being applied recently to alternative fuels, so the state will have a chance to develop a well-thought-out and effective plan.

First I'd like to spend a few minutes on education before discussing our comments. Let me say upfront that WSPA supports the administration's goals, which aim to "ensure adequate, reliable and affordable energy supplies while promoting renewable energy and advancing technology to improve California's economic and environmental conditions". Our companies are committed to meeting the energy needs of industrial and transportation consumers well into the future, and their research and development efforts are continuing in the search for the most competitive, efficient, and economical energy technologies. Already, it is becoming clear that, going forward, the mix of our fuels will be more diverse.

In fact, according to a study completed in May, by the Institute for Energy Research, our industry has invested \$98 B in a 5-year period (2000 to 2005) in emerging energy technologies in North America. Some of this investment has gone towards frontier hydrocarbons such as gasification, GTL, tar & oil sands, etc. The same report states the industry invested \$11B for advanced end-use technologies and for fuel cells, and another \$1.2B investment went to non-hydrocarbon investments.

I would also like to cite a couple of examples of projects more recently announced:

- One company will spend \$500 million over the next 10 years to establish a dedicated biosciences energy research laboratory, the first facility of its kind in the world;
- Another has formed strategic research alliances with Georgia Tech and the University of California at Davis to pursue advanced technology aimed at making cellulosic biofuels and hydrogen-viable transportation fuels, as well as transportation fuels from renewable sources such as forest and agricultural residues and municipal solid waste; and
- Yet another has a \$46 million partnership with Iogen Corporation for the development and commercialization of cellulosic ethanol.

Add to this list, announcements by several WSPA companies of joint ventures to construct and operate a number of biofuels plants, and you get a sense of the high level of interest that exists.

But, we also want to be clear we believe the promotion of alternative fuels to the exclusion of base petroleum fuels is not good public policy. We believe the state should support the expansion of clean burning petroleum fuels augmented by any and all alternative and renewable fuels that are scientifically sound, cost-effective and not mandated. We call this approach Petroleum Plus. We would encourage the state to adopt a balanced philosophy that does not exclude gasoline and diesel. If the state wishes to encourage renewable feedstock fuels, for example, we can make gasoline and diesel from renewable feedstocks. A good example of this is Renewable diesel, which we are very disappointed to see is not included in your list of fuels and request it be added to the AB1007 process.

WSPA would like to offer the following comments for your consideration:

- There is a critical need for this study to broaden its frame of reference to look at alternative fuels activities nationally and internationally. We are starting to see, for example, state and local efforts to promote alternative fuels with no thought being given to whether there will be sufficient fuel supplies or other impacts to the transportation fuel system. The federal RFS was supposed to provide a national framework for the promotion of renewable fuels. Unfortunately, all

the separate state actions are putting the federal program – which was painstakingly worked in a stakeholder process to provide transportation fuel flexibility – at risk.

- Second, aggressive state policies to implement alternative fuels before adequate fuel specifications and standards are in place, before adequate supplies are available and cost-competitive, before adequate distribution systems are in place, before an adequate enforcement structure is in place, and before consumers are prepared and educated –will likely lead to market disruption, wasted public dollars, and a backlash against the State’s fuel or fuels of choice– similar to what was seen with M85 several years ago. The outcome of this study MUST result in stable public policy that allows all transportation fuels to compete, after a truly thorough study is done. We’d also like to note there is an apparent lack of attention being given to the three important components to any successful plan: the fuel, the vehicle and the consumer.
- Third, to avoid possible future negative consequences for California consumers, we suggest you pull in appropriate resources, to fully evaluate the financial impacts of new fuels or measures put in place by the state to encourage those fuels. Many of the potential new policies and measures relative to alternative fuels – in particular mandates and subsidies – may have cost implications that need to be disclosed and analyzed. A tool, such as the Ventana transportation model that we understand your staff is reviewing, may be very valuable as part of the analysis.
- Finally, among all of the work in the coming months relative to alternative fuels, we hope we don’t lose sight of a parallel challenge– which is how the state will deal with conserving and preserving energy resources – whether conventional or not. Again, our position is that ALL fuel sources will need to play a role in the future to meet the demand – even if the demand curve can be dampened.

To summarize, government has a role to play here too, but it is important we not ask government to pick technology winners and losers. History has demonstrated that we should not focus prematurely on just one approach, which may or may not prove effective, while discouraging others that may have more potential in the long-term. Our view is the best path forward on

alternative fuels will best be determined by technology, consumer preference, and a free marketplace. In terms of what the appropriate roles for government are, we offer the following categories of action: conducting this kind of broad alternative fuel study, identifying barriers, helping to streamline permitting requirements, setting standards and certification requirements, engaging in R&D, and educating consumers.

We hope the schedule for this entire proceeding will permit a meaningful exchange of information and ideas. We believe the process should provide enough time for the affected stakeholders to thoughtfully consider any draft documents or proposals in order to provide valuable input.

In that light, in terms of providing specific comments on the 150 page Draft Market Assessment report, we'd like to request an extension to the comment deadline in order to allow sufficient review time. We understand the Commission and ARB consider the report to be an important baseline from which all future work will grow, so we'd like to assure ourselves that we are comfortable with all the information in the report.

Thank you for listening – Questions?

Currently, the process taking place is off-balance, because a number of alternative fuels have been identified for study – some petroleum based and some renewable – with no recognition of the state’s overall goals, one of which is supposedly the encouragement of renewable feedstocks to provide transportation fuels.

To illustrate our point, the Market Assessment report focuses only on ethanol and bio-diesel as potential products of renewable feedstocks. Both ethanol and bio-diesel have advantages and disadvantages. For example, some disadvantages are that certain blends have lower energy content than gasoline or diesel, have some adverse air quality impacts, may have warranty and quality issues, and are incompatible with current gasoline infrastructure and some vehicles.

The current assessment fails to recognize and evaluate other promising renewable fuels, such as butanol, renewable diesel, and even liquid alkanes that can be made from the products of cellulosic conversion. Liquid alkanes are the primary constituents of conventional gasoline and diesel.

In short, once cellulosic conversion becomes commercial, known chemical and catalytic processes can turn the conversion products into renewable gasoline and diesel that don’t have the adverse qualities of “conventional” ethanol and bio-diesel, and are compatible with current vehicles and fueling infrastructure.

Many experts agree that ethanol produced from corn and sugar cannot replace a significant (15 percent plus) part of the gasoline pool. They also assert that commercialized cellulosic conversion processes will be required to achieve a significant level of renewable fuel penetration.

The state’s objective should be to set performance standards and goals, and remove the technological barriers to converting biomass sources common in California. The most cost-effective, consumer-accepted product will emerge, be it ethanol, bio-diesel, butanol, or renewable gasoline and diesel.

Assertion that Using Alternative Fuels Is an Effective Strategy to Displace Petroleum is Not Adequately Supported in the Report

The assertion that “alternative fuels are an effective strategy to displace petroleum” should be questioned on several levels. This is because the stand-alone economic viability and benefits of the various alternative fuel programs are not well established over long periods.

After accounting for vehicle fuel efficiency, production and distribution costs, the economic incentives that may need to be applied to these alternative fuels, and a myriad of other factors, the benefits of alternative fuels may be low or even negative. In some cases, these fuels may be appropriate for niche market applications, but may not be appropriate to displace large volumes of conventional gasoline and diesel.

It should be noted that the report’s later sections conclude that most alternate fuels offer little if any air quality benefits versus gasoline and diesel vehicles in meeting future emissions regulations. While some future alternative fuel technologies hold great promise, they may not be currently commercially available, and their timing is highly uncertain.