BP America, Inc

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DATE: May 9, 2008

Via Email
Bob Fletcher
Division Chief, Stationary Source Division
California Air Resources Board
1001 I Street, P.O. Box 2815
Sacramento, CA 95812

Subject: BP America Comments on California Air Resources Board's (CARB) Proposed Concept Outline for the California Low Carbon Fuel Standard Regulation

Dear Bob:

BP America, Inc. with BP West Coast Products, LLC, appreciates the opportunity to respond to the California Air Resources Board's request for feedback on CARB's Draft Proposed Concept Outline for the California Low Carbon Fuel Standard Regulation (LCFS), dated March 2008. We also appreciate the considerable time that you and your staff have devoted to this challenging issue and your willingness to accept our frequent requests to meet to discuss our views.

BP believes strongly in the need to move our society toward a lower carbon future. Contributions from the transportation sector are critical to this goal, particularly in California, where transportation is a proportionally larger part of the greenhouse gas (GHG) emissions profile. We acknowledge our contribution as a major fuel provider to the intended goals of the LCFS. This acknowledgement led in large part to our substantial commitment to low carbon fuels research with a $500 Million investment and the creation of the Energy Biosciences Institute (EBI) in partnership with UC Berkeley, the Lawrence Berkeley National Laboratory and the University of Illinois. We believe that the low carbon fuels of the future will come from innovative partnerships like EBI.

Consistent with our actions and beliefs about the role that lower carbon fuels should play in addressing climate change, we recognize that a well-designed policy to address transportation emissions will be critical to achieving a lower carbon transport sector.

However, we are becoming increasingly concerned about the direction that CARB is taking in the design of the LCFS. We are concerned that the policy appears to be overreaching, that it is diverging from a truly fuel neutral approach, that it is failing to make use of all available tools to reduce GHGs from fuels, and that the final program design will suffer from the self-imposed time constraint of Discrete Early Action designation.

We believe it is of utmost importance that the LCFS succeed in achieving its goals. By succeed, we mean that the LCFS delivers GHG reductions in fuels at a reasonable cost, that it does not inhibit the ability of California consumers to access the fuel they need, and that it encourages and rewards low carbon fuels innovation. The concept outline provided by CARB appears to be putting these essential elements at great risk.

For this reason, balancing boldness with the understanding that early policies to address climate change must result in demonstrable success, we suggest strongly that CARB:

- Start with ambitious but realistic goals, building on success
- Use all available tools, especially ones that are available in the early years
- Adopt and maintain a truly fuel neutral approach, avoiding specific mandates
- Encourage innovation by allowing sufficient time for technologies to develop
- Design for maximum flexibility and cost effectiveness

Enclosed are two attachments. Attachment I contains discussion of general LCFS issues of concern to BP and includes the following specific recommendations:

1. Initially limit the scope of the LCFS to light duty vehicle fuel
2. Start with a Average Fuel Carbon Intensity (AFCI) reduction target for light duty vehicle fuels that is ambitious yet achievable with a high degree of certainty
3. In 2015, carryout a detailed review of the program, including whether technology and biomass availability has progressed to the point that a separate diesel standard can be implemented and/or that the light duty fuels AFCI target can be increased for a 2025 timeline
4. Allow the use and crediting of all fuels that, when paired with the appropriate vehicle, will reduce GHGs, including the displacement of gasoline by diesel in the light duty fuel pool
5. Employ a “back-loaded” compliance schedule to allow for the needed technological innovation to occur
6. Reconsider the Discrete Early Action status of the LCFS to allow time to reduce and account for the uncertainty in Land Use Change (LUC), Lifecycle methodology and innovation timelines.

Attachment II contains specific comments to CARB on feedback requested by CARB in the March Concept Outline.

Please feel free to contact me should you wish to discuss these recommendations in more detail.

Sincerely,

Ralph J. Moran
Director, West Coast Climate Change Issues
BP America, Inc.

cc (via email) Mary Nichols
Dan Sperling
James Goldstene
Anthony Eggert
Linda Adams
Eileen Tutt
Daniel Pellissier
Darren Bouton

Attachment 1

Supplemental Comments from BP
Comments on CARB Proposed Approach to LCFS Design

Need for CARB Review of Feasibility and Estimate of Cost Effectiveness

CARB's current designation of the LCFS as a Discrete Early Action is based on a presumption that the policy will translate into a feasible and cost effective strategy for reducing GHGs. We believe it is possible to implement a cost effective approach to reducing carbon from fuels. However, we also believe that CARB's current presumption of cost effectiveness is highly tenuous given the many uncertainties of the LCFS, the direction that CARB is taking in LCFS design, and the only study of which we are aware (Knittel, 2007) that estimates, under various scenarios, cost estimates of between $60 and $2272 per ton of CO2 reduced. We believe it is critical to the success of the LCFS that CARB develop, as soon as possible, an estimate of cost effectiveness of the LCFS (in $/ ton GHG) in order to better inform the scenarios and targets and to provide transparency to consumers and policy makers about the effect of this potential regulation.

BP's View of Feasibility

The University of California's (UC) LCFS reports concluded that a 10% reduction in the carbon intensity of light duty vehicle fuels, as defined in the report, would be challenging but technically feasible. The current CARB proposal is much less likely to be technically feasible for several reasons. These include:

1. The UC report allowed the difference in engine efficiency to be counted toward compliance when a fuel supplier increased their ratio of diesel to gasoline produced or imported. This accounted for 2.2 of the 10.0% reduction from the D5/D10 Scenario presented in the report.
2. The UC report limited its assessment to on-road light duty vehicles.
3. The UC report did not consider the impact of the new Energy Independence and Security Act of 2007 (EISA 2007) requirements that will push biodiesel feedstocks into Fatty Acid Methyl Ester (FAME) technology over renewable diesel, limiting the reductions that can be made in this area.

There is also considerable uncertainty that wasn't fully explored in the UC reports that requires further clarification in order to have a more realistic view of the feasibility of meeting targets for reduction in carbon intensity for both the gasoline and diesel fuel pools. These uncertainties include the effect of Land Use Change (LUC), Lifecycle Analysis methodology (LCA), commercialization of technology for advanced biofuels (including cellulosic), biomass availability, biofuels blending capability, and cost. However, based on our current analysis, our conclusions on the feasibility of both the diesel and the gasoline standard are as follows:

- A 10% diesel target is <u>not feasible</u> based upon limited supply of required biodiesel feedstock and the federal requirement for FAME biodiesel which will significantly impair the supply economics for renewable diesel.

- A 10% gasoline target is only feasible under very optimistic, specific and uncertain assumptions around the effect of land use change on low carbon fuels such as cellulosic and sugar-derived ethanol; the availability of and competition for biomass should other jurisdictions adopt LCFS-type policies; and the ultimate commercialization of advanced biofuels technologies.

10% AFCI Reduction Target For Diesel
A 10% AFCI reduction in the diesel fuel pool would require blending volumes of biodiesel or renewable diesel in excess of what we expect to be available nationwide during the 2010 - 2020 timeframe.

BP believes that increased pressure on natural and vegetable oil markets from European biodiesel demand will prevent the US from going beyond the 2nd Renewable Fuel Standard (RFS) nationwide biodiesel mandate of 1 billion gallons by 2012. Meeting the 10% AFCI reduction in California would require 120% of this federal volume.

Although greater reductions could be attained were additional natural feedstock available for renewable diesel, we believe that the FAME biodiesel mandate will subsume most of the available vegetable oil supply. Additional volume available would not be of the scale required to justify the economics of relevant hydro-treater investments.

10% AFCI Reduction Target for Gasoline
The feasibility of a 10% AFCI target for light duty passenger vehicle fuels is highly uncertain at this point, and can only be viewed as achievable under optimistic, specific and tenuous assumptions around the most leveraging elements affecting feasibility. For instance, for a 10% AFCI reduction for gasoline to be feasible, it is necessary, but not sufficient, that Indirect Land Use Change not significantly reduce the benefits of low carbon biofuels such as cellulosic and sugar derived ethanol. However, it should be noted that recent conclusions on the effect of LUC (UC, Serchinger) not only remove any benefit from most crop-based biofuels, including highly GHG-efficient sugar cane, but also greatly reduce the benefit of many advanced, cellulosic pathways. <u>If it is determined by regulators that these LUC conclusions directionally shift the carbon benefits of advanced biofuels, then the LCFS 10% AFCI reduction target for gasoline is not feasible.</u>

Second, while an assessment of a California-only LCFS could conclude that a 10% AFCI reduction of gasoline is feasible, such an assessment does not consider the potential effect of LCFS-type policies being implemented in other jurisdictions. If fact, several other states and regional organizations have made clear their intention to consider LCFS-type policies. Competition for biomass resulting from implementation of the LCFS in other jurisdictions can greatly affect the feasibility of meeting a 10% AFCI reduction.

Third, a 10% AFCI reduction for light duty vehicles will require the commercialization of advanced biofuels technology in the 2010-2020 timeframe in order to allow for the

necessary ramp-up. Though BP and others are working hard to develop these advanced technologies, there is still uncertainty around the timeline for commercialization.

Lastly, there are several other issues that will affect the feasibility of a 10% AFCI reduction for gasoline. These include, but are not limited to, the effect of the federal RFS, the development of lifecycle methodology, the ability to site, permit and build the necessary infrastructure, and many other uncertainties. All of these, and the aforementioned uncertainties, strongly suggest that CARB should take the necessary time to resolve some of the uncertainties and start with an AFCI reduction goal that is achievable to a high degree of certainty, building on successful implementation over time.

While the above feasibility assessment is based solely on the use of biofuels, it is important to note that without extensive use of biofuels in the 2010 to 2020 timeframe, the 10% AFCI reduction is not achievable. The UC report shows that it will not be possible within that timeframe to achieve the penetration of alternative fuel vehicles to an extent that would allow California to meet the 10% AFCI reductions - without extensive use of biofuels. For example, the UC report's C5 Electric Vehicle Scenario showed only an approximately 3% carbon intensity reduction of the light duty fuel pool even when assuming optimistic penetration of alternative fuel vehicles such as EVs, PHEVs, FCV and CNG vehicles.

Scope of the LCFS

The scope of the LCFS should apply, at the start, only to passenger vehicle fuels sold in California. We believe that this ambitious scope best reflects the uncertainties in LCFS design and implementation which we have mentioned previously, and best positions California to build on success. BP believes the goal of a 10% reduction in carbon intensity of passenger vehicle fuels sold in California is an aggressive goal which will require significant technological innovation in low carbon fuels and is only feasible based on extremely optimistic, specific and tenuous assumptions as discussed in the section on BP's view of feasibility. Moreover, a successful implementation of a more realistic but still ambitious target will require a well designed regulatory framework based on the best available science, developed in collaboration with effected industries, and in which the maximum amount of flexibility is provided in order to meet the performance objective.

We believe a focus on passenger vehicle fuel strikes a reasonable balance between setting an ambitious target that incentivizes innovation, with the importance of setting a target that is achievable and that will not create unmanageable risks to fuel suppliers in meeting the demand of California consumers. Moreover, this scope is consistent with the scope of AB1493 – which, as CARB is aware, focuses on passenger vehicles. We recommend that in a comprehensive review of the LCFS, in the 2015 timeframe, a reassessment of the scope of the LCFS should take place.

For reasons we detailed in the previous section of these comments, we believe including a separate and additional 10% AFCI reduction target for diesel is not feasible and will divert resources from the design, implementation and compliance with a more realistic LCFS. We recommend that CARB not initially include this separate diesel target, but rather,

during a program review in 2015, determine whether biomass availability and other limiting factors have advanced to a point where a separate diesel target may be feasible.

Use of Diesel in the Light Duty Fleet

Reducing GHG emissions from the transportation sector will be one of the most challenging aspects of meeting the goals of AB32 as well as the Governor's post-2020 emission reduction goals. Achieving these goals will require use of all reasonably available tools. We believe, therefore, that is in unwise for CARB to preclude the use of and crediting for diesel replacing gasoline as compliance option in the LCFS.

The displacement of gasoline by diesel in the light duty fleet is an example of a compliance option that, though not a silver bullet, is available now at reasonable cost. The use of diesel in the light duty fleet will result in significant reductions in both GHG emissions and in the use of petroleum for transportation – two key objectives of the LCFS.

It is our understanding that by the 2009 model year, light duty diesel vehicles will meet the strict California light duty vehicle emission standards. This will allow CARB to leverage the significant accomplishment of the development and introduction of CARB low sulfur diesel. This new, cleaner fuel can then start to provide benefits beyond reduction in criteria pollutants, by helping to address climate change.

The use of diesel in the light duty fleet will also facilitate future, additional GHG reductions. Early adoption of light duty diesel vehicles will allow for an eventual transition to the use of biodiesel/renewable diesel in these same vehicles, and diesel hybridization using biodiesel/renewable diesel. An additional GHG benefit will come from a reduced carbon intensity in the production of this diesel.

Given all these benefits of the use of diesel to displace gasoline in the light duty fleet, we are greatly concerned about the Concept Outline's strong bias against the use of diesel and believe that this bias represents a clear and unfortunate divergence from a truly fuel neutral approach.

For instance, CARB staff has said that diesel should not be used as a compliance option because it is not a new fuel – although CARB intends to credit suppliers of CNG, or electricity for transport – hardly new fuels themselves. CARB staff has also suggested that they can not give credit for LCFS compliance for the use of diesel in the light duty fleet because vehicle manufacturers will receive credit for the light duty diesel vehicles under AB 1493. However, CARB staff has stated their intention to credit fuel suppliers of CNG and electricity – even though vehicle manufacturers will also receive credit under AB1493. It is simply not a fuel neutral, reasonable, or wise position to offer credit to both fuel providers and vehicle providers for some fuel-vehicle combinations but not for others.

We believe that it is reasonable and necessary to incentivize and credit both fuel providers and vehicle manufacturers to produce the fuels and vehicles that, when paired, will enable a lower carbon transport sector. Allowing both to take credit toward compliance with separate performance-based standards is not the same as double counting resultant GHG

reductions. The LCFS and AB1493 are meant to drive innovation and investment in specific "legs of the transport stool" in order to deliver long-term emission reductions in the transport sector. Therefore, incentivizing and crediting both fuel and vehicle providers in separate programs is appropriate and helps to avoid the "chicken or egg" dilemma which sometimes occurs when a new vehicle or fuel is introduced. As such, we support the application of a drive train efficiency factor to calculate and credit the GHG efficiency of fuels in the LCFS. While one can disagree on whether a drive train efficiency factor should be applied, there can be no justification for applying a drive train efficiency factor to certain fuel-vehicle combinations and not to others.

In order for the LCFS to succeed, it must adopt a truly fuel neutral approach, and it must make use of all available tools that can help deliver a lower carbon transportation sector. For these reasons, we strongly urge CARB to include as a compliance option, the displacement of gasoline by diesel in the light duty fleet.

Baseline

CARB is proposing to use, as the LCFS baseline, the average fuel carbon intensity for California's 2006 transportation fuels. We are currently not aware of any reason why 2006 would not suffice as a baseline year, though we look forward to working with CARB to verify the applicability of this baseline year.

Also with regard to baseline, we believe that CARB should put in place a robust process for evaluating the effect of future fuel and stationary source regulations on the carbon intensity of fuel – including how compliance with the LCFS may be effected. That impact may be best represented by adjusting the LCFS baseline. As such the regulations should require that CARB review the impact of any future rulemaking that impacts California's fuel carbon intensity, and is required to make necessary adjustments including the baseline.

Discrete Early Action Status

BP understands and agrees with what we believe to be the purpose of designating certain emission reduction opportunities as Discrete Early Actions. While the design of the greater AB32 program will require a deliberate, open approach, there may be opportunities for GHG reductions that do not require waiting until 2012 to begin to realize the benefits. These early actions could consist of unleashing voluntary early actions – or by CARB designating Discrete Early Actions. Discrete Early Actions should be the capturing of low hanging fruit – actions where technology is mature, available, where the reductions are clearly cost effective, but where, for whatever reasons (whether they be regulatory or financial barriers, market failures or otherwise) the reductions are not occurring.

It is increasingly difficult to reconcile how the design and implementation of an LCFS, a first of its kind technology-forcing regulation, meets any reasonable criteria for Discrete Early Action designation. Both the UC reports and CARB staff have acknowledged that, currently, the technology does not exist with which to achieve a 10% AFCI reduction. Moreover, since the release of the UC reports, more information has come to light about the potential unintended consequences of important potential compliance pathways for the LCFS. We believe that it is becoming increasingly clear that CARB's designation of the

LCFS as an early action has placed an unnecessary and unrealistic time constraint on the design of the LCFS. We are concerned that not only will the design and implementation of the LCFS suffer because of this unrealistic time constraint, but that it will jeopardize California's opportunity to put this portion of the transportation sector on a path to deliver emission reductions over the long run.

It is also ironic and troubling that while CARB itself acknowledges that early year LCFS reductions will be difficult to come by, even though they have designated the LCFS as an early action, CARB staff appear entrenched in removing as compliance options, fuels (such as diesel replacing gasoline in the light duty fleet) which could in fact provide early, cost effective emission reductions.

In light of the many, significant, leveraging and still emerging uncertainties around the feasibility of the LCFS, including potential unintended consequences of various compliance pathways, we urge CARB to reconsider the Discrete Early Action designation of the LCFS. CARB should take the time necessary to establish a deliberate approach in designing and implementing this complex, first of its kind regulation. As we have said previously in these comments, it is crucial that the LCFS implementation be successful. It is not crucial, in the context of our approach to solving the century-scale challenge of climate change, that the regulation be delivered in 2010.

It is worth CARB considering the cautious approach that the EU (and others) now appears to be taking in light of emerging uncertainties in various LCFS compliance pathways. At the time of the introduction of the LCFS, and throughout the past year, there have been ample references by California administration officials and policy makers about the need to share learnings with the European Union as they embark on similar fuel regulations. It is important for CARB to realize that because of the uncertainties in the feasibility of a 10% reduction in carbon intensity, and the uncertainties in the sustainability impacts of the use of biofuels, there is a burgeoning reconsideration of the goals of the EU Fuels Quality Directive.

Article 7a of the proposal to revise the EU Fuels Quality Directive (FQD) has many similarities with the proposed LCFS in California including a proposed 10% reduction in the life cycle carbon intensity of transport fuels by 2020. The 10% reduction in carbon intensity of the fuel mix is in addition to the target in the proposed Renewable Energy Directive (RED) that biofuels should constitute 10% of transport fuel (by energy content) by 2020. The 10% target within the proposed FQD is thought by many to be more challenging than the energy content target of the RED as the most likely pathway to comply with the FQD is through blending large quantities of biofuels. A majority of the Member States have expressed the view that "the ambition of the target would need to be appropriate, having regard to the realistic, feasible and cost-effective measures available to reduce GHG emissions throughout the fuel life cycle" and a smaller number including the UK and France "are not convinced that a 10% reduction in GHG emissions over 10 years is achievable at reasonable cost, or without significant adverse affects on sustainability, and consider the proposed intermediate target too inflexible".

The UK Treasury have commissioned the "King Review of Low-Carbon Cars" to examine the vehicle and fuel technologies which over the next 25 years could help to decarbonize road transport. One of the recommendations of this review is that the EU FQD carbon intensity target of 10% should be revised downwards and a gentler compliance pathway be implemented. A recurring theme from the review is the need to reduce carbon from transport cost-effectively. Targets should be balanced such that the overall cost of reducing carbon transport is minimized and thus in the short term, it is preferable to strengthen vehicle targets relative to those on fuel.

Interaction with Federal RFS

The state must recognize, and accommodate in the implementation of the LCFS, the demands placed by Federal mandates upon the petroleum industry to incorporate specified volumes of various biofuels, i.e. the RFS2. For instance, consider the Federal mandates of 15 billion gallons/year for corn-based ethanol. To comply the industry will be required to blend ethanol at the currently maximum allowed level of 10% into every gallon of fuel sold in the US, including California fuels. If the current CARB lifecycle analysis of corn ethanol confirms current expectations and finds corn ethanol to be more carbon intense than gasoline or diesel, the industry will find itself mandated to increase, rather than decrease, the carbon intensity of its fuels by the federal requirements.

Indirect Land Use Change

We have seen and acknowledge studies suggesting that indirect land use change from conventional biofuels and from some advanced biofuels may have a seriously negative effect on carbon balance. We have also seen and acknowledge analysis fundamentally challenging the methodology and data used in those studies, and their conclusions. This is an extremely complex and important set of questions which is currently the subject of intense analytic scrutiny from world-class academics, scientists and industry experts in both Europe and the US. It is likely to be some time before definitive conclusions emerge, and it would therefore be inappropriate to make radical changes in business strategy or public policy until the situation is clear. We are therefore monitoring the progress of this analysis carefully, and developing our own understanding of the issue.

Bank and Borrowing

BP supports the unlimited use of banking of credits without time limitations within the LCFS and supports the idea of further exploring and discussing the use of borrowing. Banking allows regulated entities to save, and apply in future years, credits generated against current year obligations. Banking offers regulated parties an option beyond selling excess credits to the market. Borrowing is a related concept that, if well-designed, can introduce additional compliance flexibility into the system. In this case, regulated parties can borrow against future performance to satisfy current obligations. The concept of borrowing could be potentially useful for the LCFS should the regulation introduce strict compliance timelines that are out of step with innovation in low carbon fuels.

Attachment 2

BP Response to CARB Concept Outline Request for Feedback

CARB Questions Contained in "Proposed Concept Outline for the California LCFS Regulation Issued March 2008"

1. Section 2.0 Fuel Standards

Staff is seeking comments on whether hydrogen should be included immediately at the onset of LCFS or be included when a threshold (either quantity or date) is reached. If hydrogen is included, it will be subject to LCFS compliance requirements. However, staff is considering waiving the reporting requirement until such time that the amount of hydrogen used for transportation exceeds a "to-be determined" amount. If hydrogen is not included immediately but is allowed to opt in to the LCFS, it will not be subject to reporting but will still be able to generate credits, should it qualify.

BP Response to H2 Inclusion

Currently, as there is a limited market for hydrogen in the transportation sector, it seems premature to expend significant resources on this issue. As such, we would suggest that once the LCFS initial rules are adopted, CARB should consider setting up a working group to specifically address the issues surrounding the use of hydrogen. For example, although DMS has adopted a standard for hydrogen used in fuel cells, the standard doesn't include test methods to be used in determining one's compliance against the standard. Consensus based test methods are yet to be developed. Likewise, CARB would need to review and update its hydrogen fuel standard (i.e. Section 2292.7) prior to any further expansion of the use of hydrogen for transport.

2. Section 2.1 Standards for Gasoline

The compliance schedule above is, as an initial basis, based on a default Linear Compliance path and is intended solely for discussion. Staff is seeking additional input on the general characteristics of an achievable compliance schedule for gasoline. Comments should address the factors that could influence the ultimate slope of a compliance path including, but not limited to, the impact of land use change, the availability of low or very low-carbon biofuels in the 2010 to 2015 timeframe, and possible compliance strategies.

BP Response to Sections 2.1 and 2.2:

Compliance Schedule/Pathway

One of the most important design elements of the LCFS will be the compliance pathway – that is, the required trajectory for meeting the 2020 AFCI target. While a seemingly simple design element, the compliance pathway could have a tremendous effect on whether the LCFS is successful or not.

BP supports a compliance timeline that accounts for the current state of technology and reasonable estimates of the technological advancement necessary to comply with the

LCFS. While the necessary technology roadmap is not yet defined, we believe that CARB should implement a back-loaded compliance schedule in order to allow for what all have acknowledged is the need for significant technology advancement. We do not support "rationalized" (i.e. front-loaded) compliance schedules or compliance schedules that include volume mandates of particular fuels.

3. Section 2.9 Volume Obligation for Ultra Low Carbon Fuel

Staff is seeking comments on the definition of an ultra low carbon fuel and the concept of a volume obligation for ultra low carbon fuels. Listed below are two Page 6 3/20/2008 possible approaches:

- *By a certain timeframe (i.e. 2015) or when the total volume of transportation fuels reaches "xx" amount, require "y" percentage of the fuel from an aggregate volume (based on total sales across all LCFS applicable fuels in California) to be ultra low carbon fuels;*

- *By a certain timeframe (i.e. 2015) or when the total volume of transportation fuels reaches "xx" amount, an individual obligated party with total sales exceeding "z" volumes will be required to produce "y" percentage of ultra low carbon fuel.*

Comments should address, at minimum, whether a volume obligation for ultra low carbon fuels should be included in the LCFS, the appropriate volume requirement, and other approaches staff should evaluate.

BP's Response to section 2.9:

Ultra Low Carbon Fuel Mandate

BP strongly opposes the layering of a volumetric fuel mandate on top of an LCFS which is being characterized as a fuel neutral, performance-based standard. We believe a volume mandate is incompatible with a performance standard and could divert attention and resources from the development of a long-term, scalable solution.

It appears that CARB's motivation for consideration of a volume mandate may include providing incentive for innovation and/or to incent early progress toward the AFCI reduction target in the early years of the program. Our internal analysis has shown that the LCFS is an ambitious target that will require significant innovation to achieve on its own – therefore we believe the volume mandate is not necessary. Finally, the new Federal RFS2 requires advanced biofuels and biodiesel that require a 60 and 75% reduction in their carbon intensity. As such, the federal program will provide the incentive that ARB may be intending.

Moreover, we believe CARB should be realistic about the timeline required for innovation and should be careful about overreaching in this regard. Mandates that attempt to put unrealistic timelines on innovation could instead lock-in investments in existing technology – creating hurdles to future innovation. Additionally, these types of mandates could simply

cause compliance goals within compliance goals – diverting attention and focus from meeting the longer-term, scaleable, ultimate solution.

As an example, suppose CARB were to mandate a low volume of an "ultra low carbon fuel" of 75% lower carbon intensity than gasoline. This mandate would effectively provide disincentives to fuels that may have somewhat lower efficiency but that perhaps make up for this somewhat lower efficiency by being much more scaleable, cost effective, or by having better transport or other favorable characteristics. This example points out a large risk of a mandate which attempts to choose a "winner" based on only one criteria of ultra-low carbon intensity.

We urge CARB to drop consideration of this mandate and focus on a fuel neutral, performance-based, market approach.

4. Section 3.2 Point of Regulation

Staff is seeking input on what entity should be treated as the 'provider' for natural gas, propane, electricity, and hydrogen.

BP's Response to Section 3.2:

Point of Regulation

Gasoline & Diesel

CARB is proposing to differentiate between an obligated party and a regulated party in the LCFS rule. An obligated party is one that produces or imports CARBOB into California for the purpose of producing California gasoline, and the point of regulation for that obligated party is the point at which the CARBOB is transferred from the facility at which it was first produced or imported. Obligated parties are refiners and importers.

A regulated party is one that acquires, stores, or transports CARBOB and neat ethanol for the purpose of producing gasoline downstream of where the CARBOB was originally produced or imported - and then intends to sell it as a transportation fuel in California. This party will be regulated under the LCFS, but will not be required to meet any reduction in the carbon intensity of their finished fuel. The regulated party may generate GHG credits that could be sold to an obligated party for LCFS compliance. The obligated parties for the CARBOB remain the refiners and importers of the original CARBOB.

Similarly for diesel, CARB is proposing for an obligated party that produces or imports diesel into California to be sold as a transportation fuel in California, the point of regulation is the point at which the diesel is transferred from the facility at which it was produced or imported. The obligated parties are refiners and importers. A regulated party that acquires diesel for the purpose of blending with a renewable fuel to be sold as a transportation fuel in California is not subject to any LCFS carbon intensity reduction but is still regulated under LCFS rules and can generate LCFS GHG credits that could be sold to an obligated party.

In the case of gasoline and diesel, we are under the assumption that regulated fuels will still be subject to CARB's fuel specifications and subject to the current reporting and enforcement provisions. CARB should ensure that the LCFS and current CARB fuel standards are compatible, and to the extent possible, should use existing systems to reduce any redundancy.

Likewise, CARB should detail how the various regulated parties downstream of the production and import facilities (ie storage, transporters, blenders, and sellers) are regulated under the LCFS requirements. If such persons don't carry out their duties as envisioned, the true impact of the LCFS may be compromised.

Finally, CARB should clarify how they will treat a fuel produced in California for use outside of the state. Currently, these fuels are not subject to CARB rules other than labeling to ensure that they are not used in California.

Natural Gas, Propane, Hydrogen and Electricity
CARB is proposing for these fuels that the point of regulation is the point at which the fuel is supplied to the vehicle and the obligated parties are fuel providers. We understand that certain alternative fuels are not uniquely transport fuels until they are delivered into a vehicle, and therefore may require a point of regulation not entirely consistent with that for traditional transport fuels. However, we believe that CARB should be very cautious in setting a point of regulation that either advantages certain fuels or fuel suppliers, or that raises barriers, or takes advantage of current barriers to entry to these markets.

For example, LPG is one alternative fuel that could likely be regulated in a manner similar to gasoline and diesel. LPG intended for use in transportation vehicles can be segregated throughout the distribution system. Much of the LPG is produced at California refineries and/or imported by rail car. LPG intended for use in the transportation sector is required by CARB to meet certain specifications, unlike LPG intended for sale of heating, or cooking. Only LPG produced for sale and use in the transportation sector complying with CARB fuel standards should be counted toward an obligated parties LCFS requirements.

There are two related issues to the above LPG CARB fuel specification discussion. First, many of the alternative fuel specifications are out of date. Prior to the implementation of the LCFS, all alternative fuel specifications should be updated. Only alternative fuels that meet the applicable CARB fuel specifications should be used to comply with the LCFS requirements. Secondly, CARB has operated under a relaxed enforcement policy for most alternative fuels. This may be understandable in an environment of sparse use of alternative fuels. However, with the implementation of the LCFS there will be a significantly greater incentive to produce and sell such fuels. As such CARB must ensure they have the tools and resources necessary to enforce their alternative fuel specifications.

A Note Regarding Electricity
While the California Investor Owned Utilities (IOU's) plan to provide electricity for the transportation sector, others are faced with a barrier to entry to compete in this market. Under current law, only the IOU's are authorized to provide "retail" electricity. Others are

blocked from access to this market by suspension of Direct Access. As a total energy provider, BP is, in effect, prohibited from participating in this future segment of the fuels market. CARB's contemplated point of regulation for electricity in the LCFS could exacerbate this current barrier to entry. CARB and CEC must act to reconcile this issue.

5. Section 3.3.4 Tracking Biofuels

Staff is seeking input on a proposed tracking system to accommodate natural gas, propane, and hydrogen. Comments on a proposed tracking system for electricity are currently under staff review.

BP Response to Section 3.3.4

Tracking Biofuels
CARB has indicated that it plans on using the EPA Renewable Index Number (RIN) system, with some additions, to track biofuels. CARB has also acknowledged the merit of providing a way for a producer to get credit for a low carbon fuel without that fuel being required to be marketed within California. We support this approach because it provides compatibility with the EPA requirements and does not require shuffling of low carbon biofuels. Exactly how a biofuels producer will be registered with CARB, and how their products will be assigned carbon intensity requires further delineation. The protocol by which petroleum fuel providers who blend biofuels certify the carbon intensity of these blends also needs further description.

6. Section 3.4 Certification and Auditing

Staff is currently preparing an RFP for the development of a software compliance tool and is seeking input on the design and key software features that will help to streamline the determination of compliance.

BP's Response to Section 3.4:
Certification and Auditing
The requirements of a fuel neutral approach should be consistently applied to biofuels and alternate fuel providers, commensurate with that imposed upon petroleum fuel providers. Also, such requirements are imperative if credits are to have any credible value in the marketplace.

7. Section 4.3 Credit Acquisition and Trading

Staff is seeking comments on whether external 3rd party entities should be allowed to purchase and trade LCFS credit.

BP Response to Section 4.3
BP favors broad, open markets as the most efficient markets. However, we believe there may be reason, in a limited market such as the LCFS, to consider whether the consequences of allowing non-regulated parties access to credits outweigh the benefits of a more open

market. At this point, we would suggest that CARB limit access to and ownership of credits to obligated parties and to regulated parties that actually blend or produce finished fuels.

8. Section 5.3.1 Default Value Approach

Staff is seeking input on what value above the averaged, default value is considered to be 'substantive' and whether the credits should be allowed.

BP Response to Section 5.3.1:

Treatment of Crude Oil

CARB has proposed using a single, averaged default carbon intensity value for all conventional crude oils, and has proposed the use of unique, single, averaged default value for each non-conventional crude oil. On or after the date the LCFS becomes effective, a non-conventional crude oil provider may submit data to CARB to demonstrate a carbon intensity value that is substantively different than the averaged, default carbon intensity value for that category of crude oil. Upon CARB review, validation, and approval of the submitted information, the crude oil provider may use, in their lifecycle analyses, the submitted carbon intensity value instead of the default carbon intensity value for that category.

BP does not support CARB's current proposal, but instead supports using a single default value for all crude oils used to produce fuel sold in California. We believe that any differential treatment of crude oil by the state will result in unintended consequences that will increase, and not decrease, global GHG emissions. For the time being, and for the foreseeable future, all produced crude will be used somewhere in the global system. If California differentiates between crude oils, the result will be that crude oils currently used in California will simply be "shuffled" to other locations, and new crude oils will be transported to California. The result will be higher emissions due to transportation of crude, and likely increased GHG emissions from refining due to the fact that California refineries are set up to process current crude slates more efficiently than perhaps any place else in the world. These unintended consequences apply regardless of whether the crude oil is from a conventional or unconventional source.

We do support the idea of periodic reviews of crude oil intensity values. It may be reasonable to consider differentiating crudes at some point in the future when the LCFS has been more widely adopted such that shuffling is not a significant concern.

Use of Default Values

In certain cases where actual data may not be readily available, where use of actual data could cause unintended consequences, or for other reasons, it is sometimes necessary to use "default values" to represent specific portions of the lifecycle emissions. CARB is proposing to provide the default values for the determination of the LCFS blend stock average fuel carbon intensity, and are proposing to provide default values for crude oil, refinery efficiencies, fuel intensities and most GREET inputs. Lower level default values, where little is known about the origin of the supply chain, represent more conservative

estimates of GHG emissions; higher level default values, where the calculation includes more detailed information, are less conservative.

Accuracy levels are to be defined corresponding to type of default value or data used. CARB provides default values in accuracy levels 1 to 4, based on a source-to-wheel fuel life cycle analysis in accordance with section 5. An obligated party may choose to report using different levels of default values. ARB has included the following table for biofuels:

Table 3.3. Example of accuracy levels for biofuels corresponding to the type of default value or data used.

Type of default value or data	Accuracy level
Fuel type default	1
Feedstock default	2
Processing characteristic default	3
Feedstock & origin default	4
Selected default	5
Actual data	6

We support CARB's proposal to assign default values where actual data may not be reliable or readily available, or where use of actual data may result in unintended consequences such as shuffling. However, without additional details on how CARB's proposed accuracy levels will actually be implemented, we are not able to say whether we could support CARB's current proposal.

We have taken the position that default values should not represent pessimistic or conservative values, but rather they should be as accurate as possible and consistent with what is used to calculate the state's baseline carbon intensity. We are open to exploring ways to achieve our mutual goals of having the most accurate system possible, avoiding gaming, and improving the system by gathering more real data without imposing an unreasonable burden on the obligated parties where actual data might be unavailable or unreliable.

Where conservative default values are used in order to incentivize gathering and reporting of actual data, the data must be readily available, and there must be a reasonable method by which the data can be used to opt-in if desired.

Ability to Opt-in

CARB is proposing that an obligated party with specific information about their fuel pathways may provide additional qualitative or quantitative data to improve the accuracy of their GHG calculation. If real data are available, the obligated party may calculate and report its own GHG information using the Software Compliance Tool described in Section 3.4.3. If a portion of the data used in the calculation is based on real data, the accuracy level is 5; if all data used in the calculation is based on real data, the accuracy level is 6.

We support CARB's proposal for using actual real data when it is available and accurate. Regulated parties should have the ability to use actual operational data to qualify lower carbon intensity (Opt-in). An opt-in system should be designed to avoid gaming by regulated parties and undermining of the environmental goals of the LCFS. In some cases, the information with which to opt-in may not be readily available, and in these cases, accurate default values should be used.

9. Section 5.3.2 Refinery Efficiency

Staff is seeking input on what value above the averaged, default refinery efficiency value is considered to be a 'substantive' improvement. Additionally, if an obligated party makes a substantive improvement through the use of, for instance, co-generation technology, staff is seeking input on whether credits should be allowed. If credits are allowed, the input should also address how the credits are to be awarded. Credits may be awarded as follows:

- *Credits under the LCFS;*
- *Credits under AB32;*
- *Credits under both the LCFS and AB32;*

BP Response to Section 5.3.2:

Interaction with AB32

The LCFS and AB32 create an area of overlap, or double regulation (and double jeopardy for emission increases), for GHG emissions resulting from fuel production and refining which occurs within the state, for fuel sold within the state. BP's believes that emission reductions which occur in this area of overlap should receive full credit for compliance under *both* the LCFS and AB32, just as an emissions increase would create a compliance liability in both programs. We believe that a thorough analysis of the methods in which this area of overlap could be treated results in this dual compliance as the only reasonable, valid, justifiable method of treatment. This dual compliance would be limited to actual emission reductions (i.e. not purchased offsets) for emissions covered under the LCFS (i.e. those attributable to the production of LCFS-covered fuel sold in California – which are a subset of refinery emissions covered under AB32, which will cover all refinery emissions). This dual compliance (but not double counting of emission reductions) will also have the added benefit of encouraging emission additional reductions at facilities and will address some of the concerns raised around co-benefits and environmental justice issues.