BP America, Inc

Ralph J. Moran
1201 K Street, Suite 1990
Sacramento, CA 95814
(916) 554-4504

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Via Email
Sam Wade
California Air Resources Board
1001 I Street, Sacramento, CA

Re: BP America Comments on the Proposed Re-Adoption of the LCFS

Dear Sam:

BP appreciates the opportunity to submit comments on the proposed re-adoption of the Low Carbon Fuel Standard (LCFS). As the Board is considering a full re-adoption of the LCFS, we believe it is worthwhile to review why BP continues to have deep concerns about a program that we believe is overly complex, potentially costly and likely infeasible. We also provide comments on specific elements of the revised regulation.

In summary, we believe the LCFS is not a fuel neutral approach, that it picks winners and losers, that it puts a price on carbon emissions from conventional fuels beyond that introduced by a cap and trade system, that it misaligns incentives, rewards and regulated parties, that it shields some pathways from exposure to competition and the market, and that it suffers from a lack of a focused objective. Perhaps most importantly, a LCFS results in no incremental GHG reductions and is not necessary in order to meet the state's GHG reduction goal.

The State Should Focus on the Most Cost Effective Approaches

BP continues to believe that a market-based approach (either a well-designed cap and trade or carbon tax) to addressing climate change is not only the most efficient and cost effective – but also the only approach that incorporates a scalable solution recognizing the global nature of the issue of climate change. A market-based approach, such as a cap and trade system, is also the only policy alternative that provides the assurance of meeting a specific emissions reduction target - and does so while delivering this outcome at the lowest cost – ultimately allowing more emission reductions to be achieved. A market-based approach to addressing climate change recognizes that the most efficient emission reduction strategies

will change over time as markets and technologies evolve and develop. A market-based approach, such as a cap and trade system, can react quickly to evolving technologies and new approaches in a way that direct measures, or command and control regulatory approaches, simply cannot.

A primary objective of a market-based, GHG-reduction program should be to establish a broad, consistent price for carbon across the widest segment of the economy as is practicable. A broad, consistent carbon price will result in the fairest, most effective and most efficient reduction of GHGs and will best distribute the economic burden and increasing opportunities for low-cost abatement measures. A broader market, including one designed to easily integrate into an eventual regional or federal system, will reduce the impact of leakage and will increase the incentive and marketplace for innovation. That's why the aspiration of such a system should be an economy-wide, market-based program, while recognizing that it may take some time to achieve a fully economy-wide approach.

BP understands that in certain situations well-designed complementary policies may accelerate commercialization of certain low carbon technologies deemed by regulators to be worthy of support. However, the LCFS is not well designed and in fact may actually discourage investments because of its propensity for picking winners and because of the great uncertainty around feasibility of the targets. While some amount of direct regulation, or command and control regulation, can be justified on a limited basis, going forward the state should acknowledge the transitional nature and shortcomings of the current approach that relies heavily on command and control. A command and control system is not scalable – regionally, nationally or internationally. Because climate change is a global problem that requires a global solution, we need a program that has the potential to be scaled into a large program that will create a common carbon currency.

The LCFS is <u>Not</u> a Market-Based Program

The LCFS is not a market-based approach. It is a direct measure – a command and control regulation with a minor market element. And because the LCFS is a direct measure that regulates GHG emissions on a source (i.e. transportation fuel) that is already covered by the cap and trade program – it is important to acknowledge that the LCFS results in <u>no incremental GHG emission reductions</u>. Every emission reduction that results from the LCFS simply displaces an emission reduction that would otherwise have had to occur in the cap and trade program. In that way, the LCFS doesn't result in any additional or incremental GHG reductions – it simply shifts the reductions from the cap and trade program – to a method prescribed by CARB – in this case to the LCFS. And in doing so, the LCFS forces and shifts emission reductions from an efficient, low cost program where the market chooses how and where the emission reduction is achieved – to a high cost program where the emission reductions occur at multiple times the cost that could be achieved in the cap and trade program.

The LCFS Only Raises Costs – and Does Not Produce Incremental GHG Reductions

How does this work in the real world? Under the California cap and trade program, refiners remain responsible for purchasing allowances to cover emissions from the fuel they refine or import – whether or not a LCFS is in place. The effect of direct regulations

such as the LCFS is that they can lower fuel emissions by either reducing fuel demand or carbon intensity. In the absence of these reductions by the LCFS, the burden on refiners under a cap and trade program is not removed or shifted. Refiners would simply be required to reduce emissions elsewhere, purchase additional allowances (or pay other sectors to make reductions) to cover the emissions that would have been otherwise reduced by these direct measures. The market is able to seek out the lowest cost method of achieving these reductions – rather than being subject to a prescribed (and much more expensive) method of GHG reduction. So when a LCFS is in place, it means refiners simply have fewer obligations in the cap and trade program.

So what is the impact on cost? Given that the demand for cap and trade allowances will be somewhat lower when GHG reductions on sources covered by the cap and trade happen outside of the cap and trade program as the result of a direct regulation such as the LCFS, the price of allowances will likely be reduced some small amount. However, the overall societal cost of the AB32 program will be *much* higher – because in the presence of a direct measure such as a LCFS, GHG reductions are not allowed to occur in the most cost effective manner – but rather in a manner prescribed by policymakers. This might seem paradoxical in a way – but is actually logical. The existence of what most acknowledge is a very expensive regulatory measure in terms of $/tonne CO2e reduced (i.e. the LCFS) will slightly lower the cost of allowances in the cap and trade program – but significantly increase overall societal costs of achieving the GHG reduction target. This is because a direct measure removes the reductions from occurring and being transparently and efficiently priced in the cap and trade system, and masks the costs by imposing them directly and non-transparently on regulated parties.

Therefore it is incomplete, at best, for the regulation to claim, as it does, that the LCFS will "reduce compliance costs under California's Cap-and-Trade program for regulated entities that are subject to both regulations". The full story is that while the LCFS may result in a minor reduction in the cost of allowances, the overall cost to regulated entities and the overall societal costs of achieving AB32's goals will be <u>much higher</u> in the presence of a LCFS – with no additional, incremental emission reductions occurring from this increased cost and complexity.

Actual Benefits of the LCFS are Unclear

The LCFS was conceived and adopted with a very optimistic view that a robust market for low carbon alternative fuels would exist early in the LCFS program – stimulating supply of large volumes of low cost, low carbon fuels – such as cellulosic ethanol. In fact, the original economic analysis produced by CARB to support the initial adoption of the LCFS estimated that the program would save the state "as much as $11 billion from 2011-2020."

BP believes there will be breakthroughs in alternative fuel technology, including biofuels (driven largely by the federal RFS), and that use of advanced, low carbon biofuels in more efficient conventional engines will provide the bulk of GHG emission reductions in the transportation sector in the mid-term. However, it is clear that this robust, low-cost, alternative fuels industry has not materialized – and may not for many more years. Thus,

the LFCS has been premised and designed on fundamentally flawed assumptions that we believe necessitates a complete re-thinking of the program.

Similarly, it is also not clear what role the LCFS is playing in driving innovation in alternative fuels. We believe the federal RFS is the clear and primary driver for innovation in biofuels. With respect to other alternative fuels, we believe that the current price advantage in natural gas (and not the LCFS) is driving renewed consideration of natural gas as a transport fuel, and that a LCFS does not address in any material manner the primary hurdle for use of electricity as a transport fuel – i.e. the cost of electric vehicles. We do believe it is possible to make the case that the LCFS is a driver for bringing biogas, biodiesel, and renewable diesel to California for use in the transportation sector. However, we believe it is difficult to make the case that a LCFS with its expense and complexity, is the appropriate policy choice to drive these outcomes – as opposed to more targeted, less complex and less costly incentives.

A LCFS is Not the Right Long Term Policy for the State

Some have opined that complementary polices, such as a LCFS, are necessary or should be *the* enduring policy for transportation fuels because the price of carbon in a cap and trade system may not rise quickly enough or ever reach the level necessary to bring about material emission reductions in the transport sector. We believe this view demonstrates a misunderstanding of the dynamics of a properly designed cap and trade system. If the cap is properly set, and includes a broad set of emissions sources (including transportation emissions), the carbon price will necessarily rise to deliver the required emission reductions. Furthermore, if it is believed that the public will not accept a carbon price that is necessary for a cap and trade system to deliver emission reductions from the transportation sector, then there is little reason to believe the public would accept the same (or much higher) carbon price imposed on the transportation sector as a result of a complementary policy such as a LCFS.

As California looks toward setting longer term climate policy goals, it is more important than ever that the focus be on the most efficient and cost effective means of reducing GHG emissions. Going forward much is at stake in the state's consideration of how to proceed with climate policy post 2020. Reaching post 2020 targets will require nothing less than a fundamental transformation in the way that California produces and uses energy - with significant uncertainty as to the cost and availability of the technology necessary for that transformation to occur.

According to the Scoping Plan Update, achieving post 2020 emission reduction targets that put the state on a path to achieving 2050 goals "will require that the pace of GHG emission reductions in California accelerate significantly. Emissions from 2020 to 2050 will need to decline several times faster than the rate needed to reach the 2020 emissions limit."[1] It has been estimated that the pace of post 2020 emission reductions will need to be <u>five times</u> that of the current program. Governor Brown has said that these future programs will be "far more stringent" and "far more difficult" than current programs. Moreover, these

[1] Proposed First Update to the Climate Change Scoping Plan: Building on the Framework, February, 2014. Page 37 and Figure 6, page 38.

future, much deeper emission cuts will likely (and hopefully) occur during a period of economic growth in the state rather than during the period of economic contraction the state has experienced during much of the current program.

The stakes are therefore much higher, and the potential for significant impact to consumers and the state's economy much more pronounced in a post 2020 GHG reduction program – with the deep emission cuts envisioned. At this important time, with the challenges of deeper, long term emission reductions, and the eyes of the world on California, it is more important than ever that the state focus on the most efficient and cost effective means of reducing GHG emissions. By 2020, California's GHG reduction program- whether it be the program to maintain the 2020 goal or an expanded program - should be far along the way toward relying on a market as the primary mechanism for GHG emission reductions. It is simply not reasonable to expect that current policymakers are equipped today to design a series of command and control policies that determine the exact "recipe" of emission reductions that will meet this century-scale challenge. That should be left to the market. The LCFS is complex, uncertain, expensive and unnecessary to meet the state's long term climate policy goals – and need not be a part of state's climate change policy going forward.

Cost Containment Proposal

In the development of a cost containment proposal, we appreciate that staff have acknowledged that "some amount of uncertainty will always exist regarding the future supplies of low-CI fuels and the availability and price of LCFS credits". In response, the proposed regulation puts in place a LCFS credit price cap of $200 (with escalation) and a so-called annual credit clearance process.

While we believe the proposed cost containment proposal is not wise or appropriate for a range of reasons, we do believe it represents an important acknowledgement that a) it is very likely that the fuels or vehicles necessary for LCFS compliance won't materialize in required volumes within the timeframe of the regulation and likely for some time after that, b) the original LCFS cost estimates were wildly inaccurate – and rather than saving billions of dollars for fuel consumers, LCFS compliance costs are likely to run into the billions of dollars, and c) emission reductions in the LCFS come at a cost per tonne that are multiple times that of emission reductions in the cap and trade program.

Our internal review of various alternatives to address changes to the LCFS, should the program prove to be infeasible or not cost effective, came to the conclusion that there is no simple, pain-free way to alter the LCFS once it has begun. In fact, the only way to avoid having to make difficult choices about whether or how to alter the program in the future is to set targets from the outset that are demonstrably feasible and cost effective. Credible targets send a consistent market signal to obligated parties and to investors in low carbon fuels. As difficult as these decisions will be around how to alter a LCFS that proves to be infeasible – even more difficult and painful would be to avoid these discussions and later be forced to make last minute, abrupt, arbitrary decisions on how to alter the program.

Cost control, flexible compliance or alternative compliance mechanisms can be useful design features for fundamentally sound programs that have perhaps hit a snag in their implementation. We do not believe the LCFS meets these criteria as it was based on overly optimistic projections about the cost, timing and availability of alternative, low carbon fuels. If, as the evidence suggests, the LCFS is infeasible within its current timeframe, it is the regulation that needs to be changed – or completely reconsidered. If policymakers have miscalculated, then they should go back to the drawing board.

If a LCFS program is to be continued in the short term, we believe CARB should expand its thinking on addressing shortfalls in fuel availability and other LCFS program flaws. The focus should be on solutions that directly address the cause of the problem – not merely reacting to a symptom. Excessive compliance costs that result from the unavailability of alternative fuels is a symptom of a larger problem. Designing cost control measures is a classic example of treating the symptom rather than the disease.

Regarding the specific proposal for a $200/ton price cap on LCFS credits, there are several areas of concern we hope the Board and staff will consider before moving forward. First, it is important to acknowledge that this price cap of $200/ton represents a significant departure from the LCFS compliance cost estimates contained in the 3/5/09 staff report - and which were used to support and adopt the original LCFS.

Conclusions from the 3/5/09 Staff Report include:

> *"Staff estimated that the displacement of petroleum-based fuels with lower-carbon intensity fuels will result in an overall savings in the State, as much as $11 billion from 2010 -2020" (p.239).*
>
> *"For the five gasoline analyses, the cumulative net cost effectiveness ranged from ($121) to ($142)/MT CO2E reduced, which, for the period of 2010 – 2020, is a cumulative savings of $8 to $9 billion" (p.272).*

If reached, this cost cap would represent billions of dollars per year in additional costs of supplying fuel in the state. In Table ES-4 of the LCFS ISOR, the annual compliance cost in 2020 is estimated at $2.1 billion using a LCFS credit price of $100. The updated regulation contains no analysis as to compliance costs or impact on fuel prices if the $200 cost cap level is achieved. The regulation should model and estimate the cost of the program – and the potential impact on fuel prices should the cost cap level be achieved. The regulation should also analyze the potential market impacts of setting such a price cap. For instance, how could buyers and sellers react to such a price cap and how will this price cap impact the market?

A $200/tonne C02e price cap acknowledges the much higher cost of reducing emissions under the LCFS than could be achieved using a well-designed cap and trade program. This large difference can be seen by investigating both the price cap in the current cap and trade program vs the proposed price cap in the LCFS – and in the current market prices for credits in each of the respective programs. First, regarding current market prices (both

which represent the cost of a tonne of C02e), LCFS credits are trading at approximately twice the cost of a cap and trade allowance. Second, comparing the level of the price cap for the respective programs, the LCFS price cap of $200/tonne is approximately 5 times the level of the lowest "price cap" of the state's cap and trade program. These large differences acknowledge the much higher cost of reducing GHG emissions in the LCFS when compared to the cap and trade program. This means the state, and its consumers, are paying a high price in order to allow policymakers to exercise their preference as to how and where GHG emission reductions will occur in meeting the state's GHG goals. California consumers would be much better served by having policymakers set targets and allow the market to choose how the state's GHG targets are met.

Furthermore, the LCFS regulation contains no discussion or analysis about how the cost cap of $200/tonne was arrived at. The regulation could benefit from a discussion as to why the LCFS price cap needs to be set at a level so much higher than cost containment provisions in the cap and trade program. On the other hand, some investors in alternative fuels might argue that $200/tonne cost cap is not sufficient to drive the necessary innovation in alternative fuels. In fact, Board members Dan Sperling and Mary Nichols wrote in a 2012 piece in "Issues in Science and Technology", that a price signal of $.70 per gallon is "not enough to motivate oil companies to switch to alternative fuels". A $0.70 per gallon cost suggests a cost cap much higher than $200/tonne. So while it is clear that GHG reductions under a LCFS will be much more expensive than equivalent reductions under the cap and trade program - it is not clear that the proposed cost cap will allow the LCFS to achieve its intended purpose – that is, innovation in the transport sector.

Moreover, it is not clear that the proposed cost containment mechanism, or the LCFS in general, meets the requirements of AB32 for cost-effectiveness. The language of AB32 requires that GHG reductions in the program are "cost-effective". It is difficult to understand how a LCFS can be considered cost effective when, as shown in previous paragraphs, the cost of a reduction of one tonne of CO2e from the LCFS costs the state multiple times that of equivalent GHG reductions that could be obtained from the cap and trade program. Staff has offered in response to this point that the LCFS is a "transformational" policy, however there appears to be no language in AB32 that provides exemptions from cost effectiveness for transformational policies.

The proposed cost containment mechanism does not facilitate more emission reductions or innovation or change the supply/demand balance of credits - it simply caps costs and allows regulated parties to carry forward unmet compliance obligations. Since this proposal does not result in equivalent emission reductions in the same timeframe (emphasis added) as the regulation, we believe this violates Section 38505 (b) of AB32 which requires:

> *"Alternative compliance mechanism" means an action undertaken by a greenhouse gas emission source that achieves the equivalent reduction of greenhouse gas emissions over the same time period as a direct emission reduction, and that is approved by the state board. "Alternative compliance*

mechanism" includes but is not limited to, a flexible compliance schedule, alternative control technology, a process change, or a product substitution.

For all these reasons, we recommend that the proposed cost containment mechanism, and the LCFS itself, are completely re-evaluated – both for the short and long term. If past assessments of cost and feasibility prove to be so far off from actual costs, what is needed is not an ill-advised cost cap, but rather a re-assessment of the targets, timelines and advisability of the program. If there is a wide-spread inability to comply with the LCFS, what is needed is an acknowledgement of a miscalculation by policymakers.

We recognize the need for policymakers to address climate change and believe the transportation fuel sector should play a role. However, we don't believe it is reasonable or productive to be wedded to a particular strategy to reach that goal - especially in the face of clear evidence that the program is costly, unachievable, overly complex, unnecessary or otherwise problematic. All options for alternatives should be on the table – both for the current program and post 2020.

Treatment of Crude Oil

It has been and continues to be BP's position that the LCFS should not differentiate between crude oils. We believe strongly that a reasonable evaluation of the effect and impact of differentiating crudes will conclude that there is no environmental benefit from differentiation – only severe unintended consequences to California refiners and fuel suppliers and to the market for transportation fuels. Importantly, a LCFS that does not differentiate crude oils and therefore treats all crudes as equal will maintain the same incentive for innovation and investment in lower carbon fuels.

Before a decision is made to consider differentiation of crudes, we believe it is incumbent on the proponents of differentiation – that they are able to demonstrate, definitively, that there will be material environmental benefits to differentiation of crudes in the California LCFS – and that these benefits will outweigh the consequences of differentiation. We believe the potential unintended consequences are too great to ignore, and that any potential benefits cannot be simply assumed. This important policy decision cannot be justified by the hope that there will be benefits – or by the desire to send a symbolic signal to producers of crude oil. There must be a definitive demonstration of benefits that outweigh risks and consequences. We strongly suggest an evaluation including but not limited to analyzing the following questions:

- Does the differentiation of crude oil in the California LCFS result in a meaningful increase in the volumes of low carbon fuel used in the state?
- Does the differentiation of crude oil in the California LCFS result in meaningful incremental incentive for innovation in low carbon fuels?
- Will the differentiation of crude oil in the California LCFS result in net global GHG reduction?
- Will the differentiation of crude oil in the California LCFS effect what crude is produced globally?

We believe it can be demonstrated that the answer to all of these questions is – no. Further, we believe it can be demonstrated that the likelihood is that differentiation of crude oil in the California LCFS will result in *higher* global GHG emissions.

Electricity Provisions

With regard to the electricity provisions of the draft regulatory changes, we are most troubled by the proposal to remove the requirement that direct metering of electricity usage in electric vehicle charging is necessary to generate credits by 2015. Staff provided little rationale for this proposed change other than that "many EV drivers have elected not to install dedicated EV meters at their residences". In our view, this is precisely why a requirement for metering is necessary. A primary driver of the LCFS is to drive innovation and investment in alternative fuels.

The proposal to eliminate metering brings up many issues including:

1) Verifiability of emission reductions.
   An overriding and oft-stated criterion for emission reductions under AB32 is that reductions are real and verifiable. Policymakers, the public and regulated parties who purchase these credits must be able to rely on the fact that these emission reductions are real, that the credits generated are actual and that a ton is a ton. We can think of no other example within the AB32 program where direct generation of a currency within the system is directly and solely generated based on an estimation process – especially where a clear and more reliable method of direct measurement exists.

2) Innovation
   The LCFS is meant to drive innovation and investment in alternative fuels. It is clear that for electricity in transport, innovation is required for determining and optimizing how, when and why customers recharge their vehicles. This innovation is necessary in order to inform consumer choice, plan for generation needs and load servicing, and to better determine the carbon intensity of actual electricity usage. Because electricity is already ubiquitous as an energy source and the primary hurdle to electrification is in the cost of the vehicle, it is unclear what innovation in electrification would be driven by a LCFS short of that which would come from metering and the information derived from metering. Because of this, it is hard to understand why CARB would backtrack on the requirement that metering be required for electricity generation in the electricity sector.

3) Fairness/Consistency
   For most fuels, the LCFS requires considerable investment and innovation in the development and deployment of alternative fuels in order to both generate credits and comply with the CI reductions. Obligated parties, particularly those dealing in liquid fuels, are required to undergo extensive documentation to show the carbon intensity and pathway for their fuel. Metering is required to determine the volume of fuel sold and regulated parties are subject to enforcement and fines if problems with meters arise.

Absent a requirement for metering, it is unclear what investment is required by utilities in order to generate a LCFS credit. Utilities already enjoy a market closed to competition for retail sale of this form of transportation fuel, benefit from an assumption that electricity used is the marginal megawatt – rather than the "conservative default" CI that other fuels have to utilize in the absence of specific data, and now apparently may not even have to actually measure the amount of power that is used by electric vehicles.

4) Taxation
The state of California is already massively underfunded when it comes to funding transportation infrastructure. There are multiple efforts underway by policymakers and stakeholders to find additional sources of revenue. As alternative fuels such as electricity displace petroleum, the transportation funding deficit will only grow. It is likely only a matter of time before transportation fuel taxes are applied to alternative fuels such as electricity. The state Board of Equalization is unlikely to rely on an estimation method to determine tax payment when metering is possible and clearly more accurate.

Researchers who have investigated the role of electricity in a LCFS also agree that metering should be required. UC Davis concluded that:

> *The market for PEV chargers is emerging, so there will be a great deal of innovation in the arena of metering and billing for PEVs in the coming decades…LCFS requirements for metering and reporting for the purposes of credit generation may accelerate these changes".*
>
> *Since PEV chargers are now being built with utility grade meters, it makes sense to tie the generation of LCFS credits to requirements on electricity providers to supply regulators with verifiable, metered data and detailed charging timing profiles that can be used for utility planning and CI calculations.*
>
> *In order to obtain LCFS credits, electricity providers should be required to provide detailed data on charging load, timing and location by a verifiable, utility-grade meter. This information will be used for grid planning and CI calculations and also ensure that PEV charging does not cause or exacerbate grid issues.*[2]

For all these reasons, we urge CARB not to backtrack on the requirement for metering in order to generate LCFS credits from electricity.

GREET Revisions

The proposed regulation contains significant revisions to the carbon intensity values for many alternative fuels pathways as well as for baseline fuels. In some cases, the revisions would increase carbon intensities (CI) by nearly 200%. These contemplated

[2] Fuel Electricity and Plug-in Electric Vehicles in a Low Carbon Fuel Standard, Christopher Yang, May 2013

revisions would have significant impacts not only on investments that have been made in good faith reliance on the regulation, but on compliance plans that have incorporated these fuels and pathways, and on the general confidence of the market to rely on the LCFS regulation. We request that CARB adopt a much more deliberative approach to consideration of these changes. This approach would include public workshops held well in advance of any formal rulemaking that review in detail the data upon which the contemplated changes are based, the impact on investments and compliance, the wisdom of making such significant changes to the rules of this regulation at this point and the unintended consequences of these contemplated changes.

Full Data Transparency
At a previous workshop where these CI revisions were discussed, staff did not make available the data or analysis to support the contemplated CI changes. Without seeing the data, it is difficult to provide comment on the validity of the new values. The science of lifecycle analysis as well as understanding of related issues such as methane leakage rates continue to evolve – and are not without controversy.

CARB has a responsibility to ensure that the proposed CA-GREET 2.0 model is based on the most up-to-date, accurate methodologies and data available. Given that the newly proposed CI values are based on evolving science and, if adopted, will have significant impact on investors and compliance entities, it is vital that consideration of any CI revisions – especially changes as significant as these – start with a full and transparent discussion of the data and analysis upon which the changes are based. BP concurs with the following examples of where this transparency and discussion is particularly warranted, as provided by the California Natural Gas Vehicle Coalition and the Coalition for Renewable Natural Gas in their letter of 1/21/15 (summarized here):

1. Tailpipe methane slip factors – concerns have been raised as to the quality and accuracy of the data used to adjust the model's methodology and calculate methane tailpipe emissions factors. Peer reviewed sources of the most up-to-date tailpipe methodology and emissions factors based on actual NGV emissions data, such as the soon-to-be released Argonne National Lab (ANL) Heavy Duty Vehicles Report, calculates methane slip values four to six times lower than those currently being used by CARB staff.

2. Methane leakage from RNG production facilities - the current proposed leakage rates are not consistent with New Source Performance Standards which US landfills are subject to for operational and control systems. Concern must be raised as to CARB's reliance on European studies for anaerobic digestion facilities that are not applicable to the US RNG production from landfills.

3. Methane leakage from conventional natural gas processes and transport – assumptions currently in CA-GREET 2.0 are based on a national-level EPA methodology, which may not be representative of California's natural gas distribution systems or the primary gas-producing basis supplying natural gas to California. Finalizing these GREET revisions should be delayed to incorporate

the release of more up-to-date studies on system leakage which CARB's ISOR (Appendix D) acknowledges is due soon.

We therefore strongly suggest that this portion of the regulatory process is put on hold until the data and analysis upon which the changes are based is presented to the stakeholders and that stakeholders are given ample opportunity to comment on the data and analysis.

Impact on Feasibility and Investments

Significantly raising CI values for alternative fuels will have an impact on investments made in reliance on the current LCFS regulation and on the feasibility of what is already a very challenging, possibly infeasible, regulation. For instance, contemplated increases to natural gas and biogas pathways include CI increases ranging from 15% to nearly 200%. For sugar cane ethanol pathways, CI increases are as much as 88%. Companies have made significant, long-term investments in these pathways – and are currently considering future investments. Even at the low end, these changes will impact current investments, significantly altering the economics of these investments - and will put a chill on investments that are being currently considered. At the high end, they make projects uneconomic.

With regard to impact on compliance, to date, natural gas and biogas pathways have contributed a significant amount to compliance. According to the latest UC Davis LCFS Status Review, natural gas and biogas together have accounted for approximately 11% of total LCFS credits – and approximately 90% of non-biofuel LCFS credits[3]. These fuels have provided, and are required to continue to provide, an important compliance bridge while other low carbon fuels such as cellulosic ethanol continue to develop. The contemplated CI increases for these fuels would therefore have a profound effect on regulated entities whose plans have, in good faith, incorporated these pathways into their compliance plans.

Grandfathering/Transition

As both the science of lifecycle analysis and related data on fuel pathways – such as methane leakage - continue to evolve - investors and compliance entities cannot and should not be subjected to constant tinkering of CI values – let alone significant, game-changing shifts in carbon intensities during the current timeframe of the regulation.

Even if, after appropriate vetting through a robust public process, the data and analysis support CI changes to existing fuel pathways, there are real public policy questions about whether or how such game-changing revisions are implemented. Staff should consider what will likely be important and unfortunate unintended consequences of increases to the CI of pathways that capture methane that would otherwise be emitted to the atmosphere under business as usual scenarios. By levying a heavy penalty on these pathways, the revised regulation greatly reduces the incentive for projects designed to capture these emissions.

[3] Status Review of California's Low Carbon Fuel Standard, Yeh and Witcover, July, 2014

Moreover, in the recently released pamphlet on Reducing Short-Lived Climate Pollutants in California, CARB states that "The Low Carbon Fuel Standard provides strong financial incentives to use captured methane from landfills and anaerobic digestion facilities as transportation fuels" – and makes similar statements for capture of methane from dairies. If CI revisions on the order of what was presented at the 8/22/14 workshop are adopted, going forward, significantly less incentive will be in place to address methane emissions from both the LCFS and from any market-oriented regulations that may be focused on short-lived climate pollutants.

Any changes that may be justified, after a full vetting of the appropriate data input and assumptions, should go into effect only after a lengthy, well-noticed transition period. Investors and compliance entities must be able to rely on the regulation over an appropriate time period.

BP Method 2a Pathway Application, Use of GREET and ILUC Revisions

Though BP has concerns with the LCFS, we continue to invest in good faith, both to comply with the regulation and as part of our commitment and contribution toward to a lower carbon transportation sector. These investments include a material business in Brazil to produce efficient, low carbon sugar cane ethanol. Our three sugarcane ethanol mills in Brazil have combined crushing capacity of 10 million tonnes of sugarcane and we are working towards expanding this business further (we recently completed a project to double the capacity of our Tropical mill). Since acquisition, BP has implemented a number of technologies and measures that reduced steam use within the process and improved electricity efficiency of cogeneration. We have also implemented a number of upgrades and installed new-cogeneration capacity at one of the mills. BP supports a sustainable approach to biofuels. We are an active member of Bonsucro – the Better Sugarcane Initiative, and our Tropical mill is already certified under the Bonsucro standard as well as the SA8000 standard for social accountability. We are working to extend certification across our other mills.

BP submitted an LCFS method 2a pathway application for these Brazilian sugar cane ethanol plants in May 2014. Staff has obviously been busy working on the large number of LCFS revisions but has been generous with their time in helping us to work through the many issues around the application. As you might imagine, we are anxious to have our pathway application approved in a timely manner so that the higher efficiency of these plants can be recognized.

In addition to the normal complexities of the 2a process, the approval process has been slowed by the pending adoption of CA-GREET 2.0 and the revisions in ILUC factors. We understand that the science of lifecycle analysis continues to evolve and we want to incorporate the latest science into our application. However, in our most recent discussions with staff, we have been made aware of what we see as troubling inconsistencies in the planned timing of the application of various parts of the pending regulatory revisions. In short, it appears to be CARB's position that the GREET 2.0 revised CIs (which are generally higher for Brazilian cane ethanol) should be modeled into all new pathway applications immediately, while the pending ILUC revisions (which

are generally lower) cannot be used until the effective date of the regulation (approximately 1/1/16).

It is also our understanding, based on a presentation at a 12/17/14 workshop, that because our application was submitted prior to 12/1/14, another option would be for us to utilize GREET 1.8, with certain revisions already implemented in GREET 2.0, for our pending application until one year after the adoption of the revised regulation – at which time we would also adopt the new ILUC factors. This option is sub-optimal for us not only because it will require us to have our application submitted and approved twice, but also because it will put us at a disadvantage with applicants who were allowed to use GREET 1.8 without revisions. This option also increases staff workload by having to evaluate 2a applications multiple times.

As staff seem willing to allow regulated parties to adopt the most recent science in method 2a application immediately (i.e. GREET 2.0), it seems only fair and consistent to also allow use of the newest ILUC values at the same time – i.e. immediately. This not only makes the application of the regulatory revisions fair and consistent, but also reduces the potential for a large increase in staff workload as applications are submitted now – and then revised after the regulation becomes effective.

Traceability of LCFS Credits

Regulated parties and others have long voiced concerned over CARB's general approach to 'Buyer Liability' within the AB32 program. Buyer Liability provisions increase transaction costs by requiring buyers who have asymmetric access to information and little reasonable capacity to complete their own due diligence, to verify the likely validity of a given credit. The responsibility for ensuring credit validity should sit with those who are in the best position to manage the risk – i.e. credit generators.

Several of the LCFS fuels pathways would require that regulated entities participate in the LCFS credit market in order to attain compliance. Further, in the event of an inability to comply, regulated entities must purchase LCFS credits on the market. The expectation that regulated entities can or will participate in the LCFS credit market, either via a normal compliance approach or via the credit clearance market necessitates a program that allows them to be able to rely on the validity of these credits. In fact, we believe the following language of the current statute requires that CARB ensure the validity of these credits:

> Cal. Health & Safety Code § 38562(d)(1)
> *Any regulation adopted by the state board pursuant to this part or Part 5 [market-based compliance mechanisms] shall ensure all of the following: (1) The greenhouse gas emission reductions achieved are real, permanent, quantifiable,* ***verifiable****, and enforceable by the state board …*

BP urges CARB to act to reduce the risk of invalidation born by market participants by:

1. Limiting the basis for invalidation under proposed section 95495(b)(1) and adding a statute of limitations on the right to commence invalidation procedures, and;

2. Allowing buyers to better access and manage the inherent risk by providing for traceability of LCFS credits. By giving LCFS Credits a unique serial number similar to that applied to offsets generated under the Cap and Trade program or RINs, a buyer would be able to implement their own quality assurance and risk management programs to better evaluate and ensure the integrity of the credits they are purchasing, and in doing so better support the integrity of the program.

We are happy to discuss these comments and recommendations with you in more detail.

Sincerely,

Ralph J. Moran
BP America, Inc

cc

Richard Corey	Phil Serna
Mary Nichols	John Eisenhut
Dan Sperling	Barbara Riordan
Sandy Berg	John Balmes, M.D.
Hector De La Torre	Ron Roberts
Alexander Sherriffs	John Gioia
Judy Mitchell	