



Kern Oil & Refining Co.

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August 24, 2012

Clerk of the Board
California Air Resources Board
1001 I Street
Sacramento, CA 95814

**Re: Comments on Proposed Amendments to Low Carbon Fuel Standard Regulation
Second Notice of Public Availability of Modified Text
Kern Oil & Refining Co.**

Dear Clerk of the Board:

Kern Oil & Refining Co. (Kern) is providing comments on the Second Notice of Public Availability of Modified Text to the Low Carbon Fuel Standard (LCFS) regulation, released by the California Air Resources Board (CARB) Staff on August 9, 2012. Kern appreciates the opportunity to comment on the proposed modifications.

Kern's greatest concern regarding the proposed modifications is the continued failure of CARB to address the inherent issues and inequality associated with the currently proposed "average refinery" approach. Specifically, the California Average Refinery approach utilized to account for High Carbon Intensity Crude Oils (HCICO) disproportionately disadvantages low-volume refiners like Kern. The regulation and determination of the Carbon Intensity (CI) for finished fuels also fails to consider the appropriate CI levels for low-energy-use, low-complexity refineries, whose CIs for finished products, in reality, are necessarily lower than the industry average relied upon in the regulations.

The need to address these average refinery discrepancies, particularly with regard to low-volume, low-energy-use, and/or low-complexity refiners, has been discussed, substantiated and acknowledged by CARB numerous times over the last three and a half years, yet nothing definitive has been incorporated into the modifications. As one of only two remaining small refiners in California producing transportation fuels, and the only small refiner in California producing CARB Reformulated Gasoline and Ultra Low Sulfur Diesel, Kern is uniquely situated to bear the brunt of this flawed industry average approach. We are no longer in a "reporting year only;" compliance is upon us and these flaws in the regulatory scheme need to be addressed.

Kern is also providing comments on the use of 2009 instead of 2010 as the industry baseline, the premature adoption of the OPGEE model, the elimination of certain reporting requirements and CARB's comments regarding anticipated additional modifications to the regulations.

I. Omission of Provisions For Refinery-Specific Approach to Compliance With the Industry Crude Oil CI Baseline

Absent from the modified LCFS provisions are options coupled with or in lieu of the California Average Refinery Approach to account for HCICO that would provide a fair means of accounting for deficits incurred as a result of processing HCICO. An approach must be incorporated that provides equal treatment to all refiners and which does not unjustly distribute deficits across the industry – penalizing one refiner for another refiner's choices.

Although Staff originally expressed their intention to recommend the hybrid California average/company specific approach to the Board, ultimately Staff proposed the California Average Refinery Approach. (See the *2011 Low Carbon Fuel Standard 2011 Program Review Report*, section 9, paragraph E.) However, as acknowledged by CARB Board Member De La Torre during the December 16, 2011, hearing, not only could facilities benefit from being measured on their own performance as opposed to a potentially unrelated "industry average" performance, the "industry average" approach also threatens to penalize clean facilities that get lumped in with the "average" mix. Indeed, Resolution 11-39 specifically directs the Executive Officer to evaluate and propose an option for individual regulated parties to have their deficits determined on a refinery-specific basis, which these modifications fail to address.

Kern has actively pursued a solution to the "average refinery" issue throughout the rulemaking process, for example: providing comments in advance of and public testimony at the December 16, 2011, hearing; meeting with CARB Staff in February 2012 regarding alternatives for individual facility compliance determinations, the flaws inherent to the California Average Refinery approach and the detriment it would have to Kern by having to subsidize other refiners' when the industry exceeds the baseline; and providing April 25, 2012, comments to the First Notice of Modified Text. Kern's specific concerns regarding the California Average Refinery approach to compliance with the Industry Baseline are as follows:

1. The Cross-Subsidization by Spreading Deficits Industry-Wide Creates an Incentive to Run Higher CI Crude Oils.

The current industry average approach unnecessarily incentivizes refiners to process HCICO because the deficits incurred if/when the industry average exceeds the target baseline are then spread across the entire industry. Even those refiners who did not process any HCICO will be penalized under this approach since the deficits are spread across the entire refining industry, regardless of what each individual refinery actually processed. This distribution of deficits discourages actual reductions in HCICO because the impact of incurring deficits is softened

across the group. In fact, the lack of individual accountability incentivizes refiners not to pay premium prices for purchasing a lower carbon-intensity crude oil. No single refiner has control over another refiner – how they run their business, acquire raw materials, or otherwise – much less control over the entire industry. This holds especially true for those lower volume refiners with little or no ability to impact the industry average.

2. Low-Volume Refiners Have a Severely Limited Ability to Impact the Industry Average.

The size of refineries, in terms of crude oil processing capacity, varies widely across the state. The crude oil processing capacity of California refineries ranges from less than 10,000 barrels per day to nearly 300,000 barrels per day (See National Petrochemical & Refiners Association's 2011 *NPRA United States Refining and Storage Capacity Report*). At approximately 26,000 barrels per day, Kern represents less than 1.5% of California's total capacity. The likelihood of a small refiner such as Kern impacting the industry average is minute at best. Low-volume refiners will suffer disproportionately negative economic impacts under the average refinery approach over which they have little to no control or impact. Low-volume refiners therefore should be evaluated on their own merits as a distinct subset of the California refining industry.

3. Infrastructure Flexibilities, or the Lack Thereof, Affect Refiners' Ability to Run HCICO and Widen the Refiner Disparity Across the Industry Average.

The majority of refineries in California have a significant level of flexibility for access to a variety of crude oil sources via pipelines and/or port access. These flexibilities allow larger, more accessible refiners the benefits of world markets, better economics, enhanced trading options, wider access to differing qualities of crude, and more. These opportunities present a disadvantage to smaller and/or land-locked refineries such as Kern, in that the effects of these benefits will further exacerbate the already notable differences between a small refinery and the "average" refinery contemplated in the regulations. Larger refining companies further possess complex processing equipment and can make changes to refinery configurations in order to accommodate different crude slates. The ability to make equipment and configuration changes is significantly limited for smaller, less-complex refineries, like Kern, and is in no way comparable to that of larger, integrated oil companies with multiple locations and corporate holdings in both upstream and downstream environments. These diversities in larger refiners help to absorb the costs associated with making crude slate and/or equipment configuration changes. This disparity exemplifies the inability of any one refiner to control other refiners' business decisions that contribute to the industry average – for example, on capital expenditures for such configuration changes.

4. The Average Refinery Approach Makes Compliance Forecasting and Budgeting Nearly Impossible.

The "average" refiner approach makes forecasting and budgeting for compliance nearly impossible since compliance hinges on the industry as a whole and not simply a company's

individual compliance efforts. A refiner may opt to purchase lower CI crude oil at premium prices in order to avoid generating any deficits. However, as currently proposed, if the industry average exceeds the baseline target, this refiner would still incur deficits. Additional credits will be required to offset these deficits, the uncertain price of which is in addition to the premium price already paid for the lower CI crude.

5. The Industry Average Could Result in Significant Costs to Refineries Regardless of Whether an Individual Refinery Stayed Below the Baseline.

Kern has evaluated various scenarios to simulate the economic impact from incurring deficits when the industry fails to meet the established crude oil CI baseline. While there is absolutely no way to project how far the industry might exceed the baseline, Kern's analysis looked at industry annual average carbon intensities of 0.5 gCO₂e/MJ, 1.0 gCO₂e/MJ, and 2.78 gCO₂e/MJ above the baseline. Note, this last example of 2.78 gCO₂e/MJ represents the difference between the 2009 baseline CI (9.72 gCO₂e/MJ) and 2010 draft average CI (12.5 gCO₂/MJ) released by CARB Staff. Deficits incurred in each of these scenarios result in Kern having to purchase carbon credits on the open market to offset the difference. **The striking conclusion is that Kern would be subject to purchasing credits estimated at anywhere from \$217,000 to \$1.2 million annually with the current California Average Refinery Approach simply because other refiners chose to process HCICO and regardless of whether Kern itself stayed below the baseline.**

RECOMMENDATIONS:

Immediate action must be taken to enact provisions for individual compliance determinations or a hybrid equivalent to address the disparities in the current regulations for low-volume refineries. CARB should adopt an individual compliance approach under which all refineries would stand on their own merit in comparison to the industry baseline, eliminating the risk of cross-subsidization and the incentive for complex refineries to utilize HCICO.

In lieu of an individual compliance alternative, certain exemptions could be added to the current approach to protect the uniquely disadvantaged low-volume, low-energy-use and/or low-complexity refiners. Such exemptions could include any combination of the following criteria:

- Non-HCICO demonstration exemption: Provide an exemption to refiners that can demonstrate that no crude oil processed during the compliance year exceeded the established baseline CI.
- Low-volume processor exemption: Provide an exemption to refiners processing less than 5% of California's total crude capacity from any deficits that would otherwise be incurred by an industry average CI in excess of the established baseline because small

processors have limited ability to affect the average CI, but conversely are easily affected by larger refiners' decisions to process HCICO.

- Low-volume producer exemption: Provide an exemption to refiners producing less than 5% of California's total primary refined products from any deficits that would otherwise be incurred by an industry average CI in excess of the established baseline.

II. Omission of Provisions for Low-Energy-Use Refiners

Also absent from the current modifications are provisions addressing the inequalities and disadvantages inherent under the average refinery assumptions in the regulation and determination of CIs for finished fuels to low-energy-use, low-complexity refiners. In reality, the inherent differences in less-complex, less energy-intensive refineries as compared to large, sophisticated refineries, which employ many additional processing technologies, impact the appropriate CI value to be assigned to the finished products of those respective refineries. The CIs assigned to gasoline and diesel in the Lookup Tables, however, are modeled from an "average refinery," and therefore are not representative of the actual CIs of fuels produced at low-energy-use, low-complexity refineries, like Kern.

The need for and technical basis behind such provisions has been affirmed by CARB staff at numerous junctures over the years, but continues to get passed over. On November 18, 2010, Board Resolution 10-49 directed Staff to explore low-energy-use refiner provisions addressing the concerns expressed by Kern and others. At the July 22, 2011, workshop, Staff acknowledged receipt of proposed low-energy-use refiner provisions and ongoing efforts to develop alternatives. At the September 14, 2011, Public Workshop, Staff's presentation and verbal remarks noted that the low-energy-use refiner provisions were in review. Staff represented to Kern in a September 29, 2011, telephone call that low-energy-use refiner provisions were to be included in the summer 2012 amendments, and to be in effect by January 1, 2013. Staff again presented on the low-energy-use refiner provisions but noted their deferral to 2012 at the October 14, 2011, Public Workshop. Staff reiterated to Kern on November 4, 2011, that the low-energy-use refiner approach would be added in 2012 and in effect for 2013. At the December 16, 2011, Board Hearing, Staff's presentation to the Board contained a slide referencing continued work exploring low-energy-use refiner provisions. However, on February 22, 2012, Staff informed Kern that addition of the low-energy-use refiner provisions had shifted to either fourth quarter 2012 or early 2013, pushing the effective date to at least 2014. To date, the low-energy-use refiner provisions still have yet to be addressed.

Kern emphasizes the following points regarding the low-energy-use refiner provisions:

1. Kern has worked closely with CARB Staff to Develop a Solution to the CARB Acknowledged Significant CI Disadvantage for Low-Energy Use Refiners.

As set forth above, since early in this rulemaking, Kern has been working with CARB staff to find a solution to this significant CI disadvantage. Kern, with the help of CARB staff, has focused on providing a technically sound, transparent approach to this issue. Throughout 2009, Kern met with CARB Board members and elected offices regarding the potential issues with LCFS as then-proposed. In 2010, Kern met with CARB Staff on several occasions, including a meeting with Chairwoman Mary Nichols, to explore and substantiate proposed alternative provisions to address the low-energy-use refiner inequalities in the LCFS. In April 2011, Kern met with Staff and presented a proposal for modified regulatory text, with substantial data forming the foundation for the suggested provisions. This approach was discussed with CARB staff, CARB Board Members, Legislators, and the Governor's office, and was well-understood, received and accepted. Initially, Kern was encouraged that data showing a low-energy-use refiner CI of 5 gCO₂e/MJ less than the "average refinery" would provide a useful context to developing a "significance" threshold between refineries. This fact seems to be a cornerstone within the LCFS regulation, and is consistent with the same CI reduction required to be demonstrated by other industries seeking CARB's approval for new fuel pathways.

2. The Current CI Unfairly Subsidizes Higher Than Average Energy-Use Refiners

For each facility in California that is lower than the "average refinery", there is a refinery that is equally higher than the average. The current LCFS regulations require low-energy use refiners, like Kern, to subsidize higher than average refiners' obligations. By Kern's calculations, Kern would be subsidizing higher-energy-use refiners with the net equivalent of 40 years of Kern's obligations. This is clearly a disproportionate disadvantage for low-energy-use refiners.

3. A 5 gCO₂e/MJ Low-Energy-Use Refiner Credit Would Result in Justifiable Relief of Eight Years to a Refinery like Kern.

CARB Staff confirmed to Kern in June 2011 its agreement with Kern's technical basis for a low-energy-use refiner credit, and that it was CARB's intent to include such a provision in the December 2011 regulation revision. At that time, CARB preferred to look at an alternative and arbitrary approach with a much shorter "head start" for low-energy-use refiners. Kern's proposal was set aside on Staff's erroneous assertion that a 5 gCO₂e/MJ low-energy-use refiner credit would result in Kern not having to purchase carbon credits until about the year 2050, which seemed unreasonable to Staff. Alternatively, Staff proposed that seven to eight years of relief would be appropriate. However, no technical justification was provided to Kern to substantiate this "2050" assertion and Kern's subsequent calculations have determined that this projection is grossly exaggerated.

Kern has evaluated scenarios of compliance obligations over the course of the next ten plus years using the proposed low-energy-use refiner provision of a 5 gCO₂e/MJ credit. It is unclear to Kern where Staff came up with their projection of Kern not incurring an obligation until 2050; **our data demonstrates that a 5 gCO₂e/MJ credit would provide the justifiable relief of**

approximately 8 years, up to 2026. This clearly fits within the seven to eight year range of relief that Staff agreed to and acknowledged was appropriate.

RECOMMENDATIONS:

CARB should reinvest resources in addressing a set of provisions for low-energy-use refiners and do so without further delay. CARB should adopt the 5 gCO₂e/MJ credit proposed by Kern. The technical approach taken by Kern with regard to the low-energy-use refiner credit provision is one that CARB had asked us to utilize. Kern has been in routine communications regarding the activities and specific data that would be considered. Kern used publicly available data directly compared to CI as calculated with the CA-GREET model. Kern was transparent and conservative in utilizing data to develop this provision and it should be adopted by CARB.

In the alternative, the magnitude of the low-energy-use refiner provision is irrelevant if the goal is to use a defensible scientific approach and to not pick winners and losers. However, CARB needs to address the significant disparity in the currently assigned CIs for finished products.

III. Section 94582 - Use of 2009 as Baseline Year Rather Than 2010

The current rulemaking incorporates 2009 as the baseline year for CA-Average Crude CI, which is the benchmark for compliance determination within the California Average Refinery Approach with respect to accounting for HCICO. Attachment B to Resolution 11-39 states that the current revisions were intended to incorporate the most recent data representing 2010. At the time of the December 2011 hearing, 2009 was proposed as the revised baseline (in lieu of the original 2006); however, it was also noted in Attachment B that sufficient data should be available in 2012, and it was in fact Staff's intent, to further update the baseline to 2010.

In February 2012, Staff confirmed to Kern that sufficient data was available to use 2010 as the baseline. CARB surveyed California refineries in August 2011 for crude oil source and volume data covering operations from 2006 through 2010, assumedly for this purpose. Additionally, Staff presented materials in a July 2012 workshop that revealed a draft 2010 baseline crude CI of 12.5 gCO₂e/MJ and called attention to updating to a 2010 baseline as part of the next 15-day change.

RECOMMENDATIONS:

CARB should amend the current revisions to include 2010 as the baseline year. Doing so provides the appropriate consideration of factors that can impact the baseline year – for example, changes and fluctuations in sources of crude available to California refineries, changes in market conditions that may have altered business decisions from one year to the next, and political

effects on crude market and importations. Kern agrees that this set of modifications are intended to make the rule as up to date as possible, which should include the most recent baseline year.

IV. Section 94586 – Incorporation of Alternative Model to Generate CI Values

The current modifications propose to add language to Section 94586 related to determination of CIs and the approved models for doing so. While the modified text does not specify a particular model, it is Kern's understanding from public workshops hosted by Staff in March and July 2012, that Staff is seeking approval to use the recently developed OPGEE model. Use of this OPGEE model, as developed by Stanford University for CARB, would give Staff and those seeking specific new pathway approvals an alternative to the CA-GREET model for determining crude oil CIs. While Kern has no specific technical objection to the OPGEE model at this time, there are generally many concerns and unanswered questions surrounding the use of the model:

- The model is still in infancy stages, having just been developed in 2012; the beta version was introduced in March 2012, with updates made and the next version released in June.
- The model has been built on a number of assumptions because many of the data inputs necessary are not publicly available information.
- There has been no opportunity to prove or ground-truth the model for accuracy. Without specific field operating data to input, developers have not been able to compare outputs using assumptions to outputs using known data. Without this opportunity, how can anyone be sure the results are reliable?
- There has been no information made available to compare CIs of crude oils established using the CA-GREET model to CIs of the same crude oil established with OPGEE. What makes OPGEE more accurate, warranting that it replace CA-GREET for the crude oil production and transport CI value?
- If the CIs of fuels in the regulations have been determined solely using CA-GREET, then are we even comparing apples to apples by having new CIs for crude oil baseline/annual compliance and new fuel pathways established based on a separate or possibly multiple model outputs?

RECOMMENDATIONS:

CARB should consider and respond to the above comments, and provide additional supporting documentation justifying the use of and substantiating output results from the OPGEE model.

V. Section 94584 - Elimination of Specific MCON Reporting Requirements.

Draft modifications to text proposed in April 2012 included onerous reporting requirements for production-specific information about individual crude oils processed by refiners each quarter. The report requirements proposed at that time imposed upon refiners an obligation to report data

that is not readily available to them and furthermore is not readily obtainable. Kern submitted comments in a letter dated April 25, 2012, noting that the end effect would be setting refiners up for noncompliance in meeting the LCFS reporting obligation.

The current modifications being proposed have since eliminated this additional reporting requirement in lieu of simply reporting the name, volume and origin of each crude oil processed. Kern wishes to express its appreciation for CARB's consideration of points made and elimination of the requirement for detailed crude oil production data.

VI. Clarification on Staff's Stated Intent to Propose Additional Modifications.

Introductory text in the Second Notice of Modified Regulatory Text referenced additional anticipated modifications to the LCFS:

Although this Second Notice of Modified Regulatory Text ("Second 15-Day Change Notice") specifies proposed modifications related to the crude oil provisions, **staff intends to propose additional modifications related to the crude oil provisions in a subsequent notice of modified regulatory text.** Accordingly, it remains [C]ARB's intent to develop additional calculation methodologies, accounting procedures, and other measures to further refine the provisions that address the CI of petroleum crude oils, blendstocks, intermediates, and finished products refined in California or imported into the State. Staff intends to **bifurcate adoption of the regulatory amendments** presented at the December 2011 Board hearing. Therefore, the approved amendments to the regulation, except for modifications to the crude oil provisions and updates to the 2010 baseline crude carbon intensities, will enter into force as expeditiously as possible. (Emphasis added.)

Kern would like clarification on CARB's statement above as follows:

- What additional proposed modifications related to crude oil provisions does Staff intend to make?
- When would such modifications be proposed?
- What additional calculation methodologies, accounting procedures, and other HCICO provisions are to be proposed or further refined?

This bifurcated approach related to the crude oil provisions is a significant defect in the rulemaking process. Stakeholders cannot accurately assess the modifications and potential cumulative impacts if CARB continues to piecemeal the rulemakings. Assessing compliance strategies, determining compliance costs, business impact, etc. are impossible when significant anticipated amendments remain in limbo with no particular resolution in sight.

Staff has been tasked with evaluating changes, has presented anticipated solutions and/or timings in meetings and workshops, and yet has then repeatedly delayed finalization without explanation and to the detriment of the impacted stakeholders. Prime examples are the low-energy-use refiner provisions, provisions for Individual Refinery compliance option within the CA-Average Refinery Approach to HCICO, and using 2010 as the baseline year, all discussed above. As a result, Kern's projections for compliance with LCFS, taking into account the numerous pending modifications and provisions being considered, span an eleven year period in which we may or may not incur a deficit obligation, which may range anywhere from \$500,000 to over \$4 million annually. No business can appropriately plan for that.

RECOMMENDATIONS:

CARB should stop "bifurcating" these rulemakings so impacted facilities can consider all the intended changes at once, in total. At a minimum, CARB should provide clearer information at this time on anticipated additional modifications and the timing of their proposal and effectuation.

In conclusion, Kern appreciates CARB's consideration of Kern's comments and looks forward to receiving the clarifications requested. Regulatory schemes under AB32, like LCFS, should reward companies for energy efficiency and carbon reduction, not penalize those that produce goods in California. Kern respectfully urges the Board and Staff to consider the very significant points and recommendation made here, and to address the unjustified disproportionately negative impact of the current regulations on low-volume, low-energy-use, and low-complexity refineries, like Kern, which is contrary to the purpose and spirit of LCFS and AB32. As always, we are committed to working with Staff throughout this regulatory process, but timeliness and elimination of any further delay is a must.

Sincerely,

A handwritten signature in black ink, appearing to read 'Melinda L. Hicks', written in a cursive style.

Melinda L. Hicks
Manager, Environmental Health and Safety
Kern Oil & Refining Co.