State of California
AIR RESOURCES BOARD

Notice of Public Availability of Modified Text and Availability of Additional Documents

PUBLIC HEARING TO CONSIDER 2007 AMENDMENTS TO THE PHASE 3 CALIFORNIA REFORMULATED GASOLINE REGULATIONS

Public Hearing Date: June 14, 2007
Public Availability Date: March 7, 2008
Deadline for Public Comment: March 24, 2008

At the June 14, 2007, public hearing, the Air Resources Board (ARB/Board) approved amendments to the California Phase 3 reformulated gasoline (CARFG3) and the incorporated "California Procedures for Evaluating Alternative Specifications for Phase 3 Reformulated Gasoline Using the California Predictive Model."[1] These amendments and new sections to the CaRFG3 regulations included an update to the Predictive Model to mitigate emissions associated with permeation from on-road motor vehicles associated with ethanol use in CaRFG3. The updated model must be used for gasoline blends produced on or after December 31, 2009. Additional changes to the Predictive Model included providing flexibility in setting the oxygen content in the Predictive Model, incorporating new data that reflect the current motor vehicle fleet, and accounting for new vehicles' response to changes in fuel properties. The Board approved the staff's proposed alternative emissions reduction plan (AERP), which could be used before December 31, 2011. Staff's proposal to provide additional flexibility beginning December 31, 2009 to the producers and importers that produce gasoline to address the expected ongoing difficulties in meeting the very low sulfur content requirements was also approved.

The approved amendments also included a requirement that all non-oxygenated blends of gasoline be certified based on a flat limit of 6.90 pounds per square inch (psi) Reid Vapor Pressure (RVP), whereas for oxygenated blends using the evaporative emissions element of the Predictive Model, a flat limit of 7.00 psi RVP is required. Also, the sulfur content cap limit in gasoline was lowered from 30 parts per million by weight (ppmw) to 20 ppmw (21 ppmw for CARBOB). The other approved amendments to the CaRFG3 regulations improved consistency, flexibility, and enforceability, including amendments to section 2262.9 and section 2266.5 that changed the maximum allowed denaturant content in denatured ethanol (consistent with the current standards of the American

1 The affected sections include sections 2261, 2262, 2262.3, 2262.4, 2262.5, 2262.9, 2263, 2263.7, 2264.2, 2265 (and the incorporated "California Procedures for Evaluating Alternative Specifications for Phase 3 Reformulated Gasoline Using the California Predictive Model"), 2266, 2266.5, 2270, 2271, and 2273, and proposed new sections 2260(a)(0.5), (0.7), (7.5), (8.5), (10.5), (10.7), (19.7), (23.5), and (23.7), 2262.3(d), 2264.2(a)(3), (b)(5), and (d), 2265(c)(4), 2265.1, 2265.5, and 2266(b)(3), (4), and (5) of Title 13, California Code of Regulations (CCR).

Society of Testing and Materials) and updated the test method for oxygenate content in gasoline.

The Board's Action

At the hearing the staff presented, and the Board approved, several additional modifications to the regulations proposed in the original Staff Report. Staff developed the modifications in response to comments received since the Staff Report was published. At the hearing, after considering the staff's proposal and the public's comments and testimony, the Board adopted Resolution 07-21. Appended to the Resolution were the initially noticed regulatory text (as Attachment A) and the staff's suggested modifications to that text for which the staff had not yet developed specific regulatory language (as Attachment B), both of which were made available at the hearing. Attached to this notice as Attachment 1 are Resolution 07-21 and its Attachment B. The Board also directed staff to incorporate the approved modifications into the proposed regulatory text, with such other conforming modifications as may be appropriate, and to make the modified text available for a supplemental period of at least 15 days.

Modified Text Being Made Available

By this notice, the modified text is being made available for public comment prior to final action by the Board's Executive Officer. The Board's approved modifications are discussed below and set forth in the documents appended to this notice as Attachments 2 and 3. Additions to the initially noticed regulatory text are denoted by double underline and deletions by ~~double strikeout~~.

There are three attachments to this notice: Board Resolution 07-21 (Attachment 1), the modified regulatory text (Attachment 2), and the amendments to California Procedures for Evaluating Alternative Specifications for Phase 3 Reformulated Gasoline Using the California Predictive Model (Attachment 3). These documents may be downloaded from ARB's Internet website at the following address: http://www.arb.ca.gov/regact/2007/carfg07/carfg07.htm. Copies of these documents may be obtained from the Board's Public Information Office, first floor Visitors and Environmental Services Center, 1001 I Street, Sacramento, CA 95814. They may also be obtained from Mr. Adrian Cayabyab at (916) 327-1515, or by email at acayabya@arb.ca.gov. Please provide your name, company name, if any, and postal mail or email address.

Summary of Proposed Modifications

The following summarizes the proposed substantive modifications to the regulations and the rationale for making them.

Allowing Third Parties to Develop an Alternative Emissions Reduction Plan

1. Add a provision that:
    a. allows third parties who are not producers or importers that produce gasoline to enter into an alternative emissions reduction plan, and
    b. defines how they may enter into an alternative emissions reduction plan. (See sections 2260(a)(37) and 2265.5)

2. Add other provisions to:
    a. allow certain third parties who are not producers or importers that produce gasoline to participate in an alternative emissions reduction plan by obtaining emission reduction offsets on behalf of producers or importers that produce gasoline, and
    b. improve consistency, flexibility, and enforceability (See section 2265.5). These additions were made to provide additional flexibility for the producers and importers.

Extending the Compliance Date for the Sulfur Cap

1. Amend provisions to change the date for lowering the sulfur content cap from 30 ppmw to 20 ppmw (21 ppmw for CARBOB) from December 31, 2009 to December 31, 2011. (See sections 2261, 2262, and 2266.5) This amendment was made to align the revised sulfur regulatory requirements with the expected schedule needed for refinery modifications at some facilities.

Modifications to the Provisions Allowing Early Compliance with the CaRFG Phase 3 Amendments Before December 31, 2009

1. Add clarifying language that:
    a. defines which compliance options are available relative to the use of the California Predictive Model before December 31, 2009, and
    b. specifies that anyone wishing to use an alternative emission reduction plan must notify the Executive Officer. (See section 2261(b)(4)).

Flexibility to Blend of Higher Levels of Ethanol Before December 31, 2009

1. Add provisions that allow for early use of the revised predictive model and other provisions of the proposed amendments to allow earlier flexibility to increase ethanol blending provided there is full mitigation of any increase in emissions caused by the increase in ethanol content. (See sections 2261(b)(6) and 2261(b)(7)).

These early compliance sections provide two alternatives. The first alternative, provided in section 2261(b)(6), allows a producer or importer to mitigate emissions increases associated with early use (before December 31, 2009) of higher levels of ethanol through the use of alternative emission reductions. The emission reductions

required are determined using the California Predictive Model. This section is generally patterned after the alternative emission reduction plans (AERP) presented in section 2265.5. As with the AERP, these emissions reductions may come from vehicle scrappage programs, offsetting emissions with lower emitting diesel fuel batches, or incentive grants for cleaner-than-required engines, equipment, and other sources of pollution providing early or extra emission reductions. The emission reductions must be achieved before the early blending can occur.

The second alternative, provided in section 2261(b)(7), allows a producer or importer to blend percentages of ethanol into California Reformulated Gasoline Blendstocks for Oxygenate Blending (CARBOB) that are higher than the common carrier pipeline specifications for oxygen and ethanol. To use this alternative, a producer or importer must first demonstrate that all emissions reduction requirements are met at the desired level of oxygenate blending, and that any fuel to be shipped in a common carrier pipeline also meets the specifications established by that carrier.

In both alternatives, there are reporting and recordkeeping requirements to ensure that there is a high level of accountability. Both of these alternatives sunset on December 31, 2009, the date after which fuels are generally regulated through use of the revised predictive model.

Potential Benefits of Early Blending on SMOG and PM precursors

The increased use of ethanol in California gasoline in the next two years under the flexibility provisions is expected to result in reductions in the exhaust emissions of hydrocarbons and carbon monoxide from motor vehicles and no increase in the evaporative emissions of hydrocarbons due to permeation. Any concurrent vehicle exhaust increases in oxides of nitrogen, ozone-forming emissions, or toxics weighted pollutants must be fully mitigated pursuant to the proposed amendments. Thus, the early blending flexibility options are expected to benefit efforts to reduce both ozone and particulate matter.

Impact of the Energy Independence and Security Act of 2007

The United States Congress recently enacted the Energy Independence and Security Act of 2007 (2007 Energy Act).[2] The 2007 Energy Act requires a rapid expansion of use of renewable fuels. Based on the Act, the U.S. Environmental Protection Agency now requires that fuel producers must increase their use of renewable fuels, generally ethanol, from a required average content in gasoline of 4.0% to 7.76% by volume in calendar year 2008.[3] Current California gasoline

2 PUBLIC LAW 110–140—DEC. 19, 2007, 121 STAT. 1493

3 United States Environmental Protection Agency, "Revised Renewable Fuel Standard for 2008, Issued Pursuant to Section 211(o) of the Clean Air Act as Amended by the Energy Independence and Security Act of 2007," [FRL-8528-9], Federal Register, Vol. 73, No. 31, February 14, 2008.

contains about 5.7% ethanol. In addition, ARB staff estimates that the required renewable fuel volumes in the 2007 Energy Act will necessitate a nationwide average of 9% ethanol in gasoline in 2009, and 10% in 2010.

The 2007 Energy Act requires substantial expanded production of advanced biofuels, such as ethanol derived from cellulosic material. However, compliance dates with these requirements are several years in the future, and it is expected that virtually all of the near term increased use of renewable fuel is likely to be accomplished through the use of ethanol derived from corn.

There are several impacts of this new legislation that are relevant to the current rulemaking and to the consideration of early blending options.

First, fuel producers now have a much greater obligation under federal law to use greater amounts of renewable fuels in the 2008 to 2009 timeframe. In fact, certain California fuel producers have indicated that they need an early blending option in order to comply with their obligations under the new federal requirements for increased use of renewable fuels.

Second, at the time the Board acted in June 2007 it was thought that, because national ethanol volumes far exceeded the minimum renewable fuel volume requirements of the 2005 Energy Act, additional early use in California would result in a net increase in ethanol use. However, much higher nationwide volume requirements have been established in the 2007 Energy Act and are now in place. Staff believes it is unlikely that a near term increase in ethanol use in California will have any impact on the amount of corn-based ethanol produced and consumed in the U.S. market.

Consideration of Greenhouse Gas Benefits of Crop-Derived Biofuels

During its consideration of the proposed amendments, the Board received testimony that flexibility to allow early blending of higher levels of ethanol would produce greenhouse gas (GHG) emission benefits. This premise appeared reasonable at that time. It was consistent with ongoing work at the Board and the California Energy Commission that suggested a GHG benefit when gasoline was replaced with ethanol derived from corn under most circumstances. However, our past assessments of the lifecycle GHG emissions attributable to current biofuel production did not account for indirect land use impacts, and new information suggests that these impacts are likely to be significant.

For example, articles recently published in Science magazine have questioned the net greenhouse gas emissions benefits of using ethanol derived from corn.[4] In

4 Searchinger, T., R. Heimlich, R.A. Houghton, F. Dong, A. Elobeid, J. Fabiosa, S. Tokgoz, D. Hayes, and T.H. Yu, 2008, "Use of U.S. Croplands for Biofuels Increases Greenhouse Gases through Emissions from Land Use Change," Sciencexpress, available at www.sciencexpress.org, February. 7, 2008

general, the assessments point to indirect land use changes and increased greenhouse gas generation as a result of past and future reliance on crop-based biofuels. However, several individuals and organizations have challenged the assumptions and conclusions in the Science articles.[5] At present, there is no reliable quantification of the lifecycle greenhouse gas emissions resulting from the increased use of biofuels.

The ARB's CaRFG3 regulations do not currently address or regulate greenhouse gas emissions. Staff is currently in the process of developing a low carbon fuel standard (LCFS) for California. As part of the LCFS effort, ARB staff is carefully evaluating these studies and other data to determine and quantify the GHG emission impacts of a wide range of transportation fuels. The LCFS will be developed in consultation with top national and international experts on the issue. The ARB staff intends to consider emissions relating to both direct and indirect land use, extraction, production, refining, and transport in the LCFS effort to ensure an accurate accounting and mitigation of the potential impacts, if any, compared to fuels sold today.

Further work is needed to determine the land use consequences and increased greenhouse gas emissions attributable to increased use of increased corn-based ethanol. At this time staff believes it is premature to conclude that increased ethanol use in California would produce greenhouse gas benefits.

Conclusions on Impact of Early Blending on California GHG Emissions

Based on the uncertainty of current GHG impact assessments and the impact of the 2007 Energy Act, staff believes it is inappropriate to assume that GHG emissions will either increase or decrease with early blending of ethanol. First, because of the increased volume requirements for ethanol on the federal level, increased ethanol blending in California in the next two years will likely have no impact on the emissions of greenhouse gases because the national level of production and use is unlikely to change with greater blending in California. Second, due to uncertainty in estimating the net lifecycle GHG impacts of crop based biofuels, staff believes that more data is needed be any such effect could be quantified. As part of the LCFS, the ARB staff will propose appropriate regulations to ensure that progress is made

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Department of Energy, "New Studies Portray Unbalanced Perspective on Biofuels: DOE Committed to Environmentally Sound Biofuels Development," available at http://www1.eere.energy.gov/biomass/printable_versions/news_detail.html?news_id=11574, February 14, 2008.

5 Wang, M., and Z. Haq, 2008, "Response to February 7, 2008 Sciencexpress Article," Letter to Science, available at http://www.transportation.anl.gov/media_center/news_stories/20080214_response.html, February 14, 2008

Mueller, S., 2008, "Sensitivity of Presented GHG Land Use Change Calculations," Comments to the Air Resources Board, available at http://www.arb.ca.gov/lists/lcfs-lifecycle-ws/9-erc_luc_comments.pdf, February 6, 2008

to move quickly to low carbon fuels.

Amending the California Predictive Model Procedures

1. Modify the proposed "California Procedures for Evaluating Alternative Specifications for Phase 3 Reformulated Gasoline Using the California Predictive Model" to be consistent with the modifications to the originally proposed amendments, to correct errors, increase consistency, and provide clarifications.

Comments and Subsequent Action

In accordance with section 11346.8 of the Government Code, the Board's Resolution directed the Executive Officer to adopt amendments to sections 2261, 2262, 2262.3, 2262.4, 2262.5, 2262.9, 2263, 2263.7, 2264.2, 2265 (and the incorporated "California Procedures for Evaluating Alternative Specifications for Phase 3 Reformulated Gasoline Using the California Predictive Model"), 2266, 2266.5, 2270, 2271, and 2273, and to add new sections 2260(a)(0.5), (0.7), (7.5), (8.5), (10.5), (10.7), (19.7), (23.5), and (23.7), 2262.3(d), 2264.2(a)(3), (b)(5), and (d), 2265(c)(4), 2265.1, 2265.5, and 2266(b)(3), (4), and (5) of Title 13, CCR, after making the modified regulatory language available to the public for a supplemental written comment period of at least 15 days. The Board further provided that the Executive Officer shall consider such written comments as may be submitted during this period, shall make such modifications to the regulation as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if determined that this is warranted.

Written comments on the modifications approved by the Board must be submitted by postal mail, electronic mail, or facsimile as follows:

Postal mail: Clerk of the Board
Air Resources Board
1001 I Street, 23rd Floor
Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

Facsimile submissions must be transmitted to the Clerk of the Board at (916) 322-3928.

Please note that under the California Public Records Act (Government Code section 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request. Additionally, this information may become available via Google, Yahoo, and any other search engines.

In order to be considered by the Executive Officer, comments must be directed to the

ARB in one of the three forms described above and received by the ARB by 5:00 p.m. on the deadline date for public comment listed at the beginning of this notice. Only comments relating to the above-described modifications to the text of the regulations shall be considered by the Executive Officer.

Attachments (3)