Draft
State of California
AIR RESOURCES BOARD

Resolution 09-31

April 23, 2009

Agenda Item No.: 09-4-4

WHEREAS, sections 39600 and 39601 of the Health and Safety Code authorize the Air Resources Board (ARB or the Board) to adopt standards, rules and regulations and to do such acts as may be necessary for the proper execution of the powers and duties granted to and imposed upon the Board by law;

WHEREAS, the California Global Warming Solutions Act of 2006 (AB 32; Stats 2006, ch. 488, Health and Safety Code sections 38500-38599) declares that global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California, and creates a comprehensive multi-year program to reduce California's greenhouse gas (GHG) emissions to 1990 levels by 2020;

WHEREAS, section 38510 of the Health and Safety Code designates ARB as the State agency charged with monitoring and regulating sources of GHG emissions that cause global warming in order to reduce such emissions;

WHEREAS, section 38560 of the Health and Safety Code directs the Board to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG emission reductions from sources or categories of sources, subject to the criteria and schedules specified in Part 4 of Division 25.5 of the Health and Safety Code;

WHEREAS, section 38560.5 of the Health and Safety Code requires the Board to publish and make available to the public a list of discrete early action GHG reduction measures (Discrete Early Action Measures) on or before June 30, 2007, and directs the Board to adopt regulations on or before January 1, 2010 to implement the Discrete Early Action Measures; these regulations are to be enforceable no later than January 1, 2010;

WHEREAS, section 38560.5(c) of the Health and Safety Code provides that the regulations adopted to implement Discrete Early Action Measures must achieve the maximum technologically feasible and cost-effective reductions in GHG emissions;

WHEREAS, in January 2007, Governor Schwarzenegger issued Executive Order S-01-07, which established the goal of developing a low carbon fuel standard (LCFS) to reduce the carbon intensity of transportation fuels by at least 10 percent by 2020; the Executive Order provides that the LCFS shall apply to all providers of transportation

fuels in California, be measured on a full fuels cycle basis, and authorize compliance through market-based methods;

WHEREAS, Executive Order S-01-07 directed ARB to determine if the LCFS could be adopted as a Discrete Early Action Measure and, if so, to consider adoption of the LCFS on the list of Discrete Early Action Measures required to be identified by June 30, 2007 pursuant to Health and Safety Code section 38560.5;

WHEREAS, the Board approved a list of early GHG actions at its June 21, 2007 hearing and approved additions to the list at its October 25, 2007 hearing, and a subset of nine of these early actions were designated as Discrete Early Action Measures including the "Low Carbon Fuel Standard" measure to reduce GHG emissions from transportation fuels used in California;

WHEREAS, after a public meeting on December 11, 2008, the Board approved the Climate Action Scoping Plan, which includes the LCFS Discrete Early Action Measure;

WHEREAS, section 57004 of the Health and Safety Code requires an external peer review of the scientific portions of ARB regulations establishing a regulatory level, standard, or other requirement for the protection of public health or the environment;

WHEREAS, Health and Safety Code section 43830.8(a) prohibits the Board from adopting a regulation that establishes a specification for a motor vehicle fuel unless a multimedia evaluation for the regulation undergoes the review process specified in the statute; however, this multimedia requirement does not apply if the regulation does not establish a motor-vehicle fuel specification;

WHEREAS, Congress adopted a renewable fuels standard (RFS) in 2005 and strengthened it (RFS2) in December 2007 as part of the Energy Independence and Security Act of 2007 (EISA); the RFS2 requires that 36 billion gallons of biofuels be sold annually in the United States by 2022, of which 21 billion gallons must be "advanced" lower carbon biofuels and the other 15 billion gallons can be corn ethanol;

WHEREAS, the staff has proposed a new regulation establishing an LCFS for California; the proposed regulation is set forth in Attachment A hereto and includes the following elements:

> Identify "carbon intensity" as a measure – expressed in terms of grams of CO_2 equivalent per mega-Joule (grams CO_2E/MJ) – of the direct and indirect GHG emissions associated with each of the steps in the full fuel cycle of a transportation fuel (also referred to as "well-to-wheels" for fossil fuels, or "seed or field-to-wheels" for biofuels);

Establish an LCFS that achieves a 10 percent reduction in average carbon intensity by starting specified providers of transportation fuels (referred to as "regulated parties") at an initial level for 2011 and incrementally lowering the allowable carbon intensity for transportation fuels used in California in each subsequent year through 2020; the overall carbon intensity of the pool of transportation fuels for which each regulated party is responsible would need to meet each year's specified carbon intensity level, provided that a regulated party can meet these annual carbon intensity levels with any combination of fuels it produces or supplies and with LCFS credits generated in previous years or acquired from other regulated parties;

Specifically identify who is the regulated party – and when regulated party obligations are or can be transferred downstream – with respect to gasoline, diesel fuel, and other liquid blendstocks (including oxygenates and biodiesel); compressed and liquefied natural gas derived from petroleum sources (fossil compressed natural gas (CNG) and fossil liquefied natural gas (LNG), respectively); other gaseous fuels (biogas/biomethane and hydrogen); and electricity;

An opt-in provision for certain alternative fuels – electricity, hydrogen and hydrogen blends, fossil CNG derived from North American sources, biogas CNG, and biogas LNG – that have full fuel-cycle carbon intensities that inherently meet the proposed compliance requirements through 2020; regulated parties for these fuels would be required to meet the LCFS requirements (e.g., reporting, credit balancing) only if they elect to generate credits based on these fuels as provided under the proposal;

An exemption for any alternative fuel that is not biomass-based or renewable biomass-based and for which the aggregated volume by all parties for that fuel is less than 420 million mega-Joules per year (3.6 million gasoline gallon equivalent per year);

Exclusions for specific applications of transportation fuels, including fuels used in aircraft, racing vehicles, interstate locomotives, ocean-going vessels, and military tactical vehicles;

Establish separate annual carbon intensity schedules for gasoline and diesel transportation fuels from 2011 through 2020 when a 10 percent reduction relative to 2010 would be achieved; gasoline and diesel fuel would follow similar annual carbon intensity reduction curves and the carbon intensity for alternative fuels (e.g., biofuels, natural gas, hydrogen, electricity) would be judged against either the gasoline or diesel carbon intensity requirements, depending on whether the

alternative fuel is used for light- and medium-duty vehicles or for heavy-duty vehicles, as specified in the regulation;

Require that each year, the carbon intensity of all transportation fuel for which a regulated party is responsible is compared to the LCFS requirement for that year; fuels that have carbon intensity levels below the requirement generate credits, fuels with carbon intensity levels above the requirement create deficits, and to comply with the LCFS for a given year, a regulated party must show that the total amount of credits equals or exceeds the deficits incurred (excess credits can be retained or sold to other regulated parties);

Require regulated parties to submit quarterly progress reports, which must contain a specified set of information and data, such as carbon intensities, fuel volumes sold or dispensed, fuel transfer information, and other information;

Require regulated parties to submit annual account-balance reports that include additional information relating to the total credits and deficits generated during the year or carried over from the previous year, total credits acquired from another party, total credits transferred to other parties, credits generated and banked in the current year; and any deficits to be carried into the next year; all quarterly and annual reporting will be done via a Web-based, interactive form to be established prior to the implementation of the regulation;

Require that a regulated party that ends a compliance year with a credit balance shortfall greater than 10 percent will be in violation of the LCFS and subject to penalties commensurate with the size of the violation; such a party must also reconcile and remedy the shortfall within a specified period of time;

Require that a regulated party that ends a compliance year with a deficit not exceeding 10 percent will only be required to reconcile the shortfall within the following year, as well as meet the compliance obligations that apply in that year;

To ensure that low carbon fuels and blendstocks produced outside of California are actually the source of finished fuels reported by a regulated party, require regulated parties to establish physical pathway evidence for transportation fuels they report; this could involve a four-part showing including a one-time demonstration that there exists a physical pathway by which the transportation fuel is expected to arrive in California, written evidence (by contract or similar evidence) showing that a specific volume of a particular transportation fuel with known carbon intensity was inserted into the physical pathway as directed by the regulated party, written evidence showing that an equal volume of that transportation fuel was removed from the physical pathway by the regulated party for use as a transportation fuel in California, and an update to the initial

physical pathway demonstration whenever there are modifications to the initially demonstrated pathway;

Mandate that the Executive Officer certify the carbon intensity values for various fuel pathways, including multiple pathways for some fuels to represent differences in how and where the fuel is produced; direct emissions associated with producing, transporting, and using a specific fuel would be determined using the CA-GREET model, a modified version of the Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) model;

For some crop-based biofuel pathways, the certified carbon intensity values would also account for additional GHG emissions that can result from changes in land use arising from use of the biofuels; the Global Trade Analysis Project (GTAP) model is to be used to evaluate the worldwide land use conversion associated with the production of crops for fuel production;

Upon adoption of the LCFS regulation, the Executive Officer would publish a "Carbon Intensity Lookup Table" identifying the carbon intensity for a number of specific fuel pathways for which the carbon intensity values had been adequately developed for certification; the Executive Officer is authorized to subsequently certify additional or modified carbon intensity values in the Carbon Intensity Lookup Table;

For a regulated party identifying the carbon intensity value of the various fuels it is providing, use of the carbon intensity values in the Carbon Intensity Lookup Table is characterized as "Method 1"; under specified conditions, regulated parties may also obtain Executive Officer approval to either modify the CA-GREET model inputs to reflect their specific processes (Method 2A) or to generate an additional pathway using CA-GREET (Method 2B);

A regulated party must meet a scientific defensibility requirement before the Executive Officer can approve new values under Methods 2A and 2B; for Method 2A, there is an additional provision that requires a substantial change in the carbon intensity relative to the analogous value calculated for that pathway under Method 1;

A regulated party is to use the basic value in the Look-up Table for CARBOB (the blend component into which ethanol is added to produce a final oxygenated gasoline), gasoline and diesel fuel, unless the fuel is produced from crude oils with high carbon intensity relative to the average carbon intensity of crude oils used in California refineries;

For CARBOB, gasoline and diesel fuel produced from high carbon intensity crude oil, the regulated party must use the carbon intensity value, if any, which is specified in the Carbon Intensity Lookup Table for that particular pathway; if there is no carbon intensity value specified for a particular high carbon-intensity crude oil, the regulated party could use Method 2B (with Executive Officer approval) to generate an additional pathway for this type of crude, or alternately could use the standard Carbon Intensity Lookup Table value – but only if the regulated party can demonstrate to the Executive Officer that its crude production and transport carbon-intensity value has been reduced to a specified level, using carbon-capture and sequestration or other method.

A direction to the Executive Officer to conduct a review of implementation of the LCFS by January 1, 2012, with the scope and content of the review to be determined by the Executive Officer; and

Establish a regulatory mechanism for multimedia evaluations that closely tracks the mechanism in section 43830.8(a) of the Health and Safety Code, and prohibit the sale of a regulated fuel unless a multimedia evaluation of the fuel has been conducted pursuant to the regulatory mechanism; there would be exceptions for (1) regulated fuels subject to a specification that was adopted by ARB before adoption of the LCFS regulation and that has not been subsequently amended by ARB; (2) regulated fuels that are subject to the Division of Measurement Standards' engine fuels standards but are not subject to an ARB-adopted fuel specification; and (3) regulated fuels for which ARB has proposed a new or amended specification subsequent to adoption of the LCFS regulation, where the California Environmental Policy Council has conclusively determined that the new or amended specification will not have any significant adverse impact on public health or the environment;

WHEREAS, ARB staff conducted sixteen public workshops regarding the proposed LCFS throughout California in 2008 and 2009 and also participated in numerous other meetings with various stakeholders in order to include the public and affected stakeholders in the regulatory development process;

WHEREAS, ARB staff has prepared a document entitled "Staff Report: Initial Statement of Reasons for Proposed Regulation to Implement the Low Carbon Fuel Standard" (ISOR), which presents the rationale and basis for the proposed regulation and identifies the data, reports and information relied upon;

WHEREAS, the ISOR and proposed regulatory language were made available to the public for at least 45 days prior to the public hearing to consider the proposed regulation;

WHEREAS, the scientific portions of the proposed regulation and ISOR were reviewed by four peer reviewers pursuant to a Cal/EPA agreement with the University of California; the last of the four peer reviews was received
April 12, 2009, and the four reviews are included in the rulemaking record and have been posted on ARB's webpage for this rulemaking;

WHEREAS, the Board has considered the impact of the proposed regulation on the economy of the State and the potential for adverse economic impacts on California business enterprises and individuals;

WHEREAS, the Board has considered the community impacts of proposed regulations, including environmental justice concerns;

WHEREAS, the California Environmental Quality Act, section 21000 et seq. of the Public Resources Code, and Board regulations at California Code of Regulations, title 17, section 60006 require that no project that may have significant adverse environmental impacts be adopted as originally proposed if feasible alternatives or mitigation measures are available to reduce or eliminate such impacts;

WHEREAS, a public hearing and other administrative proceedings have been held in accordance with the provisions of chapter 3.5 (commencing with section 11340), part 1, division 3, title 2 of the Government Code;

WHEREAS, in consideration of the ISOR, written comments, and public testimony it has received, the Board finds that:

> California's transportation sector is the leading source of GHG emissions in the state, contributing almost 40 percent of the state's annual GHG emissions;
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> The fuel used in cars, trucks and other transportation sources has a significant impact on GHG emissions and reducing the impact these fuels have on GHG emissions will provide important environmental and possibly economic opportunities;
>
> Pursuant to Board Resolution 08-47, there are a number of reasons why GHG emission reductions from transportation fuels are best achieved using the proposed regulatory approach, as identified below. While California's cap-and-trade program is expected to include upstream coverage of transportation fuels beginning in 2015, a LCFS requirement will complement this coverage, and will: (a) ensure that the GHG emissions from the full fuel lifecycle are accounted for and reduced to the extent feasible; (b) stimulate the development of substantially lower-carbon transportation fuels more directly than including transportations fuels in the cap-and-trade program; (c) achieve long-term reductions in GHG

emissions from transportation fuels; (d) diversify the California fuel pool; and (e) reduce the State's dependence on petroleum;

Staff has performed the complete lifecycle analysis of several fuels including: petroleum-based fuels, biofuels, and other non-liquid fuel alternatives (such as electricity, CNG, and hydrogen) and has assigned scientifically defensible carbon intensity values to these fuels as detailed in the ISOR;

Indirect land use change has been appropriately included as part of the lifecycle analysis conducted by staff; indirect land use change is not inconsequential to the lifecycle of some crop-based biofuels and to exclude indirect land use effects in the initial LCFS regulation would allow fuels with carbon intensities that are similar to gasoline and diesel fuel to function as low-carbon fuels – delaying the development of truly low-carbon fuels and jeopardizing the achievement of a 10 percent reduction in carbon intensity by 2020;

To the extent the indirect land use values for crop-based biofuels included in the regulation approved herein may be different from values that may be generated in the future based on more robust data and more advanced analytical tools, the approved values are more likely to be lower rather than higher compared to subsequently-generated values;

No other significant indirect effects that result in large GHG emissions have been identified that would substantially affect the LCFS framework for reducing the carbon intensity of transportation fuels;

While there is about a 20 percent improvement in the adjusted carbon intensity of light-duty diesel vehicles using conventional diesel fuel compared to gasoline vehicles, crediting light-duty diesel vehicles for reduced carbon intensity in the regulation is inappropriate because it would not provide any significant long-term benefits of promoting significantly lower carbon fuels and significantly more energy efficient vehicles;

Including a LCFS standard for diesel fuel and its replacements in addition to a standard for gasoline and its replacements is appropriate because including diesel fuel from the beginning will allow for the development of a more robust credit market and will provide greater certainty on future expectations and because elimination of the diesel element would reduce the LCFS benefits by 20 percent;

By the time the regulation approved herein is formally adopted by the Executive Officer, it will include pathways for biodiesel and renewable diesel that could be

used in the near term for compliance by providers of diesel fuel choosing to rely on that approach;

The proposed regulation is expected to significantly reduce emissions of GHGs, such as CO_2, methane, nitrous oxide, and other GHG contributors from the use of transportation fuels subject to the LCFS; by 2020, the LCFS is expected to reduce GHG emissions from the combustion of transportation fuels in California by about 16 million metric tons of carbon dioxide (16 MMT CO_2e) annually; the estimated GHG emissions reductions for the full fuel lifecycle, including fuel production through combustion are about 23 MMT CO_2e in 2020 – a 10 percent reduction of the GHG emissions from the use of transportation fuel, compared to the expected 3 percent reduction in GHG emissions if only the federal RFS2 requirements were met;

While the existing federal RFS2 provides an important and complementary starting point for reducing GHG emissions from transportation fuels, the RFS2 will deliver only about 30 to 40 percent of the GHG benefits of the proposed regulation; the RFS2 does not contain any of the elements of the proposed regulation that incentivize the development of fuels such as natural gas, electricity, or hydrogen that are not biofuels;

If California were to rely solely on the RFS2 to address GHG emissions from transportation sources, the State would not achieve the GHG emission reductions called for in the AB 32 Scoping Plan and Executive Order S-01-07;

The regulation approved herein was developed using the best available economic and scientific information and will achieve the maximum technologically feasible and cost-effective GHG emission reductions from transportation fuel used in California, and encourage early compliance with the proposed requirements;

The GHG emission reductions resulting from the implementation of the regulation approved herein are expected to be real, permanent, quantifiable, verifiable, and enforceable by ARB, and the proposed regulation complements, and does not interfere with other air quality efforts;

ARB staff evaluated the four peer reviews prepared pursuant to section 57004 of the Health and Safety Code; none of the reviews require major modifications to either the proposed regulation or the analysis used to support the proposal;

The regulation approved herein meets the statutory requirements for a Discrete Early Action Measure under section 38560.5 of the Health and Safety Code and also satisfies the requirements of section 38560 of the Health and Safety Code;

The regulation approved herein meets the criteria set forth in section 38562 of the Health and Safety Code;

The regulation approved herein was developed in an open public process, in consultation with affected parties through numerous public workshops, individual meetings, and other outreach efforts;

The benefits to human health, public safety, public welfare, or the environment justify the costs of the proposed regulation;

The cost-effectiveness of the proposed regulation has been considered, and the regulation will achieve cost-effective GHG emission reductions;

The proposed regulation is consistent with ARB's environmental justice policies and will equally benefit residents of any race, culture or income level;

The reporting requirements of the proposed regulation which apply to businesses are necessary for the health, safety, and welfare of the people of the State;

No reasonable alternative considered, or that has otherwise been identified and brought to the attention of the ARB, would be more effective at carrying out the purpose for which the regulation is proposed or would be as effective and less burdensome to affected private persons and businesses than the proposed regulation;

Adoption of the LCFS regulation approved herein will not itself constitute establishment of a motor-vehicle fuel specification and therefore does not trigger a multimedia evaluation requirement under Health and Safety Code section 43830.8, for the reasons set forth in the ISOR.

WHEREAS, the Board further finds that: The economic impacts of the proposed regulation have been analyzed as required by California law, and the conclusions and supporting documentation for this analysis are set forth in the ISOR;

The displacement of petroleum-based fuels with lower-carbon-intensity fuels as a result of the proposed regulation is expected to result in an overall savings in the State, as much as $11 billion from 2010-2020; these savings may be realized by the biofuel producers as profit, or some of the savings may be passed on to the consumers – should the savings be entirely passed on to consumers, it would represent less than three percent of the total cost of a typical gallon of transportation fuel ($0 - $0.08/gal);

The economic analysis of the proposed LCFS is greatly affected by future oil prices and the actual production costs and timing of lower-carbon-intensity alternative fuels; economic factors such as tight supplies of lower carbon-intensity fuels or a lengthy economic downturn keeping crude oil demand and hence prices down could result in overall net costs, rather than savings, from the LCFS;

The economic analysis of the proposed LCFS includes federal biofuel tax credits, which is appropriate, as the economic analysis was conducted on a cost-of-compliance basis;

The proposed regulation does not mandate the use of advanced technology vehicles; therefore, the marginal cost of these vehicles over conventional vehicles is not included in the economic analysis;

The proposed regulation is not expected to affect small businesses because: (1) most, if not all, regulated parties are anticipated to be relatively large businesses, and (2) small businesses (generally the fueling station owners and operators) would presumably invest in equipment that dispenses LCFS-compliance fuel with the expectation that the costs of such an investment would be recouped through the sale of such fuels;

The proposed regulation would create costs to the State in the form of lost transportation-fuel taxes, including excise taxes and sales tax; although there would be not estimated fiscal impact for the first three years of the proposed regulation, staff estimates the potential loss of annual state tax revenue to be $80 million to $370 million in 2020 – the year of greatest impact – depending on the compliance paths chosen;

For local government, the impact of sales tax on transportation fuels from implementing the potential compliance scenarios could either create revenue or result in a revenue loss, depending on the compliance paths chosen, and the impact to local sales taxes would be location specific; although there would be no fiscal impact for the first three years, staff estimates a potential range of impacts in annual local sales tax revenue of -$51 to +$2 million from 2013-2020;

WHEREAS, pursuant to the requirements of the California Environmental Quality Act and the Board’s regulations, the Board further finds that:

Overall, the proposed regulation is expected to result in no significant additional adverse impacts to California’s statewide air quality due to emissions of criteria and toxic pollutants; based on the best available data, there may be a benefit in further reducing criteria pollutants from the 2020 projected vehicle fleet;

However, as described below, there may be some small but potentially significant adverse impacts on a localized or regional basis from the construction and operation of biorefineries, as identified below;

The demand for feedstocks needed to comply with the proposed regulation may support approximately 25 additional “biorefineries” – ethanol, biodiesel, and renewable hydrocarbon production facilities – in California; the actual number and siting of these facilities is dependent upon many factors, including the location of the feedstock and the need to sufficiently mitigate environmental impacts pursuant to CEQA and obtaining necessary permits, including permits from local air pollution control and air quality management districts (local districts);

Depending on the specific local district, permitting rules for siting new biorefineries in the State will likely require best available control technology and offsets for criteria pollutants, and an analysis of the localized toxic air pollutant impacts; these determinations will be made on a case-by-case basis with facility specific information;

In general, any direct emissions from new biorefineries are likely to be mitigated as part of the CEQA process and local air district permitting actions; accordingly, no significant adverse impacts on a regional basis are expected as a result of direct emissions from these facilities. While some increases in localized emissions could occur, staff’s analysis has not identified any significant criteria or toxic air pollutant impacts from direct biorefinery emissions that cannot be mitigated through local actions (e.g., through requirements to apply best available control technologies);

Some increases in localized emissions may occur due to additional truck trips to and from new biorefineries. Such increased criteria pollutant emissions may be offset on a statewide basis by reductions in motor vehicle emissions; however, there may still be localized diesel PM impacts and localized facility emissions impacts;

Staff’s health risk assessment of the potential cancer risk associated with newly established biorefineries shows the highest risk associated with onsite diesel PM emissions from three, hypothetically co-located prototype biorefinery facilities, with the area of greatest impact estimated to be the area surrounding the facility fence lines with a potential cancer risk of over 0.4 changes in a million; an examination of combined onsite and offsite emissions from the three prototype biofuel facilities showed the area with the greatest impact estimated to have a potential cancer risk of five chances in a million;

Staff also quantified seven non-cancer health impacts associated with the change in exposure to PM2.5 emissions due to the operation of biofuel facilities, with the statewide health impacts of the emissions associated with the LCFS being approximately 24 premature deaths, 8 hospital admissions, and 367 cases of asthma, acute bronchitis and other lower respiratory symptoms;

In addition to the potential impacts on air quality, the ISOR contains an assessment of other potential environmental impacts that might result from the implementation of the LCFS, including potential impacts on water quality and water use, agricultural resources, biological resources, hazardous waste and hazardous materials, solid waste, and transportation and other traffic, among others;

Some new California biorefineries could use significant amounts of water that could result in significant impacts; since all new facilities would need to meet CEQA and agency permitting requirements, including requirements of the California Regional Water Quality Control Boards, the final determination of impacts on water would need to be made on a site-specific basis;

The LCFS will provide some additional incentives to use grid-powered batteries in plug-in hybrid vehicles and battery electric vehicles; this increase is not expected to have a significant adverse environmental impact on landfills because the disposal of such batteries is already subject to extensive regulation in the State, and automotive batteries are among the most highly recycled products today;

The emissions and water use increases described above are small, but could nevertheless constitute an adverse environmental impact;

The ISOR does not identify any other significant impact that would not otherwise be mitigated through agency permitting or CEQA compliance;

As noted, the potential adverse impacts identified above are expected to be mitigated through the CEQA process and local air district permitting actions;

Except for the emissions impacts and water use impacts described above, there are no significant adverse environmental impacts that will occur from the proposed LCFS regulation;

The Executive Officer is the decision maker for the purposes of title 17, CCR, §60007 and responding to environmental issues raised on the proposed regulation, and by approving this Resolution 09-31, the Board is not prejudging

any of the responses that will be made by the Executive Officer to these environmental issues;

The proposed LCFS regulation is necessary in order to protect public health by substantially reducing GHG emissions resulting from the full fuel lifecycle of transportation fuels in California;

The potential adverse environmental impacts of the proposed LCFS regulation are outweighed by the substantial reduction in GHG emissions and public health benefits that will result from the proposed regulation's adoption and implementation;

The considerations identified above override any adverse environmental impacts that may occur from adoption and implementation of the proposed LCFS regulation; and

The Board has considered alternatives to the proposed regulation and has identified no feasible mitigation measures or alternatives available to the Board that would further substantially reduce the potential adverse impacts of the proposed regulation, as identified above, while at the same time ensuring that the necessary the GHG emission reductions noted herein will be achieved.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves for adoption new sections 95480, 95480.1, 95481, 95482, 95483, 95484, 95485, 95486, 95487, 95488, and 95489 of subarticle 7, article 4, subchapter 10, chapter 1 of division 3, title 17, CCR, as set forth in Attachment A hereto, with the modifications described in Attachment B hereto.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer: (1) to incorporate into the approved regulations and incorporated document the modifications described in Attachment B hereto and such other conforming modifications as may be appropriate; (2) to make the modified regulations (with the modifications clearly identified) and any additional documents or information available for public comment for a period of at least 30 days; (3) to consider any comments on the modifications received during the supplemental comment period; and then (4) either to adopt the regulations as made available with any appropriate additional nonsubstantial modifications, to make additional modifications available for public comment for an additional period of at least 15 days, or to present the regulations to the Board for further consideration if he determines that this is warranted.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with interested stakeholders to prepare guidelines to assist regulated parties in determining the data, documentation, and other information needed to support the expeditious

development of carbon intensity values for new or modified fuel pathways. For biofuel pathways, the guidelines should provide for consideration, to the extent feasible, of the impacts on direct and indirect land-use change emissions from factors including, but not limited to: productivity of biofuel per acre of land; water use; low carbon agricultural practices that improve the carbon sequestration in soil; and creation of protein and electricity co-products. The Executive Officer should present these guidelines to the Board by December 2009.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with biofuel producers and other interested stakeholders to identify specialized fuel pathways such as anaerobic digestion, thermochemical conversion of biomass feedstocks and additional liquefied natural gas pathways that the Board staff will develop and propose for incorporation into the Carbon Intensity Lookup Table. The prioritized list, with a proposed development schedule, shall be presented to the Board by December 2009.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to convene an expert workgroup to assist the Board in refining and improving the land use and indirect effect analysis of transportation fuels and return to the Board no later than January 1, 2011 with regulatory amendments or recommendations, if appropriate, on approaches to address issues identified. This workgroup should evaluate key factors that might impact the land use values for biofuels including agricultural yield improvements, co-product credits, land emission factors, food price elasticity, and other relevant factors. The Executive Officer shall coordinate this effort with similar efforts by the U.S. EPA, European Union, and other agencies pursuing a low carbon fuel standard.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with interested stakeholders to develop criteria and a list of specific biofuel feedstocks that are expected to have no or inherently negligible land use effects on carbon intensity and to propose amendments, if appropriate, to the regulation resulting from this analysis by December 2009.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with interested stakeholders to develop an informal screening process for assessing the carbon intensity of new or modified fuel pathways. The Executive Officer should present an update on the progress on this process to the Board by the end of December 2009.

BE IT FURTHER RESOLVED that, pursuant to sections 39515, 39516, 39600, and 39601 of the Health and Safety Code, the Board delegates to the Executive Officer the authority to conduct and complete rulemakings to (a) add new or customized fuel pathways and carbon intensity values to the Carbon Intensity Lookup Table in section 95486, (b) revise any existing fuel pathway or carbon intensity value (except

values based on land use or other indirect effects that are specified in the Carbon Intensity Lookup Table in section 95486 as adopted in this rulemaking), and (c) revise the incorporated GREET model as newer versions become available. The Board directs the Executive Officer to notify the Board of the initiation and results of any rulemakings conducted pursuant to this delegation.

BE IT FURTHER RESOLVED that, pursuant to sections 39515, 39516, 39600, and 39601 of the Health and Safety Code, the Board delegates to the Executive Officer the authority to conduct and complete rulemakings to amend any portion of the table specifying the Energy Economy Ratios (EERs) in section 95485(a), including but not limited to, adding a new EER or revising an existing EER. The Board directs the Executive Officer to notify the Board of the initiation and results of any rulemakings conducted pursuant to this delegation.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to specifically re-evaluate the EER for heavy-duty vehicles fueled by compressed and liquefied natural gas and, if appropriate, to update the EER as soon as practical.

BE IT FURTHER RESOLVED that, pursuant to sections 39515, 39516, 39600, and 39601 of the Health and Safety Code, the Board delegates to the Executive Officer the authority to conduct and complete a rulemaking to add to or amend the list of opt-in, low-carbon fuels specified in section 95480.1(b). The Board directs the Executive Officer to notify the Board of the initiation and results of any rulemakings conducted pursuant to this delegation.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with petroleum refiners, biodiesel and renewable diesel producers, and other stakeholders to complete the ongoing multimedia evaluation for biodiesel and renewable diesel; and propose, as appropriate, motor-vehicle fuel specifications for biodiesel and renewable diesel by December 2009.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with the Interagency Forest Work Group (IFWG), the California Natural Resources Agency, the California Energy Commission, the California Department of Forestry and Fire Protection, the United States Forest Service, the U.S. EPA, environmental advocates, regulated parties, and other stakeholders to further develop definitions and safeguards for the use of “biomass” and “renewable biomass,” and propose amendments to the LCFS regulation, if appropriate, by December 2009. As part of this effort, the Board further directs the Executive Officer to consider the specific effects of incentivizing the use of forest biomass from public and private lands; the greenhouse gas emissions from different fuel pathways on public and private lands; and the additional protections, if any, necessary to ensure the sustainable and environmentally beneficial use of such forest biomass, with the goal of certifying pathways for the use of forest biomass.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with IFWG, appropriate state agencies, environmental advocates, regulated parties, and other interested stakeholders to present a workplan to the Board by December 2009 for developing sustainability provisions to be used in implementing the LCFS regulation. The workplan should include, but not be limited to, a science-based definition of sustainability; how the sustainability provisions can incentivize sustainable fuels; what provisions will be reviewed for inclusion in the LCFS regulation; the framework for how sustainability provisions could be incorporated and enforced in the LCFS program; and a schedule for finalizing sustainability provisions by no later than December 2011, unless the Executive Officer determines that such actions are not feasible and not appropriate.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with local air districts, regulated parties, environmental advocates, public health experts and other stakeholders to develop a “best practices” guidance document for use by siting authorities when they are considering the siting of biofuel and other fuel production facilities in California to assess and mitigate the air quality impacts of these facilities and to present the guidance document to the Board by December 2009.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to continue to work with the California Public Utilities Commission, electric utilities, oil refiners, and other stakeholders to review the provisions applicable to regulated parties for electricity and propose amendments, if appropriate, to the regulation by December 2009.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with electric utilities, environmental advocates, and other stakeholders to further evaluate the feasibility of generating credits for electricity used in nonroad transportation sources, such as new categories and applications of electric forklifts and other similar nonroad vehicles and equipment, and propose amendments, if appropriate, to the regulation by December 2009.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer, as part of the development of the cap-and-trade regulation identified in the ARB’s AB 32 Scoping Plan and other AB 32 activities, to: (1) evaluate as part of the cap-and-trade rulemaking whether displacing petroleum transportation fuels with electricity leads to a cross-sector shift in GHG compliance obligations and assesses the effect of any such shift, including the impacts on electricity use as a transportation fuel and attendant price signals on consumers; and (2) consider as part of the ongoing activities associated with AB 32 how the LCFS regulation, a broader cap-and-trade regulation, and other programs established pursuant to the AB 32 Scoping Plan should work together to ensure that the use of electricity as a transportation fuel is appropriately encouraged consistent with the goals of AB 32.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to work with stakeholders to develop a fee schedule; credit trading provisions; and robust, transparent, and specific criteria for conducting Carbon Intensity Lookup Table modifications through a certification process, and propose amendments to the regulation, if appropriate, at the December 2009 hearing.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to use a public process, open to all stakeholders, to address the specific provisions in this resolution and to coordinate efforts, to the extent feasible, with the U.S. EPA, the European Union, and other regional, national and international agencies considering the adoption and implementation of an LCFS regulation or similar programs.

BE IT FURTHER RESOLVED that, for projects in California directly related to the production, storage and distribution of transportation fuel subject to the LCFS program, the Board directs the Executive Officer to participate in the environmental review of specific projects; evaluate the air quality impacts of these projects; and, as appropriate, identify feasible measures to mitigate the local and regional impacts of the projects. This effort is to be coordinated with the local air districts; lead agencies for the preparation of environmental impact reports to comply with the California Environmental Quality Act; companies proposing to build new production, storage and distribution facilities; and environmental and community representatives.

BE IT FURTHER RESOLVED that the Board directs the Executive Officer to monitor the implementation of the regulation and to propose amendments to the regulation for the Board's consideration when warranted.

I hereby certify that the above is a true and correct copy of Resolution 09-31, as adopted by the Air Resources Board.

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Monica Vejar, Clerk of the Board

Resolution 09-31

April 23, 2009

Identification of Attachments to the Board Resolution

Attachment A: Proposed Regulation to Implement the Low Carbon Fuel Standard, as set forth in Appendix A to the Initial Statement of Reasons, released March 5, 2009.

Attachment B: Staff's Suggested Modifications to the Original Proposal, presented at the April 23, 2009 public hearing.