

# MAJOR REGULATIONS STANDARDIZED REGULATORY IMPACT ASSESSMENT SUMMARY

DF-131 (NEW 11/13)

## STANDARDIZED REGULATORY IMPACT ASSESSMENT SUMMARY

Agency (Department) Name <b>Air Resources Board</b>	Contact Person <b>Emily Wimberger</b>	Mailing Address <b>1001 I Street Sacramento, CA 95814</b>
Email Address <b>ewimberg@arb.ca.gov</b>	Telephone Number <b>(916) 327-5932</b>	
<p><b>1. Statement of the need for the proposed major regulation.</b></p> <p>CARB staff is proposing to amend the LCFS regulation to reflect a range of objectives: from updates and revisions to improve the program's overall implementation, to broader program design proposals that will improve accuracy of the LCFS and further support California's long-term ability to diversify the State's fuel pool, support demand for increasingly lower CI fuels, and promote transformative innovation in the transportation sector. CARB staff is proposing amendments to the LCFS regulation to:</p> <ul style="list-style-type: none"> <li>• Strengthen the carbon intensity benchmarks in order to help achieve California's 2030 GHG reduction requirement enacted through SB 32 and discussed in the Draft 2017 Climate Change Scoping Plan;</li> <li>• Expand the fuel types and qualifying activities eligible to participate in the LCFS in order to recognize and incentivize GHG reductions in additional transportation fuel sectors;</li> <li>• Require third-party verification of CI values and fuel transactions in order to enhance confidence in the LCFS program accounting;</li> <li>• Update lifecycle analysis modeling tools to incorporate the most recent data and methodologies and streamline application and reporting requirements to encourage greater participation and reduce burden on participants; and</li> <li>• Incorporate a protocol for carbon capture and sequestration projects that will specify the methods for both quantifying emission reductions and ensuring their permanent sequestration.</li> </ul>		
<p><b>2. The categories of individuals and business enterprises who will be impacted by the proposed major regulation and the amount of the economic impact on each such category.</b></p> <p>The proposed amendments are designed to increase the penetration of low-CI fuels in the California market. As such, the proposed amendments will impact the volumes of fuels sold which affects the output of fuel-producing industries including producers of: CARBOB gasoline, diesel, conventional propane, starch ethanol, renewable gasoline, hydrogen used for transportation, biodiesel, renewable diesel, renewable propane, alternative jet fuel, conventional natural gas, dairy natural gas, landfill natural gas, and electricity used for transportation.</p> <p>The proposed amendments will increase the costs to producers and importers of high carbon intensity fuels while producers of low carbon intensity fuels will see revenue increases. This will indirectly affect individuals in California that purchase transportation fuel, as staff assumes increased costs associated with production or import of high carbon intensity fuels will be passed on to consumers in the form of higher fuel prices. In 2022 and 2023, the proposed amendments are projected to reduce gasoline and diesel costs, as potentially lower LCFS credit prices are estimated for these years relative to the baseline scenario. From 2025 onwards, the proposed amendments are projected to increase the price of gasoline by \$0.03 to \$0.21 per gallon and potentially increase the price of diesel by \$0.03 to \$0.25 per gallon, based on the change in estimated annual LCFS credit price and annual deficits from 2025 through 2030.</p>		
<p><b>3. Description of all costs and all benefits due to the proposed regulatory change (calculated on an annual basis from estimated date of filing with the Secretary of State through 12 months after the estimated date the proposed major regulation will be fully implemented as estimated by the agency).</b></p> <p><b>Benefits:</b></p> <ul style="list-style-type: none"> <li>• CARB anticipates that the proposed amendments will have the following general benefits to California businesses and individuals:</li> <li>• Staff expects the proposed amendments to reduce GHG emissions relative to the baseline by almost 51 million metric tons in carbon dioxide equivalent (MMT CO<sub>2</sub>e) from 2019 through 2030. The LCFS is specifically designed to reduce GHG emissions in the transportation sector, which is responsible for nearly half of GHG emissions in California. This will contribute to California's efforts to combat climate change.</li> <li>• Increased use of lower CI alternative fuels and alternative fueled vehicles including biodiesel, renewable diesel, renewable jet fuel, low NOX natural gas trucks, and electric and hydrogen zero emission vehicles. In addition to reducing GHG emissions, this may lower levels of criteria air pollutants, which are the cause of many deleterious health effects on California residents.</li> <li>• Greater opportunities for California businesses to invest in the production of alternative fuels and other credit generating opportunities at oil fields and refineries.</li> <li>• Reduce the dependence on fossil fuel and crude oil imports and diversifying the transportation fuel pool, which may decrease the exposure of California to large swings in energy prices due to external economic shocks.</li> <li>• Improvements in California air quality under the proposed amendments are anticipated to result in health benefits for California individuals. These health benefits result in cost-savings to individuals, businesses, and government agencies due to fewer premature mortalities, fewer hospital and emergency room visits, and fewer lost days of work.</li> </ul> <p><b>Costs:</b></p> <ul style="list-style-type: none"> <li>• Estimated direct costs of the proposed amendments include costs of obtaining LCFS credits and third-party verification costs. Annual direct costs to regulated parties range from a savings of \$1.07B to a cost of \$2.63B, with a cumulative cost of roughly \$8.8B between 2019 and 2030.</li> <li>• Staff expects the more aggressive CI targets in the proposed amendments to result in an increase in the costs to regulated parties of obtaining LCFS credits by: (1) increasing the total quantity of LCFS credits required to be in compliance with the rule for every gallon of high-carbon fuel sold, and (2) increasing the price of LCFS credits. The addition of third party verification will also impose a small cost on many regulated parties.</li> </ul>		
<p><b>4. Description of the 12-month period in which the agency estimates the economic impact of the proposed major regulation will exceed \$50 million.</b></p> <p>The proposed amendments were determined to be major due to the economic impact of the estimated generation of LCFS deficits and credits exceeding \$50 million throughout all years of the assessment (2019-2030).</p>		

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### 5. Description of the agency's baseline:

For the baseline scenario, ARB utilized Regional Economic Model, Inc. (REMI) version 2.1.1, specific to California, to model the macroeconomic impact of the proposed amendments, which assumes the California economy absent the proposed amendments as the baseline. REMI Policy Insight Plus (PI+) is utilized to provide year-by-year estimates of the total impact of the proposed amendments, pursuant to the requirements of SB 617 and the California Department of Finance (DOF). CARB uses the REMI PI+ one-region, 160-sector model that has been adjusted to reflect forecasts dated June 2017 provided by DOF which include California population figures, U.S. real GDP forecast, and civilian employment growth numbers. In addition, the national baseline is adjusted to account for credit revenue and deficit cost that is generated by industries outside of California.

### 6. For each alternative that the agency considered (including those provided by the public or another governmental agency), please describe:

- a. All costs and all benefits of the alternative
- b. The reason for rejecting alternative

#### Alternative 1: CI Reduction of 25 Percent in 2030

a. Alternative 1 provides additional GHG emissions reductions and additional improvements in local air quality compared to the proposed amendments, which will lead to additional health benefits. Staff expects cumulative GHG emission reductions for Alternative 1 to be 103.6 MMT CO<sub>2</sub>e above the baseline. Compared to the proposed amendments, this is an increase in anticipated cumulative GHG reductions of 52.8 MMT CO<sub>2</sub>e. The cost of compliance for Alternative 1 is calculated by multiplying the projected LCFS credit price by the number of deficits generated and subtracting the same multiple for the baseline scenario. Cumulative compliance costs for Alternative 1 are estimated at \$27.9 billion (relative to the baseline). The cost of Alternative 1 is \$19.2 billion more expensive than the proposed amendments.

b. Requiring a 25 percent CI reduction will result in increased GHG emission reductions and improvement in air quality, but at cost much greater than the proposed amendments. The cost effectiveness of this alternative is more than double that of the proposed amendments.

#### Alternative 2: CI Reduction of 18 percent in 2030 with no alternative jet fuel, no CCS, and no propane

a. Alternative 2 provides similar CI reduction targets, cumulative GHG reductions, and criteria pollutant reductions as the proposed amendments, but it does not permit the use of alternative jet fuels, propane, or CCS projects for credit generation. Staff expects the cumulative GHG emission reductions for Alternative 2 to be 47 MMT CO<sub>2</sub>e above the baseline. Compared to the proposed amendments, this represents a decrease in anticipated GHG reductions of 4 MMT CO<sub>2</sub>e from 2019 through 2030. The cost of compliance for Alternative 2 is calculated by multiplying the projected LCFS credit price by the number of generated deficits and subtracting the same multiple for the baseline scenario. Cumulatively the cost of compliance under Alternative 2 is expected to be \$12 billion more expensive than the baseline, and \$3.4 billion more expensive than the proposed amendments.

b. This alternative achieves similar GHG and criteria pollutants reduction but at a substantially higher economic cost. Additionally, although the near term GHG and criteria pollutant reductions are similar to the proposed amendments, this alternative is significantly less likely to have as many benefits in terms of driving the innovation desired and needed to continue decarbonizing transportation fuel in the future.

### 7. A description of the methods by which the agency sought public input. (Please include documentation of that public outreach).

Since the LCFS re-adoption in 2015, staff has been in frequent contact with stakeholders. Recently, the outreach has focused on clarifying certain provisions of the LCFS regulation and working to gather public feedback on proposals being considered for future target setting, pathway certification, and verification amendments. In 2016, staff conducted eight public workshops and stakeholder working meetings, and as of September 2017, staff has hosted an additional twelve public workshops and working meetings, with more workshops slated this fall to further discuss proposed regulatory language. Staff posted information regarding these workshops and any associated materials on the LCFS website and distributed notice of these workshops through a public list serve that includes over 8,000 recipients. At the meetings, which are available by webcast and by teleconference, CARB solicits stakeholder feedback on the regulation and the regulatory process.

CARB has also sought public input regarding the alternatives for the proposed amendments analyzed for this SRIA including:

- July 24, 2017: Staff posted a notice for the August 7, 2017 Public Workshop, which included a solicitation for alternatives as well as a Pre-Rulemaking concept paper describing each of the amendments under consideration.
- August 7, 2017: Staff hosted a public workshop focused on the proposed amendments, which also included a solicitation from stakeholders for alternatives to the staff proposal.

### 8. A description of the economic impact method and approach (including the underlying assumptions the agency used and the rationale and basis for those assumptions).

The proposed amendments are simulated in REMI by employing the production cost policy variable to account for a change in operating costs for industries that generate LCFS deficits or credits. The NAICS code representing petroleum and coal products manufacturing (324) is used to represent deficits generated by CARBOB gasoline and diesel and to represent credits generated by conventional propane, refinery investments, refinery renewable hydrogen, and innovative crude. Low-CI fuel producers that generate credits are grouped into four NAICS codes: basic chemical manufacturing (3251), natural gas distribution (2212), waste management and remediation services (562), and electric power generation, transmission, and distribution (2211). Changes in the production costs to basic chemical manufacturing industry is used to represent credits generated from: starch ethanol, sugar ethanol, cellulosic ethanol, renewable gasoline, hydrogen, biodiesel, renewable diesel, renewable propane, and alternative jet fuel. Changes in the production costs to the natural gas distribution industry is used to represent credits generated from conventional natural gas and dairy natural gas. Changes in production costs to the waste management and remediation service industry is used to represent credits generated from landfill natural gas. Changes in the production costs to the electric power generation, transmission, and distribution industry is used to represent credits generated from electricity used in transportation. The exogenous final demand REMI variable is used to represent changes in value of production for each fuel type that results from changes in business and government expenditures on the fuels. This change in the value of production represents both changes in the volumes of fuel consumed in California and the changes in the price of fuel due to the proposed amendments.

Third-party verification requirements will increase operating costs for fuel producing industries. Higher verification costs are modeled as an increase in production cost to the three industry NAICS codes anticipated to bear these costs: petroleum and coal products manufacturing (324), basic chemical manufacturing (3251), and natural gas distribution (2212). Demand for verification services will also grow as a result of the proposed verification requirements. This demand is modeled as an increase in exogenous final demand for management, scientific, and technical consulting services (NAICS 5416).

The years of analysis are 2019 through 2030; these years are used to simulate the proposed amendments through 12 months post full implementation.

Agency Signature

Date

Agency Head (Printed)

Richard Corey

11/16/2017