Documentation to Support Revisions to Section 3103 Regulations

Introduction

California alternative fuel projects that receive funding from the California Energy Commission's (Energy Commission) Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP) are in jeopardy of closure because a state administrative regulation (as currently drafted, Section 3103) will result in significant lost revenue for these projects. The regulation creates a financial burden for biofuel and biomethane project grant recipients who face a depressed market affected by adverse state, national, and international factors with large uncertainties. Energy Commission investment of over $135 million in biofuel production capacity is subject to this requirement, affecting over 98 million diesel gallon equivalents of in-state biofuel and biomethane production.

The dual goals of the ARFVTP are to reduce greenhouse gas (GHG) emissions and displace petroleum use in the transportation sector by developing and deploying technology and alternative and renewable fuels in California's transportation market. One of the objectives is the development of in-state biofuel and biomethane production plants. The ARFVTP complements other state programs, such the Low Carbon Fuel Standard (LCFS) administered by California Air Resources Board (ARB), to reduce California's GHG emissions.

Section 3103 regulations require program grant recipients to "discount" the value of LCFS carbon credits sold from their biofuels and biomethane projects commensurate with the value of the grants received under the ARFVT Program. The consequences of implementing this regulation would result in adverse economic impacts to biofuel and biomethane ARFVTP grant recipients, many of whom are just now completing construction of substantial expansions in advanced biofuel production capacity. In a survey of ARFVTP grantees, respondents said they will not be able to complete their planned build-out if required to comply with Section 3103. Appendices A and B provide a summary of the economic impacts to California companies.

Proposed Action – Modify 3103 Regulations

Staff recommends modifying Section 3103 through an emergency rulemaking to eliminate the restriction on using credits generated by projects that receive funding from the ARFVTP for those entities that voluntarily opt-in to an emissions reduction program. Proposed language modifying Section 3103 is included in Appendix C.

Justification and Impacts of Proposed Remedies

Only California Discounts the Value of Credits from Projects That Receive State Grants

No other state or local agency discounts credits generated for transportation related actions to reduce tailpipe criteria pollutants, toxic air contaminants, and GHG emissions commensurate with grant funding complementing those actions. The ARB implements a funding program, the Air Quality Improvement Program (AQIP), which is similar to the ARFVTP and funded under the same enabling legislation. The AQIP funds electric vehicle rebates and hybrid electric truck demonstrations to accelerate the introduction of zero emission vehicles.[1] ARB does not require funding recipients to discount LCFS credits commensurate with the grant value of these vehicle incentives because the recipients are not obligated parties under the LCFS. In addition, another ARB regulation, the Zero Emission Vehicle Mandate, requires automakers to provide specified numbers of zero emission vehicles for sale in California by 2020.[2] Credits generated by compliance are not discounted because the obligated parties (automakers) do not receive the rebate incentives, but rather vehicle buyers do. Local air districts establish regulations governing tailpipe emissions for trucks and buses, and fleet owners are the point of regulation.[3] The air districts often provide incentives to offset higher vehicle cost options for compliant vehicles such as natural gas trucks, but do not discount credits equal to the value of the incentive amounts because the air districts hold the credits.

Section 3103 Creates a Competitive Disadvantage for California Companies

The 3103 requirement also creates an "un-level playing field" for ARFVTP funded California projects compared to imports of biofuels and biomethane from other states and countries – credit discounting does not occur for these competitors. For example, Missouri provides incentives for instate biofuel production by granting 30¢ per gallon for the first 15 million gallons of biodiesel produced annually and 10¢ per gallon for production above 15 million gallons, for a maximum of 60 months. Iowa provides incentives for several steps along the biofuel development stream, including tax credits for production of biofuels, 20 year zero percent interest loans for up to half the cost of alternative fuel projects, and grants for biofuel terminal storage projects and fueling stations. All of these projects receive credits (Renewable Identification Numbers – RINs) with monetary

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1 Air Quality Improvement Program Guidelines, California Air Resources Board, www.arb.ca.gov/aqip, April 2009.

2 Zero Emission Vehicle Standards, California Air Resources Board, www.arb.ca.gov/zev, July 2014.

3 Fleet Rule Regulations, South Coast Air Quality Management District, www.aqmd.gov; and California's Progress Toward Clean Air 2014, California Air Pollution Control Officers Association, www.capcoa.org/documents.

value under the United States Environmental Protection Agency's (U.S. EPA) Renewable Fuel Standard (RFS2). Approximately 215 ethanol production plants and 90 biodiesel plants receive some type of grant or tax incentive from several Midwest and southern states.[4] No other state requires discounting of credits commensurate with grant funding or incentives received. Many of these plants in other states deliver ethanol and biodiesel to California and also receive full LCFS credits.

Continuing the enforcement of Section 3103 as currently written would have immediate adverse economic impacts on all California ARFVTP biofuel and biomethane projects – threatening business operations, jobs created, and the value of biorefinery assets. Impacts to California government could be the reversal of significant biofuel program gains over the last five years, resulting in stranded assets of $442 million ($135 million in public investment and $307 million in private matching investment) and loss of program effectiveness and credibility. By the end of 2024, the Energy Commission will have committed a total of $1.5 billion over 15 years with a substantial amount dedicated to biofuels and biomethane projects. This commitment of state funds would be jeopardized without modifying the existing regulation. The Section 3103 credit discounting requirement could cause suspended or idled projects and reduce the amount of in-state production, lead to lost economic development, and provide fewer options to achieve LCFS compliance.

Section 3103 Compounds Other Market Stressors

The precipitous decline in fossil fuel prices stimulated by reduced global demand in 2014, and increased production from U.S. and the Organization of the Petroleum Exporting Countries (OPEC) oil producers, has created a surplus market resulting in a 50 percent reduction in wholesale prices since the second quarter of 2014.[5] Lower prices for fossil fuels squeeze the margins of biofuel producers, who must compete in price with fossil fuels in fuel markets until policy-driven demand for biofuels is greater than supply. The value of credits under LCFS helps biofuel producers defray the higher costs of producing low carbon intensity fuels from non-petroleum feedstocks. The federal RFS2 program is also designed to help provide biofuel producers compete economically with fossil fuels by increasing demand for these low-carbon alternatives.

Delays in LCFS implementation due to federal and state court challenges to the program have resulted in depressed credit prices because they curbed the expected demand for low carbon biofuels. Until full re-implementation, refiners do not need to meet more rigorous carbon intensity requirements embedded in the original timetable. Without these requirements, oil refiners do not need to buy as much biofuel to help lower the overall carbon intensity of their total fuel mix as specified by that timetable. Moreover, both public and private investments in biofuels production have increased production capacity over the last five years, in anticipation of the demand expected

4 Energy and Environment – Legislative Tracking Database, National Association of State Legislatures, www.NCSL.org/research/energy; and U.S. Biofuels Industry: Mind the Gap, U.S. Department of Energy; www.energy.gov/eere/bioenergy.

5 Platt's Oilgram Price Report, www.platts.com, December 2014.

by the original mandate. So the demand for biofuels and their associated credits is lower, while supply has increased in anticipation of higher demand, creating an imbalance in the markets and suppressing prices for both the fuel and the credits.

In addition to the delay in LCFS credit support, regulatory uncertainty with the federal RFS2 standards for 2014-2015 has depressed prices for those credits as well. Where credit values for diesel substitutes were as high as $2.24 per gallon in September 2011, those same fuel type credits traded at less than 90¢ through most of 2014. Within this overall market uncertainty, the discounting requirement of Section 3103 further adds to the financial uncertainty and value erosion of these credits to biofuel producers. Moreover, discounting the value of the credits actually works against the intent of these credit programs, because it rewards the credit buyers (typically "obligated parties") with lower prices to meet their compliance obligations at the expense of ARFVT-funded biofuel producers.

Section 3103 Creates Market Uncertainty

The implied value for credit prices under normal implementation provides investors with a more certain financial picture of biofuel producers' revenue potential, and has been a major factor in the ability of these firms to secure private investment to match ARFVTP funds. Section 3103, as currently written, undermines this incentive for biofuel producers and their private investors, and erodes this essential piece of the producers' economic viability. Furthermore, Section 3103, provides no means of implementation or enforcement – that is, how to sell "discounted" credits, and it is silent on how a discounted transaction can be implemented, monitored or enforced. Market values for credits are established in the balancing of supply and demand for these credits in the market. While a few "spot market" transactions occur in LCFS, many credits are traded as part of longer-term supply contracts. The discovery of current or discounted values for traded credits are not easily referenced to any published values, because none exist.

As a result of the Section 3103, ARFVTP recipients are delaying or deferring the sale of credits. Only 21 percent of respondents indicated that they will try to sell their eligible credits under present circumstances, despite the urgent need to do so. Some may be selling credits without discounting, as there is no clear method to negotiate a "discounted" price with a buyer. Most are withholding credits from sale at this time.

The existing regulation requiring credit discounting has increased the uncertainty about the financial value of these credits. Moreover, the implications of discounted transactions on LCFS operation and implementation are also unclear. If a large volume of credits were sold at discounted prices in a short period of time, this would have the potential to lower credit trading prices for all transactions and biofuel producers, further jeopardizing the industry and reducing options for low carbon fuels.

Section 3103 Creates Environmental and Fiscal Impacts

The increased use of alternative and renewable fuels supports California's commitment to curb GHG emissions, reduce petroleum use, improve air quality, and stimulate the sustainable production and use of alternative fuels within California. As noted previously, existing biofuel and biomethane projects funded by ARFVTP would displace 98 million diesel gallon equivalents when projects are fully implemented, contributing to a reduction of GHG emissions and air pollutants.

The environmental impacts of not modifying Section 3103 would be a reduction in the benefits of these projects to the state. The ARFVTP finds that as more alternative fuel vehicles and technologies enter the market and begin to displace gasoline and diesel vehicles, tailpipe pollutants and GHG emissions will decrease significantly. A net benefit is realized from less petroleum use and more alternative fuel use as a result of these projects. Therefore, the modification of Section 3103 would reduce financial uncertainty and allow more projects to succeed, thus providing Californians with cleaner air and greater pollution reductions. The anticipated influence to the cities with ARFVTP projects are positive in terms of reduced health risk. The Energy Commission requires completion of California Environmental Quality Act (CEQA) analysis and Localized Health Impacts (LHI) reports before projects are approved for funding. Appendix E summarizes the conclusions that no significant environmental impacts occur with the development of biofuel and biomethane projects funded by ARFVTP.

If Section 3103 regulation, as currently written, should remain in place, it would have a direct fiscal impact on the Energy Commission. Staff would be tasked with interpreting, monitoring, and managing credits resulting from projects awarded under the ARFVTP. The increased, unfunded workload would result in severe resource constraints on the ARFVTP. Currently the ARFVTP manages an estimated 43 projects that would be affected by the credit discounting provision. The Energy Commission would be required to establish procedures to discount credits and practices for enforcing the provision, and in conjunction with ARB and U.S. EPA staff who manage the credit programs themselves. This would require legal, management, and staff time on a weekly basis, not currently funded by the Energy Commission, ARB and U.S. EPA. It is estimated that each Commission Agreement Manager (estimated 12 project managers) would be tasked with spending at least four hours per month per project, dedicated to credit discounting (approximately 2,160 total hours or 180 hours each, annually). Additionally, legal staff and management would need to spend at least two hours per month working on the provision (approximately 100 hours each).

ARFVTP Recipients Support Eliminating the Discounting Provision

The Energy Commission surveyed ARFVTP biofuel grant recipients to better understand the effects the regulation. A total of 23 firms responded, and 13 of those firms provided comments for the record (68 percent). All 13 comments supported the elimination of this discounting provision. These comments are provided in full in Appendix B. Extracts from a sample of these comments follows:

- "The economic benefit of the LCFS credits are critical to ensuring sufficient operating cash flow and to achieve profitability, which in turn is critical to attracting the equity capital needed for the project . . ."
- "The enforcement of the 3103 Regulation will put California biofuel producers at a significant competitive disadvantage relative to out-of-state and international producers. The enforcement of this regulation will be a direct financial benefit to major oil companies and other obligated parties at the expense of small, in-state biofuel producers."
- "…It is counterproductive to make (Energy Commission) grant recipient's costs higher than those of non-grant winners. Essentially such a practice identifies potentially successful technologies and business models and then significantly handicaps their operating performance."
- "(Our Company) is against the potential discounting of future credits…due to the potential that it will undermine the operational viability of the project."
- "As of 12/17/14, the operating per gallon cash flow (defined as total unit sales value including all (RFS2) RINs and LCFS credits less total unit raw materials, variable and fixed operating costs, SGA Cost and interest costs) for contracts for January 2015 delivery is negative $0.38/gallon sold."

Background – ARFVTP Helps Advance California's Energy and Climate Goals

California's Climate, Air Quality, and Energy Goals

California has enacted an aggressive array of policies to reduce GHG emissions, criteria air pollutants that harm public health, and petroleum use. A key policy is the Global Warming Solutions Act of 2006 (Assembly Bill 32, Núñez, Chapter 488, Statutes of 2006) that caps economy wide California greenhouse emissions at 1990 levels by 2020. Further, the state has a goal of reducing GHG emissions to 80 percent below 1990 levels by 2050, as reflected in Executive Order S-3-051 and Governor Brown's Executive Order B-16-2012. Governor Brown stated that, "In terms of greenhouse gases, our biggest challenge remains the amount of gasoline Californians use."[6]

The state also has goals to reduce petroleum use, advance alternative fuels and bioenergy in particular, advance zero emission vehicles and infrastructure, and reduce the carbon content of petroleum.[7] The federal Clean Air Act calls for an 80 percent reduction in emissions of oxides of

6 Governor Brown's 2014 State of the State Address, http://gov.ca.gov/news.php?id=18373.

7 State Alternative Fuels Plan, California Energy Commission, CEC-600-2007-011-CMF, www.energy.ca.gov, December 2007; Zero Emission Vehicle Standards and Low Carbon Fuel Standard, California Air Resources Board, www.arb.ca.gov.

nitrogen (NOx) by 2023. Each of these policies and goals is driving efforts to fundamentally change energy use in the transportation sector.

The transportation sector is California's largest source of GHG emissions, accounting for about 36 percent of the state's GHG emissions,[8] nearly all of which is from on-road cars and trucks. Also, the transportation sector accounts for about 83 percent of statewide emissions of oxides of nitrogen.[9]

ARFVTP Funding to Helps Transform California's Transportation System

The California Legislature passed Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007). This legislation created the ARFVTP, administered by the Energy Commission. With funds collected from vehicle registration and smog fees, the ARFVTP provides up to $100 million per year for projects that will "transform California's fuel and vehicle types to help attain the state's climate change policies."[10] The statute also calls for the Energy Commission to "develop and deploy technology and alternative and renewable fuels in the marketplace, without adopting any one preferred fuel or technology."[11] Assembly Bill 8 (Perea, Chapter 401, Statutes of 2013) subsequently extended the collection of fees that support the ARFVTP through January 1, 2024. With this extension, California will ultimately invest about $1.5 billion to develop alternative and renewable fuels in the state.

Through Fiscal Year 2013-2014, the Energy Commission has invested more than $530 million in projects that will support alternative and renewable fuels and advanced vehicle technologies. These existing projects provide direct feedback on how the ARFVTP can maximize value in reducing near-term GHG emissions by 2020 while supporting the transformation of California's transportation sector toward fuels and technologies that can meet the more drastic emission reductions required by 2050. Projects funded by the ARFVTP are summarized in Table 1 and support a broad portfolio of fuel types, supply chain phases, and commercialization phases.

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8 California Air Resouces Board. (2014). California Greenhouse Gas Inventory for 2000-2012. Retrieved June 19, 2014, from http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-12_2014-03-24.pdf.

9 California Air Resources Board. Almanac Emission Projection Data (published in 2013). Retrieved November 10, 2014, http://www.arb.ca.gov/ei/general.htm.

10 Health and Safety Code Section 44272(a).

11 Ibid.

Table 1: Projects That Have Received ARFVTP Funding (as of December 2014)

Category	Funded Activity	Cumulative Awards to Date (in millions)*	# of Projects or Units
Alternative Fuel Production	Biomethane Production	$51.0	15 Projects
	Gasoline Substitutes Production	$27.3	12 Projects
	Diesel Substitutes Production	$56.6	18 Projects
Alternative Fuel Infrastructure	Electric Vehicle Charging Infrastructure	$38.3	9,369 Charging Stations
	Hydrogen Refueling Infrastructure	$85.3	48 Fueling Stations
	E85 Fueling Infrastructure	$14.6	161 Fueling Stations
	Upstream Biodiesel Infrastructure	$4.0	4 Infrastructure Sites
	Natural Gas Fueling Infrastructure	$16.7	60 Fueling Stations
Alternative Fuel and Advanced Technology Vehicles	Natural Gas Vehicle Deployment**	$54.3	4,470 Cars and Trucks
	Propane Vehicle Deployment**	$6.4	514 Trucks
	Light-Duty Electric Vehicle Deployment	$25.1	10,700 Cars
	Medium- and Heavy-Duty Electric Vehicle Deployment	$4.0	150 Trucks
	Medium- and Heavy-Duty Vehicle Technology Demonstration and Scale-Up	$58.7	31 Demonstrations
Related Needs and Opportunities	Manufacturing	$47.0	18 Manufacturing Projects
	Emerging Opportunities	†	†
	Workforce Training and Development	$25.2	55 Recipients
	Fuel Standards and Equipment Certification	$3.9	1 Project
	Sustainability Studies	$2.1	2 Projects
	Regional Alternative Fuel Readiness and Planning	$5.1	21 Regional Plans
	Centers for Alternative Fuels	$4.6	4 Centers
	Technical Assistance and Program Evaluation	$5.6	5 Agreements
Total		**$535.8**	

Source: California Energy Commission. *Includes all agreements that have been approved at an Energy Commission business meeting, or are expected for business meeting approval following a Notice of Proposed Award. For canceled and completed projects, includes only funding received from ARFVTP, which may be smaller than initial award. **Funding includes both completed and pending vehicle incentives. †Previous awards have been reclassified by project type into other rows.

ARFVTP Funding for Biofuels

With funding from Fiscal Years 2008-2009 through 2014-2015, the ARFVTP has invested in 45 alternative fuel production projects to promote the production of sustainable, low-carbon biofuels within California. Most will use waste-based feedstocks, which contribute to some of the lowest carbon intensity pathways recognized under the LCFS. Furthermore, 19 will expand biofuel production at commercial scale, allowing California to increase its biofuel production capacity by 88 million diesel-equivalent gallons per year. The biofuels projects are divided into three

subcategories based on fuel type—(1) gasoline substitutes, (2) diesel substitutes, and (3) biomethane used as compressed natural gas or liquefied natural gas for transportation.

Biofuels represent the largest existing stock of alternative fuel in California's transportation sector.[12] Low-carbon biofuels that can directly displace the roughly 13 billion gallons of gasoline and 3.3 billion gallons of diesel used per year in California represent both an immediate and long-term opportunity to reduce GHG emissions and petroleum dependence. One goal of the ARFVTP is to help build the capacity of California companies to produce economically competitive biofuels from waste-based and renewable feedstocks. In addition to the production of low-carbon fuels, ARFVTP investments in this area also provide employment and economic development benefits in economically disadvantaged regions of the state.

With roughly 1 billion gasoline-equivalent gallons consumed in 2013, ethanol continues to be the largest volume alternative fuel used in California. The state has the capacity to produce roughly 215 million gallons of ethanol per year, using primarily corn or sorghum as a feedstock. The gross number of LCFS credits generated from ethanol increased almost 40 percent in 2013 compared to 2012 because of a substantial shift to lower-carbon-intensity ethanol. However, ethanol as a share of all LCFS credits fell from about 73 percent in 2012 to about 53 percent in 2013. This is a result of increased credits generated by other fuels, most notably renewable diesel and biodiesel.[13]

Renewable diesel was the most common diesel substitute used in California for 2013, supplanting biodiesel and increasing total volume more than tenfold to about 95 million gallons.[14] Additional in-state renewable diesel producers are expected to come on-line soon as a result of recent ARFVTP funding. Renewable diesel that meets the fuel specification requirements of American Society for Testing and Materials (ASTM) standard D975 is fully fungible with conventional diesel fuel and can be used in existing diesel engines and fuel infrastructure.

Biodiesel is another diesel substitute that, though not fully fungible with conventional diesel fuel, can be blended in a manner analogous to ethanol and gasoline. California has seven biodiesel production facilities, with a combined production capacity of 59 million gallons per year.[15] While there is no mandate for blending biodiesel with conventional diesel (as there is with ethanol and gasoline), a blend of up to 5 percent biodiesel can be used without special modifications to the vehicle. The blending of low-carbon biodiesel provides the obligated parties under both the state

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12 "Gasoline substitutes" refers to any liquid fuel that can directly displace gasoline in internal combustion engines, including ethanol and renewable drop-in gasoline substitutes. "Diesel substitutes" refers to any liquid fuel that can significantly displace diesel, including biodiesel, renewable diesel, and renewably derived dimethyl ether (assuming fuel system modifications). These definitions differ from similar terms used by ARB under the LCFS, which are broader and include fuels such as electricity, natural gas, and hydrogen.

13 California Air Resources Board. LCFS Quarterly Data. July 8, 2014. Accessed September 15, 2014. http://www.arb.ca.gov/fuels/lcfs/media_request_070714.xls.

14 Ibid.

15 U.S. Energy Information Administration, "Monthly Biodiesel Production Report" Table 4, May 2014. Available at http://www.eia.gov/biofuels/biodiesel/production/table4.xls.

LCFS and the federal RFS2 the ability to lower their overall carbon intensity and meet RFS2 volume requirements. The state's overall average biodiesel blend ratio has been increasing with increased production and blending capacities resulting from state and private investment. Several major oil terminals throughout the state have either converted or begun converting existing infrastructure to accommodate biodiesel blending.

Biomethane represents another major opportunity for low-carbon biofuel production within California as a substitute for natural gas. According to the life-cycle analysis prepared for the LCFS, biomethane from landfill gas can reduce GHG emissions to 88 percent below diesel, and biomethane derived from high solids anaerobic digestion possesses negative carbon intensity roughly 115 percent below diesel.[16] Assembly Bill 341 (Chesbro, Statutes of 2011, Chapter 476) set a state goal of reducing, recycling, or composting 75 percent of solid waste by 2020. This goal should support pre-landfill biomethane production by increasing the availability of organic waste feedstocks. The Energy Commission supports this target and may consider prioritizing pre-landfill biomethane production in future solicitations over landfill gas projects, while still allowing landfill gas projects to compete.

The Energy Commission also provides investments in natural gas vehicles and infrastructure to support and expand use of the fuel. While the low price of natural gas may open up a larger number of prospective consumers for natural gas vehicles, it may also be more difficult for biomethane producers to compete in the market against a lower-priced fuel without the ability to monetize their lower carbon intensity through credit trading. Higher LCFS credit values are expected to follow the higher compliance rates that should occur as the LCFS is readopted.

Table 2 summarizes the number of awards made for each of these fuel types by the ARFVTP to date. As used in the table, "qualifying proposals" means those receiving at least a passing score.

16 Carbon intensity of high solids anaerobic digestion based on staff paper. California Air Resources Board, *Proposed Low Carbon Fuel Standard Pathway for the Production of Biomethane From High Solids Anaerobic Digestion of Organic Wastes*, staff report, June 28, 2012. Available at http://www.arb.ca.gov/fuels/lcfs/2a2b/internal/hsad-rng-rpt-062812.pdf. Carbon intensity values for biomethane may be affected by data in forthcoming studies related to methane leakage (similar to natural gas); however, biomethane is still expected to represent a very low carbon intensity transportation fuel.

Table 2: Summary of Biofuel Production Awards to Date

Fuel Type	Qualifying Proposals Submitted	Funds Requested by Qualifying Projects (in millions)	Awards Made	Funds Awarded (in millions)
Gasoline Substitutes	18	$44.8	12	$27.4
Diesel Substitutes	44	$135.1	18	$56.6
Biomethane	37	$121.0	15	$51.0
Total	**99**	**$300.9**	**45**	**$135**

Source: California Energy Commission.

The carbon intensities of the above-mentioned biofuels can vary significantly, depending on the feedstocks and conversion processes used in production. Biofuels derived from waste-based feedstocks typically represent the lowest carbon intensities among all biofuels and often among all alternative fuels. Maximizing biofuel production from these lowest-carbon options represents a key opportunity to reduce near-term GHG emissions in conventional combustion engines.

Next-generation gasoline substitutes, including cellulosic ethanol and drop-in renewable gasoline, are still needed to displace large volumes of gasoline.

The most recent biofuel production funding solicitation, PON-13-609, was released in January 2014 and was eligible to fund demonstration facilities and commercial-scale facilities. Applicants were separated into funding categories for diesel substitutes, gasoline substitutes, and biomethane. PON-13-609 received qualified funding requests from 25 applicants totaling more than $91 million, illustrating a continued oversubscription and need for ARFVTP funding. Twelve projects were proposed for a total of $47 million in grants.

The Benefits of ARFVTP Investments in Biofuels

The ARFVTP investment category most directly affected by Section 3103 credit discounting requirements is Biofuels Production. Most other category recipients do not generate credits in their project implementation.

As noted previously, the purpose of the ARFVTP is to "develop and deploy innovative technologies that transform California's fuel and vehicle types to help attain the state's climate change policies."[17] By definition, the primary metrics for evaluating the effectiveness of the ARFVTP are to measure the near- and long-term reductions in petroleum fuel use and GHG emissions from the transportation sector. The program, however, generates many additional benefits for Californians, including technology advancement, air quality benefits, economic development, and market transformation.

17 Health and Safety Code Section 44272(a).

The ARFVTP statutes list a series of directives and preferences that can be used as metrics to measure and evaluate the benefits of the ARFVTP. These metrics include petroleum and GHG emissions reductions, market transformation, technology advancement, sustainability, air quality benefits, and economic development.[18] When the companies that manufacture these technologies are located in California, they also create employment and economic development benefits and generate a series of intellectual properties that, in turn, leverage additional technology advancements and economic development.

The ARFVTP has stimulated measureable changes from biofuel production funding in California's transportation system. The $135 million spent to fund biofuel and biomethane projects is expected to displace 98 million diesel gallon equivalents annually by 2025.[19] The entire ARFVTP is improving air quality and will reduce from 100 to 178 tons of PM2.5 by 2025. ARFVTP has also helped create more than 6,000 new jobs in California and is funding the training of more than 13,600 technicians and maintenance personnel throughout the state. As the Energy Commission makes additional investments, these benefits will grow. The ARFVTP is meeting the statutory objectives and is contributing to several key policy goals articulated in Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007) (AB 118) and AB 8.

Technology advancement in this industry is accelerating, as shown by the increasing cost-effectiveness of recent diesel substitute production investments. Using the metrics of public dollars invested per gallon of petroleum diesel displaced, these measures have improved from $3.27/gallon in 2011 to $1.10/gallon in 2014. This accelerating productivity of ARFVTP funding can be expected to continue, as ARFVTP funded technology advances are brought to market.

We can infer the same order of magnitude productivity increases observed in recent diesel substitute advances to the gasoline substitute and biomethane subsectors as well, based on the expected maturation of these subsectors. As new technology advances and efficiency improvements are implemented, cost-effectiveness of funding in these fuel types will also increase.

More importantly, however, are emerging technologies that have significant market disruptive potential. These new developments resulted from the reduced uncertainty and expected profit potential of biofuel production under expected implementation of LCFS and RFS2. These market transformational developments are critically dependent on the full value of carbon credits under these programs. Therefore, the discounting requirement of Section 3103 critically undermines crucial components of the economic case for alternative fuels and technologies.

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18 Health and Safety Code Section 44272(d).

19 2014 Benefits Guidance Report: National Renewable Energy Lab (NREL), California Energy Commission, CEC-600-2014-005, www.energy.ca.gov, December 2014.

APPENDICES

Appendix A: Company Survey Results

Appendix B: Company Statements

Appendix C: Proposed Regulation Revision

Appendix D: Letter from ARB Supporting Regulation to Modify 3103

Appendix E: Environmental Impacts of Projects

Appendix F: Carbon Intensity Values for Gasoline and Diesel Substitute Fuels

Appendix G: Full List of ARFVTP Projects Analyzed by NREL for 2014 IEPR Update

Appendix H: Additional Information on NREL's Assessment of Expected and Market Transformation Benefits

APPENDIX A: Company Survey Results

3103 Support Memo

Total Recipients Surveyed	Recipients Responded to Survey	Annual Proposed Throughput of Total Surveyed	RFS Participant	LCFS Participants	Statement Provided
43	23 (53.49% from total surveyed)	75,193,368 DGEs	19 (44.18% from total surveyed)	20 (46.51% from total surveyed)	20 (86.96% of respondents)

Stated that Project will be Affected	Percentage of Projects Affected
19	82.61%

Yes, Will Affect Negatively	No, Will Have No Affect
52.63%	47.37%

Selling Credits?	19 responses
Did not state or No	10 (52.63%)
Future	5 (26.32%)
Possibly Yes	4 (21.05%)

2015 quarterly break down of 43 biofuel fuel production projects				
Timeframe	**Jan-March 2015**	**Apr-Jun 2015**	**July-Sept 2015**	**Oct-Dec 2015**
Production per qtr. 2015 (DGE)	4,715,991.50	6,850,301.50	7,233,481.50	8,017,401.50
% per qtr of total overall 2015 production	17.6%	25.5%	27.0%	29.9%
Fuel Projects Producing per Qtr	12	13	14	15
% of Projects Producing per QTR	22.22%	24.07%	25.93%	27.78%

Estimation of Affected Production <50% = mild impact, >50% - <75% = high impact, >75% = severe impact				
Impact	**total**	**mild**	**high**	**severe**

	32	**19**	**0**	**12**
	74.41% (from total surveyed)	**59.38% (from total impact)**	**0.00%**	**37.50% (from total impact)**

Actual (estimated) Total 2015 Production	26,817,176 DGEs
Sum Projects 2015	54

Actual (Estimated) total 2016 production	72,272,368 DGEs
% affected of total 2016 production	100%

Source: Energy Commission

APPENDIX B: Company Statements

CRIMSON
RENEWABLE ENERGY, LP

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November 12, 2014

Commissioner Janea Scott
California Energy Commission
1516 Ninth Street, 1st Floor
Sacramento, California 95814

RE: CEC Regulation Title 20 CCR 3103 - AB118 Funding Restrictions

Dear Commissioner Scott:

Crimson Renewable Energy LLC ("Crimson") owns and operates a biodiesel production facility in Bakersfield CA. We are currently in the midst of expanding the production capacity of this facility by 10 million gallons per year with the help of AB118 funding awarded to us via PON-13-601 and PON-13-609.

I'd like to first thank you for the opportunity to bring to your attention our deep concerns regarding the interpretation of Title 20 CCR 3103 (the "3103 Regulations") regarding AB118 funding restrictions applicable to AB 118 grant award recipients. My understanding is that this issue first arose as part of the issuance of Biofuels Production Facilities Grant Solicitation PON-11-601. This PON suggested that grantees, even though they do not have any obligation under AB 32 or the Low Carbon Fuels Standard ("LCFS") to specifically reduce carbon output or produce alternative transportation fuels, would have to forgo the value of LCFS credits received for biofuels produced proportionate to the level of grant monies received via AB118 funds.

We urge you and the CEC to reconsider this provision as we believe it is totally contrary to the intent and specific language of AB118, which states that if the grantee:

> "...is an obligated party or has opted in ... to a credit generating program such as the LCFS or AB32 initiatives, and plans to claim credits generated by the proposed project, then the applicant will be required to agree to discount the value of those credits at the point of transfer in proportion to the funding received."

Per the California Air Resources Board ("CARB") LCFS regulations, the only way a voluntary producer of a low carbon fuel can participate in the LCFS is by "opting in" as a "regulated party". This is simply CARS terminology but in no way means that an "opt in" regulated party is compelled in any way by CARS to produce a low carbon fuel. It simply means that the "opt in" regulated party may buy and sell LCFS credits or earn LCFS credits via production of a low carbon alternative fuel. It does not mean that an "opt in" regulated party must do the latter. CARB has since specifically clarified in their LCFS regulatory amendments that parties that voluntary "opt-in"' parties are free to opt out and any time and still produce a low carbon fuel for use in California, *provided that they are not subject to* a *carbon reduction compliance obligation,*

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i.e. the party is not a petroleum based transportation fuel producer or importer. The CEC also needs to recognize this critical distinction.

To our knowledge, no alternative fuel projects awarded AB118 grants prior to PON-11-601 were subject to the 3103 regulation restrictions. Also, our understanding is that:

(i) the interpretation of 3103 regulation has heretofore always been that it is only applicable to those projects that are "required to be undertaken" pursuant to federal or California law, and

(ii) CEC AB 118 staff has previously provided consistent guidance that the 3103 regulation only apply to those projects that are required to be undertaken in order comply with federal or state law (i.e. for mitigation purposes}, not to those project that voluntarily undertaken to produce alternative fuels and generate and sell LCFS credits to regulated parties who must have those credits. Indeed I specifically had a conversation with CEC staff about the 3103 restrictions prior to submitting our AB118 grant application and was told that 3103 would not apply to our proposed project for the PON-13-601 solicitation for which we were awarded an AB118 grant.

Thus we believe that this restriction was never meant to apply to voluntary producers of low carbon fuels, those who are doing so without any obligation or requirement from any governmental body. To restrict voluntary producers of alternative fuels also goes far beyond the statutory limitation of AB 118 itself, as modified by AB109 (Nunez, 2008). H&SC Section 44271 (c) is the statutory basis, authority and reference for Section 3103 of the AB118 regulations:

> "44271(c) For the purpose of both of the programs created by this chapter, eligible project's do not include those required to be undertaken pursuant to state or federal law, district rules or regulations, memoranda of understanding with a governmental entity, or legally binding agreements or documents. For the purposes of the Alternative and Renewable Fuel Technology Program, the state board shall advise the commission to ensure the requirements of this subdivision are met."

We believe this statutory restriction was intended to apply to only those parties who are required to produce alternative fuels as a means of compliance with carbon reduction regulations such as LCFS or AB32 or required as an agreed upon mitigation measure with a local air district (i.e. as part of settlement for excessive emissions). With respect to the LCFS, this statutory provision is only applicable to producers of petroleum based fuels who are the mandated LCFS regulated parties.

To otherwise restrict voluntary producers of alternative fuels who have received AB118 funding would be completely counter to the very goal of the Alternative and Renewable Fuel Technology and Vehicle Program (ARFTVP), one of which is to stimulate the production of low carbon alternative transportation fuels. It is very obvious that limiting the value of LCFS or other carbon credits that can be generated by voluntary producers of alternative transportation fuels would

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be a huge disincentive to ever try to produce such alternative fuels. Without the value of the LCFS credits, an alternative fuel production project, even one that received a reasonable percentage of its capital costs via AB118 funds, would simply not work in California. The economic benefit of the LCFS credits are critical to ensuring sufficient operating cash flow and to achieve profitability, which in turn is critical to attracting the equity capital needed for the project even when AB118 funding is part of the equation.

When market conditions become difficult, as they currently are, the economic value of LCFS credits are crucial to the survival of our current operations. As you can see from the figures below reflecting the current biodiesel market conditions and cost structures for our Bakersfield biodiesel plant, even with the value of the LCFS credits (which are substantial representing almost 10% of the total unit revenues), we are currently operating at small loss.

- UPDATE:

  As of 12/17/14, the operating per gallon cash flow (defined as total unit sales value including all RINs and LCFS credits less total unit raw materials, variable and fixed operating costs, SGA Cost and interest costs) for contracts for January 2015 delivery is negative $0.38/gallon sold.

The CEC must either modify its 3103 regulation or interpret it in manner consistent with the objectives of AB118 / ARFTVP to allow voluntary producers of alternative fuels to receive the full benefit of carbon reduction programs such as LCFS. For example, CEC could interpret and apply the 3103 regulation as follows:

- Since 3103 uses the term "may" instead of "shall", the CEC could interpret the requirement to proportionally restrict the value of credits as a discretionary authority of the CEC which does not have to be applied to voluntary producers of alternative transportation fuels.
- Subdivision (b) of 3103 is specifically referenced in subdivision (a) regarding the production of excess credits by a mandatory regulated party, i.e. under LCFS this would be a petroleum fuel produce. The language in (a) refers to (b) as a means to restrict the ability of a mandatory regulated party to receive the maximum value of credits under programs such as LCFS. We think the correct way to interpret subdivision (b) is an extension of (a) rather than as a stand-alone subdivision.

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In summary, we strongly urge the CEC to not impose any restrictions on receiving the entire economic benefit of LCFS or other carbon reduction credits for alternative fuels project developed voluntarily (i.e. not required by State or Federal law or other regulatory requirements) with the assistance for AB118 /ARFTVP funding. The 3103 restrictions should only be applied by the CEC to alternative fuel production projects developed by parties who are statutorily required to achieve carbon reductions under LCFS and/or AB32. Thus we request that the CEC continue to interpret the 3103 regulation in manner consistent with the above with respect to the biodiesel plant expansion project we are currently engaged in with funding received under PON-13- 601 and PON-13-609, or otherwise amend 3103 such that it will not impose restrictions on voluntary producers of alternative fuels.

If you have any questions regarding any of the above or require further information, please contact me at (720)-475-5400 or hsimpson@crimsonrenewable .com.

Sincerely,

Harry Simpson
President

COMMUNITY FUELS™ It makes sense.

February 11, 2015

Commissioner Janea A. Scott
California Energy Commission
1516 Ninth Street, MS 32
Sacramento, CA 95814

via email to Janea.Scott@energy.ca.gov

RE: ARFVTP 3103 Regulation

Dear Commissioner Scott:

Community Fuels designed, built and operates an advanced biorefinery at the Port of Stockton. We have been honored to receive multiple grant awards under the ARFVTP program which have served as the catalyst to enable our business to expand our capabilities. The awards include grant numbers ARV-10-037, ARV-13-008 and ARV-14-024.

We understand that the 3103 Regulation requires discounting of credit values. The fuel market operates with extremely narrow margins; discounting at any level could cause us to move from a profitable margin to a negative margin. Any period of sustained negative margins would threaten the viability of our business. It also is important to recognize who benefits from credit discounting. Discounting of credit values would directly benefit obligated parties (major oil companies, petroleum refiners and importers); essentially this regulation results in putting dollars directly into the pockets of major oil companies at the expense of biofuel producers.

Community Fuels biodiesel is sold primarily to obligated parties who blend our fuel at low levels with petroleum diesel. Because we sell to obligated parties, our fuel is sold with all applicable credits attached. We do not separate or price credits as a line-item distinct from the fuel. In fact, the EPA Renewable Fuel Standard (RFS) has significant restrictions on when a producer can separate Renewable Identification Numbers (RINs) from the fuel. Except for very limited circumstances, a producer is prohibited from separating RINs from the physical gallons produced, sold and transferred. Separating RINs from our fuel would put us in violation of the EPA Renewable Fuel Standard and is not an option that we can consider.

The CA Low Carbon Fuel Standard (LCFS) credits can be separated from the fuel. However, our customers purchase our fuel because it provides them credits to meet multiple regulations. Our primary customers would not purchase our fuel without LCFS credits attached. We do not assign any value or line-item price to the LCFS credits transferred with the fuel.

AMERICANBIODIESEL, INC 760.942.9306 Tel • 760.943.6696 Fax • PO Box 23-4249 • Encinitas, CA 92023 • www.communityfuels.com

The biofuels industry is extremely competitive. The 3103 Regulation would be detrimental to our business by pricing us out of the market and/or creating restrictions that prevent us from selling our clean, renewable fuel. This regulation will put us at a competitive disadvantage against out-of-state and international producers who import product into California in significant volumes.

In summary, this regulation results in a direct financial benefit to major oil companies at the expense of in-state biofuel producers. California biofuel producers will suffer immediate financial harm by having to apply discounts to credits and also will be at a competitive disadvantage relative to out-of-state and international producers. These outcomes are contrary to the objectives of the ARFVTP funding. We look forward to working with the Energy Commission in a constructive manner to discuss the implications of the 3103 Regulation. Please contact me at (760)942-9306 or lisa@communityfuels.com with questions or if I may be of assistance.

Thank you for your interest in this important matter.

Sincerely,

Lisa Mortenson
Co-Founder and Chief Executive Officer
American Biodiesel, Inc. dba Community Fuels

Cc: Tim Olson, California Energy Commission

/lm

February 11, 2015

The Honorable Janea A. Scott, Commissioner
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Need to Revise Section 3103 of the Alternative and Renewable Fuel and Vehicle Technology Program

Dear Commissioner Scott:

The Bioenergy Association of California urges the Commission to remove the requirement in the ARFVT Program that grant recipients must discount their awards by the amount of LCFS or other credits they receive, even if those other credit programs are voluntary. This requirement is not consistent with AB 118 and is slowing the development of new biofuels facilities that are necessary to meet the Low Carbon Fuel Standard and the Governor's goal of 50 percent petroleum reduction.

The Bioenergy Association of California (BAC) is an association of more than 50 companies, public agencies and local governments working to promote sustainable bioenergy development. Many BAC members are converting organic waste to low-carbon and carbon negative fuels, the lowest carbon fuels in existence. BAC members also develop fueling infrastructure and provide biogas for renewable hydrogen.

Section 3103 of the ARFVT contains an unnecessary provision that prevents grant recipients from securing the maximum value for any credits that may be generated through the production of alternative fuels. Section 3103 reads in part:

> (b) A project that generates credits that the applicant plans to claim based on the reduction of criteria pollutants, toxic air contaminants, or greenhouse gases may not be eligible for funding unless all of the following occur:
>
> (1) the applicant seeks funding for only a portion of the project;
> (2) the applicant agrees in the funding agreement to discount emission credits at least in proportion to the amount of funding received;

(3) the project satisfies one or more of the criteria in sections 3101 and 3101.5, as appropriate.

This language has led, in turn, to recent ARFVT grant solicitations that contain language such as:

> "(if the grant recipient) is an obligated party or has opted in . . . to a credit generating program such as the LCFS or AB 32 initiatives and plans to claim credits generated by the proposed project, then the applicant will be required to agree to discount the value of those credits at the point of transfer in proportion to the funding received".

Although not specifically mentioned, this restriction could also be interpreted to apply to credits generated under the federal Renewable Fuel Standard. This puts grant applicants in a very difficult position of having to forgo the value of LCFS, AB 32, and federal RFS2 credits that may be generated from the alternative fuels produced. For example, biomethane has to compete directly with natural gas that is currently selling for less than $4/MMBtu while biomethane costs $8 - $15 per MMBtu. Thus, securing the full value of LCFS and other credits – in addition to ARFVT grants - is essential to develop biomethane projects and produce these lowest carbon fuels.

We believe that Rule 3103 is based on a misinterpretation of AB 118, which states that:

> For the purposes of both of the programs created by this chapter, eligible projects do not include those required to be undertaken pursuant to state or federal law, district rules or regulations, memoranda of understanding with a governmental entity, or legally binding agreements or documents. For the purposes of the Alternative and Renewable Fuel and Vehicle Technology Program, the state board shall advise the commission to ensure the requirements of this subdivision are met.[1]

AB 118 clearly intended to restrict ARFVT funding from going to parties that have a legal obligation to purchase or produce alternative fuels. Nothing in the legislation, however, limits the eligibility of projects that are entirely voluntary, as projects must be under the LCFS and RFS2, which require producers to "opt in" to the programs.

Requiring voluntary fuel producers to forego the value of LCFS and RFS2 credits will impede the development of low carbon fuels and the state's ability to meet the Governor's goal of reducing petroleum by 50 percent. For biogas developers, LCFS credits may contribute as much as a third of the total cost of fuel production. Requiring developers to forego that revenue defeats the purpose of ARFVT grants.

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[1] H&SC Section 44271 (c).

For all of these reasons, we urge the Commission to revise the language of Section 3103 to allow recipients of ARFVT funding to obtain the full value of LCFS, RFS2 and other voluntary credit programs without having to discount ARFVT funding as a result.

Sincerely,

Julia A. Levin
Executive Director

February 11, 2015

Janea A. Scott, Commissioner
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Via Email: c/o Michele Lorton at Michele.Lorton@energy.ca.gov.

Subject: CEC Regulation Title 20 CCR 3103 – AB 118 Funding Restrictions

Dear Commissioner Scott:

The Coalition for Renewable Natural Gas (RNG Coalition) thanks you for your consideration of our comments regarding the interpretation to Title 20 CCR 3103 (3103 Regulation) and its disparate impact on our Members.

RNG Coalition is the non-profit organization representing the renewable natural gas industry. Our membership includes leading renewable energy project developers, financiers, engineers, organized labor, law firms, gas & power marketers, gas & power transporters, waste collectors, waste management & recycling companies, manufacturers, technology & service providers, gas utilities, environmental advocates, business intelligence and research organizations.

The 3103 Regulation (as currently interpreted) has proven problematic to RNG Coalition Members. Specifically, the Regulation seems to impose restrictions on AB 118 grantees that would force them to discount the value they would otherwise receive for LCFS credits (and perhaps also RFS2 RINs). These credits are a key financial underpinning in the process of RNG project finance and development. When RNG producers look to invest, build, or sell their ultra-low carbon fuel into a transportation fuels market, credit availability and pricing are critical to their decision on whether to proceed. The 3103 Regulation has had a chilling effect on our Members such that the prospect of losing even some of their credit value has discouraged them from seeking grant assistance provided by AB 118 program funding.

RNG producers are voluntary "opt-in" parties to credit generating programs such as the LCFS. As a commodity, the cellulosic biofuel produced provides GHG-reducing

and Renewable-incentivizing programs with valuable environmental benefits. Although previous regulatory language from the CEC has specifically referenced "opt-in" parties, imposing this restriction on voluntary opt-in parties surely could not have been the intent of the authorizing legislation.

Unfortunately, whether intended or not, the prevailing interpretation of the current AB 118 Program is that applicants must discount the value of credits in proportion to the funding received. This value loss is so significant to RNG producers that many will not apply to participate in the program.

The Renewable Natural Gas industry looks forward to a robust future in California. However, in order to secure that future and realize the many economic and environmental benefits available to our State, it is necessary for our leaders to re-examine our laws and regulations, and work to remove barriers that prevent such growth.

As such, we request your review of the Section 3103 Regulation and modification of the rule to clarify that voluntary opt-in program participants are not required to discount their credit value as a condition of receiving AB 118 grant funding.

Thank you again for your kind consideration of our comments. Please let us know if the RNG Coalition can serve you as a resource in any way.

Yours In Service,

David A. Cox
General Counsel
The Coalition for Renewable Natural Gas
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david@RNGCoalition.com

WASTE MANAGEMENT

February 11, 2015

Janea A. Scott, Commissioner
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Via Email: c/o Michele Lorton at Michele.Lorton@energy.ca.gov.

Subject: CEC Regulation Title 20 CCR 3103 – AB 118 Funding Restrictions

Dear Commissioner Scott:

Thank you for the opportunity to bring Waste Management's (WM) concerns to your attention regarding the interpretation of Title 20 CCR 3103 (3103 Regulation) pertaining to funding restrictions applicable to AB 118 grantees. We understand that the CEC is contemplating addressing problems associated with this rule. The problem is that the rule could be interpreted to impose restrictions on AB 118 grantees such that they may not be able to secure full value of Low Carbon Fuel Standard (LCFS) credits that may be earned due to the production of low carbon biofuels. It is also possible that this rule could be interpreted to similarly restrict the full value of federal Renewable Fuel Standard (RFS2) Renewable Identification Number (RIN) credits as well as other incentive revenues. Past CEC AB 118 solicitations have suggested that grantees would have to forgo the value of credits in proportion to the level of grant assistance provided by AB 118 funds.

We urge you to reconsider the language of Rule 3103 as we believe it is contrary to the intent and specific language of AB 118, as amended. The language of past CEC solicitations have stated that if the grantee:

> ". . . is an obligated party ***or has opted in*** . . . to a credit generating program such as the LCFS or AB 32 initiatives, and plans to claim credits generated by the proposed project, then the *applicant will be required to agree to discount the value of those credits at the point of transfer in proportion to the funding received*". (emphasis added)

According to the CARB LCFS regulations, the only way a voluntary producer of a low carbon fuel can participate in the LCFS is by "opting in" as a "regulated party". This is simply terminology used by CARB, but in no way means an "opt-in" regulated party is required in any way by CARB to produce a low carbon fuel. Such voluntary parties are only "opting in" as a convenient way for CARB to allow for the transaction of LCFS credits under the LCFS program. CARB has specifically clarified in their regulatory amendments to the LCFS that parties that voluntarily opt-in are free to opt-out at any time and still produce low carbon fuel for use in California – provided they are not subject to a compliance obligation under the LCFS. *The CEC also needs to recognize this distinction.*

Imposing such a restriction on voluntary producers of alternative fuels goes far beyond the statutory limitation in AB 118 itself, as modified by AB 109 (Nunez, 2008). H&SC Section 44271 (c) is the statutory basis, authority and reference for Section 3103 of the AB 118 Regulations:

> 44271 (c) For the purposes of both of the programs created by this chapter, eligible projects do not include those required to be undertaken pursuant to state or federal law, district rules or regulations, memoranda of understanding with a governmental entity, or legally binding agreements or documents. For the purposes of the Alternative and Renewable Fuel and Vehicle Technology Program, the state board shall advise the commission to ensure the requirements of this subdivision are met.

It is WM's belief that this statutory restriction was never intended to apply to *voluntary* producers of low carbon fuels – whom are doing so without any obligation or mandate by a government agency. We believe this statutory restriction was intended to apply to only those parties that are required to produce alternative fuels, such as through the Low Carbon Fuel Standard (LCFS), the federal renewable fuel standard (RFS2), or Greenhouse Gas programs, such as California's Cap and Trade Program. In the case of the LCFS, this statutory provision would appear to be only applicable to producers of fuels that have a higher carbon intensity than the target goal of the LCFS – *they are mandatory regulated parties*. These parties, typically petroleum fuel producers, have an obligation to lower the carbon intensity of fuels they produce or purchase credits from other parties that produce low carbon fuels and have credits to sell. AB 118 grantees that voluntarily produce a fuel under no obligation to a government entity to do – -- and can sell credits to mandatory regulated party -- should not be subject to such restrictions.

It is certainly our belief that this restriction was never intended to apply to parties who voluntarily develop alternative fuels. To do so would be counter to the very goals of the program: to stimulate the production of low carbon alternative fuels. Limiting the value of credits available to voluntary producers of such fuels would remove a significant financial incentive to produce alternative fuels. This would play directly into the hands of those who are opposed to programs such as the LCFS and, potentially, the federal Renewable Fuel Standard (RFS2) – and would lead to a diminished capability to produce alternative low carbon fuels.

Unfortunately, the uncertainty over the value of LCFS and RFS2 RIN credits has contributed to WM's curtailed investments in projects that could produce more low carbon fuel for California. You may be aware that a joint venture of WM and Linde of North America (High Mountain Fuels -- HMF) was awarded an $11 million AB 118 grant by the CEC in 2011 for the development of a landfill gas to LNG plant at our Simi Valley Landfill in Southern California. This would have been the 2nd *larger* such facility in California after the successful HMF project at our Altamont landfill in Alameda County that still produces up to 13,000 gallons/day of Renewable low carbon LNG. At the time the 1st Altamont project was initiated, the value of natural gas was about $12/MMBTU. It was felt that we could produce renewable LNG for about this value. The 2nd Simi project, would have produced up to 18,000 gallons per

day of very low cabin Renewable LNG. Unfortunately, the value of natural gas, with which this facility would have to compete, had fallen to a historic low of less than $4/MMBTU and the cost of the Simi Facility had increased by 50%. In order to ensure the financial success of this 2nd Simi project, a least $8/MMBTU would have to produced through the sale of RFS2 RIN and LCFS credits.

Unfortunately, due to uncertainty over the value of LCFS and RFS2 RIN credits High Mountain Fuels had to withdraw from that grant award. Although there were a variety of factors that contributed to that decision, the uncertainty in revenues from the LCFS and RFS2 credits was, by far, the largest consideration. *The uncertainty of how Rule 3103 would be interpreted over the life of the project contributed to that uncertainty*. *Thus, Rule 3103 contributed to significant economic harm and the inability of this project to move forward.*

Waste Management strongly supports a modification of Rule 3103 by the CEC if such a modification will clarify this matter. We strongly request clarification that restrictions on LCFS and RFS2 RIN credit be clarified to ***not*** apply to parties who voluntarily produce low carbon fuels and are not affiliated with parties that may have a LCFS or RFS2 compliance obligation – although we may have to ultimately contract with those obligated parties in order to sell the LCFS and RFS2 RIN credits to them.

WM requests that CEC not impose this funding restriction on parties that are voluntarily opting-in to the LCFS or RFS2 for purposes of generating and transacting LCFS or RFS2 credits. *We further request that the CEC amend Section 3103 such that it does **not** impose such a restriction on voluntary producers of alternative low carbon fuels.*

Please contact me if you have any questions or require further information.

Sincerely,

Charles A. White, P.E.
Consultant to Waste Management
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Davis, CA 95618
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cc: Robert Weisenmiller, Chair, CEC, c/o ccross@energy.state.ca.gov
Tim Olson, CEC Advisor, TOlson@energy.state.ca.us
Jim McKinney, Office Manager, CEC jmckinne@energy.state.ca.us
Floyd Vergara, Division Chief, CARB fvergara@arb.ca.gov

CR&R

environmental services

February 12, 2015

The Honorable Janea A. Scott, Commissioner
The California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Re: Need to Revise Section 3103 of the Alternative and Renewable Fuel and Vehicle Technology Program

Dear Commissioner Scott,

CR&R Incorporated, is building one of the largest biogas projects in North America in Perris, California to produce renewable fuel. We urge the Commission to revise the language of Section 3103 of the ARFVT Program to remove the requirement that LCFS and RFS2 recipients discount their ARFVT grants in an equivalent amount. CR&R has received some $4.82 million in AB 118 grants and more recently, a $ 3 million grant from CalRecycle to incentivize the development of our 320,000 ton per year facility that will conservatively produce 4 million gallons of renewable natural gas per year. The first phase of the project is well under construction and should be operational by late summer or early fall, 2015.

In a letter to you of February 11 from Julia Levin, Executive Director the Bioenergy Association of California (BAC) both specific and overarching arguments are made in support of revising the Section 3103 language. As a member of the BAC, we strongly support Ms. Levin's letter. In that letter Ms. Levin observes that in addition to impacting LCFS credits, the current language could be interpreted to apply to credits generated under the federal Renewable Fuel Standard.

CR&R's concern with the current language is that it effectively negates the value of the grants that we have received from the CEC and CalRecycle. If the current language in Section 1303 stands, CR&R would effectively lose 3.5 years of critical revenue, representing the combined LCFS and RFS revenues that we might have to forego to offset the value of our grants. Furthermore, this lost revenue would result in a negative net income after tax of the project for the same period of time. We are certain that the CEC, in adopting the current language, did not intend to negate the value of the grants it has made to incentivize the development of alternative fuels, which in our case, involves the production of renewable natural gas from source separated municipal food and green waste.

We applaud the Commission for taking up the language problem in Section 1303 at your meeting of February 25, 2015. We implore you to revise the language and thus remove a cloud over the CEC's alternative fuel incentive efforts.

Sincerely,

Paul Kelly
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Harrison S. Clay
President, Clean Energy Renewable Fuels

February 11, 2015

Janea A. Scott, Commissioner
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Via Email: c/o Michele Lorton at Michele.Lorton@energy.ca.gov.

Subject: CEC Regulation Title 20 CCR 3103 – AB 118 Funding Restrictions

Dear Commissioner Scott:

Thank you for the opportunity to bring Clean Energy's concerns to your attention regarding the interpretation of Title 20 CCR 3103 (3103 Regulation) pertaining to funding restrictions applicable to AB 118 grantees. We understand that the CEC is contemplating addressing problems associated with this rule. We have long believed that any interpretation of the rule that imposes restrictions on AB 118 grantees such that they may not be able to secure full value of Low Carbon Fuel Standard (LCFS) credits that may be earned due to the production of low carbon biofuels defeats the purpose of AB 118. Past CEC AB 118 solicitations have suggested that grantees would have to forgo the value of credits in proportion to the level of grant assistance provided by AB 118 funds. This puts the potential biofuel producer in the impossible position of choosing between obtaining sufficient capital to build their project or sufficient future revenue to make the production of biofuel economically sustainable.

We urge you to reconsider the language of Rule 3103 as we believe it is contrary to the intent and specific language of AB 118. The language of past CEC solicitations have stated that if the grantee:

> ". . . is an obligated party ***or has opted in*** . . . to a credit generating program such as the LCFS or AB 32 initiatives, and plans to claim credits generated by the proposed project, then the *applicant will be required to agree to discount the value of those credits at the point of transfer in proportion to the funding received*". (emphasis added)

According to the CARB LCFS regulations, the only way a voluntary producer of a low carbon fuel can participate in the LCFS is by "opting in" as a "regulated party". An "opt-in" regulated party is not required by CARB to produce a low carbon fuel. CARB has specifically clarified in their regulatory amendments to the LCFS that parties that voluntarily opt-in are free to opt-out at any time and still produce low carbon fuel for use in California – provided they are not otherwise subject to a compliance obligation under the LCFS. *The CEC also needs to recognize this distinction.*

Imposing restrictions on the generation and sale of LCFS credits by voluntary producers of alternative fuels goes far beyond the statutory limitation in AB 118 itself, as modified by AB 109 (Nunez, 2008). H&SC Section 44271 (c) is the statutory basis, authority and reference for Section 3103 of the AB 118 Regulations:

> 44271 (c) For the purposes of both of the programs created by this chapter, eligible projects do not include those required to be undertaken pursuant to state or federal law, district rules or regulations, memoranda of understanding with a governmental entity, or legally binding agreements or documents. For the purposes of the Alternative and Renewable Fuel and Vehicle Technology Program, the state board shall advise the commission to ensure the requirements of this subdivision are met.

This statutory restriction was never intended to apply to *voluntary* producers of low carbon fuels – who are doing so without any obligation or mandate by a government agency. This statutory restriction was intended to apply to only those parties that are required to produce alternative fuels, such as through the Low Carbon Fuel Standard (LCFS), the federal renewable fuel standard (RFS2), or Greenhouse Gas programs, such as California's Cap and Trade Program. In the case of the LCFS, this statutory provision would appear to be only applicable to producers of fuels that have a higher carbon intensity than the target goal of the LCFS – *they are mandatory regulated parties*. These parties, typically petroleum fuel producers, have an obligation to lower the carbon intensity of fuels they produce or purchase credits from other parties that produce low carbon fuels and have credits to sell. AB 118 grantees that voluntarily produce a low carbon fuel and have no compliance obligation under the LCFS can sell credits to mandatory regulated parties and should be able to do so irrespective of whether the voluntary low carbon fuel producer received an AB 118 grant.

Disallowing the generation and sale of LCFS credits by low carbon fuel producers that have received AB 118 grant funding is counter to the very goals of the AB 118 program: to stimulate the production of low carbon alternative fuels by California producers. Limiting the value or number of credits available to voluntary producers of such fuels imposes a significant financial constraint on increased production of low carbon alternative fuels. Clean Energy is a California based company and the largest seller of biomethane CNG and LNG in the State of California, but all of the biomethane CNG and LNG we sell is produced outside the State of California. Removing the restriction on LCFS (or other credit) generation and sale by AB 118 recipients would be a significant step towards incentivizing greater production of low carbon fuels like biomethane *inside* California.

The cost of production of biomethane generally ranges from $5.00-$14.00 per MMBtu and the cost is likely to be towards the higher end of the range for California based projects. Conventional natural gas that is entirely fungible with biomethane is trading today below $3.00 per MMBtu. Quite simply, the cost of production of biomethane exceeds the value of the energy product absent LCFS credits (and/or RINS generated under the Renewable Fuel Standard). The CEC could fund 100% of the cost of a California biomethane production project with an AB 118 grant *and the project will still* ***not be economically rational*** *if the producer has*

to give up a corresponding value of LCFS credits (and potentially RINS) that could be generated from sale of the biomethane as a vehicle fuel.

The uncertainty over the value of LCFS and RFS2 RIN credits has contributed to curtailed investments in projects that could produce more low carbon fuel in and for California. The uncertainty of how Rule 3103 will be interpreted over the life of any project that has received AB 118 funding has certainly contributed to that uncertainty.

Clean Energy Renewables strongly supports a modification of Rule 3103 by the CEC if such a modification will clarify this matter. *We strongly request that the CEC amend Section 3103 such that it clearly does **not** impose any restrictions on the sale of LCFS credits (or other environmental credits) by voluntary producers of low carbon fuels that have received AB 118 grant funding.*

Please contact me if you have any questions or require further information.

Sincerely,

Harrison S. Clay
President

cc: Robert Weisenmiller, Chair, CEC, c/o ccross@energy.state.ca.gov
Tim Olson, CEC Advisor, TOlson@energy.state.ca.us
Rob Oglesby, Executive Director, CEC ROglesby@energy.state.ca.us
Jim McKinney, Office Manager, CEC jmckinne@energy.state.ca.us
Floyd Vergara, Division Chief, CARB fvergara@arb.ca.gov

AEMETIS

February 11, 2015

Commissioner Janea Scott
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

RE: CEC Regulation Title 20 CCR3103-AB118 Funding Restrictions

Dear Commissioner Scott,

Aemetis Advanced Fuels Keyes, Inc. owns and operates a 60 million gallon per year renewable fuel production facility in Keyes, California. Along with other low-carbon renewable fuel producers in California, Aemetis actively supports AB118 and California's Low Carbon Fuel Standard (LCFS), and together, provides the vast majority of the state's LCFS compliance requirements for renewable low-carbon transportation fuels. Ethanol made from corn (and other grains like sorghum) have accounted for 60% of the GHG credits generated to date under the program.

Along with Calgren Renewable Fuels and Pacific Ethanol, Inc., Aemetis is pleased to participate in a CEC grant program (PON 13-609) which will expand the utilization of grain sorghum for the production of fuel ethanol, as well as the development of an in-state grain sorghum growing program to further increase the availability of sorghum as a primary feedstock for biofuel production.

As a supplier of low-carbon fuel ethanol, Aemetis should not be considered an obligated party under the Low Carbon Fuel Standard (LCFS) / AB 32, and therefore not subject to the 3103 regulation. If Aemetis Keyes was subject to the 3103 regulation, the resulting decrease in award value would have a negative impact on our ability to successfully support the objectives of PON 13-609 and AB 118 to increase the availability of low-carbon transportation fuels in the California marketplace.

The CEC approved program budget for the Aemetis PON 13-609 grant award contemplates the full value of the grant being applied to the local development and acquisition of a low-carbon feedstock (grain sorghum). If the 3103 regulation were applied to PON-609, the resulting reduction in funding would immediately put at risk our ability to economically develop and acquire the 90,000 tons of low-carbon feedstock for fuel production under the California In-State Sorghum Program. We do not believe that the regulation was ever meant to apply to voluntary producers of low carbon fuels – those who do so under no obligation – but rather was intended for to apply to obligated parties required to produce alternative fuels as a compliance mechanism for LCFS, AB118, or AB32.

As California presses forward to promote and support the commercial development of additional low-carbon transportation fuels to fulfill the mandate of AB118, applying the 3103 regulation to non-obligated, low-carbon, renewable fuel producers would likely have a detrimental effect on our investment in, and commercial development of, lower-carbon transportation fuels and next-generation technologies. This would stand in stark contrast to the objectives set forth by AB118, the California Energy Commission, and the California Air Resources Board to significantly increase the availability of lower-carbon transportation fuel from non-corn feedstocks.

The low-carbon transformation of California's transportation fuel complex requires a significant investment from non-obligated parties like Aemetis and other renewable fuel producers. The CEC has provided a meaningful platform, through AB118 grant programs, to assist and expedite this transformation. Removing incentives, which are essential for the economic viability of new projects, is antithetical to the overall objective and legislative intent of AB118, as well as the regulatory requirements that are currently being met by California's low-carbon, renewable fuel producers.

Thank you in advance for your consideration, and please don't hesitate to contact us if you have any questions or require additional information.

Best regards,

Andy Foster
President
Aemetis, Inc.

20400 Stevens Creek Blvd., Suite 700, Cupertino, CA 95014 Main (408) 213 0940 Fax (408) 252 8044
www.aemetis.com

SUMMARY OF OTHER COMMENT LETTERS

City of Napa
The discount provision can significantly affect project economics, creates a disincentive to agree to a longer term agreement or a contract extension, and interjects an additional aspect into the decision to bank or sell credits. The City of Napa supports eliminating this provision from the ARFVTP grant agreement.

CR&R
CR&R is against the potential discounting of future credits for companies that received a grant from the CEC for the development of a green technology project due to the potential that it will undermine the operational viability of the project.

Pixley Biogas
The 3103 Regulation is a significant obstacle to our project's creation of AB-32 and LCFS credits in the short term. Rather that incur the penalties and uncertainties of the regulation, the most likely outcome is that we will delay participating in AB-32 and LCFS programs until our CEC agreement has expired and we can move forward without the 3103 Regulation. We support the elimination of this regulation since it provides no appreciable benefit while preventing or delaying participating in programs designed to encourage participating of renewable fuels providers.

Buster Biofuels
Please do not approve and implement the credit discount provision. This provision will greatly hinder forecasted income streams and cash flow not only for our company, but for any other grant projects that has received funds from the CEC. The grant funds are received as a springboard for businesses and this credit discount provision appears to contradict the fundamental nature of the grant.

Blue Line Transfer
The discount provision can significantly affect project economics, creates a disincentive to agree to a longer term agreement or a contract extension, and interjects an additional aspect into the decision to bank or sell credits.

Springboard Biodiesel
Given California's stated desire to increase the use of biodiesel throughout the transportation fleet, it is counterproductive to make CEC grant recipient's costs higher than those of non-grant winners. Essentially such a practice identifies potentially successful technologies and business models and then significantly handicaps their operating performance. In the energy business, units are priced in hundredths of a cent. Profits are slim, and taxes onerous. A CEC "grant tax" will not advance the state of alternative fuels in CA.

RTC Fuels, LLC (Pearson Fuels)
While Pearson has opted in to both the LCFS and the RFS programs and we own, trade, purchase and sell both LCFS and RINs, none of this is done as a result of, or through these

projects. Therefore, for the reasons described above it is our position that the provisions of Regulation 3103 should not apply to us for this project.

If fully implemented it would definitely penalize early adopters of these low carbon technologies that the CEC and ARB are so involved in supporting. Not to mention the significant difficulties that the CEC or ARB would experience by trying to enforce these provisions. It is likely it would involve hiring several dedicated staffers to investigate and enforce and ultimately would have the effect of raising the price of the fuel in question since a large percentage of the value of these credits are ultimately passed on to the retail consumer.

Biodiesel Industries
Even though Reg. 3103 is not applicable to our grant, it seems to be counterproductive to incentivizing the production of low carbon intensity biofuel under the LCFS. LCFS has been hampered by litigation and the value of credits has been diminished. The re-adoption and rescheduling of the compliance curve is unlikely to occur before 2016. To stimulate the production of low carbon intensity biofuel Reg. 3103 should be repealed ASAP.

New Leaf Biofuels
As a recipient of funding under the ARFVTP, I am opposed to the credit discount provision as it de-incentivizes biodiesel producers to apply for grant funds.

Environ
We would be in support of the elimination of section 3103 (b) from the regulation 3103.

Shawn Garvey
As you are aware, this is a noxious provision for a number of producers who are operating on the tightest of margins (if any, at times) and require the full benefit of credits in order to make their projects pencil.

I might suggest if this has become an issue of concern inside the agency that some type of webinar or hearing is conducted? The lack of clarity on the process could be a significant problem for many partners and the lack of certainty on such an important issue for such a long period of time is a fairly significant obstacle to some developers and has kept others out of the CEC process altogether.

Whole Energy Pacifica
Typically the incentives like LCFS credits and RINs are only partially realized by the biodiesel producer. It is difficult to compete on pricing if the biodiesel producer does not somehow pass most of the value on to their customers.

For this reason, it may be wise to phase out this provision for future funding and also work out flexible repayment of credit revenues for projects that are under way or have been undertaken by producers.

Agricultural Waste Solutions
Agricultural Waste Solutions, Inc. (AWS) is not expected to apply for any fuel and carbon credits that would apply to the Alternative and Renewable Fuel and Vehicle Technology Program's

(ARFVTP) 3103 regulation during the contract term of the ARV-10-043 project or for 3 years afterwards. Although we do expect to test and verify ARV-10-043 project results in order to qualify for some of these credits that do not currently have a protocol for AWS' type of technology, AWS will probably not actually trade these credits from the ARV-10-043 project in the next 3 years. If AWS at some point in the future is able to qualify for some of these credits and actually start to sell or trade them within the 3 year period, from the equipment funded by the ARV-10-043 project award, then we will discount those credits as per the formula detailed in the Alternative and Renewable Fuel and Vehicle Technology Program's (ARFVTP) 3103 regulation.

Community Fuels

The enforcement of the 3103 Regulation will put California biofuel producers at a significant competitive disadvantage relative to out-of-state and international producers. The enforcement of this regulation will be a direct financial benefit to major oil companies and other obligated parties at the expense of small, in-state biofuel producers.

APPENDIX C: Proposed Regulation Revision

§ 3103. Funding Restrictions.

a) A project shall not be eligible for funding if it is mandated by any local, regional, state, or federal law, rule, or regulation.

b) If a project is one that helps the ~~proposing entity~~ applicant meet a performance requirement mandated by local, regional, state, or federal law, rule, or regulation, the project shall not be eligible for funding.

c) To the extent a project exceeds what is required for compliance with a legally enforceable requirement, it may receive funding for that part of the project that the applicant demonstrates is not mandated to meet the requirement. Credits generated by the excess, however, may not be used or sold by the ~~proposing entity~~ applicant to offset a legally enforceable requirement, except to the extent allowed by subsection (~~b~~d).

d) For purposes of this section, a legally enforceable requirement refers to any requirement enforceable by a local, regional, state, or federal agency for the purpose of reducing the emission of one or more criteria pollutants, toxic air contaminants, or any greenhouse gas. For purposes of this section, the following are not subject to the restrictions contained in subdivisions (a)-(c):

1. A project that produces opt-in fuels under the Low Carbon Fuel Standard (California Code of Regulations, title 17, section 95840.1, subdivision (b));

2. A project that produces fuel that meets or falls below the average carbon intensity requirements set forth in the Low Carbon Fuel Standard (California Code of Regulations, title 17, section 95842, subdivisions (b) and (c)) for the year in which the credits are generated;

3. A project under which the applicant has voluntarily opted-in to an emission reduction credit generating program for the purpose of participating in the program's credit market; or

4. A project that had been awarded funding under Health and Safety Code section 44272 prior to the effective date of this section as amended and also satisfies at least one of the requirements listed in subdivisions (d)(1)-(3).

~~(b) A project that generates credits that the applicant plans to claim based on the reduction of criteria pollutants, toxic air contaminants, or greenhouse gases may not be eligible for funding unless all of the following occur:~~

~~(1) the applicant seeks funding for only a portion of the project;~~

~~(2) the applicant agrees in the funding agreement to discount emission credits at least in proportion to the amount of funding received;~~

~~(3) the project satisfies one or more of the criteria in sections 3101 and 3101.5, as appropriate.~~

APPENDIX D: Letter from ARB Supporting Regulation to Modify 3103

Air Resources Board

Mary D. Nichols, Chairman
1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov

Matthew Rodriquez
Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

January 30, 2015

Ms. Janea Scott, Commissioner
California Energy Commission
1516 Ninth Street, MS-32
Sacramento, California 95814

I am writing to follow up on a meeting I had with your staff on January 13, 2015 to discuss the California Energy Commission regulations for administering the Alternative and Renewable Fuel and Vehicle Technology Program, codified in title 20, California Code of Regulations, sections 3100-3108. In particular, your staff brought to the Air Resources Board (ARB) staff's attention an unintended consequence related to the provisions of section 3103 of the regulation that could cause economic hardship to biofuel and other low carbon-intensity alternative fuel producers and discourage production of such fuels in California. This result would run counter to the State's goal of increasing the production and use of low carbon, renewable fuels as part of the State's strategy to reduce greenhouse gas emissions and petroleum consumption.

Section 3103 of the regulation is intended to implement the statutory requirements of Health and Safety Code Section 44271(c), which prohibits Alternative and Renewable Fuel and Vehicle Technology Program funding for projects required by state or federal laws or regulations by requiring that funding recipients discount the credits that their projects generate in proportion to the funding they receive. After discussing this issue with your staff, we agree that both section 3103(a) and (b) would cause economic hardship to funding recipients if implemented as written, which in turn would discourage production of low carbon alternative fuels in California. We agree that there are better regulatory approaches to address the requirements of Health and Safety Code Section 44271(c) that would not have these negative consequences.

Your staff has informed us that the California Energy Commission is considering proposing an emergency regulation followed by a full rulemaking that would modify section 3103 of the regulation to address this situation while continuing to meet with the provisions of Health and Safety Code section 44271(c). We strongly support this approach and offer our assistance in helping your staff craft appropriate regulatory provisions.

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: http://www.arb.ca.gov.

California Environmental Protection Agency

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We want to ensure the Alternative and Renewable Fuel and Vehicle Technology Program continues supporting the development of low carbon alternative fuels while meeting the statutory requirements governing the program.

Thank you again for consulting with us on this issue. If you have questions, please contact me at (916) 324-0356 or Floyd.Vergara@arb.ca.gov.

Sincerely,

Floyd V. Vergara, Esq., P.E.
Chief, Industrial Strategies Division

cc: Ms. Judith Friedman
Deputy Director
California Energy Commission
Emerging Fuels and Technologies Office
1516 Ninth Street, MS-27
Sacramento, California 95814

APPENDIX E: Environmental Impacts of Projects

Agreement Number	Applicant	CEQA Determination	Lead Agency	LHI Report
ARV-14-027	Aemetis, Inc.	Notice of Exemption	San Joaquin Valley APCD	Publication #CEC-600-2014-004-AD
ARV-10-043	Agricultural Waste Solutions Inc.	Notice of Exemption	California Energy Commission	Publication #CEC-600-2010-009
ARV-14-022	AltAir Fuels, LLC	Initial Study; Mitigated Negative Declaration	City of Paramount	Publication #CEC-600-2014-004-AD
ARV-10-037	American Biodiesel, Inc. dba Community Fuels	Addendum to Programmatic EIR (2002032048); Notice of Determination	Port of Stockton	Publication #CEC-600-2010-005
ARV-13-008	American Biodiesel, Inc. dba Community Fuels	Addendum to Programmatic EIR (2002032048); Notice of Determination	Port of Stockton	Publication #CEC-600-2013-004
ARV-14-024	American Biodiesel, Inc. dba Community Fuels	Addendum to Programmatic EIR (2002032048); Notice of Determination	Port of Stockton	Publication #CEC-600-2014-004-AD
ARV-10-024	Biodiesel Industries	Notice of Exemption	California Energy Commission	Publication #CEC-600-2010-009
ARV-12-031	Blue Line Transfer Inc.	Initial Study; Mitigated Negative Declaration	City of South San Francisco	Publication #CEC-600-2012-002AD
ARV-12-035	Buster Biofuels LLC	Notice of Exemption	City of Escondido	Publication #CEC-600-2012-002AD
ARV-14-021	Calgren Renewable Fuels	Notice of Exemption	San Joaquin Valley APCD	Publication #CEC-600-2014-004-AD
ARV-14-037	City of Napa	Initial Study; Mitigated Negative Declaration	City of Napa	Publication #CEC-600-2014-004-AD
ARV-10-016	City of San Jose	Notice of Exemption	City of San Jose	Publication #CEC-600-2010-009
ARV-14-028	City of San Mateo	Notice of Exemption	City of San Mateo	Publication #CEC-600-2014-004-AD
ARV-11-021	Clean World Partners	Notice of Exemption	County of Sacramento	Publication #CEC-600-2012-002
ARV-14-029	Colony Energy Partners Tulare LLC	Mitigated Negative Declaration	City of Tulare	Publication #CEC-600-2014-004-AD
ARV-10-052	CR&R Incorporated	Initial Study; Mitigated Negative	City of Perris	Publication #CEC-600-2010-004-AD

Agreement Number	Applicant	CEQA Determination	Lead Agency	LHI Report
		Declaration		
ARV-13-007	Crimson Renewable Energy LP	Mitigated Negative Declaration	San Joaquin Valley APCD	Publication #CEC-600-2013-004
ARV-13-052	Crimson Renewable Energy LP	Mitigated Negative Declaration	San Joaquin Valley APCD	Publication #CEC-600-2014-004
ARV-10-022	East Bay Municipal Utility District	Initial Study; Mitigated Negative Declaration	East Bay Municipal Utility District	Publication #CEC-600-2010-009
ARV-11-018	EdeniQ, Inc.	Notice of Exemption	City of Visalia	Publication #CEC-600-2012-002
ARV-12-021	Environ Strategy Consultants, Inc.	Mitigated Negative Declaration	Inland Empire Utilities Agency	Publication #CEC-600-2012-002AD
ARV-12-026	Eslinger Biodiesel, Inc.	Mitigated Negative Declaration	City of Fresno	Publication #CEC-600-2012-002AD
ARV-12-033	Mendota Bioenergy, LLC (MBLLC)	Initial Study; Mitigated Negative Declaration	Fresno County	Publication #CEC-600-2012-002AD
ARV-11-015	New Leaf Biofuel, LLC	Notice of Exemption	City of San Diego	Publication #CEC-600-2012-002
ARV-10-040	Northstate Rendering Co Inc.	Notice of Exemption	California Energy Commission	Publication #CEC-600-2010-004
ARV-14-026	Pacific Ethanol Development, LLC	Notice of Exemption	San Joaquin Valley APCD	Publication #CEC-600-2014-004-AD
ARV-10-053	Pixley Biogas LLC	Initial Study; Mitigated Negative Declaration	Tulare County Resource Managemen t Agency	Publication #CEC-600-2010-004
ARV-10-002	Propel Fuels	Notice of Exemption	Statewide	Publication #CEC-600-2010-003
ARV-11-024	Propel Fuels	Notice of Exemption	Statewide	Publication #CEC-600-2010-005
Pending	Recology Inc.	Initial Study; Mitigated Negative Declaration	Solano County	Publication #CEC-600-2014-004-AD
ARV-10-008	RTC Fuels	Notice of Exemption	Statewide	Publication #CEC-600-2010-005
ARV-12-015	RTC Fuels	Notice of Exemption	Statewide	Publication #CEC-600-2012-004-AD2
ARV-11-019	SacPort Biofuels Corp.	Addendum to EIR (2007032029); Notice of Determination	City of West Sacramento	Publication #CEC-600-2012-002

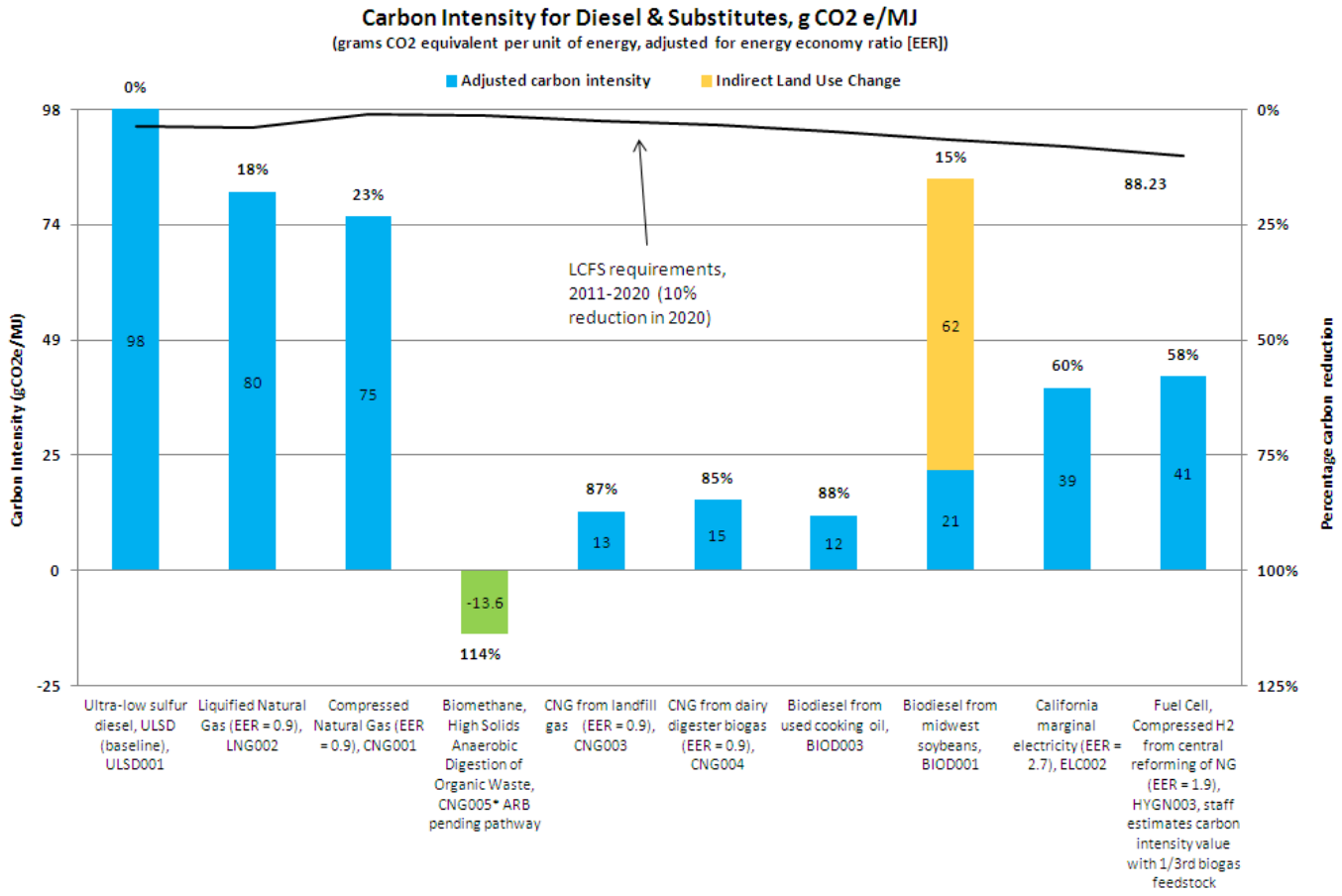
Agreement Number	Applicant	CEQA Determination	Lead Agency	LHI Report
ARV-10-047	Solazyme, Inc.	Notice of Exemption	California Energy Commission	Publication #CEC-600-2010-009-AD
ARV-11-016	Springboard Biodiesel LLC	Notice of Exemption	City of Chino	Publication #CEC-600-2012-002
ARV-12-064	Tulare County Compost & Biomass Inc.	Environmental Impact Report; Notice of Completion	Tulare County Resource Managemen t Agency	Publication #CEC-600-2012-002AD
ARV-14-034	UrbanX Renewables Group, Inc.	Notice of Exemption	County of Los Angeles	Publication #CEC-600-2014-004-AD
ARV-10-019	Western States Oil	Notice of Exemption	California Energy Commission	Publication #CEC-600-2010-005
ARV-11-026	Whole Energy Pacifica	Notice of Exemption	California Energy Commission	Publication #CEC-600-2012-004

Source: Energy Commission

APPENDIX F: Carbon Intensity Values for Gasoline and Diesel Substitute Fuels

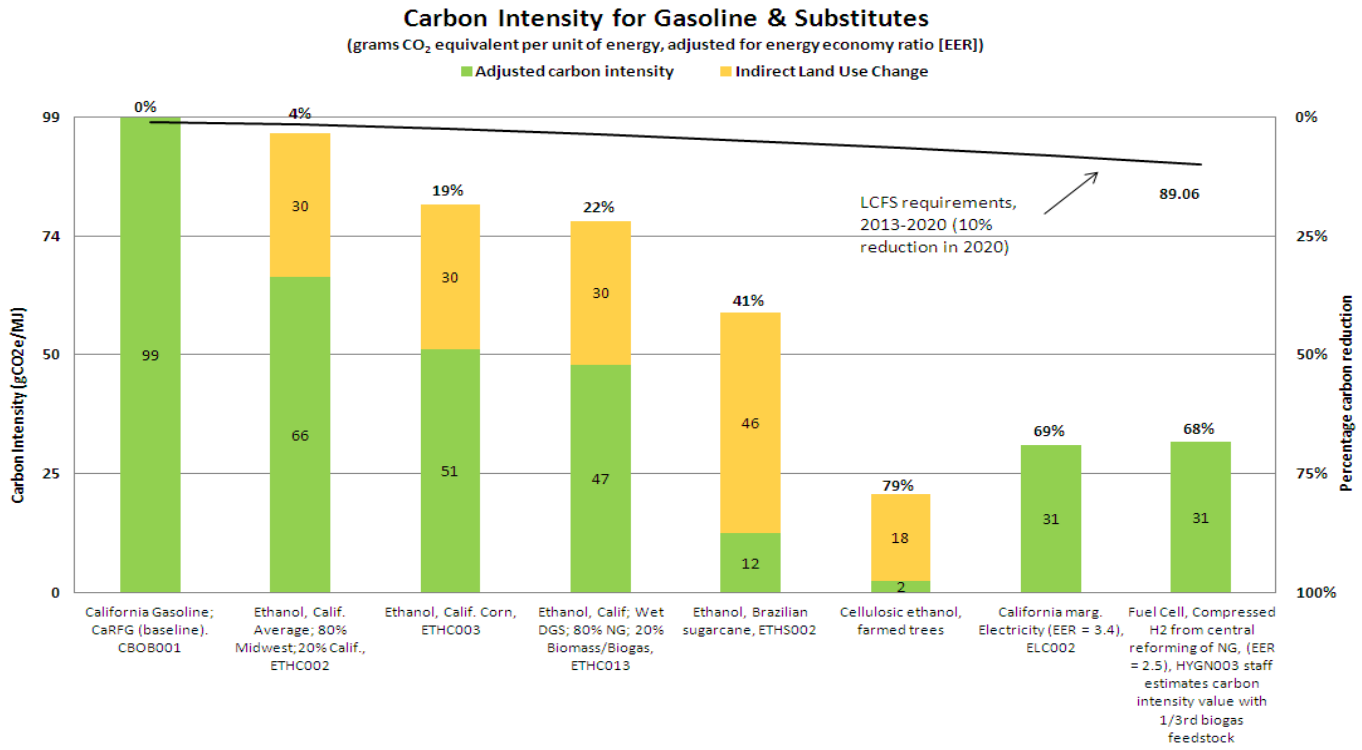
The following charts show current carbon intensity values for gasoline substitute and diesel substitute fuels. All carbon intensity values are drawn from the current Low Carbon Fuel Standard Look Up Tables, unless otherwise noted. Note that the California Air Resources Board is proposing modifications to several carbon intensity values as part of re-adoption proceeding for the LCFS, and that the values shown here are subject to modification.

Figure F-1: Carbon Intensity for Diesel & Substitutes



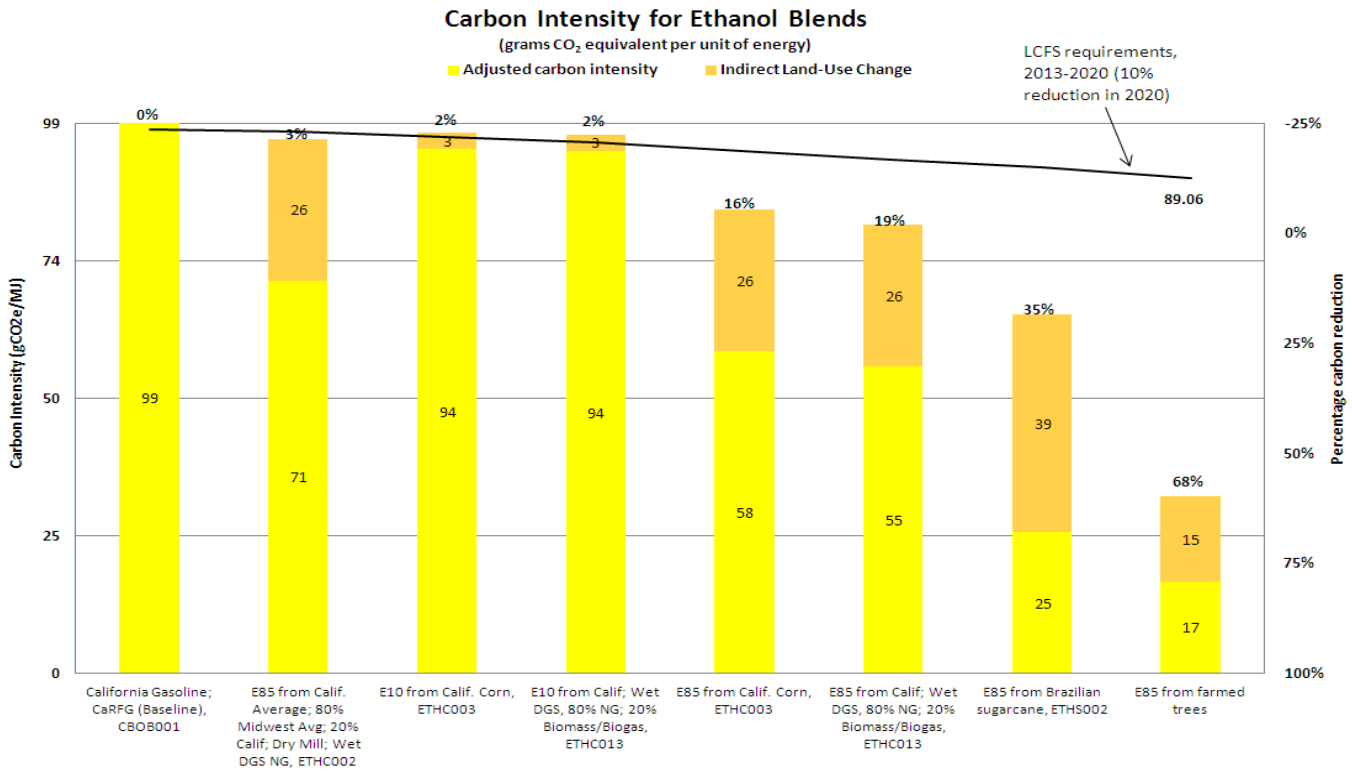
Source: Energy Commission

Figure F-2: Carbon Intensity for Gasoline & Substitutes



Source: Energy Commission

Figure F-3: Carbon Intensity for Ethanol Blends



Source: Energy Commission

APPENDIX G: Full List of ARFVTP Projects Analyzed by NREL for 2014 IEPR Update

Table H-1: Full List of ARFVTP Projects Analyzed by NREL

Project Categories	Fuel Class or Sub Class	Awards to 3/14		Projects Evaluated in Benefits Analysis		
		($M)	No. Awards	($M)	No. Awards	Number Units
Fuel Delivery Infrastructure						
Electric Drive Charging Infrastructure	Electric Drive	$40.3	68	$40.3	68	40 Level 1 9478 Level 2 116 DCFC
Hydrogen Fueling Infrastructure	Hydrogen	$83.5	17	$82.5	16	48 Stations
Natural Gas Fueling Infrastructure	Natural Gas	$17.3	48	$17.2	47	55 Stations
E85 Fueling Stations	Gasoline Substitute	$16.5	4	$16.5	4	100 Stations
Upstream Infrastructure	Diesel Substitute	$4.0	4	$4.0	4	5 Facilities or Expansions
Hydrogen Fuel Standards Development	Hydrogen	$4.0	1	-	-	-
Fuel Delivery Infrastructure Subtotal		**$165.8**	**142**	**$160.5**	**139**	
Vehicles						
Light-Duty Incentives, CVRP	Electric Drive	$44.1	3	$44.1	3	21,462 Rebates
Medium- Heavy-Duty Incentives, HVIP	Electric Drive	$4.0	1	$4.0	1	160 vehicles
Natural Gas Vehicle Deployment Incentives	Natural Gas	$33.4	4	$33.4	4	1038 vehicles
LPG Vehicle Deployment Incentives	Propane	$7.3	2	$2.3	2	515 vehicles
Light-Duty Demonstration	Electric Drive	$0.6	1	$0.6	1	50 LDVs
Medium- and Heavy-Duty Vehicle Demonstration	Electric Drive	$33.9	10	$33.9	10	Various[1]
Fuel Cell Bus Demonstration	Hydrogen	$2.4	1	$2.4	1	1 bus
Medium- and Heavy-Duty Vehicle Demonstration	Natural Gas	$6.3	2	$6.3	2	2 natural gas engine demos
Medium- and Heavy-Duty Vehicle Demonstration	Gasoline Substitute	$2.7	1	$2.7	1	1 hybrid E85 powertrain
Component Demonstration	Hydrogen	$1.6	2	$1.6	2	6 vans, 1 bus
Component Demonstration	Electric Drive	$19.7	13	$19.7	13	Various[2]
Vehicle Manufacturing	Electric Drive	$25.4	6	$25.4	6	Various[3]
Vehicles Subtotal		**$192.1**	**46**	**$176.4**	**46**	

Project Categories	Fuel Class or Sub Class	Awards to 3/14		Projects Evaluated in Benefits Analysis		
		($M)	No. Awards	($M)	No. Awards	Number Units
Fuel Production						
Diesel Substitute	Biodiesel	$30.89	10	$30.89	10	-
Diesel Substitute	FT Diesel	$5.00	1	$5.00	1	-
Diesel Substitute	Renewable Diesel	$12.38	5	$12.38	5	-
Natural Gas Substitute	Biomethane	$50.97	15	$50.97	15	-
Gasoline Substitute	Ethanol	$21.39	7	$21.39	7	-
Fuel Production Subtotal		**$120.6**	**38**	**$120.60**	**38**	
Other						
PEV Regional Readiness	Electric Drive	$3.7	16	-	-	-
Regional Readiness	Hydrogen	$0.3	1	-	-	-
Sustainability Research	Biofuels	$2.1	2			
Workforce Training and Development	Workforce Training/Dev.	$23.3	30	-	-	-
Technical Assistance and Analysis	Program Support	$17.3	15	-	-	-
Other Subtotal		**$46.7**	**64**	-	-	
TOTAL		**$514.50**	**290**	**$457.50**	**223**	

Source: NREL

Notes: (1) 4 HD hybrid hydraulic delivery trucks, 1 range-extender MD truck demo, 5 HD truck retrofits to PHEV, 1 class 8 hybrid natural gas truck, 1 all electric fleet at Air Force Base, 1 diverse fleet of 378 vehicles, 1 prototype class 4 all-electric, feasibility and testing for 1 truck manufacturing facility, 1 CLEAN Truck Demo Program, 8 HD truck retrofits to pantograph system; (2) 3 lithium battery production/assembly processes, 1 electric motorcycle powertrain, 2 battery management/communication systems, 3 electric drive manufacturing and assembly processes, and 4 electric drive demonstration projects including 14 MD trucks, 17 class 6 trucks, 6 schools buses, and 7 walk-in vans; (3) 1 new production line for electric motorcycle, 1 BEV manufacturing and assembly expansion, 1 new manufacturing facility for M/HD BEVs, 1 manufacturing expansion for range-extended MD trucks, 1 pilot production line for flexible all-electric platform, and 1 pilot production line for powertrain control systems

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APPENDIX H: Additional Information on NREL's Assessment of Expected and Market Transformation Benefits

Expected Benefits Methods

The National Renewable Energy Lab (NREL) research team constructed a model to estimate expected benefits in the form of reductions in petroleum use, GHG emissions, and select air pollutants for projects supporting electric drive vehicles.[20] NREL tallied the estimated use levels for all of the commercial-scale projects that have been funded, and assumed that each project will be built and operated according to grant agreement specifications. These projects include all commercial-scale bio refineries; hydrogen, compressed natural gas (CNG), and E85 fueling stations; electric chargers; and commercial vehicle support vouchers for heavy-duty CNG or propane trucks and buses and light-duty CNG and electric vehicles. NREL then calculated the petroleum fuel and internal-combustion-engine vehicles and vehicle-miles that would be displaced through ARFVTP-funded alternative fuels, vehicles, and fueling stations.

Expected Benefits Results by Project Class and in Five-Year Increments from 2015 to 2025

Table H-1 shows the progression of GHG and petroleum fuel reductions over time in five-year increments. Most categories reach peak production or throughput in 2020 and then operate at maximum design capacity through the end of the study period in 2025. The natural gas truck figures indicate a different life cycle typical for commercial trucks; the newest trucks are deployed in high-mileage duty cycles, and then the duty rotations and total mileage decrease over time.

For the fueling infrastructure and fuel production categories, first-generation alternative fuels such as natural gas and biodiesel provide the greatest portion of GHG and petroleum fuel reduction benefits due to the more developed commercialization, greater market share, and more competitive pricing of these fuels. Zero-emission fuels such as electricity and hydrogen provide lower benefit levels because they are earlier in commercialization and have relatively lower levels of market penetration.

[20] Please refer to the *2014 Benefits Guidance Report* for full descriptions of the methods, models, and data used, http://www.energy.ca.gov/2014publications/CEC-600-2014-005/CEC-600-2014-005-D.pdf, updated with NREL's final analysis in December 2014.

Table H-1: Summary of GHG Emission and Petroleum Fuel Reductions from Expected Benefits Through 2025

Benefit Category	Project Class	GHG Reductions (thousand tons CO2e)			Petroleum Reductions (million GGE/DGE*)		
		2015	2020	2025	2015	2020	2025
Refueling Infrastructure	Biodiesel	5.0	70.5	70.5	0.5	8.5	8.5
	Natural and Renewable Gas	50.7	374	378.5	12.1	55.4	57.5
	Electric Chargers	25.9	56.9	61.7	3.3	6.7	7.8
	E85 Ethanol	1.6	10.1	10.1	3.9	24.1	24.8
	Hydrogen	1.2	19.8	19.8	0.2	3.1	3.1
Vehicle	Light Duty BEVs and PHEVs	0.1	3.0	2.0	0.0	0.4	0.3
	Electric Commercial Trucks	0.0	3.0	1.4	0.0	0.4	0.2
	Gas Commercial Trucks	82.1	33.3	4.8	20.5	10.4	1.2
	Manufacturing	2.9	546.1	1104.9	0.4	49.3	139.5
Fuel Production	Biomethane	2.4	51.7	97.4	0.2	3.2	8.1
	Diesel Substitute	37.5	466.4	606.1	3.4	33	57.3
	Gasoline Substitute	0.0	1.6	1.6	0.0	0.2	0.2
Total		**209.3**	**1636.40**	**2358.8**	**44.4**	**188.8**	**308.4**

Source: NREL
GE/DGE= gasoline gallon equivalents/diesel gallon equivalents

Market Transformation

Markets are self-sustaining assemblages of willing producers, sellers, and buyers. Transforming California's fuels and vehicle markets requires the introduction of low-carbon fuels products, fueling infrastructure to dispense the new fuels, and vehicles that can use the new fuels. The manner in which these markets transform can be measured by quantifying the number of alternative fuel and vehicle products, the number of producers, the number or volume of fuels, fueling station and vehicles that are sold, and the rate of change in product sales and consumer response.

Another aspect of market transformation is the economic viability and durability of the new markets for low-carbon alternative fuels and vehicles. At what point can products be produced and sold without government incentives or subsidies? Tracking the reductions in production costs and sales prices is another metric of market transformation.

Market transformation benefits are associated with the effects that ARFVTP activities have on current and future market conditions for new technologies. Some may be *second-order* benefits that follow from successful deployment of technologies accounted for under expected benefits. For example, the goal in demonstrating a small-scale biofuel production process would be to validate the technology, production process, and production costs, all of which are critical to future market success. Yet this important technology validation would yield only a small volume of low-carbon fuel that is directly attributable to the initial ARFVTP project grant (expected benefit). The success of this demonstration project would increase the likelihood that the technology will be deployed at a larger scale by the initial company and perhaps other

companies as well. A successful demonstration would also provide the company with performance and potential market data to attract new private or public funding. This future commercial-scale production and sale of the biofuel cannot be fully attributed to the initial ARFVTP grant, but there is a direct link between the technology validation and future commercial-scale production. The magnitude of these future benefits is market transformation.

Some market transformation benefits are distinct from the corresponding expected benefits. For example, installing hydrogen stations provides the direct benefit of efficient fuel cell electric vehicles (FCEVs) driving on hydrogen fuel and displacing gasoline use (expected benefit), while an increase in the geographic availability and convenience of additional stations will influence future consumer purchase decisions, and, therefore, the future market conditions for FCEV adoption (market transformation benefit). This example indicates how market transformation benefits are more uncertain and theoretical than expected benefits.

Market Transformation Methods

Though there are many types of potential market transformation influences associated with ARFVTP activities, NREL quantified three types, each including multiple subcategories. The term *influence* is used here to refer to the functional mechanism through which a project or set of projects might change future market adoption rates. The resulting market transformation benefits accrue due to the resulting increase in market share. The three influences are:

1. **Vehicle price reductions.**
   a. Reduction in the perceived price of plug-in electric vehicles (PEVs) due to increased availability of public electric vehicle supply equipment (EVSE) stations.
   b. Reduction in the perceived price of FCEVs due to increased availability of hydrogen stations.
   c. Reduction in the price of PEVs due to Clean Vehicle Rebate Program rebates.
2. **Vehicle cost reductions.**
   a. Reductions due to direct investments in production.
   b. Reductions due to increased experience or learning-by-doing associated with deploying additional units.
3. **Next-generation technologies.**
   a. Additional biofuel production facilities or advanced trucks deployed as a result of ARFVTP support for the current generation of the same (or similar) technology.

The method relied upon to estimate benefits associated with vehicle price reductions are based upon assumptions about consumer behavior and a demand elasticity calculation. Benefits due to vehicle and fuel component cost reductions are determined using an industry experience curve framework in which costs decline with increased cumulative output. Benefits associated with next-generation technologies are based upon project-specific data for fuel production processes and truck demonstrations supported by ARFVTP. As indicated, vehicle price reductions apply to EVSE and hydrogen fueling stations, vehicle production cost reductions apply to a select number of vehicle categories, and next-generation benefits are determined for three fuel production categories.

Market Transformation Results

Table H-2 provides additional detail on the total market transformation benefits in low- and high-case scenarios. The total additional GHG and petroleum reduction benefits range from 1.0 $MMTCO_2e$ and 132 million GGE/DGE to 2.9 $MMTCO_2e$ and 385 million GGE/DGE. Next-generation fuels, representing increased investment and development of bio refineries due to the initial public sector investment, demonstration, and pilot-scale facilities, provide the largest future GHG reduction potential and account for nearly half of the total benefit in the high case. Future vehicle price reductions from increased consumer awareness of zero-emission electricity and hydrogen fueling networks also provide large potential future market transformation benefits. For petroleum reduction, next-generation trucks provide the largest future potential reduction, and represent the future benefits from early public sector investment in demonstration-scale zero emission medium- and heavy-duty truck technologies.

Table H-2: Market Transformation Benefits for GHG Emissions and Petroleum Fuel Reductions Through 2025

Market Transformation Influence	Case	GHG Reductions (thousand tons CO2e)			Petroleum Reductions (million GGE/DGE)*		
		2015	2020	2025	2015	2020	2025
Vehicle Price Reductions	High	323.7	660.1	881.2	38.6	81.6	126.4
	Low	224.6	387.6	518.4	27.1	48.9	73.9
ZEV Industry Experience	High	29.6	126.2	212.7	3.9	16.7	32
	Low	25.3	107.8	181.7	3.3	14.3	27.3
Next Generation Trucks	High	117.3	469	469	24.2	96.6	96.6
	Low	5.7	22.8	22.8	-	5	5
Next Generation Fuels	High	-	592.2	1381.2	-	55	129.6
	Low	-	27.9	277.3	-	2.6	26
Total	**High**	**470.6**	**1847.5**	**2944.1**	**66.6**	**250**	**384.6**
	Low	**255.6**	**546.1**	**1000.2**	**30.5**	**70.8**	**132.3**

Source: NREL *GGE= gasoline gallon equivalents, DGE= diesel gallon equivalent