

# California Energy Commission STAFF REPORT

## LOCALIZED HEALTH IMPACTS REPORT

Addendum 4 for Selected Projects Awarded Funding Through the Alternative and Renewable Fuel and Vehicle Technology Program Under Solicitation PON-13-609 – Pilot-Scale and Commercial-Scale Advanced Biofuels Productions Facilities



CALIFORNIA  
ENERGY COMMISSION  
Edmund G. Brown Jr., Governor

DECEMBER 2015  
CEC-600-2014-004-AD4

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## ABSTRACT

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007) created the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP). This statute, amended by Assembly Bill 109 (Núñez, Chapter 313, Statutes of 2008), authorizes the California Energy Commission to “develop and deploy innovative technologies that transform California’s fuel and vehicle types to help attain the state’s climate change policies.” Assembly Bill 8 (Perea, Chapter 401, Statutes of 2013) reauthorizes the ARFVTP through January 1, 2024.

AB 118 also directs the California Air Resources Board (ARB) to develop guidelines to ensure air quality improvements. The ARB Air Quality Improvement Program (AQIP) Guidelines, approved in 2008, are published in the *California Code of Regulations, Title 13, Motor Vehicles, Chapter 8.1, AB 118 Air Quality Guidelines for the Alternative and Renewable Fuel and Vehicle Technology Program and the AQIP*. The *AQIP Guidelines* require the Energy Commission, as the funding agency, to analyze the localized health impacts of ARFVTP-funded projects that require a permit (13 CCR § 2343). As provided by 13 CCR § 2343, this *Localized Health Impacts Report* is required to be available for public comment for 30 days prior to the approval of projects.

This *Localized Health Impacts Report* analyzes the combined impacts in the communities, including exposure to air contaminants or localized air contaminants, or both, and including, but not limited to, communities of minority populations or low-income populations, as declared by the natural gas fueling infrastructure proposers or as determined by Energy Commission staff. Appendix A, Localized Health Impact Report Assessment Method, describes the analysis used for this *Localized Health Impacts Report*.

**Keywords:** Air pollution, air quality, Air Quality Improvement Program (AQIP), California Air Resources Board (ARB), alternative fuel, Assembly Bill (AB) 118, California Environmental Quality Act (CEQA), criteria emissions, demographics, environmental justice (EJ) indicators, Environmental Justice Screening Method (EJSM), greenhouse gas emissions (GHG), localized health impact (LHI)

Please use the following citation for this report:

Brecht, Patrick. 2015. *Localized Health Impacts Report*. California Energy Commission, Fuels and Transportation Division. Publication Number: CEC-600-2014-004-AD4.

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## EXECUTIVE SUMMARY

Under the *California Code of Regulations Title 13, (CCR § 2343)*, this *Localized Health Impacts Report* describes the alternative fuel infrastructure projects proposed for Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP) funding that may or may not require a conditional or discretionary permit or environmental review, such as conditional use permits, air quality permits, wastewater permits, hazardous waste disposal permits, and other land-use entitlements. This report does not include projects that require only residential building permits, mechanical/electrical permits, or fire/workplace safety permits, as these are determined to have no likely impact on the environment.

The California Energy Commission is required to assess the localized health impacts of the projects proposed for ARFVTP funding. This *Localized Health Impacts Report* focuses on the potential impacts projects may or may not have on a particular community, particularly those communities that are considered especially vulnerable to emissions increases. For high-risk communities, this report assesses the impacts from criteria emissions/air toxics and the air quality attainment status.

Environmental justice communities, low-income communities, and minority communities are considered to be the most impacted by any project that could result in increased criteria and toxic air pollutants within an area because these communities typically have the most significant exposure to the emissions. Assessing projects and the communities surrounding them is important because of the health risks associated with these pollutants. Preventing health issues from air pollution in any community is important, but it is especially important to minimize any negative impacts in communities that are already considered to be at risk due to their continued exposure to these contaminants.

The projects in this *Localized Health Impacts Report* are assessed for potential health impacts for the communities in which it will be located. Based on this analysis, it is not anticipated that implementation of these projects will have negative impacts because there will not be a net increase in criteria and toxic emissions, specifically in those communities that are considered most vulnerable. Potentially, the projects stand to provide improved quality of life through cleaner air.



# CHAPTER 1: Projects Proposed for Funding

The California Energy Commission, through the Alternative and Renewable Fuels and Vehicle Technology Program (ARFVTP), released a competitive grant solicitation and application package on January 14, 2014. The application due date was March 25, 2014. Grant solicitation PON-13-609 sought to fund projects that develop new or modify existing California-based biofuel production plants that can sustainably produce at least 50,000 diesel gallon equivalents (DGE) per year for liquid fuels or 10,000 DGE per year for biomethane.

The *Localized Health Impacts (LHI) Report* for PON-13-609 was posted May 9, 2014. The report reflected the Round 1 Notice of Proposed Awards (NOPA) for PON-13-609. On July 18, 2014, the Energy Commission posted the Round 2 NOPA, resulting in additional projects proposed for funding under PON-13-609. On December 16, 2014, the Energy Commission issued a Revised Notice of Proposed Awards which resulted in additional funding for diesel substitute projects. On November 12, 2015, a “Second Revised Notice of Proposed Award for Round 2 funding” was issued, resulting in two additional awardees. This *Localized Health Impact Report* assesses and reports on the potential localized health impacts of the two additional proposed projects with public review and comment for a 30-day period.

This chapter summarizes the projects proposed for Energy Commission funding. Table 1 provides the company, project name, project address, and environmental justice indicators. (See Appendix A.)

**Table 1: Proposed Projects for Biorefinery Facilities With Environmental Justice (EJ) Indicators**

<b>Applicant</b>	<b>Project Name</b>	<b>Project Address</b>	<b>EJ Indicator(s)</b>
<b>City of Petaluma</b>	<b>City of Petaluma – Biomass-to-Biofuel (B2B) Project</b>	<b>3890 Cypress Drive, Petaluma, California 94954</b>	<b>None</b>
<b>Quantitative BioSciences, Inc.</b>	<b>A California-grown biomethane plant that generates feed and cleans water</b>	<b>Fiscalini Farms 4848 Jackson Road, Modesto, California 95358</b>	<b>Poverty, Minority, and Unemployment</b>

Source: California Energy Commission staff analysis

## **City of Petaluma**

### **Project Name: City of Petaluma – Biomass-to-Biofuel (B2B) Project**

This project involves the efficient production of biomethane from locally produced high-carbon waste products to produce biofuel to power city buses and other utility vehicle fleets. The project will incorporate state-of-the-art anaerobic digesters specifically equipped with mixing and heating systems designed to promote codigestion of wastewater biosolids with food waste, fats, oils, and grease (FOG), and food processing waste. A cornerstone of this project is to eliminate the long hauls required for disposal of the high-strength waste (HSW) outside the community, while leveraging existing facilities for beneficially converting the HSW to compressed natural gas (CNG) to replace diesel for vehicle fueling. There is an additional benefit of lowering overall costs to the business community for transportation and disposal of HSW to the nearest facility, which is more than 45 miles away. While this project focuses on the city of Petaluma, this project can demonstrate technologies that can be “multiplied” throughout the state and have the greatest impact on reducing overall carbon emissions.

The proposed site is within one mile of six schools, three day care centers, and four medical offices/hospitals.

## **Quantitative BioSciences, Inc.**

### **Project Name: A California-Grown Biomethane Plant That Generates Feed and Cleans Water**

Quantitative BioSciences, Inc. will involve the use of algae from paddle wheel-mixed ponds to (1) filter the biogas from anaerobic digesters to produce vehicle-quality biomethane, (2) enhance the treatment of dairy farm waste, and (3) generate a nutrient-rich animal feed. This technology will reduce greenhouse gas emissions, improve water quality, produce biomethane, reclaim land, and generate valuable algae biomass, which can be fed to cows on site to reduce feed costs or sold as a valuable aquatic feed. This facility will have the capability to produce 180,000 DGE of biomethane per year or 500 DGE per day and will serve as a template for the deployment of similar facilities throughout California, where more than 2 million cows could generate 260 million DGE of biomethane per year, and carbon dioxide emissions could be reduced by almost 3 million metric tons per year.

There are no schools, day care centers, or medical offices/hospitals within one mile of the proposed project site.

## CHAPTER 2: Approach

The *Localized Health Impact Report (LHI Report)* Assessment Method in Appendix A assesses communities potentially impacted by air pollution and possibly benefitted as a result of these proposed projects. The California Air Resources Board's (ARB) *Proposed Screening Method for Low-Income Communities Highly Impacted by Air Pollution for Assembly Bill (AB) 32 Assessments* is also used to integrate data to identify low-income communities that are highly impacted by air pollution.<sup>1</sup> Other resources used in this assessment are the *California Infrastructure State Implementation Plans*,<sup>2</sup> which contain publicly noticed air quality attainment plans, and the *Green Book Nonattainment Areas for Criteria Pollutants*<sup>3</sup>.

For this *LHI Report*, the Energy Commission interprets “permits” to connote discretionary and conditional use permits because they require a review of potential impacts to a community and the environment before issuance. Since ministerial-level permits, such as building permits, do not assess public health-related pollutants, the Energy Commission staff does not assess projects requiring only ministerial level permits in this report.

The cities where the projects will be located are all in nonattainment zones for ozone, PM<sup>4</sup> 2.5, and PM 10. Table 1 shows the EJ indicators for the two projects in two cities, that is, minority populations, low incomes, and highly sensitive groups based on age (individuals younger than 5 years of age and older than 65 years of age). Table 2 shows the demographics. The city of Modesto is classified a high-risk community, according to the Environmental Justice Screening Method (EJSM), while the city of Petaluma is not.

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1 California Air Resources Board, *Proposed Screening Method for Low-Income Communities Highly Impacted by Air Pollution*, 2010 (Sacramento, California).

2 <http://www.arb.ca.gov/planning/sip/sip.htm>.

3 <http://www.epa.gov/oaqps001/greenbk>.

4 “Particulate matter” is unburned fuel particles that form smoke or soot and stick to lung tissue when inhaled and is a chief component of exhaust emissions from heavy-duty diesel engines.

## **CHAPTER 3: Summary**

If funded, the proposed projects would result in two sites for commercial-scale advanced biofuel production. As indicated in Table 2 of this *Localized Health Impact Report*, Modesto has three EJ indicators, which are poverty, minority, and unemployment, while Petaluma has none. Based on the review of these proposed projects, they will increase the widespread use of alternative fuel vehicles. As more alternative fuel vehicles enter the market and begin to displace gasoline and diesel vehicles, tailpipe pollutants will decrease significantly. A net benefit is realized from less petroleum fuel use and more alternative fuel use as a result of this project. The anticipated impacts to the city where this project would be located are positive in terms of cleaner air and anticipated GHG reductions.

The anticipated impacts to the communities where the projects are to be located are positive in terms of air quality and anticipated greenhouse gas reductions.

## **CHAPTER 4:**

### **Acronyms**

Air Quality Improvement Program (AQIP)

Air Resources Board (ARB)

Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP)

Assembly Bill (AB)

California Code of Regulations (CCR)

California Environmental Quality Act (CEQA)

Diesel gallon equivalent (DGE)

Environmental justice (EJ)

Environmental justice screening method (EJSM)

Greenhouse gas (GHG)

Localized health impact (LHI)

Notice of Proposed Awards (NOPA)

Particulate matter (PM)

Program Opportunity Notice (PON)

State Implementation Plan (SIP)

**Table 2: Environmental Justice (EJ) Indicators Compared With California**  
 Yellow highlighted areas indicate numbers (percentages) that meet the definition for EJ indicators.

	Number of EJ Indicators by Category	Below Poverty Level (2009-2013)	Black Persons (2010)	American Indian and/or Alaska Native (2010)	Asian and/or Pacific Islander (2010)	Persons of Hispanic or Latino Origin (2010)	Persons Under 5 Years of Age (2010)	Persons Over 65 Years of Age (2010)	Unemployment Rate (September 2015)
<b>California</b>		15.9%	6.2%	1.0%	13.0%	37.6%	6.8%	11.4%	5.9%
		>15.9%	>30%	>30%	>30%	>30%	>8.16%	>13.8%	>5.9%
Modesto	3	20.8%	4.2%	1.2%	6.7%	35.5%	7.4%	11.7%	7.4%
Petaluma	0	9.6%	1.4%	0.6%	4.5%	21.5%	6.0%	13.1%	2.9%

Sources: Unemployment information from the State of California, Employee Development Department (EDD) Labor Market Information Division: <http://www.labormarketinfo.edd.ca.gov/Content.asp?pageid=133> and [Age / ethnicity demographics, U.S. Department of Census: http://quickfacts.census.gov](http://quickfacts.census.gov)

# APPENDIX A:

## Localized Health Impact Report Assessment Method

Based on the California Energy Commission’s interpretation of the *California ARB AQIP Guidelines*, this *LHI Report* assesses the potential impacts to communities as a result of the projects proposed by the ARFVTP. This report is prepared under the *California ARB AQIP Guidelines, California Code of Regulations, Title 13, Motor Vehicles, Chapter 8.1 (CCR § 2343)*:

“(6) Localized health impacts must be considered when selecting projects for funding. The funding agency must consider environmental justice consistent with state law and complete the following:

(A) For each fiscal year, the funding agency must publish a staff report for review and comment by the public at least 30 calendar days prior to approval of projects. The report must analyze the aggregate locations of the funded projects, analyze the impacts in communities with the most significant exposure to air contaminants or localized air contaminants, or both, including, but not limited to, communities of minority populations or low-income populations, and identify agency outreach to community groups and other affected stakeholders.

(B) Projects must be selected and approved for funding in a publicly noticed meeting.”

This *LHI Report* is not intended to be a detailed environmental health impact analysis of proposed projects nor is it intended to substitute for the environmental review conducted during the California Environmental Quality Act (CEQA) review. This *LHI Report* includes staff application of the Environmental Justice Screening Method (EJSM) to identify projects located in areas with social vulnerability indicators and the greatest exposure to air pollution and associated health risks.<sup>5</sup>

The EJSM was developed to identify low-income communities highly affected by air pollution for assessing the impacts of climate change regulations, specifically Assembly Bill 32 (Núñez, Chapter 488, Statutes of 2006), the California Global Warming Solutions Act of 2006. The EJSM integrates data on (i.) exposure to air pollution, (ii.) cancer risk, (iii.) ozone concentration, (iv.) frequency of high ozone days, (v.) race/ethnicity, (vi.) poverty level, (vii.) home ownership, (viii.) median household value, (ix.) educational attainment, and (x.) sensitive populations (populations under 5 years of age or over 65 years of age).

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<sup>5</sup> California Air Resources Board (ARB). *Air Pollution and Environmental Justice, Integrating Indicators of Cumulative Impact and Socio-Economic Vulnerability Into Regulatory Decision-Making, 2010*. (Sacramento, California) Contract authors: Manuel Pastor Jr., Ph.D., Rachel Morello-Frosch, Ph.D., and James Sadd, Ph.D.

To determine high-risk communities, environmental justice (EJ) indicators for the proposed biorefinery locations are compared to data from the U.S. Census Bureau or other public agency. Staff identifies high-risk communities by using a two-part standard as follows:

Part 1:

- Communities located in nonattainment air basins for ozone, PM 10 or PM 2.5

Part 2:

- Communities having one or more of the following EJ indicators: (1) minority, (2) poverty, (3) unemployment and/or (4) high percentage of population under 5 years of age and over 65 years of age. The EJ indicators follow:
  - A minority subset represents more than 30 percent of a given city's population. (MINORITY)
  - A city's poverty level exceeds California's poverty level. (POVERTY)
  - A city's unemployment rate exceeds California's unemployment rate. (UNEMPLOYMENT)
  - The percentage of people living in that city are younger than 5 years of age or older than 65 years of age is 20 percent higher than the average percentage of persons under 5 years of age or over 65 years of age for all of California. (SENSITIVE POPULATIONS – AGE)

For a community to be considered high-risk, for this assessment, it must meet both Parts 1 and 2 of this standard.