STAFF REPORT

LOCALIZED HEALTH IMPACTS REPORT

Addendum for Selected Projects Awarded Funding Through the Alternative and Renewable Fuel and Vehicle Technology Program Under Solicitation PON-11-601 Biofuels Production Facilities

CALIFORNIA
ENERGY COMMISSION

Edmund G. Brown Jr., Governor

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PREFACE

The *Localized Health Impacts (LHI) Report for Selected Projects Awarded Funding Through the Alternative and Renewable Fuel and Vehicle Technology Program Under Solicitation PON-11-601*(CEC-600-2012-002) was posted April 5, 2012, and the 30-day public comment period ended May 7, 2012. The original Localized Health Impacts Report reflected the Round 1 Notice of Proposed Awards (NOPA) for PON-11-601. On October 5, 2012, the California Energy Commission posted the Round 2 NOPA, resulting in additional projects proposed for funding under PON-11-601. This *LHI Report Addendum* assesses and reports on the potential LHI for the additional advanced biofuel production projects recommended for funding.

The increased use of alternative and renewable fuels supports California's commitment to curb greenhouse gas emissions (GHG), reduce petroleum use, improve air quality, and stimulate the sustainable production and use of alternative fuels. State investment is needed to fill the gap and fund the differential cost of these emerging fuels and vehicle technologies. This addendum addresses projects for diesel substitutes, gasoline substitutes, and biomethane.

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."

The statute 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).

The Energy Commission received proposals in response to PON-11-601 for advanced biofuel production and is considering approving and funding the seven projects described in this addendum. This addendum contains the related project and site descriptions (including geographic locations), potential impacts and benefits, and outreach efforts as declared by the proposers in their documentation.

ABSTRACT

California Code of Regulations, Title 13, Motor Vehicles, Chapter 8.1, § 2343(c)(6), requires the California Energy Commission to consider the localized health impacts (LHI) when selecting projects for funding. For each funding cycle, the Energy Commission is required to analyze LHI for projects proposed for program funding that require a permit.

This addendum reviews the project proposals under consideration for funding that were submitted in response to the Biofuel Production Grant Solicitation (PON-11-601) by the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP). This addendum contains project and site descriptions (including geographic locations), potential impacts, and outreach efforts as contained in the proposals.

This addendum analyzes the assembled locations of projects, 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 as declared by the project proposers or determined by Energy Commission staff. This addendum identifies outreach to community groups and other affected stakeholders, also as declared by the project proposers:

- Buster Biofuels LLC, *Escondido Biorefinery 2nd Generation (EB2G)*
- Eslinger Biodiesel, Inc., *Developing Biodiesel Production at Kinder Morgan Distribution Terminals in California*
- Mendota Bioenergy, LLC (MBLLC), *Advanced Biorefinery Center– Mendota Integrated Demonstration Plant*
- ZeaChem Inc., *Pilot Plant and Commercial Feasibility Study for Biobased Gasoline Blendstocks*
- Tulare County Compost & Biomass Inc., *TCCBI Biomethane Production Facility*
- Environ Strategy Consultants, Inc., *Anaerobic Digestion of Food Waste to Create Biomethane Compressed Natural Gas (CNG) Fuel*
- Blue Line Transfer Inc., *Blue Line Biogenic CNG Facility*

Keywords: Assembly Bill (AB) 118, air quality, air quality improvement program (AQIP), alternative fuel, biodiesel, biomethane, California Energy Commission, criteria emissions, ethanol, environmental justice, greenhouse gas emissions, localized health impacts (LHI), and renewable diesel and gasoline.

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EXECUTIVE SUMMARY

Under to the *California Code of Regulations Title 13, (CCR § 2343),* this *Localized Health Impacts (LHI) Report* addendum addresses the biofuels projects proposed for California Energy Commission Alternative and Renewable Fuels and Vehicle Technology Program (ARFVTP) funding that may or may not require a conditioned 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 requiring 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 Energy Commission is required to assess the LHI of the projects proposed for ARFVTP funding under Biofuels PON-11-601. This LHI report focuses on the potential impacts the projects may or may not have on a particular community, particularly those communities that are considered especially vulnerable to emissions increases within their community. For projects located in high-risk communities, this report assesses the impacts from criteria emissions/air toxics, the air quality attainment status, wastewater and hazardous waste disposal impacts (high level), and mitigation plans, if available. This addendum includes information about the proposer's outreach efforts including public notices and community outreach.

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 these 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 assessed for health impacts for the communities in which they could be potentially located vary in terms of socioeconomic and environmental health. In general, no additional criteria pollutants are associated with the projects. Based on this analysis, it is not anticipated that implementing these projects will have negative impacts on surrounding communities because there will not be a net increase in criteria and toxic emissions, specifically those communities that are considered most vulnerable. Potentially, the projects stand to provide improved quality of life through cleaner air.

Although feasibility studies are exempt from an LHI assessment since they typically do not involve fuel supply or sale or involve construction that triggers permitting or licensing requirements, a commercial feasibility study is included in this addendum to give a comprehensive overview of the responses to PON-11-601 and those projects that may be funded.

CHAPTER 1:

Projects Proposed for Funding

This chapter summarizes the projects proposed for Energy Commission funding. The projects in this addendum are:

Fuel Category: Diesel Substitutes

- Buster Biofuels LLC, 1170 Industrial Avenue, Escondido
- Eslinger Biodiesel, Inc., 4191 South Maple Ave, Fresno

Fuel Category: Gasoline Substitutes

- Mendota Bioenergy LLC, 15671 West Oakland Avenue, Five Points
  UC Davis Biogas Plant (off Old Davis Rd.), Davis[1]
  6014 N. Cedar Ave., Fresno[2]
  9611 S. Riverbend Ave., Parlier[3]
- ZeaChem Inc., 1490 O'Brien Drive, Menlo Park

Fuel Category: Biomethane

- Tulare County Compost & Biomass Inc., 24478 Road 140, Tulare
- Environ Strategy Consultants, Inc., 16090 Mountain Avenue, Chino
- Blue Line Transfer Inc., 500 East Jamie Court, South San Francisco

1 This location is for research activities that are essentially identical to the activities already ongoing at this site. This location is an agriculture research facility.
2 Ibid.
3 Ibid.

CHAPTER 2:

Assessment Approach and 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 (PON-11-601) on January 5, 2012. The application due date was February 3, 2012. The Grant Solicitation PON-11-601 sought to fund projects that establish biofuels production. The Energy Commission is preparing to fund a series of projects in this second round of awards under PON-11-601.

The Energy Commission is required to analyze and publish this addendum for public review and comment for a period of 30 days. Based on the Energy Commission's interpretation of the Air Quality Improvement Program (AQIP) Guidelines, this addendum provides information about the communities surrounding the potential project sites and assesses the potential impacts to public health in those communities as a result of the projects. 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 addendum is neither intended to be a detailed environmental health or impact analysis of projects potentially to be funded by the program nor is this assessment intended to be a substitute for the comprehensive environmental review conducted by regulatory agencies during the California Environmental Quality Act (CEQA) process. The application of CEQA

would provide a more detailed analysis of the potential for adverse environmental effects of the proposed projects.

This addendum collects available information about the potential air quality impacts of the proposed projects and provides a collective, narrative analysis of the potential for LHI from those projects. The AQIP Guidelines mandate that the Energy Commission tracks the projects' progress through the CEQA process and ensures a commitment exists from the proposers to complete all mitigation measures required by the permitting agency before they receive the first funding allocation.

The Environmental Justice Screening Method (EJSM) identifies the various levels of risk in regions throughout California, and high-risk communities are considered especially vulnerable to even the smallest impacts. The EJSM integrates data on exposure to air pollution, cancer risk, ozone concentration and frequency of high ozone days, race/ethnicity, poverty level, home ownership, median household value, educational attainment, and sensitive populations (populations under 5 years or over 65 years of age).

The ARB applied the method to the San Francisco Bay Area, San Joaquin Valley, and California's desert region. However, the results consider only income among the list of social vulnerability indicators. For communities not yet assessed in the EJSM, the Energy Commission identifies high-risk areas as those in nonattainment basins for ozone, particle pollution, or particulate matter (PM) 2.5 and PM 10 along with populations that have high poverty and minority rates and/or a high percentage of sensitive populations.

This addendum contains assessments for these communities since their populations are presumed to be most susceptible to health risks because of their exposure to criteria and toxic air pollutants on a more continual basis as compared with other geographic regions.

Table 1: Projects Proposed for Funding Under PON-11-601 Round 2

Proposal Number and Recipient	Fuel Type	Project Type	Project Name
37. Buster Biofuels	Diesel Substitute	Commercial	Escondido Biorefinery 2nd Generation (EB2G)
10. Eslinger	Diesel Substitute	Commercial	Developing Biodiesel Production at Kinder Morgan Distribution Terminals in California
38. Mendota	Gasoline Substitute	Pilot and Demonstration	Advanced Biorefinery Center-Mendota Integrated Demonstration Plant
31. ZeaChem Inc.	Gasoline Substitute	Pilot and Demonstration	Pilot Plant and Commercial Feasibility Study for Biobased Gasoline Blendstocks

Proposal Number and Recipient	Fuel Type	Project Type	Project Name
12. Tulare County Compost and Biomass, Inc.	Biomethane	Commercial	TCCBI Biomethane Production Facility
32. Environ Strategy Consultants, Inc.	Biomethane	Pilot and Demonstration	Anaerobic Digestion of Food Waste to Create Biomethane CNG Fuel
44. Blue Line Transfer, Inc.	Biomethane	Pilot and Demonstration	Blue Line Biogenic CNG Facility

Source: Energy Commission staff analysis

Table 2: Community Status and Project Overviews

Project/City	High Risk	CEQA	Air District Permit Status	Attainment Status for Ozone, Particulate Matter[4] (PM) 2.5, PM 10 http://www.epa.gov/oaqps001/greenbk/ancl.html
Buster Biofuels LLC: "Escondido Biorefinery 2nd Generation (EB2G) (Esconido)	YES	YES	San Diego County APCD issued an Air Permit	Nonattainment (ALL)
Eslinger Biodiesel, Inc., Developing Biodiesel Production at Kinder Morgan Distribution Terminals in California (Fresno)	YES	In Process	City of Fresno will issue a conditional use permit (in process)	Nonattainment (ALL)
Mendota Bioenergy, LLC (MBLLC), Advanced Biorefinery Center-Mendota Integrated Demonstration Plant (Five Points)	YES	In Process	San Joaquin Valley APCD air permits pending award	Nonattainment (ALL)

4 PM 2.5 is fine particles less than 2.5 micrometers, which are hard to detect and come from motor vehicles, power plants, and fires. PM 10 is coarse particles 2.5-10 micrometers that come from crushing or grinding things and dust stirred up on the roads. PM in general is unburned fuel particles that form smoke or soot and stick to lung tissue when inhaled, and a chief component of exhaust emissions from heavy-duty diesel engines.

Project/City	High Risk	CEQA	Air District Permit Status	Attainment Status for Ozone, Particulate Matter[4] (PM) 2.5, PM 10 http://www.epa.gov/oaqps001/greenbk/ancl.html
Mendota Bioenergy, LLC (MBLLC), Advanced Biorefinery Center-Mendota Integrated Demonstration Plant (Davis)	YES	In Process	Yolo Solano air permit Authority to Construct (undergoing modification)	Nonattainment (ALL)
Mendota Bioenergy, LLC (MBLLC), Advanced Biorefinery Center-Mendota Integrated Demonstration Plant (Fresno)	YES	In Process	Fresno County building permits (pending)	Nonattainment (ALL)
Mendota Bioenergy, LLC (MBLLC), Advanced Biorefinery Center-Mendota Integrated Demonstration Plant (Parlier)	YES	In Process	Fresno County building permits (pending)	Nonattainment (ALL)
ZeaChem Inc., Pilot Plant and Commercial Feasibility Study for Biobased Gasoline Blendstocks (Menlo Park)	YES	In Process	Menlo Park Community Development conditional use permit (in process)	Nonattainment (ALL)
Tulare County Compost & Biomass Inc., TCCBI Biomethane Production Facility (Tulare)	YES	In Process	San Joaquin Valley APCD conditional use permit (in process)	Nonattainment (ALL)
Environ Strategy Consultants, Inc., Anaerobic Digestion of Food Waste to Create Biomethane CNG Fuel (Chino)	YES	YES	Inland Empire Utilities Agency mitigated negative declaration (in process)	Nonattainment (ALL)
Blue Line Transfer Inc., Blue Line Biogenic CNG Facility (South San Francisco)	YES	In Process	Bay Area Air Quality Management District (BA AQMD) Authority to Construct and Permit to Operate (in process)	Nonattainment (ALL)

Source: Energy Commission staff analysis

Permits

For this assessment, 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. For air permits, local air districts conduct a New Source Review (NSR), which evaluates the potential new source of pollutants, to determine the emission impacts. Since ministerial-level permits, such as building permits, do not assess public health-related pollutants, the Energy Commission staff does not intend to assess projects requiring only ministerial level permits.

Emissions

The Energy Commission staff directs stakeholders to the ARB *Air Quality Guidance Document for Siting Biorefineries in California*[5]. The ARB document evaluates the following criteria pollutants associated with various biorefinery processes: nitrogen oxide (NOx), carbon monoxide (CO), volatile organic compound (VOC), sulfur oxide (SOx), and PM 10.

Staff collected information about predicted emissions from the project proposals. The emissions considered for this assessment include those from diesel substitutes, gasoline substitutes and biomethane biorefinery. These projects are expected to alleviate air pollutant exposure in the region as biofuels replace fossil fuels.

Incremental increases in criteria emissions must be reduced or mitigated through a pollution control standard known as Best Available Control Technologies (BACT), and possibly, Emission Reduction Credits (ERC), which are generally credits granted upon request by an emission source. An NSR determines if a modification to an existing facility or construction of a new facility will result in significant increased air emissions within a given region, and this report contains the related information as given by project proposers. Immediate action must be taken by the appropriate party for any toxics released that exceed predetermined thresholds before a facility is reconsidered for a permit. An overview of the permit requirements for identified projects potentially to be located in at risk communities is included in the project overviews of this addendum.

Community Status

The following community statuses of the proposed projects are based on the ARB *Proposed Screening Method,* which integrates data to identify low-income communities that are highly

5 California Air Resources Board (ARB), *Air Quality Guidance for Siting Biorefineries in California, California, 2011* (Sacramento, California).
http://www.arb.ca.gov/fuels/lcfs/bioguidance/biodocs/finalbiorefineryguidenov2011.pdf

impacted by air pollution.[6] The California State Implementation Plans (http://www.arb.ca.gov/planning/sip/sip.htm) are used as a source for public notices for attainment plans. The *Green Book Nonattainment Areas for Criteria Pollutants* (http://www.epa.gov/oaqps001/greenbk) is also used as a source for this assessment. In some cases the air district websites or the districts, themselves, were consulted.

For high-risk cities/communities, more detail is provided in the following chapters. Staff identifies high-risk communities using the following factors:

- Those located in nonattainment air basins for ozone, PM 2.5, and/or PM 10
- Those located in communities with high poverty, minority, and/or unemployment rates
- Those located in communities with a high percentage of sensitive populations. Those in high - risk communities would be located in nonattainment air basins and have one or more of the other two factors.

Community Outreach

Proposed Diesel Substitutes Projects

Both proposed diesel substitutes will be located in nonattainment zones for ozone, PM 2.5, and PM 10. Both of the proposed projects would also be located in high-risk communities. The proposed projects are in the process of completing or have completed the CEQA process, and acquiring or have acquired the necessary air district permits.

Buster Biofuels

The EB2G facility has been featured in local newspapers and television, as well as numerous regional and national publications. Ultimately, this will be among the larger biorefinery facilities in the United States whose primary feedstock is used cooking oil (UCO) from retail and consumer establishments. A significant marketing and public education campaign will be conducted that will include public outreach meetings, radio and television public service announcements, field trips for schools, churches and civic organizations, press and media tours, site visits by elected officials, and more. These activities will be conducted throughout the project period and will likely involve the participation of at least 1,000 residents, community leaders, businesses, and media representatives.

Buster Biofuels will convene elected officials, local and state agencies, and businesses within the region in a public demonstration of the EB2G facility once it is operational. Buster Biofuels will also host school, visitor, and renewable energy tours at the facility. The company is working to expand community outreach with Buster Biofuels' current and future partners including the San Diego Padres, Legoland, regional hotels and resorts, and other businesses to support feedstock acquisition as well as integrated marketing efforts regarding the environmental and

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

economic value of biodiesel. Buster Biofuels has developed social media tools, Web-based videos, and print and video marketing materials to support the regional, state, and national recognition of biodiesel as an alternative to petroleum and to raise awareness of the company brand.

A video describing the project, its local community impact, and testimonials from project partners can be seen at www.busterbiofuels.com.

Eslinger Biodiesel, Inc

The company will use its website and periodic news releases to local and national media to announce the company's current progress. Eslinger's products will be branded and advertised locally. The company will briefly restate the benefits of biofuels in all community announcements, and the plant is designed to accommodate public tours for local public officials and educational opportunities for local schools.

The primary community impact will be the direct and indirect jobs this project will create in an area with the highest unemployment rate in the State. Eslinger Biodiesel, Inc., will announce openings and job training programs to the company's immediate neighbors on a first priority and then reach out to the community through other more traditional means.

Proposed Gasoline Substitutes Projects

Both proposed gasoline substitutes will be located in nonattainment zones for ozone, PM 2.5, and PM 10. Both of the proposed projects would also be located in high-risk communities. The proposed projects are completing or have completed the CEQA process and are acquiring or have acquired the necessary air district permits.

Mendota Bioenergy

Over the past four years Mendota Bioenergy, LLC, conducted community/grower outreach meetings discussing pilot plant construction and operation. Mendota plans to continue the outreach efforts. It has briefed the public about a potential pilot plant.

Mendota Bioenergy, LLC, conducted six community/grower meetings the week of March 6-8, 2012, throughout the expected 60-mile radius service area of the scale-up project to brief interested persons on the progress of Mendota's ARV 10-028 grant. This is the fourth year that the community/grower community outreach meetings have been conducted, and MBLLC anticipates continuing to hold these meetings annually. One of the meetings took place close to Five Points at the Maddox Dairy in Riverdale. The pilot plant construction and operation were discussed. The local community will be fully briefed on the progress of the pilot plant.

ZeaChem

ZeaChem has an established relationship with the business park management company where ZeaChem is located and the surrounding businesses. During construction, the company will respond to requests for information from the business park management, who has an established relationship with the City of Menlo Park. Since the proposed pilot plant facility will

require only routine tenant modifications to the building interior and no modifications to the exterior will be required, the effect on the business park community will be negligible. During operations, local impacts will be minimal and consistent with an established industrial park setting.

Public comments will be provided during the meeting of the City of Menlo Park Planning Commission for the conditional use permit associated with the project. ZeaChem does not anticipate that any issues will be raised.

The major outreach for the facility so far has been to host meetings with students interested in the company's work either as career opportunities or as part of their educational experience. This has been done about twice a year.

On one occasion the company hosted a community meeting arranged by the site landlord to demonstrate the type of activities to local community leaders from Menlo Park and East Palo Alto. The Menlo Business Park is proactive in involving community groups in the ongoing development and operation of the park, and ZeaChem has supported this activity.

The company works closely with the local planning, administrative, and safety authorities to meet regulations and maintain a safe facility for the employees, community, and environment.

Proposed Biomethane Projects

All three proposed biomethane projects will be located in nonattainment zones for ozone, PM 2.5, and PM 10. All of the proposed projects will also be located in high-risk communities. The proposed projects are completing or have completed the CEQA process and acquiring or have acquired the necessary air district permits.

Tulare County Compost & Biomass

TCCBI has been part of the Tulare community since 1993 and prides itself on maintaining good relations with the community. TCCBI intends to make every effort to communicate the company's plans with neighbors. Outreach efforts include visiting all the neighbors as well as the school. Flyers expect to be mailed monthly starting six months prior to construction start with monthly updates through the first three months of operation. A town hall meeting will be scheduled quarterly for the first 12 months. (The first will be scheduled prior to opening and continuing into the first six to nine months of operations.)

Environ Strategy Consultants

Environ has a plan to work with the Inland Empire Utility Agency (IEUA) to reach out to the community through its existing programs and public meetings. The company has already been involved with several presentations at public meetings at the IEUA Board hearings. Environ has a network of solid waste hauling companies that the company has been meeting with for several years regarding this project to promote the use of the facility as a CNG fueling station. In addition the company plans to work with the South Coast Air Quality Management District (South Coast AQMD) to publicize the CNG fueling project through its public outreach

programs, which already exist. The AQMD is in full support of the project due to its mission to increase the use of natural gas as a heavy-duty vehicle fuel. Environ has a direct relationship with the California Environmental Protection Agency (Cal EPA), the California Department of Resources Recycling and Recovery (Cal Recycle), and their management regarding this project. Cal Recycle has already provided a permit for the project and is supporting the use of food waste in an anaerobic digester system to create CNG fuel. Lastly, Environ expects to work with the Energy Commission to promote the project to the public.

The composting facility operates educational programs on the site, and the staff is in the community describing the benefits of the facility. Examples of these programs include free community drop off days for green yard waste and compost product giveaways. In addition, gardening and environmental groups tour the site.

During the permitting process for the anaerobic digester, meetings will be held describing the additional benefit of the production of green fuel at the site. Once the anaerobic digester is operational, workshops in the community and on-site will be conducted so the community is aware of not only the benefits of producing compost at the Environ facility, but also the production and distribution of green transportation fuel.

The pilot project is already approved by IEUA as the lead agency for CEQA, and that included a public review process conducted by the IEUA's Board. The outreach efforts that were conducted for the CEQA processes included public notices, public hearings, and responses to comments that were conducted by IEUA. All of this public outreach has already been done and approved. A final report will be created at the project's conclusion that can be made available for outreach efforts in future commercial-scale fueling facilities at the site.

Blue Line Transfer

Public outreach will occur throughout the revision of the solid waste facility permit for the Blue Line material recovery facility with noticing of immediate neighboring property owners and the community, including a public meeting at the site to be conducted by the local enforcement agency (County of San Mateo Environmental Health Services Division). The applicant will post information on its website, notice the information in newsletters to the residential and commercial customers, and include a summary of the project in the updates of its sustainability plan. It also plans to publish a highlights report in 2013 that will include more detailed information on the project.

In addition, Blue Line Transfer is directly involved in the development of the climate action plan (CAP) for the City of South San Francisco. The first workshop was held in March 2012. Blue Line Transfer intends to participate in public meetings on the CAP and use the forum as an opportunity to inform the community about the Biogenic CNG project and how it contributes to the city's goals.

An initial study was prepared for the project that was circulated for public comment, and a mitigated negative declaration was adopted as part of the CEQA process.

The waste collection vehicles that are powered by Biogenic CNG will have graphics on them stating that the vehicles are powered by Biogenic CNG, fliers informing the community about the project will be inserted into mailings for billing, and an Earth Day event will be held to promote the project.

CHAPTER 3:

Projects Proposed for Funding

(3-A.) Project Name: Buster Biofuels, LLC, "Escondido Biorefinery 2nd Generation (EB2G) Project"

Fuel and Capacity: Biodiesel; Production of up to 5.25 million gallons of American Society for Testing and Materials (ASTM)-quality biodiesel per year.
Feedstock: Used cooking oil (UCO), yellow grease, and brown grease.
Proposed Technology: Acid esterification and transesterification[7]
Permits/Environmental Impact Report (EIR): Received: Notice of Exemption and Building Permit from the City of Escondido, Authority to Construct and Air Quality Permit from the San Diego Air Pollution Control District, and a modified hazardous waste permit from the County of San Diego Environmental Health.
Community: This project is located in the City of Escondido, which includes two EJ indicators for minority and poverty level.
Other: No schools, residences, or elder or day care facilities exist within 3,000 feet of the facility.

For this project Buster Biofuels will install a commercial-scale biodiesel production facility at its existing industrial headquarters in Escondido, California. The facility will integrate second-generation technologies as well as proven third-generation technologies into a system that sustainably produces biodiesel from waste-based feedstocks. The EB2G system will reduce the capital costs associated with constructing biodiesel production plants by about 30 percent by using technologies and processes designed that stand to minimize real estate requirements, waste, and energy consumed.

At a production level of 2 million gallons per year during this project, EB2G would use roughly 20,000 gallons of B20 biodiesel [8]fuel. Currently, Buster Biofuels uses roughly 2,533.8 gallons per year of B20 biodiesel fuel in the collection of 240,000 gallons of UCO feedstock from several hundred locations in San Diego County. At full capacity, EB2G will produce 5.256 million gallons of biodiesel per year and use about 50,000 gallons of B20 biodiesel fuel in the collection of UCO.

Site Description

7 Esterification is used to convert used oils with high free fatty acids to fatty acid methyl esters (FAME or biodiesel) and triglycerides. The latter must be converted into biodiesel through transesterification (converting another kind of ester into a FAME).
8 B20 biodiesel is a blend of 20 percent biodiesel 80 percent standard diesel.

The site for this project will be located at 1170 Industrial Avenue, Escondido, California. The site includes a 7,300-square-foot industrial warehouse surrounded by other industrial buildings. The zoning is heavy industrial. The Buster Biofuels site is not environmentally sensitive and is not located on agricultural land. The proposed project is not part of an existing larger project, and no public controversy exists over the proposed project.

No historical resources or historical buildings will be impacted by this project. The project is not located on a site that the Department of Toxic Substances Control and the federal Secretary of Environmental Protection have identified as being affected by hazardous wastes or clean-up problems. Further, the project will not generate noise or odors above permitted levels.

Since 2007, this location has been in an eight-hour ozone attainment plan and, in 2012, nonattainment for one-hour ozone, PM 10 and PM 2.5.

Potential Impacts and Benefits

The EB2G will be a state-of-the-art biorefinery that will replace 5.235 million gallons of petroleum fuel in California per year with biodiesel produced from used cooking oil, fats, oils, greases and other waste-based feedstock. No major negative health impacts have been identified for this proposed project. A modest increase in daily traffic at the industrial site of 3 to 10 fuel vehicles and waste haulers would occur.

The project will reduce greenhouse gas (GHG) emissions in the California by 64,563,528 pounds annually. Other benefits include increasing the potential for the state to be able to produce biofuels to supply in-state demand. The company's impact on air quality is substantially reduced in that it uses biodiesel for transportation fuel in its own fleet vehicles, substantially reducing impact on air quality. Table 3 demonstrates the air quality benefits of using B20 biodiesel in Buster fleet vehicles.

Table 3: Average Change in Particulates and Emissions

Average Change	PM	HC	Carbon Monoxide (CO)	NOx	SO_2	CO_2
Percent Reductions	-11.99	-20.06	-12.30	1.98	-20.00	-15.69
Pounds of emission reductions	-3.20	-4.20	-35.54	7.46	-2.20	-8,060.49

Source: Buster Biofuels LLC's proposal under PON-11-601

Trucking

Buster Biofuels estimates that 10 trucks will visit the site daily for both oil delivery and fuel pick up. The trucks owned and operated by Buster (current and future vehicles) are/will be diesel vehicles and will be run on a B20 blend or higher. The trucks will probably be diesel as well, and it is presumed that these trucks will also run on a B20 blend.

Buster Biofuels estimates that each truck covers 100 miles round-trip per day on average. The number of GHG emissions emitted by 10 trucks per day/5 days per week at 100 miles per day/truck is 2,322 lbs/day. (This is based on the estimation that each truck uses 10 gallons of fuel each day.) If these trucks were using diesel fuel, the estimated emissions would be 2,782 lbs/day. The savings equals 2,302 lbs saved using B20 per week or 119,704 lbs/year.

Emissions will be reduced through the use of Buster Biofuels' fuel, where applicable. Engines capable of running biodiesel will have access to use the company's fuel through the fleet-fueling capabilities onsite.

(3-B.) Project Name: Eslinger Biodiesel, Inc, "Developing Biodiesel Production at Kinder Morgan Distribution Terminals in California"

Fuel and Capacity: The three-Phase progression is to first build a 5 million gallon per year (MMgy) plant within six months followed by a 20 million gallons per year (MMgy) commercial scale-up in Year 2 and a second 20 MMgy process line in Year 3. This project is Phase 1.
Feedstock: 15 percent waste vegetable oil (WVO) and 85 percent animal fat.
Proposed Technology: Anaerobic digestion
Permits/Correspondence: Fresno city planners to complete all necessary permits
Community: This project is proposed to be in Fresno, which includes four EJ indicators for minority, poverty level, unemployment, and age.
Other: There are three schools within 1 mile of the proposed project site.

Project Summary

Eslinger Biodiesel, Inc., plans to build a 45-million-gallon, multifeedstock biodiesel process facility near the end markets for biofuel blending and distribution. The project will be built in three phases with this grant to be focused on Phase 1 only. State-of-the-art first and second generation technologies have been selected, and turnkey proposals have been received from experienced technology providers. An existing memorandum of understanding with Kinder Morgan secures a 15-acre site and offers a continuous supply of biodiesel blends to Kinder Morgan's customers such as Chevron Oil, Shell, Valero, Conoco Phillips, and Tesoro.

The project site is a 15-acre greenfield in Fresno, immediately south of and adjacent to the Kinder Morgan Fuel Distribution Terminal. The property is owned by KMEP and zoned M-3 (unclassified). The plant will be located less than ¼-mile from the north/south truck route State Highway 99. There is a major Chevron truck stop on the northwest corner of the KMEP site and a number of jobbers headquartered along the North Border of the property. Kinder Morgan has several cross-country pumping stations for its underground pipeline network on this site and a number of state-of-the-art automated loading racks for 24/7 use by their own trucks and outside jobbers (trucking companies).

Project-Generated Emissions

Natural Resource Group, a consulting firm, will determine emissions in the air permit stage. The technologies selected offer a completely closed-loop system with no emissions and no hazardous waste stream. There may be a boiler or a heater for a thermal oil heating system, but the size and type will be determined in the pre-engineering phase. If Kinder Morgan is the primary offtake buyer, the products will be delivered next door by pipeline with no emissions. Incoming feedstock will be handled whenever possible by the company's own freight forward division using Peterbuilt tanker trucks running on transport fuel B50[9] or above.

9 B50 is a blend of 50 percent biodiesel and 50 percent standard diesel

Project Health Impacts

Eslinger's trucks and combined heat and power (CHP) systems will operate on the company's own biofuels whenever possible. The project is not expected to add pollutants or toxic air contaminants to the local air shed, and the community health will not be adversely affected.

As a part of the conditional use permit, Eslinger has received a mitigated negative declaration. Emissions issues, for example, are mostly eliminated by closed-loop, waterless processes throughout the plant. Increased traffic was declared "less than significant" with minor mitigation measures requested.

Trucking

The Kinder Morgan fuel distribution terminal, adjacent to the property, has an existing tank storage facility, a pump station for an underground pipeline network, and numerous loading racks for local truck deliveries in the Fresno area. A commercial truck stop is located at the north end of the property with several independent Jobbers (trucking companies) also located at the north end. The EBI management team proposes to install a relatively small tank storage facility primarily for biodegradable feedstock and consumables needed for the process. The majority of the company's offtake will be moved by underground pipeline directly to the Kinder Morgan terminal with no additional truck transport necessary. A landscaped, contemporary styled office and process building will be built on the property with security gates and "green fencing" around the 15-acre site. The project layout and building designs are intended to complement the surrounding neighborhood. Since biodiesel is a relatively new technology, the facility will be designed to accommodate site visits and tours by local residents and schools as well as high-level corporate individuals and green fuel political advocates. The proposed project is in an area with similar industry operations.

(3-C.) Project Name: Mendota Bioenergy, LLC (MBLLC), "Advanced Biorefinery Center-Mendota (ABC-M) Integrated Demonstration Plant"

Fuel and Capacity: 190-proof advanced biofuel ethanol (~85 percent) and cellulosic biofuel ethanol (~15 percent); 300,000 gallons (annual)
Feedstock: Energy beets, canola seed, safflower seed, spent and organic stillage from ethanol plant, glycerin, organic liquid fertilizer, wheat grass, and food waste
Proposed Technology: Anaerobic digestion
Permits/Correspondence: Fresno County in process of issuing conditional use permit for the pilot plant.
Community: This project is proposed to be in a low-income community that is highly rural.[10] The city has all four environmental justice (EJ) indicators.
Other: There is one school within 5 miles of the proposed project site.

Mendota Bioenergy, LLC, (MBLLC) and a consortium of university, agricultural, and technical organizations propose to design, construct, and operate an ABC-M Integrated Demonstration Plant located at the Red Rock Ranch in Five Points, California. The proposed 1/40th-scale demonstration project will demonstrate 12-month harvest plan for 10,000 tons of high-yield, carbon-optimized energy beets and use advanced enzyme and microbial conversion processes to produce 300,000 gallons (annual) of 190-proof advanced biofuel ethanol.

Site Description

The project would be located at Red Rock Ranch, 15671 West Oakland Avenue, Five Points (Fresno County), a 7,000-acre ranch zoned for agriculture. The nearest school is 5 miles away, and nearest care facilities are at least 10 miles away. There are two neighboring farms with no buildings except a house that is scheduled for removal. The ranch itself includes the Diener residence, headquarters building, and various other farm structures.

Potential Impacts

The project is expected to generate no criteria or toxic emissions from the enzymatic production of energy beets into advanced ethanol. The pilot-plant project is not expected to add any criteria or toxic emissions to a localized air shed and affect ambient air quality levels to an extent that local community health is adversely affected. The pilot plant is in a rural area of southwest Fresno County with no established subdivisions in the area. The nearest established town is Huron, which is 9.5 miles to the south.

A small amount of air emissions will, however, be generated from the delivery of 4-8 loads of energy beets (100-200 tons/day for five days) delivered for processing during the one week per month that processing will occur. Mendota's trucking contractor, Cartel Transport, LLC, will use trucks with new Cummins 2010 engines that meet all applicable San Joaquin Valley Air

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

Pollution Control District emissions requirements. Production at Red Rock Ranch will produce 190-proof advanced biofuel ethanol and cellulosic biofuel ethanol, which will then be transported to an area ethanol plant for final processing. The ethanol plant will meet all applicable air emissions requirements. Cartel Transport trucks will be fueled by biodiesel produced on-site from high-yield canola, thereby reducing GHG and other emissions from the overall pilot plant process.

The commercial plant will have a major positive economic impact on the community with 100 full-time jobs being created and more than $100 million in economic activity.

Natural Resources Impact

ABC-M, by its integrated nature, greatly benefits California's natural resources by A) being carbon neutral; B) recycling water contained in energy beets; C) using a biomass-fired gasifier to cogenerate renewable electricity and provide process steam, thereby reducing fuel required by as much as 50 percent; and D) recycling nitrogen from energy beets via the anaerobic digester to be used as a high-grade fertilizer and soil amendment on Mendota area crops of all varieties.

Potential air quality benefits of the proposed production system include substitution of biofuels-based CNG (BioCNG) derived from biodigester gas for use in heavy-duty trucks (HDTs) used for feedstock transport. Not only will this renewable BioCNG fuel substantially reduce net fossil carbon dioxide (CO2) emissions, but CNG used in HDTs can reduce carbon monoxide (CO) and particulate matter by more than 90 percent and reduce NOx by upward of 50 percent compared to using diesel fuel. For commercial-scale ABC-M, these figures would lead to an approximate annual reduction in PM 10 and PM 2.5 emissions for the region of 660 kilograms (kg) and 400 kg, respectively; NOx reductions of nearly 5000 kg; and CO reductions of 4000 kg.

Trucking

The proposal estimates 32 truck stops per month to deliver 800 tons of feedstock monthly. Each truck will carry 25 tons. This project site will be open only 10 days out of the month. On average, this equates to 3.2 trucks daily and 22.4 trucks weekly.

The trucks are expected to use diesel fuel.

The pilot plant will be processing approximately 100 tons per day of energy beets or four 25-ton truckloads. The plant will process 10,000 tons of energy beets during the 12 months it will operate. Scheduled operations will be from 7-10 days per month.

The 1/40th scale pilot plant will use standard clean-burn diesel trucks to haul beets from the field to the pilot plant.

(3-D.) Project Name: ZeaChem, Inc., "Pilot Plant and Commercial Feasibility Study for Biobased Gasoline Blendstocks"

Fuel and Capacity/production: Biobased gasoline: market development quantities of less than 1,000 gallons per year.
Feedstock: Hybrid poplar, energy crops, forestry residues, and agricultural residues
Technology: Biomass hydrolysis, fermentation, and hydrotreat[11]
Permits/correspondence: CEQA lead agency − Menlo Park Community Development – Planning Division
Community: This project would not be located in a low-income community that is highly impacted by air pollution. The city has one environmental justice (EJ) indicator which is age.
Other: Within a one- mile radius of the site, eight schools and a health care facility exist.

Project Summary

This project would establish an advanced biofuels supply chain in California with outstanding economic, environmental, and social sustainability benefits for all stakeholders. This goal will be met by the successful completion of the three project objectives: 1) successful pilot plant testing of the C3 platform, which is an expansion of the C2 platform previously developed to produce gasoline substitutes; 2) successful evaluation of prototype samples of advanced hydrocarbons; and 3) completion of a commercial feasibility study for a California biorefinery.

ZeaChem has operated a fully permitted 6,015 ft^2 research and development (R&D) laboratory on O'Brien Drive in Menlo Park at this location since 2006. The facility is located within an established 50-acre business park containing 18 buildings that houses R&D activities for numerous high technology firms similar to ZeaChem. The business park is owned by Menlo Business Park, LLC, and is managed by Tarlton Properties, Inc. The location is zoned for light industrial use. The industrial park is located within the city limits of Menlo Park and is adjacent to residential areas.

The proposed pilot plant will be located in the existing building that ZeaChem occupies for its existing R&D laboratory. Once built, the proposed pilot plant will be a seamless 2,107 ft^2 expansion of the company's ongoing operations. The proposed space is physically ready for start of construction.

The proposed pilot plant facility will require only routine tenant modifications to the building interior; no modifications to the exterior will be required. The consultant for this project believes the proposed pilot plant facility will fall within the light industrial zoning for the building,

11 Hydrotreat: To react with hydrogen as part of a chemical engineering process to remove impurities, especially as part of oil refining

basing its opinion on past experience with similar projects and preliminary conversations with the City of Menlo Park. The City of Menlo Park Planning Commission will verify the proposed pilot plant complies with existing zoning as part of its approval of the modification to ZeaChem's existing conditional use permit.

Project-Generated Emissions

ZeaChem has not yet installed the pilot plant equipment and so does not have data on the actual emissions from the process. The pilot plant will likely have low levels of emissions of criteria pollutants such as volatile organic compounds (VOCs) and no emissions of toxic compounds as defined by the Bay Area Air Quality Management District (BAAQMD). The actual emissions of criteria pollutants are expected to be well below the concentration levels and total mass discharge rates that would require the installation of abatement technology, that is, less than 15 pounds per day and at concentrations much less than 300 parts-per-million total carbon in conformance with BAAQMD rules and regulations. Actual emissions of criteria pollutants from the pilot line are expected to be less than about 8 pounds per day.

The emissions from ZeaChem's operations will include low levels of fugitive emissions from equipment cleaning processes, equipment operations (for example, opening and closing vessels, pouring of solvents, transfer of liquids from containers), and from vacuum pump operations. It is typical in ZeaChem's operation to use closed solvent liquid and vapor transfer operations that do not release VOCs to the air; however, small amounts of VOCs are sometimes emitted during connection/disconnection of equipment, liquid transfers, and cleaning. The exhaust gases from the pilot plant operations will be captured in hoods and vents and then discharged (posing no significant environmental hazards) from the facility outdoors through a mechanically powered exhaust fan on the facility roof.

The operations performed by ZeaChem will not include any transport of fuel, feedstock or other material, production of fuel or technology components, or fueling of alternatively fueled vehicles.

Project Health Impacts

The project's potential, localized health impacts are expected to be insignificant. The ZeaChem facility is at the borderline between two local cities and generally upwind of the adjacent city and residential community. With that in mind, ZeaChem will design and install equipment that meets the regulatory requirements and does not pose significant risk to the community. The project is not expected to release mass levels or concentrations levels of criteria or toxic pollutant that will affect the local ambient air quality levels or that would cause adverse affects to the local community.

During the design of the pilot plant, ZeaChem will evaluate the potential emissions from the equipment and operations and will design the system using reasonable controls to prevent emissions from the facility. It is possible that a person at roof levels might be able to detect odors from the VOCs under certain air flow and wind conditions, but the accepted practice is to

design the emission discharge points so that natural dilution in air will prevent any concentrations of pollutants at ground level that would be detectable by the community.

The project is an extension of ZeaChem's laboratory efforts to a small pilot plant operation. To date the plant has had very minimal impact (well within the limits for research and development) due to emissions, and that is expected to continue to be the case. In summary, this project has a minimal impact given its nature as an extension of current activities.

Trucking

The project is divided into two time frames. The first segment is the construction phase, in which ZeaChem will expand the existing facility, and the second phase is the operating phase.

The construction phase will take up to six months. The construction phase is all inside the existing building in a well-established business park in Menlo Park. In previous experience with other projects, the majority of construction traffic is derived from contractor personal vehicles such as cars, vans, and pickup trucks. There is adequate off-street parking around the building to accommodate all construction-related traffic. The only other truck traffic during construction will be for deliveries of equipment and supplies. Since all of the equipment is floor mounted and can be handed by pallet jacks, the company expects only delivery van traffic. There will be several categories of delivery, including building supplies such as plumbing, electrical, paint, pipe, and so forth, as well as equipment to be installed in the facility. There is an off-street loading dock for the building. The company expects 20-30 deliveries for construction over six months.

The operating phase of the project will require the addition of about 12 new positions. There is adequate parking for employee vehicles around the building. ZeaChem expects to continue to encourage employees to take public transit where available and possible. The company allows work schedule flexibility to accommodate public transit. About 25 percent of the company's employees take public transportation, which includes CalTrain and the Menlo Business Park shuttle from BART. ZeaChem expects that ratio to continue. The continuing truck traffic during the operating stage will not change the existing traffic pattern to the facility. The major traffic now consists of deliveries of supplies by FedEx, UPS, and a number of local vendors such as gas suppliers, certified waste haulers, and other lab service vendors. The company estimates 1-2 additional trips per month from vendors because of the increased activity and that 50 percent of the trucks will use diesel and the other 50 percent will use gasoline.

(3-E.) Project Name: Tulare County Compost & Biomass, Inc., "TCCBI Biomethane Production Facility"

Fuel and Capacity/production: Biomethane; 83,000 MMBTUs or 660,000 GGE annually.
Feedstock: Organic waste (food, crop residuals, manure and fats, oils and grease [FOG])
Proposed Technology: Anaerobic digester
Permits/correspondence: A City of Chico letter confirms existing building use and the Butte County Air Quality Management District (AQMD) approved a new air permit. The proposer is seeking "Authority to Construct" from Butte County AQMD.
Community: This project will not be in a low-income community that is highly impacted by air pollution.[12] The city has four environmental justice (EJ) indicators, which are minority, poverty level, unemployment rate, and age.
Other: There is a school located within a one-mile radius of the project site.

Tulare County Compost & Biomass, Inc., proposes a project to produce roughly 660,000 gasoline gallons equivalent (GGE) of biomethane, a cost-effective, renewable low-carbon transportation fuel. This will be done through anaerobic digestion (AD) of organic wastes such as food, crop residuals, manure and fats, oils and grease (FOG). The resulting biogas will be cleaned and compressed to renewable compressed natural gas (CNG) and deployed through an on-site fueling station. This fuel will be one of the lowest gCO2e/MJ possible. TCCBI's goal is to validate AD-to-fueling station as a viable and replicable model to boost California's quantity of domestic renewable transportation fuel.

Site Description

The proposed site, 35 acres located in Tulare, is in an agricultural-zoned area with one stand-alone building that serves as the scalehouse/office. An operating feed lot and grain silo are located on site. The site is not considered to be environmentally sensitive. A few residential homes exist within a quarter of a mile. The rest of the surrounding area is composed of agriculture. It is not near any day care or elder care facilities.

Potential Impacts

The proposed project will not have an adverse impact on local health. The environmental impact statement concluded that the overall impact on the regional air quality of the postconstruction operation is low. Air emissions from vehicles will not increase as this is existing traffic and may even decrease as more vehicles switch from diesel to CNG.

The proposed project aims to produce clean, renewable, non-intermittent energy in the form of more than 83,000 million British thermal units (MMBTUs) of biomethane per year. It will also help the region comply with mandatory recycling rules under Assembly Bill 341 (Chesbro,

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

Chapter 476, Statutes of 2011) and reach 75 percent landfill diversion rates. Another potential benefit of this proposed project will be to add to the supply and use of compost. The benefits of using compost include increased soil health, reduced need for amount of synthetic fertilizer, reduced water use, decreased soil erosion, increased soil carbon storage, and reduced herbicide use.

Other than the acreage used for facility construction that is currently being used for windrow composting, no additional impact to any land will occur. Additionally, due to the increasing sale and use of compost, the coproduct of this project, there should be a positive benefit to California's agricultural lands.

Using AD to generate CNG results in a net reduction of criteria air pollutants. The AD process does not release any of these pollutants. Small amounts of NOx and SOx are released during decomposition. There are also several diesel engines involved during operation such as front loaders and those for gas clean-up and compression. However, CNG will be displacing diesel fuel (660,000 GGE), the equivalent amount of which would result in 5,867 metric tons of carbon dioxide equivalent (CO_2-e)[13]. The U.S. Department of Energy compared CNG *vs.* gasoline and concluded CNG:

- Reduces carbon monoxide emissions 90 percent-97 percent.
- Reduces carbon dioxide emissions 25 percent.
- Reduces nitrogen oxide emissions 35 percent-60 percent.
- Emits fewer toxic and carcinogenic pollutants.
- Emits little or no particulate matter[14].

The following table outlines greenhouse gas emissions emitted from the vehicle (truck) traffic at the project location once the AD facility is operational. Since the site is currently an operating composting facility, there is only an increase of truck traffic to the site; this is not a new facility. Therefore, the incremental increase in emissions is calculated in Table 4.

Table 4: Summary of GHG Emissions From Trucks

	CO2	CH4	N20	CO2e
Baseline (tons/year)	441.26	0.08	0.01	444.71
Post-Project (tons/year)	750.15	0.14	0.01	756.01
Incremental Increase (tons/year)	308.88	0.06	0.00	311.30
Incremental Increase (tons/week)	5.92	0.00	0.00	5.97
Incremental Increase (tons/day)	0.99	0.00	0.00	0.99

Source: Tulare County Compost & Biomass, Inc.'s proposal under PON-11-601

9 http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results.
10 http://www.afdc.energy.gov/afdc/vehicles/natural_gas_emissions.html.

The composting facility operates educational programs on the site, and the staff is in the community describing the benefits of this facility. Examples of these programs include free community days for the drop of green yard material and compost product giveaways. In addition, gardening and environmental groups tour the site. During the permitting process for the AD, meetings will be held describing the additional benefit of the production of green fuel at the site. Once the AD is operational, workshops in the community and on-site will be conducted so that the community is aware of not only the benefits of producing compost at the facility, but also the production and distribution of green transportation fuel. The site currently operates six days per week.

Trucking

The site is an operating composting facility, which averages about 50 trucks per day and is allowed 85 trucks per day since this is a seasonal business. Therefore, the analysis assumes that the site is currently operating at 50 trucks per day and will increase to 85 trucks per day once the AD facility is operational. The trucks will initially be operated primarily with diesel fuel. Once the CNG station is operational, it is anticipated that about 60 trucks will convert to the use of CNG.

(3-F.) Project Name: Environ Strategy Consultants, Inc., "Anaerobic Digestion of Food Waste to Create Biomethane CNG Fuel"

Fuel and Capacity/Scale up: Biomethane; scale-up existing processes from 25 tons per day to 100 tons per day to produce 566,000 diesel gallon equivalents of renewable natural gas (RNG) (annually) and other outputs
Feedstock: Source separated food waste
Technology: Anaerobic digestion (AD)
Permits: Air permit issued 12/31/11 for 25 tons per day is undergoing modification to accommodate 100 tons per day. The proposer will need an "Authority to Construct" permit for the flare, which is pending AQMD evaluation.
Community: This project would be in a low-income community that would be highly impacted by air pollution.[15] The city has two environmental justice (EJ) indicators, which are minority and unemployment rate.
Other: There is one school and one health care facility within a one-mile radius of the proposed project site.

Project Site Description:

The project site includes using a fully developed, 10-acre existing anaerobic digester facility located in Chino that is owned by the Inland Empire Utilities Agency (IEUA). The site is located in an industrial and agricultural area in the southwest portion of San Bernardino County. IEUA already designed, permitted, built, and operated the facility known as RP-5 Solids Handling Facility (SHF) as a food waste anaerobic digester from 2002 until 2009. Environ Strategy Consultants restarted the facility through a lease agreement that allows use of the facility as a food waste AD and production of renewable energy for use in the existing internal combustion engines.

Project Summary:

The RP-5 site is an already permitted AD facility equipped with a truck scale, materials receiving building, two AD tanks, liquid food waste tanks, a biofilter, gas compression equipment, and two natural gas engines for creating electricity. The focus of the pilot project is the use of solid food waste in the existing anaerobic digesters at the IEUA RP-5 SHF to demonstrate AD of solid food waste and conversion of the biogas to CNG fuel for heavy-duty solid waste collection vehicles. The processed food waste will be delivered in solid waste collection vehicles to the existing anaerobic digesters to create biogas. The truck trips are already approved under the current CEQA permitting for the site. The biogas will be used in the already permitted, existing internal combustion engines to create renewable electricity for the pilot project. The internal combustion engines are already approved for use through the CEQA and air district permitting for the site. The pilot equipment will process the solid food waste for introduction to the digester and for gas treatment and CNG fuel production. The

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

CNG equipment is skid mounted and will be used at the site for the duration of the pilot project and then dismantled. The CNG fuel will be used in heavy-duty solid waste collection vehicles that are already equipped with CNG engines.

Project Generated Air Emissions and Health Impacts:

The pilot project will include treating food waste, creating biomethane, and converting the methane into a CNG fuel. The project site is already permitted for the processing of food waste, anaerobic digestion of the food waste pulp, and creation of the biogas for use at the site. The existing permits already accounted for the emissions and health impacts from this type of process and associated activities. This includes the delivery of the food waste to the site, creation of biogas, and use of the biogas at the site.

The initial stage of the proposed project is to process 300 tons of food waste per day. Project calculations show that the amount of food waste would be capable of generating 900,000 cubic feet of biogas per day, the equivalent of 329,950 MMBTU per year. If converted to CNG for use in transportation, this would be the equivalent of 1.76 million gallons of diesel fuel per year. The use of that amount of biofuel generated from the site would eliminate 39,998,966 pounds of CO_2 in vehicle emissions per year.

With regard to air quality, there are many factors that should be considered to fully understand the environmental benefits of a biogas project. The reduction of methane released to the atmosphere from the landfills would be significant. According to GREET[16] 1.8b values, methane has 25 times more global warming potential for greenhouse gases than CO_2.

The issue of environmental impact was completely analyzed and approved through a CEQA process that was certified by the lead agency. It addresses a traffic analysis, noise, odors, and many other required areas of study.

Trucking

At peak conditions, there will be five CNG refuse collection vehicles a day refueling at the facility. Since this is a demonstration project, the peak amount of trucks is expected for two to four weeks during the demonstration.

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12 GREET (Greenhouse gases, Regulated Emissions, and Energy use in Transportation) is a full life-cycle model sponsored by the Argonne National Laboratory (U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy). The number 1.8b is the version number used.

(3-G.) Project Name: Blue Line Transfer, Inc., "Blue Line Biogenic CNG Facility"

Fuel and Capacity/Scale up: Biomethane; pilot and demonstration facilities which will convert 9,000 tons per year to produce 56,000 diesel gallon equivalents per year.
Feedstock: Food and green waste portion of municipal solid waste (MSW)
Technology: Anaerobic digestion (AD)
Permits: Air permit in process for 35 tons per day. The proposer will need an "Authority to Construct" and "Permit to Operate" the microturbine, which is considered best available control technology (BACT)
Community: This project does not lie within an economically distressed area.[17] The city has one environmental justice (EJ) indicator, which is minority.
Other: The nearest residences are about one mile to the southwest at a local marina, with land-based residences more than 1.5 miles to the west-northwest. There are one school and healthcare facility within a two-mile radius of the proposed project site.

Blue Line Transfer, Inc., proposes to produce CNG for transportation fuel from the biomethane generated by the AD of the food waste and green waste portion of MSW from the cities of South San Francisco, Brisbane, and Millbrae, and the County of San Mateo.

The AD facility will convert 9,000 tons per year of food waste and green waste into biomethane that would be cleaned and compressed to produce CNG for the South San Francisco Scavenger Co., Inc., CNG refuse and recycling collection vehicle fleet.

Site Description:

The project site is located in South San Francisco in a lot occupied by Blue Line Transfer, Inc. Mixed Industrial land uses surround the immediate vicinity of the facility with coastal commercial uses radiating outward within a few blocks.

The project is anticipated to have limited environmental impact from air emissions, with no expected health impacts in the surrounding community or elsewhere due to the Bay Area Air Quality Management District (BAAQMD) permitting requirements. Additionally, the project does not significantly alter the existing emissions profile regarding the transport of fuel, feedstock, or other material to the project site for operations or production. The CNG fuel produced will be refined to pipeline CNG standards, and consumed by CNG vehicles.

Criteria pollutant emissions are generated during the fuel production process (well to tank, WTT) and during the combustion in a vehicle (tank to wheel, TTW).[18] The proposed bio CNG

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13 Source: U.S. DOT, Federal Highway Administration website: http://hepgis.fhwa.dot.gov/hepgis_v2/GeneralInfo/Map.aspx, accessed 2/22/2012.
14 The analysis of these emissions uses the reference document August 2007 *Full Fuel Cycle Assessment: Well-to-Wheels Energy Inputs, Emissions, and Water Impacts*, CEC-600-2007-004-REV".

fuel would have essentially the same criteria pollutant emissions profile on a TTW basis as fossil fuel CNG currently in use, which is compared to diesel using the "Urban" category in Table 5.

Table 5: TTW Criteria Pollutant Emission Comparison

Pollutant	ULSD: 2012 (g/mile)	CNG, NA Natural Gas (g/mile)
VOC	0.168	0.048
CO	0.901	0.907
Nox	0.714	0.687
PM10 (x10)	0.677	0.672

Source: Blue Line Transfer, Inc.'s proposal under PON-11-601

Therefore, based on the cited Energy Commission document, fewer criteria pollutants are emitted from the combustion of CNG than diesel with the exception of carbon monoxide, which is slightly higher than diesel (0.7 percent).

WTT criteria emissions for the CNG from the proposed project are converted from Energy Commission data to the standard metric, that is, g CO2e/MJ, and adjusted for the energy economy ratio to USLD of 90 percent. The criteria pollutant profile for the WTT pathway is shown in Table 6.

Table 6: WTT Criteria Pollutant Emission Comparison

Pollutant	ULSD: 2012 (2010 & newer) (g/MJ)	Biomethane CNG from AD (g/mile)
VOC	0.0357	0.0115
CO	0.0787	0.0472
NOx	0.2625	0.0436
PM10 (x10)	0.1925	0.0016

Source: Blue Line Transfer, Inc.'s proposal under PON-11-601

The WTT emissions for the proposed CNG fuel are significantly lower than diesel for all constituents. The microturbine, used for electrical and thermal energy, will be equipped with an oxidation catalyst to reduce carbon monoxide emissions by 90 percent.

Toxic Air Contaminants

The WTT emissions will be different than the urban toxics for diesel fuel and North American natural gas. However, the toxics that would be generated from the full fuel cycle for the production of the bio CNG fuel currently are unknown and assessed as part of the proposed project.

Operational emissions will be addressed by the use of BACT on stationary equipment, and emissions from vehicles using the biogenic CNG will be an improvement relative to the diesel it is replacing. An odor impact minimization plan will be implemented to address odor issues.

The greenhouse gas impact is positive due to the replacement of diesel fuel, the diversion of waste from the landfill, and the use of digestate as compost. Construction-related emissions will be mitigated by following the Bay Area Air Quality Management District's (BAAQMD) Basic Construction Mitigation Measures.

Using the 94.7 g CO2e/MJ for diesel and the 35.96 g CO2e/MJ calculated as the carbon intensity of the Biogenic CNG, the result is a CO2e avoidance of 0.008 MTCO2e/diesel gallon equivalent (DGE). For 56,000 DGEs/year, this is a reduction of 448 MTCO2e per year, or 8.6 MTCO2e/week. The California Air Resources Board (ARB) recently adopted a pathway for high solids AD of negative 15.29 g CO2e/MJ. ARB included avoided emissions from diverting food waste from landfills, which were not included in the 35.96 g CO2e/MJ calculated for the Biogenic CNG Project. Using ARB's value, the reduction would be 835 MTCO2e per year, or 16.1 MTCO2e/week.

Project Health Impacts

The reduced emissions of greenhouse gasses and criteria pollutants of the project will provide a net benefit to air quality and diminish any potential localized health impact to area residents. The microturbine specified for use in this project has been certified under the California Air Resources Board Distributed Generation Certification Program. Both the BAAQMD and AQMD consider this type of microturbine with a Distributed Generation Certification to constitute BACT.

Project Summary

The project will provide positive impacts on air quality – both locally during the pilot project, and statewide, once the technology can be commercially demonstrated. The use of bio CNG as a replacement for pipeline CNG, and ultimately diesel fuel, will reduce the emissions of criteria pollutants (for example, volatile organic compounds and particulate matter). The Biogenic CNG Facility will produce roughly 215 DGE of biomethane daily (averaged over 260 days) from processing 9,000 tons of waste.

Among the overarching environmental goals for this project are:

- Demonstration of the scalability of technologies to produce low-carbon fuel.
- Elimination of fugitive VOC and GHG emissions resulting from degradation of organic materials deposited in landfills that can be used to generate biomethane instead.
- Reduction of the use of sequestered carbon fuel sources in exchange for renewable, locally produced low-carbon fuels.
- Production of generated fuels near the point of use to reduce the harmful effects of energy transportation.
- Reaping the benefits of using compost produced from the digestate on agricultural soils. These benefits include the reduction of evaporation and runoff of agricultural water by increasing the soil moisture retention and the associated environmental footprint of fertilizer and pesticide manufacturing and use due to the reduced need for those chemicals.

Trucking

The collection and transfer trucks for this project will operate five days per week. Assuming 8 tons of foodwaste per load, the foodwaste inbound (to the facility) will equal about 9,000 tons over 260 days (five round-trip truck trips per day to and from the facility). The digestate outbound will equal roughly 5,000 tons over 260 days (one round trip for a truck per day to and from the facility).

Five trucks of the Blue Line collection fleet of trucks are using CNG. When the other 47 trucks that currently operate on B20 biodiesel/diesel blend retire, they will be replaced with trucks that use CNG. Overall, the increase in traffic is negligible and does not result in exceeding Blue Line Transfer's permit conditions.

CHAPTER 4:

Location Analysis and Community Impacts

Based on the Energy Commission staff's assessment of the proposed projects, it is expected that none of the surrounding communities would be disproportionately impacted by the implementation of the projects. For this addendum, environmental justice (EJ) indicators are evaluated as follows.

- A ***minority EJ*** is indicated if a minority subset represents more than 30 percent of a given city's population.
- A ***poverty level EJ*** is indicated if a city's poverty level exceeds California's poverty level (for the entire state – 13.7 percent).
- An ***unemployment EJ*** is indicated is a given city's unemployment rate exceeds the state of California's unemployment rate (for the entire state – 10.9 percent as of January 2012). An EJ indicator is also noted for sites where the percentage of persons younger than 5 years or older than 65 years of age is 20 percent higher than the average of the percentage of persons over 5 years of age or under 65 years of age for the entire state. (For the entire state, the percentage of persons under the age of 5 years is 6.8 percent, and the percentage of persons over the age of 65 years is 11.4 percent.)

Of the nine listed sites, seven sites have minority EJ indicators. The poverty EJ indicator exists in six locations for the planned sites, and five sites have unemployment EJ indicators. The age EJ indicator exists in five proposed sites.

The cities and EJ indicators follow. While EJ indicators exist, the proposed projects are expected to have a net benefit by reducing pollution and providing cleaner burning fuels to local fleets that support these communities.

Table 7: Cities With Environmental Justice Indicators

City	Minority	Poverty Level	Unemployment Rate	Age	# of EJ Indicators
Chino	X		X		2
Davis		X			1
Escondido	X	X			2
Five Points	X	X	X	X	4
Fresno	X	X	X	X	4
Menlo Park				X	1
Parlier	X	X	X	X	4
South San Francisco	X				1
Tulare	X	X	X	X	4

Source: Energy Commission staff analysis

The emission reductions associated with the projects are anticipated to lead to improved air quality in these communities. While overall air quality depends on a number of factors, the Energy Commission expects that air quality will improve over time with the increased use of alternative fuels in disadvantaged communities and in those communities with the most significant exposure to air pollutants.

The following table provides city-level data to give additional insight into the community demographics where the proposed projects, if funded, would be located.

Table 8: Demographic Data (Percentage of the total population in the city)

	Chino	Fresno	Escondido	Five Points	Menlo Park	South San Fran-cisco	Tulare	Parlier	Davis
Below Poverty Level (2006-2010)	6.2	24.9	15.6	21	6.2	6.3	19.1	29.5	23.5
Black persons (2010)	6.2	8.3	2.5	0.3	4.8	2.6	3.9	0.6	2.3
American Indian and Alaska Native (2010)	1	1.7	1	1.2	0.5	0.6	1.2	1.2	0.5
Persons of Hispanic or Latino Origin (2010)	53.8	46.9	48.9	89.4	18.4	34	57.5	97.5	12.5

	Chino	Fresno	Escondido	Five Points	Menlo Park	South San Fran-cisco	Tulare	Parlier	Davis
White persons (2010)	27.8	49.6	40.4	28.8	62	22	34.7	50	64.9
Persons under 5 years (2010)	6.7	8.9	8.1	11.7	7.7	6.2	9.4	11.7	3.7
Persons over 65 years (2010)	7.3	9.3	10.5	2	14.3	13.1	9	5.5	8.5
Unem-ploymen t Rate	11.3	14.7	9.7	15.4	5.7	7.5	14.5	33.4	6.7

Source: California Energy Commission staff assessment from Date Obtained from://quickfacts.census.gov)

CHAPTER 5:

Summary

For an overview, the following table combines the EJ indicators, demographics, permits, and potential impacts in terms of emissions. In summary, staff concludes that the proposed projects, if funded, would reduce emissions, exposure, and health risk at a local level based on the assumption that the vehicles deployed and operated with said projects are cleaner than the gasoline vehicles they are likely to replace.

Additionally, the conclusion that the anticipated potential impacts are positive to the communities is explained below. This is true even for those communities that are described as low income and would be highly impacted by air pollution and also those with EJ indicators.

Table 9: Project, Facility/Location, and Community Impacts

Project Number and Recipient	Facility/location	Community	Anticipated Potential Impact
37: Buster Biofuels	Existing facility at 1170 Industrial Avenue, Escondido, California 92029. There are three schools, two daycares, and no health care facilities within a one-mile radius of the project site.	This project will be located in the city of Escondido, which include three EJ indicators.[19]	No major negative health impacts have been identified for the proposed Project to date. A modest increase in traffic, at the industrial site, would occur daily at the EB2G facility to three - ten additional fuel vehicles and waste haulers per day ferrying UCO to the EB2G facility. However, the site is in a zoned industrial area with similar activities already occurring and the increase is considered negligible by the Local Lead Agency.
10: Eslinger	The project would be located in Fresno. 2200-2498 E. Malaga Ave., Fresno, CA. 93725 There are three schools within one mile of the proposed project site.	The project will be located in Fresno, which has 4 EJ indicators.	This is a green business with a very small carbon footprint. Trucks and CHP systems will operate on biofuels whenever possible. The project is not expected to add pollutants or toxic air contaminants to local air shed and the community health will not be adversely affected.
38: Mendota	The project would be located in Oakland, Engineer Road west of Wake Avenue Oakland, Five Points, CA	This project will be located in Five Points, which has four EJ Indicators.	No detrimental, localized health impacts are anticipated from project operations. In fact, in the site's completed and approved CEQA, this project serves a mitigating activity for other planned activities on this site unrelated to the

15 *Proposed Screening Methods for Low Income Communities Highly Impacted by Air Pollution.* California Air Resources Board (ARB). 2010.

Project Number and Recipient	Facility/location	Community	Anticipated Potential Impact
	94607		Viridis project.
31: ZeaChem, Inc.	Pilot facility at 1490 O'Brien Drive, Menlo Park, CA 94025-1432 Within a 1-mile radius of the site, four schools and one health care facility exist.	This project will be located in Menlo Park, which has one EJ indicator.	ZeaChem will design and install equipment that meets the regulatory requirements and that does not pose significant risk to the community. The project is not expected to release mass levels or concentrations levels of criteria or toxic pollutant that will affect the local ambient air quality levels or that would cause adverse affects to the local community.
12: Tulare County Compost and Biomass, Inc.	The proposed site, a 35-acre property located at 24478 Road 140, Tulare, CA 93274 Within a 1-mile radius, one school and one health care facility exists.	This project will be located Tulare, which has four EJ indicators.	The proposed project will not have an adverse impact on local health. The environmental impact statement concluded that the overall impact on the regional air quality of the post-construction operation is low. Air emissions from vehicles will not increase as this is existing traffic and may even decrease as more vehicles switch from diesel to CNG.
32: Environ Strategy Consultants, Inc.	The project site includes using a fully developed, 10-acre existing anaerobic digester facility located at 16090 Mountain Avenue in Chino California There is one school and one health care facility within a one mile radius of the proposed project site.	The project will be located in Chino, which has two EJ indicators.	The project will not generate any additional air emissions or create any health impacts beyond the already approved uses that were analyzed through several CEQA processes.

Project Number and Recipient	Facility/location	Community	Anticipated Potential Impact
44: Blue Line Transfer, Inc.	The project site is located at: 500 East Jamie Court, South San Francisco, CA 94080 The nearest residences are about one mile to the southwest at a local marina, with land-based residences over 1.5 miles to the west-northwest. There is one school and healthcare facility within a two mile radius of the proposed project site.	This project does not lie within an economically distressed area.[20] The city has one EJ indicator.	The project is anticipated to have limited environmental impact from air emissions with no expected health impacts in the surrounding community or elsewhere due to the Bay Area Air Quality Management District (BAAQMD) permitting requirements. Additionally, the project does not significantly alter the existing emissions profile regarding the transport of fuel, feedstock, or other material to the project site for operations or production.

Source: California Energy Commission staff assessment

16 *Source: U.S. DOT, Federal Highway Administration website: http://hepgis.fhwa.dot.gov/hepgis_v2/GeneralInfo/Map.aspx, accessed 2/22/2012.*

CHAPTER 6:

Acronyms

Advanced Biorefinery Center-Mendota (ABC-M)
Air Quality Improvement Program (AQIP)
Air Quality Management District (AQMD)
Alternative and Renewable Fuels and Vehicle Technology Program (ARFVTP)
American Society for Testing and Materials (ASTM)
Best Available Control Technologies Act (BACT)
California Air Resources Board (ARB)
California Code of Regulations (CCR)
California Environmental Quality Act (CEQA)
Carbon monoxide (CO)
Carbon dioxide (CO_2)
Compressed natural gas (CNG)
Environmental justice (EJ)
Hydrocarbon (HC)
Greenhouse gas (GHG)
Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET)
Inland Empire Utility Agency (IEUA)
Localized health impacts (LHI)
New Source Review (NSR)
Nitrogen oxide / oxides of nitrogen (NOx)
Particulate matter (PM)
Renewable natural gas (RNG)
Sulfur oxide (SOx, SO_2)
Ultra-low-sulfur diesel (ULSD)
United States Environmental Protection Agency (U.S. EPA)
Used cooking oil (UCO)
Volatile organic compound (VOC)