California Energy Commission

STAFF REPORT

LOCALIZED HEALTH IMPACTS REPORT

For Selected Projects Awarded Funding Through the Alternative and Renewable Fuel and Vehicle Technology Program Under Solicitation PON-09-605

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CALIFORNIA ENERGY COMMISSION

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PREFACE

The increased use of alternative and renewable fuels supports the state's commitment to curb greenhouse gas emissions, reduce petroleum use, improve air quality, and stimulate the sustainable production and use of biofuels within California. Alternative and renewable transportation fuels include electricity, natural gas, biomethane, propane, hydrogen, ethanol, renewable diesel, and biodiesel. State investment is needed to fill the gap and fund the differential cost of these emerging fuels and vehicle technologies.

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007) created the Alternative and Renewable Fuel and Vehicle Technology Program. 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 Energy Commission has an annual program budget of approximately $100 million.

The statute also directs the Air Resources Board to develop guidelines to ensure the programs complement efforts to improve air quality. The Air Quality Guidelines were approved in 2008. California Code of Regulations, Title 13, Chapter 8.1, Section 2343(c)(6) contains the requirement for the Energy Commission, being the funding agency, to analyze the localized health impacts of projects funded by the program that require a permit.

ABSTRACT

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

This report is a review of the projects submitted under the Manufacturing Plants: Electric Vehicles, Alternative Fuel Vehicles, Vehicle Components and Batteries grant solicitation (PON-09-605) and proposed for funding under the Alternative and Renewable Fuel and Vehicle Technology Program for Fiscal Year 2010/2011. The report includes a description of the projects, criteria emissions data for the fuels associated with the projects and demographic data for the areas where the projects will be located, and an analysis of the impacts of these projects in communities with the most significant exposure to air contaminants or localized air contaminants. Future editions of this report and its aggregate location analysis will include information about projects approved in previous funding cycles including those projects for which specific location information was not previously available.

The specific projects analyzed in this report are:

- Green Vehicles Incorporated's "GREEN Vehicles Battery Electric Vehicle Pilot Assembly Line"
- Mission Motor Company's "Electric Vehicle Component Commercialization Through Product Validation and Process Improvements"
- Electric Vehicles International's (EVI) "Electric Vehicle Manufacturing Modernization Project"
- TransPower's "Feasibility of a Vertically-Integrated Facility for Electric Truck Manufacturing"
- Wrightspeed Incorporated's "Wrightspeed Digital DriveSystem Retrofit Kit"
- Boulder Electric Vehicle Incorporated's "Boulder Electric Vehicle Los Angeles Plant"
- Quantum Fuel Systems Technologies Worldwide Incorporated's "Product Launch of a Combination Charger/Inverter"
- Leyden Energy Incorporated's "Predevelopment and Development of Infrastructure Necessary for Establishment of California Based Manufacturing Facility for Advanced Lithium Ion Batteries for Electric Drive Vehicles"
- Zero Motorcycles Incorporated's "Advanced Electric Vehicle Powertrain Development and Pilot Manufacturing in California"
- Coulomb Technologies' "Smart Charge"
- Quallion's "Li-Ion Module Assembly Line Pilot Project"

Keywords: California Energy Commission, AB 118, localized health impacts, environmental justice, funding cycle, emissions, criteria emissions, air quality, greenhouse gas emissions, reduce petroleum use, improve air quality, alternative fuel, electricity, natural gas, biomethane, propane, hydrogen, ethanol, renewable diesel, biodiesel fuels

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CHAPTER 1: Background

The California Energy Commission is preparing to approve a series of projects through the Alternative and Renewable Fuel and Vehicle Technology Program (Health and Safety Code Section 44272). The Energy Commission developed this report to comply with the Air Quality Guidelines.[1] The section applies to all projects that require a permit and reads:

> (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.

The Air Quality Guidelines section requiring this analysis was put in place to ensure that, by funding the projects, the Energy Commission is both analyzing the potential beneficial impacts to communities with the most significant exposure to air contaminants, and not supporting projects that result in disproportionate health impacts in communities with low-income or minority populations.

For the current program funding cycle (Fiscal Year [FY] 2010/11), there are 11 projects proposed for Energy Commission approval. This report will review the projects submitted under the Manufacturing Plants: Electric Vehicles, Alternative Fuel Vehicles, Vehicle Components and Batteries grant solicitation (PON-09-605), which provides financial assistance for the development and expansion of manufacturing and assembly plants in California that produce electric vehicles, batteries, and component parts for alternative fuel vehicles.

The following is a discussion of the localized health impacts of the projects being proposed for Energy Commission approval. Staff plans to present the proposed projects for approval at Business Meetings (subject to the Warren-Alquist Act and the Bagley-Keene Open Meetings Act) in Fall 2010.

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1 Regulation for the AB 118 Air Quality Guidelines for the Air Quality Improvement Program and the Alternative and Renewable Fuel and Vehicle Technology Program, California Code of Regulations, Title 13, Chapter 8.1, Section 2343(c)(6), 2009.

This analysis is not intended as a substitute for the California Environmental Quality Act (CEQA) process. The application of CEQA will take a more detailed look at the potential environmental impacts of the proposed projects. Instead, this report is intended to collect available information about the potential beneficial and adverse air quality impacts of the projects that the Energy Commission is funding through the Alternative and Renewable Fuel and Vehicle Technology Program, and provide an aggregate, narrative analysis of localized health impacts of those projects. Some projects do not have precise locations identified at the time the proposal was submitted impacting the Energy Commission's ability to evaluate the aggregate locations in detail. The location of each project will be tracked by Energy Commission staff as the project progresses, and commented on in the aggregate analysis in future editions of this report.

In addition, the Energy Commission is mandated by the Air Quality Guidelines to track each project's progress through the CEQA process and ensure there is a commitment in place from the project proponent to complete all mitigation measures required by the permitting agency prior to a project receiving the first funding allocation.

Project Overviews

The following is an overview of the projects proposed for award. The overviews include a project description, information on the existing site, discussion on the potential health impacts related to air pollutants, and any outreach efforts explicitly identified in the project proposals.

Demographic data for the known or planned project locations is provided in Table 2. Program staff collected data on ethnicity, age, and income for the city where the project will be located to identify communities with higher minority populations, lower incomes, and a higher percentage of sensitive groups based on age. For the purposes of this discussion, program staff identified sensitive populations as fewer than five years of age and over 65 years of age. While this demographic information is important to provide a snapshot of the area where the projects are located, it is less relevant because the projects proposed for funding are found to have no adverse health impacts.

Staff reviewed results from the Environmental Justice Screening Method (EJSM)[2] to identify projects located in areas with social vulnerability indicators and the greatest exposure to air pollution and associated health risks. These results are available for Southern California. The Air Resources Board (ARB) applied the method[3] to the Bay Area, San Joaquin Valley, and

2 *Air Pollution and Environmental Justice, Integrating Indicators of Cumulative Impact and Socio-Economic Vulnerability into Regulatory Decision-Making* 2010. Manuel Pastor Jr., Ph.D., Rachel Morello-Frosch, Ph.D., James Sadd, Ph.D.

3 *Proposed Screening Method for Low-Income Communities Highly Impacted by Air Pollution for AB 32 Assessments* 2010.

Desert regions, however; the results only consider income among the list of social vulnerability indicators.

CHAPTER 2:
Electric Vehicles, Alternative Fuel Vehicles, Vehicle Components and Battery Manufacturing Plant Projects

Project Name:

Green Vehicles Incorporated's "GREEN Vehicles Battery Electric Vehicle Pilot Assembly Line"

Project Description

This project is primarily designed to improve manufacturing methods and processes, and to demonstrate their effectiveness in a pilot line for the company's three-wheeled electric vehicle (EV), the Triac. The vehicle being produced is market tested and improved. The vehicle is available with batteries that allow 50, 75, and 100 mile range between charges. This project is in Salinas where Green Vehicles already manufactures the Triac for a low-volume commercial trial.

Project Site

This project is located in the Firestone Business Park at 340 El Camino Real, Suite 30, Salinas, California 93901, which is a multi-tenant industrial warehouse facility located in Monterey County approximately six miles south of the Salinas central business district. The property is surrounded on three sides by farms growing row-crops. The front of the property borders Abbott Street, which feeds into U.S. Highway 101 South at the east side of the property. Farm houses are sporadically located throughout the farm fields. The property maintains its own domestic and fire water systems using two onsite deep wells and two 500,000 gallon fire water tanks, its own septic system with lift stations, septic tanks, and leach fields. Pacific Gas and Electric (PG&E) provides natural gas and high voltage electricity to the property. The property maintains six substations throughout the building to distribute power. In addition to Salinas, the City of Spreckels (population 500) is located approximately five miles to the west, including Spreckels Elementary School and Buena Vista Middle School. Chualar (population 1,444) is located approximately seven miles south of the property on Highway 101.

This facility will be located in the North Central Coast Air Basin which is a nonattainment area for ozone and particulate matter (10 micron). There are no schools, daycares, or healthcare facilities within a one-mile radius of the project site.

Potential Impacts

Environmental justice communities with social vulnerability indicators exist in the Salinas area. Combined with the communities' high exposure to air pollutants and related health risks, these areas could be disproportionately affected if the project were to result in an emissions increase.

Green Vehicles is employing best practices for maintaining an exemplary sustainable manufacturing operation. Energy efficiency in use and production, ownership of the full product lifecycle, early evaluation of environmental implications during engineering, and integration of sustainable principals into the corporate culture are all parts of the project and company's strategy for exceeding standards for environmentally sound business practices. The

total negative health impact of company operations is limited to emissions from transporting materials and product to and from the facility and from the use of electricity in the daily operations. The electricity will come from the grid and no power generating emissions will come from the assembly location.

This project is in an existing industrial zone utilizing existing infrastructure and requiring no change in use. Green Vehicles selected their base for operations directly adjacent to a freeway onramp and central to customer base to minimize transportation demand. The company places a priority on sourcing components locally whenever possible in order to minimize the operational impact due to transportation.

There are currently no identified major negative health impacts from the proposed project. The Energy Commission anticipates no net adverse impact in air pollutants or health conditions related to electric vehicle manufacturing.

Outreach Efforts

Green Vehicles has been in close contact with the City of Salinas' staff throughout the planning of relocating their operations and the benefits and impacts of locating the company's operations within the city. The city and Green Vehicles have engaged in outreach efforts including public hearings, local press events, local public radio, a one-stop workforce training center, local public colleges, and with local regulatory agencies. Green Vehicles and the city sought and received a unanimous endorsement from the Salinas City Council to assist and fund the company in the hopes of expanded operations at a public hearing.

If the Monterey Bay Unified Air Pollution Control District requires a permit for the facility, the air district will evaluate the facility emissions during permitting evaluation process and will adhere to federal and state regulations to notice residents within 1,000 feet of the site if the project will result in an increase in emissions above the threshold.

The air district will also post notices to the ARB and Environmental Protection Agency (EPA) websites and in local newspapers if the project is using emission offsets or emission reduction credits.

Project Name:

Mission Motor Company's "Electric Vehicle Component Commercialization through Product Validation and Process Improvements"

Project Description

This project is for product validation and process refinement for electric vehicle technologies. Mission Motors currently operates a research and development (R&D) facility in San Francisco. Under this project, Mission Motors will test components and build a pilot component assembly line. Pilot production for technologies include high-energy lithium-ion battery modules, advanced battery management systems, and advanced motor control systems that are expected to enhance performance and accelerate adoption of EVs.

Project Site

Mission Motors' current address is 2255 Third Street, San Francisco, California 94107, and they are evaluating other potential sites for the project. The company's space consideration is 10,000 to 12,000 square feet with a mix of industrial and office space. The industrial space will include laboratory space for engineering testing with very small quantities of industrial products and zero emissions. The potential space being considered for use by Mission Motors has 11,200 square feet, split evenly between the first floor and second floor. There are residences on the south end of the same block (about 200 feet). Mission Motor's current space is approximately 9,000 square feet with equal office space and R&D/assembly space. The office is located around other office buildings and restaurants, with the Bay shipyards close by. The area supports a wide number of industrial uses, many associated with agricultural products or agricultural support industries. Vacant land in the area is primarily retained in agriculture.

The facility will be located in the San Francisco Bay Area Air Basin, a non-attainment area for ozone, particulate matter (10 micron), and particulate matter (2.5 micron) pollutants. The Air Resources Board white paper cites areas of San Francisco, including the region where this facility is located, as a low-income area exposed to the highest levels of measured air pollution. There are seven schools or daycares, and five health care facilities within a one-mile radius of the project site.

Potential Impacts

While the specific location is not yet identified, environmental justice communities with social vulnerability indicators exist in the San Francisco area. Combined with the communities' high exposure to air pollutants because of their close proximity to the facility, and related health risks, these areas could be disproportionately affected if the project were to result in an emissions increase.

Much of the work being completed under this project will require low levels of manufacturing and assembly using hand tools, electricity powered tools and compressed air. Mission Motors anticipates emissions and other pollutants associated with an assembly line will be minimal. Mission Motors products do not contain Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), and Polybrominated diphenyl ether (PBDE). Mission Motors

employs a number of best practices in their business model which include eliminating toxics from their products and minimizing water and energy use in their operations.

This project is not expected to result in adverse health impacts to sensitive populations at the project site or in the city where the facility will be located.

Outreach Efforts

In order to demonstrate outreach to the community, the company will regularly update the public via its website blog, which showcases the latest in company events. Mission Motors will also issue press releases regarding major milestones for technological breakthroughs and for meaningful partnerships. In the past, Mission has held two educational lecture series discussions, where members of the Cleantech community discussed respective technologies and worked with each other to better understand more sustainable transportation solutions. The company will continue to hold regular (quarterly or more often) lecture series sessions to continue this educational experience.

If the Bay Area Air Quality Management District (BAAQMD) requires a permit for the facility, the air district will evaluate the facility emissions during permitting evaluation process and will adhere to federal and state regulations to notice residents within 1,000 feet of the site if the project will result in an increase in emissions above the threshold.

The air district will also post notices to the ARB and EPA websites and in local newspapers if the project is using emission offsets or emission reduction credits.

Project Name:

Electric Vehicles International's (EVI) "Electric Vehicle Manufacturing Modernization Project"

Project Description

The Electric Vehicle Manufacturing Modernization Project will result in a new streamlined method of manufacturing EVs that reduces cost by producing all major components in-house and as part of a fully automated assembly process, including battery packs, battery boxes, electric motors and controllers, and vehicle management units. The resulting reduction in the cost to produce a wide range of EVs, including fully electric, liquefied natural gas (LNG), and hydrogen fuel cell range-extended vehicles, is expected to influence medium- and heavy-duty fleet owners to make the transition to clean vehicles.

Project Site

The project will be located at the existing EVI facility at 1627 Army Court #1, Stockton, California 95206, which is in a commercially-zoned area. This commercial building has a trucking company directly in front, separated by a parking lot and a fence. To the north, there is a parking lot followed by a drainage ditch, with an industrial company and its property beyond the drainage ditch. Behind this location, is a fenced in parking location followed by a driveway and a vacant lot. South of the vacant lot, is an industrial company that uses the property for storage of piping and concert barriers.

The station will be located in the San Joaquin Valley Air Basin, a non-attainment area for ozone, particulate matter (10 micron), and particulate matter (2.5 micron) pollutants. There are no schools, daycares, or health care facilities within a one-mile radius of the project site.

Potential Impacts

Environmental justice communities with social vulnerability indicators exist in the Stockton area. Combined with the community's high exposure to air pollutants and related health risks, the area could be disproportionately affected if the project were to result in an emissions increase.

The proposed predevelopment project uses an efficient, non-climate controlled, existing research, development, and testing area, avoiding the impacts associated with new construction. The ability to adjust or modify component design and quantities in the manufacturing process developed by the project will minimize greenhouse gas (GHG) and health-based diesel emissions associated with the transportation of excessive, unused, or unnecessary vehicle components. There are no quantifiable emissions directly associated with the project operations—and no appreciable increase over the facility's baseline operations.

This project is not expected to result in adverse health impacts to sensitive populations at the project site or in the city where the project will be located.

Outreach Efforts

EVI does not anticipate the need for any new permits as the project will have no foreseen negative impacts on air quality or health.

EVI leverages partnerships with several local groups and organizations to maximize opportunities for community outreach, including:

- The Green Team, a group of green technology companies that meets regularly to discuss ideas for green technology in the greater San Joaquin area.
- The Greater Stockton Chamber of Commerce – EVI leverages its relationship with the Stockton Chamber of Commerce to continually analyze ways that EVI's green technology can benefit San Joaquin County. EVI will continue to take part in the Chamber's Valley Clean Air REXPRO (Recycling Exposition) project and has used this opportunity to answer questions concerning the advantages of alternative energy vehicles to the community.
- Community Forum on Sustainability – EVI is an active participant in this series of morning meetings on the topic of sustainability in San Joaquin County.
- Trucking companies and alternative energy vehicle consumers – EVI frequently presents the benefits of alternative energy vehicles to companies that can benefit from the technology. EVI meets with trucking industry representatives to discuss the positive impacts of EVI's technology on their industry, from reduced emissions to fuel savings.
- City and government agencies – EVI meets regularly with government agencies to keep them informed of the latest alternative energy vehicle technology and to offer positive solutions to environmental and fiscal challenges.

EVI will use all of these outlets to explain the increased benefits that come from the modernized manufacturing process proposed by this project and clean alternative energy vehicle technology, and to communicate the significant jobs benefit for the local community.

If the San Joaquin Valley Air Pollution Control District (APCD) requires a permit for this project, the air district will evaluate the facility emissions during the permitting evaluation process and will adhere to federal and state regulations to notice residents within 1,000 feet of the site if the project will result in an increase in emissions above the threshold.

The San Joaquin Valley APCD will also post notices to the ARB and EPA websites and in local newspapers if the project is using emission offsets or emission reduction credits.

Project Name:

TransPower's "Feasibility of a Vertically-Integrated Facility for Electric Truck Manufacturing"

Project Description

This project is for a feasibility study for a new vertically integrated facility (VIF) for Electric Truck Manufacturing (VIFET). The feasibility analyses performed on the VIFET Project will identify key facility requirements such as space required (office and high bay), unique facility needs (high-voltage assembly areas, test bays, etc.), number and layout of truck doors and loading docks, and capital equipment needs. Based on these studies and analyses of process flows and other resource requirements, the benefits of co-locating the various stages of manufacturing will be validated. The feasibility analyses will also include a study of alternative locations for siting of the VIF, which will take into account a variety of macroeconomic as well as microeconomic considerations, such as availability of a skilled workforce, access to rail and road facilities, and possible manufacturing tax incentives. TransPower will lead these analyses with PortTechLA supporting the macroeconomic analyses.

Project Site

The specific location is not identified in the proposal. TransPower is targeting the San Pedro Ports Area for the project.

This facility will likely be located in the South Coast Air Basin, a nonattainment area for ozone, particulate matter (10 micron), and particulate matter (2.5 micron) pollutants. The ARB white paper cites San Pedro as a low-income area exposed to the highest levels of measured air pollution. There are no schools, daycares, or healthcare facilities within a one-mile radius of the project site.

Potential Impacts

While the specific location is not yet identified, environmental justice communities with social vulnerability indicators exist in the San Pedro and Long Beach communities. Combined with the communities' high exposure to air pollutants because of their close proximity to the Ports of Los Angeles and Long Beach, and related health risks, these areas could be disproportionately affected if the project were to result in an emissions increase.

The feasibility study resulting from this project will include an analysis of the potential emissions generated at the manufacturing facility.

Outreach Efforts

Upon the implementation of the assembly and testing phase of this project, the South Coast Air Quality Management District may require a permit as the facility may be considered a source of emissions. The air district will evaluate the facility emissions during permitting evaluation processing and will adhere to federal and state regulations to notice residents within 1,000 feet of the site if the project will result in an increase in emissions above the threshold.

The air district will also post notices to the ARB and EPA websites and in local newspapers if the project is using emission offsets or emission reduction credits.

Project Name:

Wrightspeed Incorporated's "Wrightspeed Digital DriveSystem Retrofit Kit"

Project Description

This project is for the verification and validation of Wrightspeed's Digital DriveSystem (DDS) Retrofit Kit for Class 3-6 trucks. This system will allow the vehicle to travel for the first part of the day up to 40 miles on electric power only. Once the batteries are depleted the vehicle will operate on electricity generated by a micro turbine engine certified to ARB 2010 emission standards. This project's goal is to verify that the manufacturing, test, and installation documentation is correct, that the system functions correctly once installed, and that it meets the specified performance and efficiency levels. The system must then be installable by a third party fleet operator in an existing class 3-6 truck. The microturbine range extender developed with this project will drive technology advancement by allowing multiple alternative fuels (electricity, biodiesel, renewable diesel, compressed natural gas, and liquefied petroleum gas). The drivesystem should lower emissions, reduce fuel consumption and maintenance costs, while maintaining the functionality of existing trucks and improving their performance.

Project Site

The project will be located at the existing Wrightspeed facility at 2560 Junction Avenue, North San Jose, California 94062. This area where the testing and validation will take place is a commercially zoned area.

The facility will be located in the San Francisco Bay Area Air Basin, a non-attainment area for ozone, particulate matter (10 micron), and particulate matter (2.5 micron) pollutants. There are no schools or daycares, and one health care facility within a one-mile radius of the project site.

Potential Impacts

Wrightspeed does not have to modify the building for the purposes of this project. The operations conducted in the building are essentially the same as the prior tenant.

The project will not produce any exhaust emissions beyond those produced in the testing of engines related to the retrofitting of existing fleet trucks with the microturbine engine generator. All engines tested will be ARB 2010 Heavy-Duty Diesel compliant engines. The engines being tested currently result in a 64 percent emission reduction benefit. There is a possibility that an existing gas or diesel engine will be removed and replaced with the DDS kit. The removed engine and related fluids will be recycled decreasing risks for soil and air contamination.

The project will not generate any localized health impacts. Wrightspeed anticipates that the project will improve local health by the production of vehicle engines that significantly reduce emissions.

Outreach Efforts

Upon the implementation of the demonstration phase of this project, the BAAQMD will likely require a permit. The air district will evaluate the facility emissions during permitting

evaluation process and will adhere to federal and state regulations to notice residents within 1,000 feet of the site if the project will result in an increase in emissions above the threshold.

The air district will also post notices to the ARB and EPA websites and in local newspapers if the project is using emission offsets or emission reduction credits.

Project Name:

Boulder Electric Vehicle (BEV) Incorporated's "Boulder Electric Vehicle Los Angeles Plant"

Project Description

This project is to design and locate a 100,000 square foot manufacturing facility in an economic recovery zone within the City of Los Angeles for the purpose of mass producing medium- and heavy-duty all electric drive trucks and busses. The project objectives are to:

- Design and produce a low energy, electric vehicle manufacturing plant for medium and heavy duty trucks and busses.
- Install a 250 kilowatt (kW) Solar photovoltaic (PV) array on the plant rooftop and property
- Implement sustainable low energy manufacturing practices in relation to:
    - Composite Frame
    - Automated upper body composite parts production
    - Battery pack low/no energy cycling quick charge system
- Achieve cost-effective mass production capabilities.

Project Site

The specific location is not identified in the proposal. The company is targeting the Los Angeles area for this project.

Potential Impacts

While the specific location is not yet identified, environmental justice communities with social vulnerability indicators exist in the Los Angeles area. Combined with the community's high exposure to air pollutants because of their close proximity to the facility, and related health risks, the area could be disproportionately affected if the project were to result in an emissions increase.

This project is to design a manufacturing facility to produce battery EVs and should have no adverse effect on emissions or the community. The final step of this project is to equip the facility for production.

BEV is considering energy use in the facility design to reduce potential impacts resulting from the project. As part of the design work for the manufacturing facility, BEV incorporated a 250 kW solar PV array on the roof capable of powering the electricity needs of one shift. BEV will also use an ultra lightweight composite frame which allows a simple vacuum bagging station to produce a frame rather than the standard high-energy production methods of laser and robotic welding of steel, dramatically reducing the energy needed. Relay stations will also reduce the energy needed to manufacture parts but also reduce the materials needed for the parts themselves, thus reducing waste material.

This project is not expected to result in adverse health impacts to sensitive populations at the project site or in the city where the facility will be located.

Outreach Efforts

The South Coast Air Quality Management District will likely require a permit for this facility as it is considered to be a potential emission source. The air district will evaluate the facility emissions during permitting evaluation process and will adhere to federal and state regulations to notice residents within 1,000 feet of the site if the project will result in an increase in emissions above the threshold.

The air district will also post notices to the ARB and EPA websites and in local newspapers if the project is using emission offsets or emission reduction credits.

Project Name:

Quantum Fuel Systems Technologies Worldwide Incorporated's "Product Launch of a Combination Charger/Inverter"

Project Description

Quantum will design and implement an advanced electric drive component assembly facility by upgrading an existing under-utilized facility that Quantum currently occupies in Lake Forest, California. Quantum will establish volume manufacturing and perform end of line testing on the new combination inverter/charger for plug-in hybrid EVs, hybrid EVs, and battery EVs. Quantum proposes to upgrade the manufacturing facility to increase production output as well as improve the current line of electric drive products to reduce cost, weight, and size.

Project Site

The facility at 25242 Arctic Ocean Drive, Lake Forest, California 92630 is a commercial building already leased and occupied by Quantum in a commercially-zoned area. Commercial buildings surround the lot.

This facility will be located in the South Coast Air Basin which is a nonattainment area for ozone, particulate matter (10 micron), and particulate matter (2.5 micron) pollutants. There are no schools, daycares, or healthcare facilities within a one-mile radius of the project site.

Potential Impacts

The facility improvement project Quantum is implementing is not anticipated to produce emissions in the surrounding area as the new facility will be a final assembly and test site. This project is an upgrade of the existing facility and will not result in any discharge or increased emissions within the area. The facility will be using electricity from the grid to perform its line testing. There will be no additional manufacturing at the site after the facility improvements are complete.

This project is not expected to result in adverse health impacts to sensitive populations at the project site or in the city where the project will be located.

Outreach Efforts

This project will be implemented at an existing facility that has already secured appropriate permits, and additional permits from the South Coast Air Quality Management District are not required at this time.

Quantum has no immediate plans to do outreach to the local community.

Project Name:

Leyden Energy Incorporated's "Predevelopment and Development of Infrastructure Necessary for Establishment of California Based Manufacturing Facility for Advanced Lithium Ion Batteries for Electric Drive Vehicles"

Project Description

This project is for activities and infrastructure development to establish an advanced lithium ion battery manufacturing facility that will support California manufacturers of electric and hybrid electric vehicles. Leyden Energy will procure the equipment to develop, test, and verify both product and assembly of advanced lithium ion, flat, prismatic lightweight pouch cells, modules, and batteries. At the project end, Leyden Energy anticipates they will be capable of manufacturing up to 10 EV batteries per month or 120 per year.

Project Site

The project will be located at the existing facility at 46850 Lakeview Boulevard, Fremont, California 94538.

The facility is located in a district of office space and warehouses, with a few hotels located within a few hundred feet. The closest residential areas are two miles away. The former New United Motor Manufacturing, Incorporated (NUMMI) automotive assembly plant is within one mile of the facility. The facility is 16,000 square feet and includes offices in the front and the manufacturing and research and development in the back.

The facility will be located in the San Francisco Bay Area Air Basin, a non-attainment area for ozone, particulate matter (10 micron), and particulate matter (2.5 micron) pollutants. There are two schools or daycares, and no healthcare facilities within a one-mile radius of the project site.

Potential Impacts

Leyden Energy does not anticipate that the predevelopment piloting and testing activities will be a major source of regulated air pollutants. The project will use an existing building with no exterior modifications to accommodate new utility equipment. The current facility meets local and state ordinances.

Current production processes capture and condense organic solvents used in the processes and purified them for reuse onsite. The boilers and other heat, ventilation, and air condition (HVAC) systems are fueled by natural gas and use low nitrogen oxide (NOx) burners to reduce the formation of NOx. Leyden Energy only runs backup emergency generators for short periods of time for maintenance and testing and the generators are compliant with federal New Source Performance Standards for internal combustion engines.

The manufacturing facility will require water for domestic uses and irrigation. Anticipated average daily water demand is less than 2,000 gallons per day. This demand is not anticipated to have a significant effect on the local and regional water supply. Sanitary wastewater discharged from the facility will only contain conventional pollutants that can be treated by the existing Publicly Owned Treatment Works (POTW).

This project is not expected to result in adverse health impacts to sensitive populations at the project site or in the city where the project will be located.

Outreach Efforts

Leyden Energy plans to proactively approach economically depressed areas in California to recruit and train the skilled technical and production employees it will utilize both during the program and in any follow-on manufacturing program.

Outreach efforts will be implemented during the course of the project. New jobs will be advertised and posted on the company website. Town hall meetings will be held for city officials twice a year.

The BAAQMD will likely require a permit for this project as manufacturing facilities are considered to be potential emission sources. The air district will evaluate the facility emissions during the permitting evaluation process and will adhere to federal and state regulations to notice residents within 1,000 feet of the site if the project will result in an increase in emissions above the threshold.

The air district will also post notices to the ARB and EPA websites and in local newspapers if the project is using emission offsets or emission reduction credits.

Project Name:

Zero Motorcycles Incorporated's "Advanced Electric Vehicle Powertrain Development and Pilot Manufacturing in California"

Project Description

Zero Motorcycles, a California-based EV company that designs, manufactures, and sells electric motorcycles, will develop an electric powertrain that can be cost-competitive with those produced in Asia, while being manufactured in California. Zero Motorcycles will determine technical and economic feasibility, develop and build a prototype, then design and verify a pilot manufacturing process with a production run of 30 motorcycles.

Project Site

The project is located at 380 Encinal Street in Santa Cruz, California 95060. The facility is a multiuse warehouse, fabrication plant, laboratory, and office facility that is plumbed and wired for industrial use with manufacturing specifically permitted by the zoning code. The site is located within 500 yards of a state highway and is not located within any residential area.

This facility is located in the North Central Coast Air Basin which is a nonattainment area for ozone and particulate matter (10 micron). There are seven schools or daycares, and one healthcare facility within a one-mile radius of the project site.

Potential Impacts

The primary goal of the project is to complete the development of an advanced electric powertrain which can be used in a wide variety of electric vehicles, the project will both preserve and enhance the environmental quality of the state's natural resources and promote the superior environmental performance of alternative fuels and vehicle technologies.

The planned manufacturing facility in Santa Cruz, California, will be carbon-neutral through the use of solar-generated power and the purchase of green electricity to fulfill any additional needs. Zero Motorcycles plans to employ electrically powered machines, rather than those relying on internal combustion engines. The facility will meet or exceed existing air quality standards for the State of California as well as those from the Monterey Bay Unified Air Pollution Control District.

The potential for this project to increase pollutants and toxic air contaminants to a localized air shed is minimal. The largest single source of pollution in this project that may affect ambient air quality levels, to an extent that local community health is adversely affected, would be derived from workers commuting to and from the facility, and deliveries made to the site. Zero Motorcycles is committed to complying with the strictest environmental health and safety standards in the assemblage and construction of the electric motors in this project.

This project is not expected to result in adverse health impacts to sensitive populations at the project site or in the city where the project will be located.

Outreach Efforts

Zero Motorcycles anticipates that this project will be heavily publicized through local and national media, and heralded as part of the city's ongoing efforts to create more green employment. The project will be a boost to the local community, which has suffered from the recent recession. In addition to repurposing an under-utilized industrial site, increasing employment and revitalizing an industrial space, this project will become an example of the City of Santa Cruz's intended reuse of its industrial lands for green technology and research and development.

The Monterey Bay Unified Air Pollution Control District will likely require a permit for this project as manufacturing facilities are considered to be potential emission sources. The air district will evaluate the facility emissions during the permitting evaluation process and will adhere to federal and state regulations to notice residents within 1,000 feet of the site if the project will result in an increase in emissions above the threshold.

The air district will also post notices to the ARB and EPA websites and in local newspapers if the project is using emission offsets or emission reduction credits.

Project Name:

Coulomb Technologies' "Smart Charge"

Project Description

The project is for predevelopment work for the refinement of manufacturing capability at two existing plants, resulting in future modifications to manufacturing and assembly methods. As electric vehicle charging station infrastructure comes on line, a key GHG reduction benefit is lost if those stations are not integrated into a smart grid and cannot provide for peak load management functions. Coulomb ChargePoint Communication Processors (CPCP) can be used to remotely control charging and discharging of batteries that shift loads from peak hours, when electricity generation produces higher levels of GHGs due to expensive Peaker Power Plants coming online. Coulomb's California-based technology can be modified and integrated with multiple electric vehicle chargers.

Project Site

The project will be located at two sites: 1) Coulomb Technologies, 1692 Dell Avenue, Campbell, California 95008, and 2) CTS Corporation, 5550 Hellyer Avenue, San Jose, California 95138.

Site 1 is an existing building with full infrastructure. No building changes are proposed since the project is predevelopment. The site is located in a commercial zone. There are five schools or daycares, and 13 healthcare facilities within a one-mile radius of the project site.

Site 2 is an existing building with full infrastructure. No building changes are proposed since the project is predevelopment. The site is located in a commercial zone. There are no schools, daycares, or healthcare facilities within a one-mile radius of the project site.

Potential Impacts

The project involves predevelopment work and should produce no localized health impacts. Modifications will not occur during the project and will, when implemented, take place inside an existing building.

There will be no discharges resulting from the project, or from the future manufacturing modifications, that could add criteria pollutants and toxic air contaminants to a localized air shed and affect ambient air quality levels to an extent that local community health is adversely affected. The hardware and software design, quality engineering and quality assurance, pilot project and manufacturing methods refinement and six-month data collection will not generate additional GHG emissions, criteria pollutants, or toxic air emissions. Rollout of the integrated CPCP is anticipated to reduce each of the potential sources of health impacts. No increase or change in emissions will result from the project or from implementation of the identified modifications.

This project is not expected to result in adverse health impacts to sensitive populations at the project sites or in the cities where the project will be located.

Outreach Efforts

Coulomb Technologies is not planning to do outreach to the surrounding communities since the project is in the predevelopment stages, located in commercial zone, and no physical changes to the environment will occur.

If the BAAQMD requires a permit for this project, the air district will evaluate the facility emissions during the permitting evaluation process and will adhere to federal and state regulations to notice residents within 1,000 feet of the site if the project will result in an increase in emissions above the threshold.

The air district will also post notices to the ARB and EPA websites and in local newspapers if the project is using emission offsets or emission reduction credits.

Project Name:

Quallion's "Li-Ion Module Assembly Line Pilot Project"

Project Description

The purpose of this project is to build a pilot automated manufacturing line to produce 10,000 one kilowatt hour Li-ion modules at the existing Quallion headquarters in Sylmar. The modules can be integrated into various battery systems.

Project Site

The project will be located at the existing Quallion facility at 12744 San Fernando Road, Sylmar, California 91342.

This facility will be located in the South Coast Air Basin which is a nonattainment area for ozone, particulate matter (10 micron), and particulate matter (2.5 micron) pollutants. There are eight schools or daycares, and no healthcare facilities within a one-mile radius of the project site.

Potential Impacts

Environmental justice communities with social vulnerability indicators exist in surrounding communities of Sylmar and San Fernando. Combined with the communities' high exposure to air pollutants because of their proximity to the Quallion facility, and related health risks, these areas could be disproportionately affected if the project were to result in an emissions increase.

There are no onsite air emissions as this project is a pilot assembly line project. There is no transport of fuel, feedstock, or other material to project site as required for operations and production. The assembly process uses only electricity and there are no potential water impacts, as this manufacturing line does not use any water. Additionally, the technology created has the potential to be recycled. Quallion batteries could be used in vehicles and then re-allocated to storage applications after slight refurbishment. Quallion employs the best available control technologies to mitigate the indirect impacts of processes within their facility.

This project is not expected to result in adverse health impacts to sensitive populations at the project site or in the city where the facility will be located.

Outreach Efforts

Quallion does not expect that the proposed pilot Li-ion module assembly project will require permitting per the air quality guidelines as the proposed project has no emissions. Quallion is already in a state enterprise zone and is permitted for its current operation. The proposed pilot project will be covered under existing permitting.

If the South Coast Air Quality Management District requires a permit for this project, the air district will evaluate the facility emissions during the permitting evaluation process and will adhere to federal and state regulations to notice residents within 1,000 feet of the site if the project will result in an increase in emissions above the threshold.

The air district will also post notices to the ARB and EPA websites and in local newspapers if the project is using emission offsets or emission reduction credits.

CHAPTER 3:
Aggregate Location Analysis and Community Impacts

Energy Commission staff acknowledges the complexity of determining emissions reductions from pilot and commercial scale production activities. As mentioned in the project overviews above, several of the proposed projects will occupy existing facilities with permits that cover the proposed activities. Most of the projects that include production are proposed for commercially-zoned areas, further limiting the potential impact. Finally, the companies overseeing the projects are considering environmental impact from both their production processes and from the use of the product they will produce.

The proposed manufacturing projects will increase the widespread use of alternative fuel and vehicles in place of their petroleum counterparts but consideration must also be given to the impact they will have on emissions. Many of the manufacturing projects identified for funding are for studies to improve a manufacturing process and would have no additional health risks associated with the program. Several projects do look at increasing production and have taken steps to reduce or eliminate emission related health risks such as installing solar PV arrays, using low NOx burners, and using technologies to reduce energy cost and material waste in the manufacturing process.

Several of the projects are located in areas that are identified as Environmental Justice communities with social vulnerability indicators and high exposure to air pollutants associated with health risks. No communities are disproportionately affected as the project locations are generally spread across the state.

Table 1 summarizes cities where two or more environmental justice indicators[4] exist. Table 2 provides city-level data for the proposed projects to give additional insight on the community demographics where the projects will be located.

Table 1: Cities with Environmental Justice Indicators

City	Minority	Poverty Level	Unemployment Rate	Age
Los Angeles	X	X		
Salinas	X	X	X	X
San Francisco	X			X
San Pedro		X	X	
Stockton	X	X	X	

Source: CEC staff analysis

4 For purposes of this analysis, staff used the following criteria: unemployment rate exceeds the state unemployment rate (12.6 percent), statewide percentage of persons below the poverty level (13.3 percent), a minority subset represents over 30 percent of the city population, and population under five years or over 65 years is 20 percent higher than the State average (7.4 percent <5 years, and 11.2 percent >65 years).

The emissions reductions associated with the projects are anticipated to have no impact or lead to improved air quality in these communities. While overall air quality is dependent on a number of factors, the Energy Commission expects that air quality will improve over time with the increased use of alternative fuels, including in disadvantaged communities and those communities with the most significant exposure to air contaminants.

In summary, the proposed projects will reduce emissions, exposure, and health risk at a local level based on the assumption that the vehicles deployed and operated in concert with the projects are cleaner than the gasoline and diesel vehicles they will replace.

Table 2: Demographic Data for Manufacturing (PON-09-605)

(Percentage of total population)

City	Campbell	Fremont	Lake Forest	Los Angeles	Salinas	San Francisco	San Jose	San Pedro/ Long Beach*	Santa Cruz	Stockton	Sylmar/San Fernando*
Below poverty level	4.8	5.4	5.3	22.1	16.7	11.3	8.8	22.8	16.5	23.9	10.5
Ethnicity											
Black	2.5	3.1	1.8	11.2	3.3	7.8	3.5	14.9	1.7	11.2	2.1
American Indian or Alaskan Native	.7	.5	.5	.8	1.3	.5	.8	.8	.9	1.1	.6
Asian or Pacific Islander	14.4	37.4	9.9	10.2	6.5	31.3	27.3	13.2	5	20.3	9.3
Hispanic	13.3	13.5	18.6	46.5	64.1	14.1	30.2	35.8	17.4	32.5	24.9
White	72.8	47.7	76.0	46.9	45.2	49.7	47.5	45.2	78.7	43.3	72.2
Age											
< 5 years	6.5	7.4	7.1	7.7	9.3	4.1	7.6	8.4	4.9	8.6	5.7
> 65 years	9.7	8.3	8.6	9.7	9.1	13.5	8.3	9.1	8.5	10.2	12.8
Unemployment rate	9.7	8.4	6.6	12.3	15.2	9.6	12.5	13.5	9.4	19.8	12.5

SOURCE: Unemployment Information, EDD Labor Market Information Division; Age/ethnicity demographics, U.S. Census

*Nearest city with data statistics