



**CALIFORNIA
ENERGY COMMISSION**



**CALIFORNIA
NATURAL
RESOURCES
AGENCY**

California Energy Commission

STAFF REPORT

Localized Health Impacts Report

**Project Awarded Funding Under Solicitation
GFO-24-601 — Light-Duty Hydrogen
Infrastructure Build-Out**

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PREFACE

This Localized Health Impacts (LHI) Report assesses the local health impacts from the project proposed to receive Clean Transportation Program or similar funding from the California Energy Commission (CEC). Preventing or minimizing health risks from pollution is vital in any community, but especially in those that are at high-risk due to preexisting poor air quality and other factors. Environmental justice communities, low-income communities, and minority communities are considered the most impacted by any project that could increase air pollution. Therefore, they are considered “high-risk communities.” This LHI Report:

- Identifies proposed project sites located in high-risk communities.
- Analyzes the potential health impacts to communities from project-related emissions or pollution, based on information submitted by the project awardee.
- Describes the plans for community outreach for the project.

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007), which created the Clean Transportation Program, also directed the California Air Resources Board (CARB) to develop guidelines to ensure the Clean Transportation Program improves air quality. CARB’s *AB 118 Air Quality Guidelines*, approved in 2008, are published in the California Code of Regulations (CCR), Title 13, Motor Vehicles, Chapter 8.1. Those guidelines require that (13 CCR Section 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.”

The CEC publishes this LHI Report at least 30 days before approving the project at a publicly noticed meeting. The project included in this report may require a conditional-use permit, discretionary permit, or California Environmental Quality Act (CEQA) review. The CEC interprets “permits” to suggest discretionary and conditional-use permits because they require a review of potential impacts to communities and the environment before issuance. Since ministerial-level permits do not review public health-related pollutants, CEC staff does not assess projects requiring only ministerial-level permits in this report.

ABSTRACT

This Localized Health Impacts Report describes the potential health impacts to communities from a project seeking California Energy Commission (CEC) funding under competitive grant solicitation GFO-24-601, "Light-Duty Hydrogen Infrastructure Build-Out." This grant initiative seeks to expand publicly available fuel cell electric vehicle refueling infrastructure and support the advancement of hydrogen refueling station operations and maintenance. Under California Code of Regulations Title 13, Section 2343, this report is available for public comment for 30 days before the project can be approved at a publicly noticed business meeting.

CEC staff has proposed one project for award under solicitation GFO-24-601. The project has three site locations. Based on the project site information provided by the awardee, all three of the communities where this project is located are considered high-risk communities. Staff does not anticipate a net increase in the pollution burden for the communities where the project is located.

Keywords: Air pollution, California Air Resources Board (CARB), Assembly Bill (AB) 118, California Environmental Quality Act (CEQA), fuel cell electric vehicle (FCEV), hydrogen refueling station (HRS), environmental justice (EJ) indicators, Environmental Justice Screening Method (EJSM), localized health impacts (LHI)

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EXECUTIVE SUMMARY

The California Energy Commission's (CEC's) Clean Transportation Program provides funding to support innovation and accelerate the development and implementation of advanced transportation and fuel technologies.

Under California Code of Regulations Title 13, Section 2343, this Localized Health Impacts Report describes the hydrogen refueling station project proposed for funding that may require certain kinds of permits or environmental review. These permits include conditional-use permits, air-quality permits, wastewater permits, hazardous waste disposal permits, and other land-use entitlements. Since ministerial-level permits do not assess public health-related pollutants, staff does not assess projects requiring only ministerial-level permits in this report. The CEC is required to assess the local health impacts of projects proposed for Clean Transportation Program funding.

This report focuses on how project-related emissions or pollution could affect community health. Environmental justice communities, low-income communities, and minority communities are at higher risk of harm from pollution. Project locations in these communities are considered "high-risk community project locations." CEC staff identifies high-risk communities using a combination of demographic and environmental data. Environmental data for air quality comes from the California Air Resources Board. Demographic data are from the U.S. Census Bureau and the California Employment Development Department.

CEC staff proposes one project for award under solicitation GFO-24-601, "Light-Duty Hydrogen Infrastructure Build-Out." This initiative seeks to expand publicly available fuel cell electric vehicle infrastructure and support the advancement of hydrogen refueling station operations and maintenance. Staff analyzed localized health impact information submitted by the project awardee. Based on the project site information provided by the awardee, all three of the communities where the proposed project is located are considered high-risk. Community members near the proposed project sites may be at a higher risk of negative health impacts from pollution. However, staff does not anticipate a net increase in the pollution burden for the communities where the project is located. Instead, staff expect the project to reduce pollution levels.

CHAPTER 1:

Project Proposed for Funding

Background

This solicitation uses the processes established under the Clean Transportation Program and Assembly Bill (AB) 118 (Núñez, Chapter 750, Statutes of 2007). AB 118, amended by Assembly Bill 109 (Núñez, Chapter 313, Statutes of 2008), authorizes the California Energy Commission (CEC) to “develop and deploy innovative technologies that transform California’s fuel and vehicle types to help attain the state’s climate change policies.” Assembly Bill 126 (Reyes, Chapter 319, Statutes of 2023) most recently reauthorized the Clean Transportation Program through July 1, 2035.

On September 20, 2024, the CEC released a competitive grant solicitation, “Light-Duty Hydrogen Infrastructure Build-Out” (GFO-24-601). GFO-24-601 offered grant funding for projects that expand publicly available fuel cell electric vehicle (FCEV) refueling infrastructure and support the advancement of hydrogen refueling station operations and maintenance. Projects with one location must be located in a disadvantaged community in accordance with CalEnviroScreen.¹ For projects with more than one location, at least 50 percent of project locations must be in a disadvantaged community. GFO-24-601 will support switching from gasoline vehicles to FCEVs, which will reduce criteria air pollutants and greenhouse gas (GHG) emissions in disadvantaged and low-income communities.

Project Selected

On May 2, 2025, the CEC posted a notice of proposed award identifying one project awarded grant funding under GFO-24-601.² This report assesses the site locations for the project proposed for award. Table 1 lists the proposed project location(s) for the awardee and the corresponding environmental justice (EJ) indicators. EJ indicator definitions are in Chapter 3 of this report, and EJ indicator analysis is in Table 3.

1 CalEnviroScreen is a screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution. See “[CalEnviroScreen 4.0](#).” Office of Environmental Health Hazard Assessment. Accessed June 11, 2025. Available at <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>.

2 Williams, Laura. 2025. “Notice Of Proposed Award.” California Energy Commission. Accessed June 3, 2025. [Cover letter](#) available at https://www.energy.ca.gov/sites/default/files/2025-05/GFO-24-601_NOPA_Cover_Page_2025-05-02_ada.docx, and [table of awardees](#) available at https://www.energy.ca.gov/sites/default/files/2025-05/GFO-24-601_NOPA_Results_Table_2025-05-02_ada_0.xlsx.

Table 1: Project Details with Indicators

Proposed Awardee	Project Title	Project Location	EJ Indicator(s)
FirstElement Fuel, Inc.	Light-Duty Hydrogen Infrastructure Build-Out	1930 S Waterman Ave, San Bernardino, CA 92408	Age, Minority, Poverty, Unemployment
FirstElement Fuel, Inc.	Light-Duty Hydrogen Infrastructure Build-Out	3505 Central Ave, Riverside, CA 92506	Minority, Poverty
FirstElement Fuel, Inc.	Light-Duty Hydrogen Infrastructure Build-Out	6392 Beach Blvd, Buena Park, CA 90621	Minority

Source: CEC staff

Funding for this project is contingent upon approval at a publicly noticed CEC business meeting and execution of a grant agreement.

Public Comment

As provided by Title 13 of the CCR, Section 2343, a 30-day public review period applies to this LHI Report from the date it is posted on the CEC website. The [original posting date for this report](https://www.energy.ca.gov/programs-and-topics/programs/clean-transportation-program/localized-health-impacts-reports) is at <https://www.energy.ca.gov/programs-and-topics/programs/clean-transportation-program/localized-health-impacts-reports>.

The CEC encourages comments by email. Please include your name or your organization's name in the name of the file. Send comments in either Microsoft® Word format (.doc) or Adobe® Acrobat® format (.pdf) to FTD@energy.ca.gov.

A hard copy can be mailed to:

California Energy Commission
Fuels and Transportation Division
715 P Street, MS-44
Sacramento, CA 95814-5512

All written comments will become part of the public record and may be posted to the internet. News media should direct inquiries to the Media and Public Communications Office at 916-654-4989 or by email at mediaoffice@energy.ca.gov.

CHAPTER 2:

Project Description

As part of the GFO-24-601 process for selecting projects, applicants must provide LHI information for their proposed project and location. This information includes the expected impact of the project on local communities and outreach efforts the applicant has made to engage local community groups and other interested parties. This chapter summarizes the information submitted by the awardee.

FirstElement Fuel, Inc.

FirstElement Fuel, Inc.'s (FirstElement's) proposed project, "Light-Duty Hydrogen Infrastructure Build-Out," will support the build out of hydrogen refueling stations at three locations in Orange, Riverside, and San Bernardino counties. The sites are permitted and ready to begin site preparation; construction is expected to be completed in 2026. Emissions generated by production, distribution, and dispensing hydrogen are expected to be offset by emission reductions gained by replacement of gasoline vehicles with zero-emission FCEVs resulting in positive health benefits for the surrounding communities. FirstElement intends to operate the stations for fifteen years resulting in a reduction of 15.9 tons nitrogen oxides (NO_x), 7.35 tons sulfur oxides (SO_x), 4.65 tons reactive organic gas (ROG), 7.05 tons carbon monoxide (CO), and 2.55 tons of particulate matter 2.5 (PM_{2.5}) per station.

Table 2: Estimated Emissions Reductions Per Station

Time Period	Hydrogen Dispensed (kg)	NO _x (tons)	SO _x (tons)	ROG (tons)	CO (tons)	PM _{2.5} (tons)
One Year	220,000	1.06	0.49	0.31	0.47	0.17
Five Years	1,100,000	5.3	2.45	1.55	2.35	0.85
Fifteen Years	3,300,000	15.9	7.35	4.65	7.05	2.55

Sources: FirstElement Fuel, 2019 GREET model Argonne National Laboratory

Outreach to the cities and authorities having jurisdiction has already been completed for the three permitted station locations. Further communication and education efforts to the communities will be conducted as needed. FirstElement will further coordinate outreach and communication efforts if needed with the Hydrogen Fuel Cell Partnership, car manufacturers, the California Hydrogen Car Owner's Association, the California Hydrogen Business Council, and the Governor's Office of Business and Economic Development.

CHAPTER 3:

Location Analysis

This LHI Report identifies project site locations in high-risk communities, using staff's adaptation of the Environmental Justice Screening Method.³ *High-risk communities* are those with social vulnerability indicators, high exposure to pollution, and greater health risks. This LHI Report is not intended to be a detailed pollution analysis of the proposed project, nor is it intended to substitute for the environmental review conducted as part of the California Environmental Quality Act (CEQA).

CEC staff identifies high-risk community project locations using data from the California Air Resources Board (CARB), the U.S. Census Bureau, and public agencies. CEC staff analyzes the data to assign EJ indicators for each project location specified in the report. The proposed project location must meet a two-part environmental and demographic standard to be considered in a "high-risk community."

Part 1: Environmental Standard

Communities meet the environmental standard if they have a high concentration of air pollutants. These pollutants include ozone, particulate matter 2.5 microns in diameter or smaller (PM_{2.5}), or particulate matter 10 microns in diameter or smaller (PM₁₀). The environmental standard uses CARB air-quality monitoring data on nonattainment⁴ status for these pollutants.

Part 2: Demographic Standard

Communities meet the demographic standard if they have two or more EJ indicators for minority, age, poverty, and unemployment. Staff defines the EJ indicator thresholds as:

1. A minority subset that represents more than 30 percent of a given city's population.
2. The percentage of people living in a city who are younger than 5 years of age, or who are 65 years of age or older, is more than 1.2 times (more than 20 percent higher than) the state average for those categories.
3. A city's poverty rate that exceeds the state average poverty rate.

3 Pastor Jr., Manuel (University of Southern California), Rachel Morello-Frosch (University of California, Berkeley), and James Sadd (Occidental College). 2010. [Air Pollution and Environmental Justice: Integrating Indicators of Cumulative Impact and Socio-Economic Vulnerability Into Regulatory Decision-Making](https://ww2.arb.ca.gov/sites/default/files/classic/research/apr/past/04-308.pdf). California Air Resources Board. Accessed June 3, 2025. Available at <https://ww2.arb.ca.gov/sites/default/files/classic/research/apr/past/04-308.pdf>.

4 A *nonattainment* area is a geographic area that does not meet the Ambient Air Quality Standards (state, national, or both) for a given pollutant. See "[Maps of State and Federal Area Designations](https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations)." California Air Resources Board. Accessed June 3, 2025. Available at <https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations>.

4. The city (or county if city data are unavailable) unemployment rate exceeds the average state unemployment rate.

The demographic standard uses the U.S. Census Bureau's American Community Survey five-year estimates⁵ on race, ethnicity, age, and poverty, and the California Employment Development Department's monthly data⁶ on unemployment. Specifically, this LHI Report uses city-level⁷ unemployment data. Unemployment data are not seasonally adjusted.

Analysis Results

Staff finds all three communities where the project sites are located meet the criteria for high-risk communities since they meet both the environmental and demographic standards. All project sites are in communities that meet the environmental standard since they are within a nonattainment zone for ozone, PM_{2.5}, or PM₁₀. This finding indicates that there may be existing poor air quality where the proposed project is located. All three of the proposed project sites also meet the demographic standard since they are in communities that exceed the threshold for two or more EJ indicators.

In Table 3, a **bold** number followed by an asterisk (*) indicates categories that exceed a given EJ indicator threshold. A city/county name in **bold**, followed by a dagger (†), indicates a high-risk community.

Table 3: EJ Indicators by Project Location Demographic

Site Location	American Indian and Alaska Native (2022)	Asian (2022)	Black or African American (2022)	Hispanic or Latino (Any Race) (2022)	Native Hawaiian and Pacific Islander (2022)	Under 5 Years of Age (2022)	65 Years of Age and Over (2022)	Below Poverty Level (2022)	Unemployment (April 2025)
California	1.0%	15.1%	5.6%	39.7%	0.4%	5.7%	14.9%	12.1%	5.0%
EJ Indicator Threshold	30.0%	30.0%	30.0%	30.0%	30.0%	6.8%	17.9%	12.1%	5.0%
Buena Park†	0.9%	32.7%*	2.4%	40.0%*	0.4%	5.8%	13.7%	8.8%	3.7%
Riverside†	0.8%	8.5%	5.8%	55.4%*	0.4%	5.8%	11.3%	12.8%*	4.4%

5 American Community Survey codes DP05 and S1701 were used to find data. See "[Explore Census Data](https://data.census.gov/cedsci/)." U.S. Census Bureau. Accessed June 3, 2025. Available at <https://data.census.gov/cedsci/>.

6 Overview page with data from most recent and previous months: "[Unemployment Rate and Labor Force](https://labormarketinfo.edd.ca.gov/data/unemployment-and-labor-force.html)." Employment Development Department. Accessed June 3, 2025. Available at <https://labormarketinfo.edd.ca.gov/data/unemployment-and-labor-force.html>.

7 Most recent data only: "[Monthly Labor Force Data for Cities and Census Designated Places \(CDP\)](https://labormarketinfo.edd.ca.gov/file/lfmonth/allsubs.xls)." Employment Development Department. Accessed June 3, 2025. Available at <https://labormarketinfo.edd.ca.gov/file/lfmonth/allsubs.xls>.

Site Location	American Indian and Alaska Native (2022)	Asian (2022)	Black or African American (2022)	Hispanic or Latino (Any Race) (2022)	Native Hawaiian and Pacific Islander (2022)	Under 5 Years of Age (2022)	65 Years of Age and Over (2022)	Below Poverty Level (2022)	Unemployment (April 2025)
San Bernardino†	1.3%	4.2%	12.3%	67.5%*	0.3%	6.9%*	9.8%	20.2%*	5.4%*

Sources: CEC staff, Employment Development Department, and U.S. Census Bureau

Summary

If funded, the proposed project would result in an expanded supply of reliable and readily accessible hydrogen refueling stations. This expansion will achieve emissions reductions by encouraging replacement of gasoline vehicles with zero-emission FCEVs.

Based on the Environmental Justice Screening Method standards, CEC staff has identified all three communities where this project is located as high-risk communities. These communities are at a higher risk of adverse health effects from pollution. However, staff does not anticipate a significant increase in local pollutants and found no indication that the project identified in this LHI Report would negatively affect community health. The proposed hydrogen refueling station project may create a net benefit for the communities by reducing harmful criteria air pollutants, toxic air contaminants, and greenhouse gas emissions.

GLOSSARY

Term	Definition
California Code of Regulations (CCR)	The official compilation and publication of the regulations adopted, amended, or repealed by state agencies under the Administrative Procedure Act (APA). Adopted regulations that have been filed with the Secretary of State have the force of law.
California Environmental Quality Act (CEQA)	A statute that requires state and local agencies to identify the significant environmental impacts of their actions and avoid or reduce those impacts, if feasible.
CalEnviroScreen	A screening tool that evaluates and ranks census tracts in California based on potential exposures to pollutants, adverse environmental conditions, socioeconomic factors, and prevalence of certain health conditions.
Carbon monoxide (CO)	A colorless, odorless, highly poisonous gas formed by the incomplete combustion of certain fuels, including gasoline.
Criteria air pollutant	An air pollutant for which acceptable levels of exposure can be determined and for which the U.S. Environmental Protection Agency has set an ambient air quality standard. Examples include ozone (O ₃), carbon monoxide (CO), nitrogen oxides (NO _x), sulfur oxides (SO _x), and particulate matter (PM ₁₀ and PM _{2.5}).
Environmental justice (EJ)	The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.
Environmental Justice Screening Method (EJSM)	An approach that combines environmental and demographic indicators to inform agency outreach and engagement practices regarding environmental justice.
Fuel cell electric vehicle (FCEV)	A vehicle that is powered partly or completely by fuel cells sometimes in combination with a small battery or supercapacitor, to power the onboard electric motor. Fuel cells in vehicles generate electricity generally using oxygen from the air and compressed hydrogen.
Grant Funding Opportunity (GFO)	Where the California Energy Commission offers applicants an opportunity to receive grant funding for projects meeting certain requirements.

Term	Definition
Hydrogen refueling station (HRS)	A storage or filling station for hydrogen fuel where hydrogen is dispensed by weight.
Localized health impacts (LHI)	Potential health impacts on communities.
Nitrogen oxides (NO _x)	A general term including nitric oxide (NO), nitrogen dioxide (NO ₂), and other oxides of nitrogen. Nitrogen oxides are typically created during combustion processes and are major contributors to smog formation.
Notice of proposed awards (NOPA)	A document identifying projects that are proposed to receive funding under a California Energy Commission funding opportunity, such as a Grant Funding Opportunity.
Particulate matter (PM)	Any material besides pure water that exists in a solid or liquid state in the atmosphere. The size of particulate matter can vary from coarse, wind-blown dust particles to fine particles resulting from combustion.
PM _{2.5}	Particulate matter with particles 2.5 microns in diameter or smaller. Also called "fine particulate matter."
Reactive organic gas (ROG)	Closely related to the term "volatile organic compound" (VOC). ROG's are a group of chemical gases that may contribute to the formation of smog.
Sulfur oxides (SO _x)	A group of pungent, colorless gases formed primarily by the combustion of sulfur-containing fossil fuels, especially coal and oil. Considered major air pollutants, sulfur oxides may impact human health and damage vegetation.
Toxic air contaminant	An air pollutant, identified in California Air Resources Board regulations, which may cause negative health effects even at very low concentrations.
Zero-emission vehicle (ZEV)	A vehicle that produces no emissions from the onboard source of power. Common examples are battery-electric vehicles and fuel-cell electric vehicles.

Sources: California Air Resources Board, CEC Energy Glossary, University of Michigan School of Public Health, and U.S. Environmental Protection Agency