CALIFORNIA ENERGY COMMISSION

CALIFORNIA NATURAL RESOURCES AGENCY

California Energy Commission

STAFF REPORT

Localized Health Impacts Report

Selected Projects Awarded Funding Through the Clean Transportation Program Under Solicitation LHI GFO-20-609 Renewable Hydrogen Transportation Fuel Production

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California Energy Commission

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ABSTRACT

Assembly Bill 118 (Núñez, Chapter 750, Statutes of 2007) created the Clean Transportation 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." Assembly Bill 8 (Perea, Chapter 401, Statutes of 2013) reauthorizes the Clean Transportation Program to January 1, 2024.

Assembly Bill 118 also directs the California Air Resources Board (CARB) to develop guidelines to ensure air quality improvements. CARB's Air Quality Improvement Program 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 Clean Transportation Program*. The guidelines require the California Energy Commission, as the funding agency, to analyze the localized health impacts of Clean Transportation Program funded projects that require a permit (California Code of Regulations Section 2343).

This Localized Health Impacts Report analyzes and reports on the potential health impacts to communities from projects seeking California Energy Commission funding under Grant Solicitation GFO-20-609. This initiative seeks to support renewable hydrogen production for transportation hydrogen refueling distribution. Information submitted by awardees is used in this report to help identify communities at a higher risk of adverse health effects from pollution. Under California Code of Regulations Section 2343, this report is available for public comment for 30 days before the approval of projects at a publicly noticed business meeting.

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

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EXECUTIVE SUMMARY

The California Energy Commission's (CEC) Clean Transportation Program (CTP) provides funding to support innovation and accelerate the development and implementation of advanced transportation and fuel technologies. Under the California Code of Regulations, title 13, (California Code of Regulations Section 2343), this Localized Health Impacts Report describes the renewable hydrogen fuel production projects proposed for funding that may require a conditional or discretionary permit 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 CTP funding. This report focuses on the potential health impacts to communities from project-related emissions or pollution. Project locations where communities potentially have a higher risk of adverse health impacts from pollution are identified as "high-risk community project locations." High-risk communities are identified using demographic data with environmental data for air quality from the California Air Resources Board.

Environmental justice communities, low-income communities, and minority communities are considered the most impacted by any project that could result in increased criteria and toxic air pollutants within an area. Preventing or minimizing health-risks from pollution is vital in any community, but it is especially important for communities considered to be at high risk due to preexisting poor air quality and other prevalent factors.

CEC staff proposes three projects for CTP grant funding awards under Solicitation GFO-20-609, titled "Renewable Hydrogen Transportation Fuel Production." This initiative seeks to expand the supply of hydrogen fuel for refueling through increased renewable hydrogen production in California. Staff analyzes localized health impact information submitted by the project awardees. Based on project site information provided by the awardees, all the proposed project locations are in high-risk communities. Community members near these sites may be at a higher risk of adverse health impacts from pollution. Staff does not anticipate a net increase in the pollution burden for the communities where these projects are located.

CHAPTER 1:
Project Proposed for Funding

Background

On April 9, 2021, the California Energy Commission (CEC) released a competitive grant solicitation titled "Renewable Hydrogen Transportation Fuel Production" (GFO-20-609). GFO-20-609 offered Clean Transportation Program (CTP) grant funding for projects that increase the supply of renewable hydrogen as a transportation fuel. This will support the accessibility of hydrogen refueling for fuel cell electric vehicles (FCEVs) which helps reduce criteria air pollutants and greenhouse gas (GHG) emissions in California. As required by California Code of Regulations (CCR) Section 2343, this Localized Health Impacts Report (LHI report) analyzes the potential community health impacts near the CTP-funded projects and is made publicly available at least 30 days before approval at a publicly noticed meeting.

Projects Selected

On February 3, 2022, the CEC posted a notice of proposed award (NOPA)[1] identifying the projects awarded grant funding. This LHI report assesses the project locations chosen by each of the three GFO-20-609 applicants (awardees) identified in the NOPA. Table 1 lists the proposed project location(s) for each of the awardees and their corresponding environmental justice (EJ) indicators.[2] EJ indicator definitions are in Appendix A of this LHI report.

Table 1: Project Details Along With EJ Indicators

Proposed Awardee	Project Title	Project Location	EJ Indicator(s)
Linde, Inc.	Expanding California's Production Capacity for Renewable Hydrogen Transportation Fuel	5705 E. Airport Drive, Ontario, CA 91761	Poverty, Minority, Unemployment
SG H2 Lancaster Holding Company, LLC	Lancaster Waste to Renewable Hydrogen	6th St E and E Ave M Palmdale, CA 93535	Poverty, Minority, Unemployment
Stratosfuel, Inc.	Zero-Impact Production Facility Phase 2 Expansion	18850 Perimeter Road, Victorville, CA 92301	Poverty, Minority, Unemployment

Source: California Energy Commission staff

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

1 See notice of proposed award, https://www.energy.ca.gov/sites/default/files/2022-02/GFO-20-609_Notice_of_Proposed_Awards_2022-02-03_ada.docx.

2 EJ indicators developed by the U.S. EPA, Office of Policy. Available at https://www.epa.gov/ejscreen/environmental-justice-indexes-ejscreen. See Appendix A for staff definitions.

Public Comment

As provided by Title 13 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 is at https://www.energy.ca.gov/altfuels/documents/.

The CEC encourages comments by email. Please include your name or 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.

The public can email comments to FTD@energy.ca.gov or send them 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-20-609 process for selecting projects, applicants must provide LHI information for their proposed project and location. This chapter summarizes the LHI information submitted by the awardees regarding the expected impact of their project on local communities and the outreach efforts they have made to engage disadvantaged communities[3] or other local communities. Disadvantaged communities are identified by the awardees using the CalEnviroScreen[4] screening tool developed by the Office of Environmental Health Hazard Assessment (OEHHA) to identify communities facing the burdens of pollution and socioeconomic disadvantage.

Linde, Inc.

Linde's proposed project, titled "Expanding California's Production Capacity for Renewable Hydrogen Transportation Fuel," will augment the 100 percent renewable hydrogen production capabilities of Linde's existing hydrogen production facility in Ontario, California. The project will primarily consist of installing commercially available technologies, utilizing water and renewable electricity produced in California, to generate an estimated 1,728 kilograms per day of renewable hydrogen. This production will go towards the mobility market and will leverage existing partnerships and delivery infrastructure. This project is not expected to increase criteria air pollutants or emissions as a result of operations and will support the displacement of petroleum-based transportation fuels. Linde estimates a GHG emissions reduction of 16,891 metric tons of carbon dioxide equivalent (CO_2e) per year.

Linde has conducted project outreach in the form of sharing information and soliciting feedback from Southern California Edison and the Rio-Hondo Community College Alternative Fuels Program. These entities have expressed support for the project and affirm its benefits. Additional outreach will be conducted to immediate neighbors using educational flyers and at least one neighborhood meeting.

SG H2 Lancaster Holding Company, LLC

SG H2 Lancaster Holding Company's (SGH2's) proposed project, titled "Lancaster Waste to Renewable Hydrogen," will establish a renewable hydrogen facility with focus of gasification of waste to transportation fuel production in Lancaster, California. The project will have the capacity to convert 42,000 metric tons of domestic rejected recycled mixed paper waste into 3,850 metric tons of renewable hydrogen per year. This waste will be sourced in partnership with the City of Lancaster and 100 percent renewable energy will be supplied for operations. Truck traffic related to feedstock and fuel distribution at the project facility is expected to increase GHG emissions by 8,387 metric tons of CO2e. This will also contribute an estimated 13 and 180 kilograms of particulate matter less than 10 and 2.5 micrometers per year,

3 Disadvantaged communities are identified using the CalEnviroScreen tool, which ranks U.S. Census tracts based on geographic, socioeconomic, public health and environmental hazard criteria.

4 See Office of Environmental Health Hazard Assessment website, https://oehha.ca.gov/calenviroscreen.

respectively. However, SGH2 estimates a GHG emissions reduction of 133,954 metric tons of CO_2e per year due to the displacement of petroleum-based transportation fuels.

SGH2, in partnership with the City of Lancaster, will conduct community engagement and education sessions to inform the public of the goals and benefits of the project. A website and periodic newsletter will also be used to provide project updates to the community.

Stratosfuel, Inc.

Stratosfuel's proposed project, titled "Zero-Impact Production Facility Phase 2 Expansion," will expand their existing renewable hydrogen production facility in Victorville, California by installing hydrogen production, compression, and distribution technologies. The project will double the nameplate hydrogen production capacity from five metric tons to ten metric tons per day. The cumulative criteria air pollutants for daily facility operations were not estimated to exceed the regional Mojave Desert Air Quality Management District emissions thresholds. Stratosfuel estimates a GHG emissions reduction of 47,994 metric tons of CO_2e per year due to displaced petroleum-based transportation fuels.

Stratosfuel has conducted two community meetings within Victorville to educate stakeholders and officials on the project goals and benefits. Educational materials on hydrogen transportation and production technology were also provided. Future hydrogen training with the Fire Marshal, city officials, and first responders; public meetings; and site tours are also being planned.

CHAPTER 3:
Location Analysis

Under CCR Title 13 (CCR Section 2343), this LHI report describes projects proposed for Clean Transportation Program funding that 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 assess public health-related pollutants, CEC staff does not assess projects requiring only ministerial-level permits in this report.

This LHI report analyzes the project locations by applying the Environmental Justice Screening Method (EJSM).[5] A proposed project location must meet a two-part environmental and demographic standard for staff to identify it as a high-risk community project location. The environmental standard uses California Air Resources Board (CARB) air quality monitoring data on nonattainment[6] status for areas with a high concentration of air pollutants. The demographic standard uses data from the California Employment Development Department's *Monthly Labor Force Data*[7] and the U.S. Census Bureau's *American Community Survey*[8] data on age, poverty, race, and unemployment.

Environmental Standard

Based on CARB air quality monitoring data,[9] each project location is within a nonattainment zone for either ozone, particulate matter[10] 2.5 microns in diameter or less ($PM_{2.5}$), or particulate matter 10 microns in diameter or less (PM_{10}). This finding indicates that there may be existing poor air quality where the proposed projects are located.

Demographic Standard

Staff finds that the proposed projects in all three locations meet the criteria for high-risk community project locations as they exceed the demographic standard threshold for more than one EJ indicator (Table 2). The project locations also meet the environmental standard due to existing poor air quality.

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

6 Nonattainment area is a geographic area identified by the U.S. EPA or CARB or both as not meeting either National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards CAAQS standards for a given pollutant. See https://ww3.arb.ca.gov/desig/adm/adm.htm.

7 Employment Development Department Labor Force Data, https://www.labormarketinfo.edd.ca.gov/file/lfmonth/countyur-400c.pdf.

8 U.S Census Bureau American Community Survey, https://data.census.gov/cedsci/.

9 See CARB air quality monitoring data, https://ww3.arb.ca.gov/desig/adm/adm.htm.

10 *Particulate matter* is unburned fuel particles that form smoke or soot and stick to lung tissue when inhaled. The number following "PM" represents particle size in micrometers.

Table 2: EJ Indicators by Project Location City Demographic

Site Location	Below Poverty (2019)	Black or African American (2019)	American Indian and Alaska Native (2019)	Asian and Native Hawaiian and Pacific Islander (2019)	Hispanic or Latino Race (2019)	Persons Under 5 Years of Age (2019)	Persons Over 65 Years of Age (2019)	Unemployment (January 2021)
California	**11.8%**	**6.5%**	**1.6%**	**16.0%**	**39.4%**	**6.0%**	**14.8%**	**5.5%**
EJ Indicator Threshold	**11.8%**	**30%**	**30%**	**30%**	**30%**	**26.0%**	**34.8%**	**5.5%**
Ontario	13.3%*	5.8%	1.0%	6.6%	70.0%*	6.9%	9.5%	5.7%*
Palmdale	15.8%*	12.3%	1.7%	4.4%	61.6%*	7.6%	10.0%	6.1%*
Victorville	21.0%*	17.3%	1.0%	4.4%	54.6%*	8.3%	10.3%	5.7%*

Sources: CEC staff, Employment Development Department, and U.S. Census Bureau. The city/county names in **bold** indicate a high-risk community, while the asterisk (*) next to the percentages indicate which categories exceed the EJ indicator threshold.

Summary

If funded, the proposed projects would result in an expanded supply of renewable hydrogen fuel. This will achieve emissions reductions in criteria pollutants and provide greater renewable hydrogen fuel supply for FCEV refueling infrastructure in California.

Based on EJSM standards, staff has identified all three project locations as high-risk communities. This finding indicates that the communities near the proposed project location are at a higher risk of adverse health effects from pollution. However, staff does not anticipate a significant increase in local pollutants, and the project awardees identify no major construction that would generate criteria emissions or pollutants. Staff's analysis did not find significant indication of adverse community health impacts associated with the identified projects in this LHI report as selected for Clean Transportation Program grant funding.

GLOSSARY

AIR QUALITY IMPROVEMENT PROGRAM — Established by the California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007 (AB 118, Statutes of 2007, Chapter 750), is a voluntary incentive program administered by CARB to fund clean vehicle and equipment projects, research of biofuels production, and the air quality impacts of alternative fuels, and workforce training.

CALIFORNIA CODE OF REGULATIONS — The official compilation and publication of the regulations adopted, amended, or repealed by state agencies under the Administrative Procedure Act (APA). Properly adopted regulations that have been filed with the Secretary of State have the force of law.

CALIFORNIA ENVIRONMENTAL QUALITY ACT — 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.

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 $PM_{2.5}$).

DISADVANTAGED COMMUNITIES — A designation by the California Environmental Protection Agency used to identify areas disproportionately affected by environmental pollution or hazards due to geographic, socioeconomic, public health, and environmental hazard present.

ENVIRONMENTAL JUSTICE — 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 — A screening approach for combining environmental and demographic indicators to inform agency outreach and engagement practices regarding environmental justice.

GRANT FUNDING OPPORTUNITY — Where the California Energy Commission offers applicants an opportunity to receive grant funding for projects meeting the solicitation requirements.

LOCALIZED HEALTH IMPACTS — Potential health impacts to communities.

METRIC TON — A unit of weight equal to 1,000 kilograms or 2,205 pounds.

PARTICULATE MATTER — 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 particle combustion products.

LIST OF ACRONYMS

AB	Assembly Bill
AQIP	Air Quality Improvement Program
CalEPA	California Environmental Protection Agency
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CO	carbon monoxide
CO2	carbon dioxide
EJ	environmental justice
EJSM	Environmental Justice Screening Method
FCEV	fuel cell electric vehicle
GFO	grant funding opportunity
LHI	localized health impact
NOPA	notice of proposed award
NOx	nitrogen oxide
OEHHA	Office of Environmental Health Hazard Assessment
$PM_{2.5}$	particulate matter; 2.5 microns or smaller in diameter
PM_{10}	particulate matter; 10 microns in diameter
RCNG	Renewable Compressed Natural Gas
SB	Senate Bill
SOx	sulfur oxide
U.S. EPA	United States Environmental Protection Agency
VOC	volatile organic compound

APPENDIX A:
Localized Health Impacts Report Method

This LHI Report assesses the potential health impacts on communities from projects proposed to receive Clean Transportation Program funding. This LHI Report is prepared under the *California Code of Regulations, Title 13, Motor Vehicles, Chapter 8.1 (CCR Section 2343)*:

"(6) Localized health impacts must be considered when selecting projects for funding. The funding agency must consider EJ 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 the approval of projects. The report must analyze the aggregate locations of the funded projects, analyze the impacts in communities with the most significant exposure to air contaminants or localized air contaminants, or both, including, but not limited to, communities of minority populations or low-income populations, and identify agency outreach to community groups and other affected stakeholders.

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

This LHI Report is not intended to be a detailed pollution analysis of proposed projects, nor is it intended to substitute for the environmental review conducted during CEQA. This LHI report includes staff's application of the EJSM developed by the U.S. EPA to help identify projects in areas where social vulnerability indicators, high exposure to pollution, and greater health risks are present.

CEC staff identifies high-risk community project locations using data from CARB, the U.S. Census Bureau, and other public agencies. The data are analyzed to assign EJ indicators for each project location specified in the LHI Report. The proposed project location must meet a two-part standard:

Part 1 – Environmental Standard:

- Communities located within an air quality nonattainment zone for ozone, PM 2.5, or PM 10, as designated by CARB for criteria pollutants.

Part 2 – Demographic Standard:

- Communities having more than one of the following EJ indicators for (1) minority, (2) poverty, (3) unemployment, and (4) age. The EJ indicator thresholds is defined by staff as:
    1) A minority subset represents more than 30 percent of a given city's population.
    2) A city's poverty level exceeds the state average poverty level.
    3) The city (or county if city data is unavailable) unemployment rate exceeds the state average unemployment rate.

4) The percentage of people living in a city who are younger than 5 years of age or older than 65 years of age is 20 percent higher than the state average for persons under 5 years of age or over 65 years of age.

ROUTING LOG

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