California Energy Commission

STAFF REPORT

LOCALIZED HEALTH IMPACTS REPORT

For a Selected Project Awarded Funding Through the Alternative and Renewable Fuel and Vehicle Technology Program Under Solicitation GFO-17-602 – Renewable Hydrogen Transportation Fuel Production Facilities and Systems

California Energy Commission

Edmund G. Brown Jr., Governor

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ABSTRACT

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

AB 118 also directs the California Air Resources Board to develop guidelines to ensure air quality improvements. The board'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 Alternative and Renewable Fuel and Vehicle Technology Program and the AQIP*. The guidelines require the California Energy Commission, as the funding agency, to analyze the localized health impacts of ARFVTP-funded projects that require a permit (13 CCR § 2343). As provided by 13 CCR § 2343, this Localized Health Impacts Report is required to be available for public comment for 30 days prior to the approval of projects.

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

Keywords: Air pollution**,** air quality, Air Quality Improvement Program, Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP), California Air Resources Board, Assembly Bill 118, California Environmental Quality Act, criteria emissions, demographics, environmental justice indicators, Environmental Justice Screening Method, greenhouse gas emissions, localized health impacts

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TABLE OF CONTENTS

LIST OF TABLES

EXECUTIVE SUMMARY

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

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

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

The California Energy Commission proposes to fund one project under Grant Solicitation GFO-17-602. The proposed project will offer funds to construct and operate a California-based 100 percent renewable hydrogen production facility that will supply the state's network of hydrogen vehicle refueling stations.

The project in this report is assessed for potential health impacts for the community in which it will be located. Based on this analysis, it is not anticipated that implementing this project will have negative impacts because there will not be a significant increase in criteria and toxic emissions, specifically in the communities that are considered most vulnerable.

CHAPTER 1:
Projects Proposed for Funding

On December 22, 2017, the California Energy Commission released a competitive grant funding opportunity titled "Renewable Hydrogen Transportation Fuel Production Facilities and Systems" (GFO-17-602) under the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP). This grant opportunity was an offer to fund projects that construct and operate a California-based 100 percent renewable hydrogen production facility that will supply the state's network of hydrogen vehicle refueling stations.

On May 1, 2018, the Energy Commission posted the notice of proposed awards (NOPA) for GFO-17-602, resulting in one project proposed for funding. This Localized Health Impacts Report assesses and reports on the potential localized health impacts of the proposed project with public review and comment for a 30-day period.

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

Table 1: Proposed Project for Renewable Hydrogen Transportation Fuel Production Facilities and Systems With Environmental Justice Indicators

Applicant	Project Name	Project Location	EJ Indicator(s)
StratosFuel Inc.	Zero Impact Production Facility	Moreno Valley Industrial Area Plan (SP#208), northeast corner of Heacock Street and Revere Place, Moreno Valley, Riverside County Master Plot Plan: PA07-0035	Minority, Age, and Poverty

Source: California Energy Commission staff

Project Description

StratosFuel Inc. – Zero-Impact Production Facility

StratosFuel and Hydrogenics are jointly proposing to build a 5,000 kilogram (kg)/day, 100 percent renewable hydrogen electrolysis plant in Moreno Valley (Riverside County). The facility is located at the northern tip of the Moreno Valley Business Park and is in an industrial area. March Air Reserve Base is located less than 1/8 mile to the west. There are residential properties as well as March Middle School and Rainbow Elementary School within one mile of the facility.

The plan will expand the existing 3,000 kg/day electrolysis facility by 2,000 kg/day. The expanded facility will provide fuel to Air Products and the IGX Group and will distribute to the public refueling station network. The plant will also provide fuel to the StratosFuel car-sharing program. Moreno Valley is in Southern California, which places 57.8 percent of publicly funded hydrogen stations within an 80-to-150−mile radius.

The plant will receive most of its power from StratosFuel's instate wind/solar 30-year power purchase agreement that will maintain a steady flow of electrons from the grid. Based on the direct production of hydrogen, there will be no emissions generated because of the use of wind electricity. However, there will be emissions generated from the transportation of hydrogen to stations. Based on the day-cab trucks that Air Products will be using to transport the hydrogen, the project will emit 161 grams of carbon dioxide (CO_2)/mile. The average distance to most stations is 83 miles one-way. In turn, the CO_2 emissions generated are 0.029 ton/trip. The project proposer anticipates 5.1 trips/day, based on the trailer volume of 500 kg and daily deliveries of 2,550 kg hydrogen refueling station offtakes. Total daily emissions will be 0.147 ton of CO_2 or about 54 tons of CO_2 emitted annually.

Outreach efforts include StratosFuel engaging in the "Moreno Valley's Roundtable," which promotes dialogue between the business community and city officials and staff (for example, fire marshal, engineering, economic development, planning, and building) weekly.

CHAPTER 2: Approach

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

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

The LHI Report Assessment Method in Appendix A assesses communities potentially impacted by air pollution and possibly benefitted by renewable hydrogen transportation fuel production. The California Air Resources Board's (CARB) *Proposed Screening Method for Low-Income Communities Highly Impacted by Air Pollution for Assembly Bill (AB) 32 Assessments* is also used to integrate data to identify low-income communities that are highly impacted by air pollution.[1] Other resources used in this assessment are the *California Infrastructure State Implementation Plans,*[2] which contain publicly noticed air quality attainment plans, and the *Green Book Nonattainment Areas for Criteria Pollutants.*[3]

The city where the proposed project will be located is in a nonattainment zone for ozone, PM[4] 2.5, and PM 10. Table 1 shows the EJ indicators for the project, that is, minority populations, low incomes, and highly sensitive groups based on age (individuals younger than 5 years of age and older than 65 years of age). Table 2 shows the demographics. All communities possibly affected by the proposed renewable hydrogen transportation fuel production facility and systems project are classified as high-risk, according to the Environmental Justice Screening Method (EJSM).

Staff collected information about predicted emissions for the project proposal, as well as information on potential petroleum fuel displaced. Activities conducted are not expected to have a significant impact on emissions.

1 California Air Resources Board, *Proposed Screening Method for Low-Income Communities Highly Impacted by Air Pollution, 2010* (Sacramento, California).
2 http://www.arb.ca.gov/planning/sip/sip.htm.
3 http://www.epa.gov/oaqps001/greenbk.
4 "Particulate matter" is unburned fuel particles that form smoke or soot and stick to lung tissue when inhaled, and is a chief component of exhaust emissions from heavy-duty diesel engines.

Table 2: Environmental Justice (EJ) Indicators Compared With California

Yellow highlighted areas indicate numbers (percentages) that meet the definition for EJ indicators.

	Number of EJ Indicators by Category	Below Poverty Level (2012-2016)	Black Persons (2010)	American Indian and/or Alaska Native (2010)	Asian and/or Pacific Islander (2010)	Persons of Hispanic or Latino Origin (2010)	Persons Under 5 Years of Age (2010)	Persons Over 65 Years of Age (2010)	Unemployment Rate (March 2018)
California		**14.3%**	**6.2%**	**1.0%**	**13.0%**	**37.6%**	**6.8%**	**11.4%**	**4.3%**
EJ Indicator Threshold		**>14.3%**	**>30%**	**>30%**	**>30%**	**>30%**	**>8.16%**	**>13.8%**	**>4.3%**
Moreno Valley, Riverside County	3	20.5%	19.3%	0.7%	5.8%	59.5%	8.6%	5.4%	4.2%

Sources: Unemployment information from the State of California, Employee Development Department Labor Market Information Div.: http://www.labormarketinfo.edd.ca.gov/data/unemployment-and-labor-force.html#Tool. U.S. Census Bureau, http://www.census.gov/quickfacts/table/PST045215/0664000,06,00 and http://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml

CHAPTER 3:
Summary

If funded, the proposed project will produce 100 percent renewable hydrogen and will supply the state's network or hydrogen vehicle refueling stations, which will help achieve better air quality and reach energy and climate change goals.

The anticipated impacts to the community where the renewable hydrogen facility will be located are considered minor in terms of air quality, noise, and traffic.

As indicated in Table 1, with detail in Table 2, Moreno Valley is classified as a high-risk community, as identified in Appendix A. The demographic data presented in this report indicate higher concentrations of minority populations, especially Hispanic, along with children under 5, and those with low incomes r considered living below the poverty line or both.

CHAPTER 4:
Acronyms

Air Quality Improvement Program (AQIP)

Air Resources Board (CARB)

Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP)

Assembly Bill (AB)

California Code of Regulations (CCR)

California Environmental Quality Act (CEQA)

Carbon dioxide (CO_2)

Environmental justice (EJ)

Environmental Justice Screening Method (EJSM)

Grant funding opportunity (GFO)

Greenhouse gas (GHG)

Kilogram (kg)

Localized health impact (LHI)

Notice of proposed awards (NOPA)

Particulate matter (PM)

State Implementation Plan (SIP)

APPENDIX A:
Localized Health Impact Report Assessment Method

This LHI Report assesses the potential impacts to communities because of the projects proposed by the ARFVTP. This report is prepared under the *California CARB AQIP Guidelines, California Code of Regulations, Title 13, Motor Vehicles, Chapter 8.1 (CCR § 2343)*:

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

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

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

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

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

To determine high-risk communities, environmental justice (EJ) indicators for locations of the renewable hydrogen transportation fuel production facilities and systems projects are compared to data from the U.S. Census Bureau or other public agency. Staff identifies high-risk communities by using a two-part standard. For a community to be considered high risk, for this assessment, it must meet both Parts 1 and 2 of this standard.

Part 1:

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

Part 2:

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