

California Energy Commission
STAFF REPORT

**LOCALIZED HEALTH IMPACTS
REPORT**

Addendum 4 for a Selected Project With Location Changes
Awarded Funding Through the Alternative and Renewable
Fuel and Vehicle Technology Program Under Solicitation
PON-09-608

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ADDENDUM 4

The *Localized Health Impacts (LHI) Report for Selected Projects Awarded Funding Through the Alternative and Renewable Fuel and Vehicle Technology Program Under Solicitation PON-09-608* was posted May 6, 2011 (Magaña, Pilar. *Localized Health Impacts Report*. California Energy Commission, Fuels and Transportation Division. Publication Number: CEC-600-2011-002REV1).¹

The assessment approach of this addendum is as written in CEC-600-2011-002REV1. The potential localized health impacts of an Air Products and Chemicals, Inc., project “Low-Cost Hydrogen Refueling Station Deployment Program” are addressed. Air Products and Chemicals, Inc., plans to install a hydrogen fueling station at a gasoline station at 5410 Walnut Avenue, Irvine, California, 92604. This hydrogen fueling station will replace the one planned for 4162 Trabuco Road, Irvine, California, 92620. The Walnut Avenue location has the same nonattainment status for ozone, particulate matter (PM) 2.5, and PM 10 as the Trabuco Road location. See Table 1.²

Table 1: Community Status and Project Overview

Project	At-Risk Community	CEQA Completed	Air District Permit Status	Attainment Status for Ozone, PM (2.5), PM (10)
Irvine	No	Not begun	Not begun	Nonattainment (All)

Source: Energy Commission staff analysis

The Irvine location will have the surroundings shown in Table 2.

Table 2: Surroundings for the New Site Address

New Address	Surroundings (within a 1-mile radius)
5410 Walnut Avenue, Irvine, CA 92604	8 schools, 3 day care facilities, and 20 health care offices

Source: Energy Commission staff analysis

Community Impacts

Air Products does not foresee a potential for the Walnut Avenue station to impact the neighboring community, for the station will not add criteria pollutants and toxic air

¹ Magaña, Pilar. *Localized Health Impacts Report*. California Energy Commission, Fuels and Transportation Division. Publication Number: CEC-600-2011-002REV1

² "Particulate matter" is unburned fuel particles that form smoke or soot and stick to lung tissue when inhaled, and a chief component of exhaust emissions from heavy-duty diesel engines.

contaminants to the localized air shed. No onsite production of hydrogen and related emissions will occur, and the stored hydrogen will be environmentally benign. Other than minimal construction emissions, no criteria emissions will result from the station installation.

According to the California Air Resources Board (ARB) and the U.S. Department of Energy (U.S. DOE), hydrogen vehicles are considered zero-emission vehicles and, hence, are not considered concerns for local air pollution.³ Small amounts of indirect carbon dioxide emissions and water output may occur through onsite compression, storage, and dispensing of the hydrogen. Although hydrogen can escape and be emitted through the vents required for the dispensing equipment, when the hydrogen comes in contact with oxygen, water is formed, and no additional emissions are generated.

The station will be located in the South Coast Air Quality Management District. During the permitting process, Air District staff will evaluate the station and adhere to state and federal regulations to notice residents within 1,000 feet of the site if the station will result in an increase in emissions above the threshold.

Location Analysis

Energy Commission staff reviewed results from the Environmental Justice Screening Method (EJSM) to determine whether the area surrounding 5410 Walnut Avenue has EJ indicators (Table 3).⁴ The EJSM was developed to help identify areas with social vulnerability indicators and the greatest exposure to air pollution and associated health risks.

Staff identifies high-risk communities using the following factors: (1) those located in nonattainment air basins for ozone, PM 10, and PM 2.5, (2) those with high poverty, minority populations, and/or unemployment rates, and (3) those with a high percentage of sensitive populations (under 5 years of age and over 65 years of age). Those designated as high-risk communities would be located in nonattainment air basins and have one or more of the other two factors.

The Walnut Avenue location is not located in a low-income community that is highly impacted by air pollution; however, staff assessed all the EJ indicators as a precaution. The station will be located in the South Coast Air Basin, a nonattainment area for ozone, particulate matter (10 micron), and particulate matter (2.5 micron) pollutants. There are 8 schools, 3 day-care facilities, and 20 health care offices within a one-mile radius of the project site. Based on the assessment of the impacts of the project, and those for other projects funded under this solicitation, the area will not be disproportionately affected by the hydrogen fueling station. Table 3 provides data

3 California Air Resources Board (ARB), www.arb.ca.gov/fuels/altfuels/electric_hydrogen/electric_hydrogen.htm and U.S. Department of Energy, www.afdc.energy.gov/afdc/vehicles/emissions_hydrogen.html.

4 California 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.

for Irvine compared to that of California. The EJ indicators reflect percentages lower than that of the State as a whole. All four EJ indicators – poverty, minority, 3 age, and unemployment – fall within acceptable levels as they relate to the Environmental Justice Screening Method.

Table 3: Demographic Data
(Percentage of total population)

	Los Angeles	California
<u>Below poverty level</u>	9.1	14.4
<u>Ethnicity</u>		
Black	1.4	6.6
American Indian or Alaskan Native	0.2	1.7
Asian or Pacific Islander	29.9	13.9
Hispanic	7.4	38.2
White	61.1	39.4
<u>Age</u>		
< 5 years	5.6	6.7
> 65 years	7.2	12.1
<u>Unemployment rate</u>	6.9	8.8

Source: Unemployment Information, EDD Labor Market Information Division; Age/ethnicity demographics, U.S. Census <http://quickfacts.census.gov/qfd/index.html> and <http://www.labormarketinfo.edd.ca.gov/Content.asp?pageid=133>

Based on the information provided by Air Products and original equipment manufacturer projections for hydrogen use, it is expected that this station will be dispensing about 17-29 kilograms of hydrogen per day, which is equivalent to an additional 4-7 cars coming to the station location each day. No additional emissions are expected to result from the use of the hydrogen dispenser at this station. This project is not expected to result in any adverse health effects in Irvine and adjacent communities as a result of the installation and use of the hydrogen fueling equipment. In addition to all applicable code requirements, the dispenser at this station has additional safety features, such as a secondary control system, idle hose leak detection, and protective jackets over hoses. These safety features ensure that the station is safe for the community and station users.

The proposed hydrogen fuel infrastructure will increase the widespread use of hydrogen fuel vehicles in place of their gasoline counterparts. As more hydrogen vehicles enter the market and begin to displace gasoline and diesel vehicles, tailpipe pollutants will decrease significantly. Some benefits from this project include the increased use of a cleaner alternative fuel, which, in turn, will replace higher emitting vehicles, like gasoline vehicles.