

## VIII.11 Advancing Fuel Cell Electric Vehicles in San Francisco and Beyond

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### Subcontractors:

- Frontier Energy (formerly known as BKi), West Sacramento, CA
- Newcomb Anderson McCormick, San Francisco, CA
- Business Council on Climate Change, San Francisco, CA

Project Start Date: October 1, 2017  
Project End Date: September 30, 2018

### Overall Objectives

- Update and harmonize best practices in permitting and inspection of hydrogen fueling stations among Bay Area authorities having jurisdiction (AHJs).
- Deliver hydrogen safety and best practice education to elected officials and planning, building inspection, and public safety professionals across the Bay Area.
- Increase community awareness of the availability and value of hydrogen and fuel cell electric vehicles (FCEVs).
- Drive market demand for FCEVs through an established, public-facing group procurement program.

### Fiscal Year (FY) 2017 Objectives

- Identify and address training needs for AHJs.
- Deliver permitting technical assistance to station developers and AHJs.
- Promote hydrogen and FCEVs via outreach events.
- Implement SunShares 2017 group procurement program.

### Technical Barriers

This project addresses the following technical barriers from the Fuel Cell Technologies Office Multi-Year Research, Development, and Demonstration Plan, Section 3.8, Education and Outreach.

- (A) Lack of Readily Available, Objective, and Technically Accurate Information
- (D) Lack of Educated Trainers and Training Opportunities

### Contribution to Achievement of DOE Education and Outreach Milestones

This project will contribute to achievement of the following DOE milestones from the Fuel Cell Technologies Office Multi-Year Research, Development, and Demonstration Plan, Section 3.8, Education and Outreach.

- Task 1: Educate Safety and Code Officials
- Task 2: Educate Local Communities
- Task 3: Educate State and Local Government Representatives
- Task 4: Educate Potential End-Users

### FY 2017 Accomplishments

- Organized pre-application meetings with station developers and AHJs.
- Conducted outreach and community awareness events, including ride-and-drive events.
- Developed and implemented training plan.
- Launched “Clean Cities Hydrogen and Fuel Cell Electric Vehicle” newsletter.
- Distributed Request for Proposals to FCEV makers for the 2017 SunShares program.



### INTRODUCTION

This program supports the introduction of FCEVs and retail hydrogen fueling stations in San Francisco and the nine-county Bay Area. The California Energy Commission is investing in a network of 100 hydrogen fueling stations in California by 2022 to support the broader introduction of FCEVs. By applying lessons learned from the build-out of the solar and electric vehicles industries, we are working

on reducing soft costs tied to two primary barriers. The first is the cost and complexity of permitting and inspection processes among multiple AHJs, and the second is a lack of consumer awareness of hydrogen and FCEVs.

**APPROACH**

To address the cost and complexity of permitting, we provide training and technical assistance to AHJs and station developers in proposed development areas. This includes organizing and facilitating pre-application meetings, documenting permitting and inspection processes among AHJs, publishing a newsletter, and developing specialized trainings, such as webinars. As stations near completion, we will organize local community awareness events in partnership with the AHJs and station developers.

To address the lack of consumer awareness, we use the SunShares group procurement program to provide discounts on FCEVs coupled with consumer workshops for municipalities and major Bay Area employers. We have also incorporated FCEVs in our annual Clean Cities workshops and local ride-and-drive events.

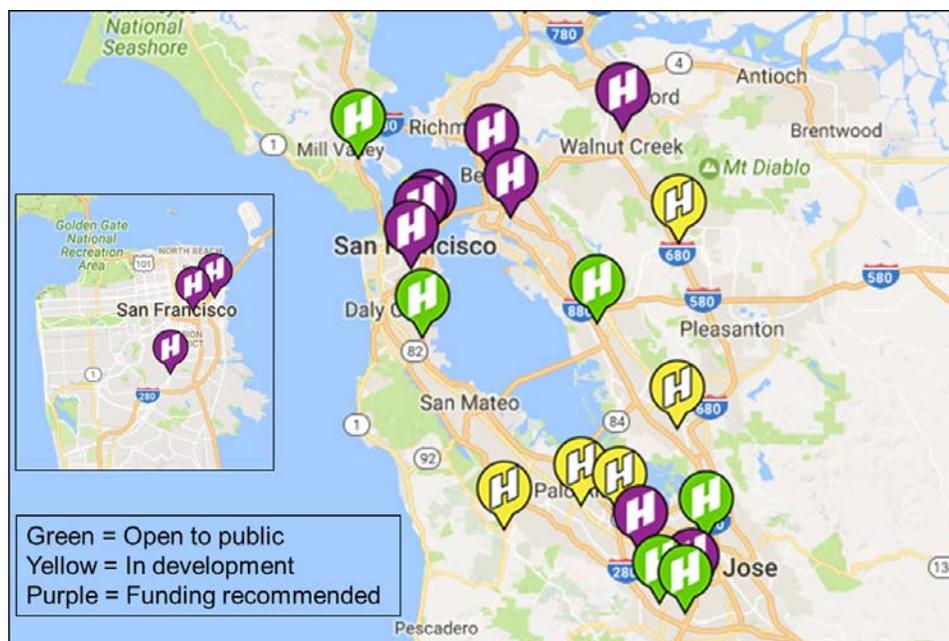
**RESULTS**

Our work will support hydrogen station development in San Francisco and the nine-county Bay Area. Figure 1 shows stations that are open, in development, or recommended for funding as of Spring 2017. Three of those stations received funding approval on June 14, 2017. The balance will be

considered at the California Energy Commission’s August 2017 business meeting.

Permitting best practice recommends organizing pre-application meetings with AHJs to review local permitting requirements and timelines in advance of submittal. The California Energy Commission requires that station developers include basic California Environmental Quality Act information in their proposals for funding, which requires at least minimal contact with the AHJ. In partnership with the Center for Transportation and Environment, we organized such a meeting for a station applicant, Equilon Enterprises (a Shell/Toyota partnership). We suggested that the applicant might strengthen their California Energy Commission application with a commitment to procure 100% renewable energy for their operations. This is possible through CleanPowerSF, a community choice aggregation program administered by the San Francisco Public Utilities Commission. Equilon Enterprises did include procurement of 100% renewable energy in their application, which prevailed over two other applications. Funding is anticipated in August 2017.

Our outreach to AHJs and station developers has led us to design a webinar for code officials, in partnership with Frontier Energy’s California Fuel Cell Partnership and the Governor’s Office of Business and Economic Development. The webinar will be delivered in July 2017 and be available online. Invitations were sent to over 400 Bay Area AHJ contacts, as well as stakeholders and Clean Cities Coordinators in Southern California and the Northeast Hydrogen Station Network. In addition, we have developed



**FIGURE 1.** Map of San Francisco Bay Area hydrogen stations, Spring 2017

a technical training schedule, which will coincide with anticipated development of the eight proposed Bay Area hydrogen stations (Table 1).

The 2016 SunShares group procurement program for residential solar and zero emission vehicles resulted in over 1,800 registrations in a three-month period. Participants engaged in 30 workshops conducted across the Bay Area, where they learned more about technology product options (e.g., solar photovoltaics, battery electric vehicles, FCEVs) available through the program and available incentives/financing. In the 2016 round of SunShares, we invited Toyota to include the newly introduced Mirai FCEV, which resulted in four program participant vehicle purchases. SunShares originally began in 2011, providing bulk discounts on residential solar. In 2015 the program evolved to include battery electric vehicles. The program is successful in reducing soft costs and complexity for participants by leveraging the existing communication channels of affinity groups such as employers and municipalities to reach participants, and pre-negotiating bulk pricing through a competitive process.

The *SF Clean Cities Hydrogen and Fuel Cell Electric Vehicle Newsletter* was launched in March 2017 (Figure 2) and distributed to about 100 Clean Cities stakeholders and through the California Fuel Cell Partnership’s contact list of over 11,000 individuals. The content includes hydrogen/FCEV 101, along with videos and links to news articles.

### CONCLUSIONS AND UPCOMING ACTIVITIES

Our work is having the anticipated impact of reducing the complexity of permitting processes by providing technical assistance and coordination to developers and AHJs. We have incorporated FCEVs into our community awareness events, ride-and-drives, and the SunShares

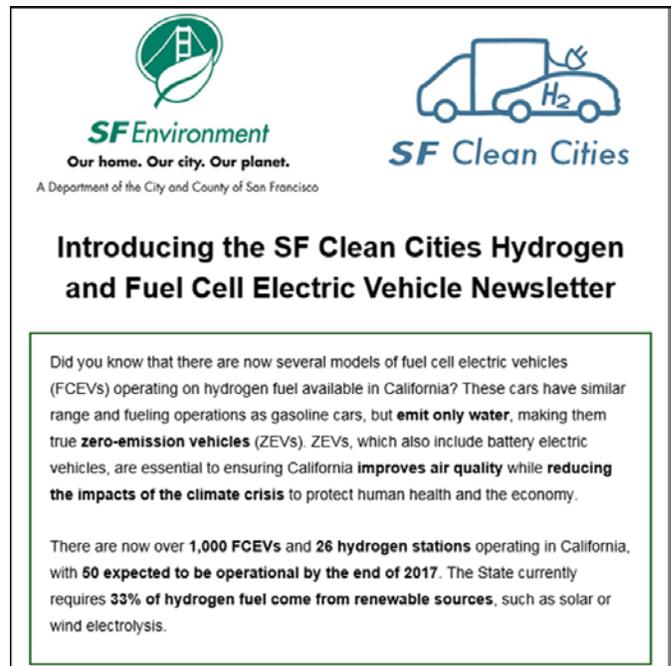


FIGURE 2. SF Clean Cities Hydrogen and Fuel Cell Electric Vehicle Newsletter

program, thereby expanding the promotion of FCEVs to the public.

The second year of our program builds upon the first with additional training, community awareness events, and the 2017 SunShares program. Our biggest consumer awareness event in Calendar Year 2017 will be EV Week, held in conjunction with San Francisco Fleet Week, which attracts approximately one million people to the city each October. Nearly 600 people participated in ride-and-drives at last year’s event. Planning has begun for this year’s event, and it appears that all FCEV manufacturers will participate.

TABLE 1. Outreach and Training Schedule

Topic	Audience	Begins	Frequency
Hydrogen Safety for Permitting Authorities	Building officials; planning, safety and fire, sustainability staff	Summer 2017	Multiple sessions at AHJs, Webinars
Hydrogen and FCEVs for Decision Makers	Elected officials, department/division leaders, general public	Fall 2017	Two sessions North Bay and South Bay
Community Engagement	Community members in vicinity of stations	Fall 2017	As needed
Hydrogen/FCEV Safety for First Responders	First responders	Summer 2018	Multiple sessions at AHJs