



# South Coast Air Quality Management District

21865 Copley Drive, Diamond Bar, CA 91765-4178  
(909) 396-2000 • www.aqmd.gov

## TECHNOLOGY COMMITTEE MEETING

### Committee Members

Council Member Joe Buscaino, Chair  
Supervisor Lisa Bartlett  
Council Member Judith Mitchell  
Council Member Carlos Rodriguez

**January 24, 2020 ♦ 12:00 p.m. ♦ Conference Room CC8  
21865 Copley Drive, Diamond Bar, CA 91765**

### TELECONFERENCE LOCATIONS

**Los Angeles City Hall  
200 N. Spring Street Room 410  
Los Angeles, CA 90012**

**Hall of Administration  
Board Room  
333 W. Santa Ana Blvd.  
Santa Ana, CA 92701**

**(The public may participate at any location listed above.)**

*Call-in for listening purposes only is available by dialing:*

*Toll Free: 866-244-8528*

*Listen Only Passcode: 5821432*

*In addition, a webcast is available for viewing and listening at:*

<http://www.aqmd.gov/home/library/webcasts>

### AGENDA

*Members of the public may address this body concerning any agenda item before or during consideration of that item (Gov't. Code Section 54854.3(a)). Please provide a Request to Address the Committee card to the Committee Secretary if you wish to address the Committee on an agenda item. If no cards are available, please notify South Coast AQMD staff or a Board Member of your desire to speak. All agendas for regular meetings are posted at South Coast AQMD Headquarters, 21865 Copley Drive, Diamond Bar, California, at least 72 hours in advance of the regular meeting. Speakers may be limited to three (3) minutes each.*

## CALL TO ORDER

### ACTION ITEMS – Items 1-2:

- 1. Amend and Execute Contracts to Perform Data Collection of Zero Emissions Heavy-Duty Infrastructure and Other Equipment (*Motion Requested*)** Patricia Kwon  
Program Supervisor

In November 2018, the Board approved an award of \$44,839,686 for the Volvo Low Impact Green Heavy Transport Solutions (LIGHTS) project. The Board also approved a \$1,096,658 contract with University of California Riverside (UCR) CE-CERT to perform data collection, analysis and reporting for the Volvo LIGHTS project. UCR had planned to subcontract data collection for infrastructure and other equipment to CALSTART, Inc., but it was subsequently determined that UCR's business services group is unable to subcontract services. These actions are to amend a contract with UCR CE-CERT reducing the amount to \$836,258 and to execute a contract with CALSTART, Inc., in an amount not to exceed \$260,400 from the GHG Reduction Projects Special Revenue Fund (67) for data collection, analysis and reporting for the Volvo LIGHTS project.
- 2. Renew South Coast AQMD's Membership in CaFCP for Calendar Year 2020 and Receive and File California Fuel Cell Partnership Executive Board Meeting Agenda and Activity Updates (*Motion Requested*)** Lisa Mirisola  
Program Supervisor

The South Coast AQMD has been a member of the California Fuel Cell Partnership (CaFCP) since 2000. These actions are to renew South Coast AQMD's membership in the CaFCP in an amount not to exceed \$70,000 for Calendar Year 2020 and cofund a portion of the CaFCP Regional Coordinator position and infrastructure development staff activities in an amount not to exceed \$50,000 from the Clean Fuels Program Fund (31). This action is to also receive and file the CaFCP Executive Board Meeting Agenda for October 16, 2019, and Activity Updates for the second and third quarters of 2019.

### OTHER MATTERS:

- 3. Other Business** – *Any member of the Committee, or its staff, on his or her own initiative or in response to questions posed by the public, may ask a question for clarification, may make a brief announcement or report on his or her own activities, provide a reference to staff regarding factual information, request staff to report back at a subsequent meeting concerning any matter, or may take action to direct staff to place a matter of business on a future agenda. (Gov't. Code Section 54954.2)*
- 4. Public Comment Period**  
*At the end of the regular meeting agenda, an opportunity is provided for the public to speak on any subject within the Committee's authority that is not on the agenda. Speakers may be limited to three (3) minutes each.*
- 5. Next Meeting Date** – Friday, February 21, 2020 at 12:00 pm

## ADJOURNMENT

### **Americans with Disabilities Act**

*The agenda and documents in the agenda packet will be made available, upon request, in appropriate alternative formats to assist persons with a disability (Gov't. Code Section 54954.2(a)). Disability-related accommodations will also be made available to allow participation in the Technology Committee meeting. Any accommodations must be requested as soon as practicable. Requests will be accommodated to the extent feasible. Please contact Alejandra Vega at 909.396.2264 from 7:30 a.m. to 6:00 p.m., Tuesday through Friday, or send the request to [avega@aqmd.gov](mailto:avega@aqmd.gov).*

### **Document Availability**

*All documents (i) constituting non-exempt public records, (ii) relating to an item on an agenda for a regular meeting, and (iii) having been distributed to at least a majority of the Committee after the agenda is posted, are available prior to the meeting for public review at the South Coast Air Quality Management District, Public Information Center, 21865 Copley Drive, Diamond Bar, CA 91765.*

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**DRAFT**

**Technology Committee Agenda #1**

BOARD MEETING DATE: February 7, 2020

AGENDA NO.

**PROPOSAL:** Amend and Execute Contracts to Perform Data Collection of Zero Emissions Heavy-Duty Infrastructure and Other Equipment

**SYNOPSIS:** In November 2018, the Board approved an award of \$44,839,686 for the Volvo Low Impact Green Heavy Transport Solutions (LIGHTS) project. The Board also approved a \$1,096,658 contract with University of California Riverside (UCR) CE-CERT to perform data collection, analysis and reporting for the Volvo LIGHTS project. UCR had planned to subcontract data collection for infrastructure and other equipment to CALSTART, Inc., but it was subsequently determined that UCR's business services group is unable to subcontract services. These actions are to amend a contract with UCR CE-CERT reducing the amount to \$836,258 and to execute a contract with CALSTART, Inc., in an amount not to exceed \$260,400 from the GHG Reduction Projects Special Revenue Fund (67) for data collection, analysis and reporting for the Volvo LIGHTS project.

**COMMITTEE:** Technology, January 24, 2020; Recommend for Approval

**RECOMMENDED ACTIONS:**

Authorize the Chairman to amend or execute the following from the GHG Reduction Projects Special Revenue Fund (67):

- a. Amend a contract with UCR CE-CERT for data collection, analysis and reporting of the Volvo LIGHTS project reducing the funding to an amount not to exceed \$836,258; and
- b. Execute a contract with CALSTART, Inc. for data collection, analysis and reporting of infrastructure and other equipment in an amount not to exceed \$260,400.

Wayne Nastri  
Executive Officer

## **Background**

In November 2018, the Board approved an award of \$44,839,686 for the Volvo Low Impact Green Heavy Transport Solutions (LIGHTS) project to develop and demonstrate zero emissions heavy-duty trucks, freight handling equipment, EV infrastructure and renewable energy under CARB's Low Carbon Transportation Greenhouse Gas Reduction Fund (GGRF) Investments. The Board also approved a \$1,096,658 contract to the University of California Riverside (UCR) CE-CERT to perform data collection, analysis and reporting for the LIGHTS project. UCR CE-CERT had planned to subcontract data collection for infrastructure to CALSTART, Inc., but it was subsequently determined that UCR's business services group is unable to subcontract services.

## **Proposal**

These actions are to amend a contract with UCR CE-CERT reducing the amount to \$836,258 for data collection, analysis and reporting of the Volvo LIGHTS project and to execute a contract with CALSTART, Inc. for \$260,400 for data collection, analysis and reporting of off-road equipment, infrastructure, and solar, as well as provide a final report and analysis. UCR CE-CERT will deploy a multiple-method approach to ensure all project data collection, which includes mobile logging, stationary logging, emissions testing and innovation analysis, is performed to meet CARB requirements. CALSTART, Inc. will assist UCR CE-CERT on data collection of all other equipment.

## **Sole Source Justification**

Section VIII.B.2. of the Procurement Policy and Procedure identifies four major provisions under which a sole source award may be justified. The request for sole source award for the CALSTART, Inc., contract is made under the provisions B.2.d.(6): Projects requiring compatibility with existing specialized equipment; and B.2.d.(8): Research and development efforts with educational institutions or nonprofit organizations. CALSTART, Inc., a nonprofit institution, will utilize its expertise on evaluation of advanced clean transportation technologies and fuels.

## **Benefits to South Coast AQMD**

Projects to support development and demonstration of various electric container and freight transport technologies and infrastructure are included in the *Technology Advancement Office Clean Fuels Program 2019 Plan Update* under the categories of "Develop and Demonstrate Electric and Hybrid Vehicles," "Develop and Demonstrate Electric Container Transport Technologies," and "Develop and Demonstrate Electric Charging Infrastructure." This project is to develop and demonstrate zero emissions heavy-duty trucks, freight handling equipment, EV infrastructure and renewable energy. Successful demonstrations of such projects will contribute to the attainment of national ambient air quality standards in the South Coast Air Basin by eliminating PM and NOx emissions from replaced diesel heavy-duty trucks and off-road freight handling

equipment. The project also includes installation of EV infrastructure powered by renewable energy.

**Resource Impacts**

The amended contract with UCR CE-CERT will not exceed \$836,258 and the contract with CALSTART, Inc., will not exceed \$260,400 from the GHG Reduction Projects Special Revenue Fund (67). This will not exceed the total CARB funding of \$1,096,658 for data collection services. The funding sources and amounts for each project are detailed in the following table:

**Proposed Data Collection Project Costs**

<b>Source</b>	<b>Amount</b>	<b>Match</b>	<b>Percent</b>
UCR CE-CERT	\$836,258	\$200,000	76
CALSTART, Inc.	\$260,400	\$0	24
<b>Total</b>	<b>\$1,096,658</b>	<b>\$200,000</b>	<b>100</b>

Sufficient funds will be available in GHG Reduction Projects Special Revenue Fund (67) to amend or execute the UCR CE-CERT and CALSTART, Inc. contracts from the CARB grant for the Volvo LIGHTS project.

# Agenda Item #1

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Amend and Execute Contracts to  
Perform Data Collection of Zero  
Emissions Heavy-Duty Infrastructure  
and Other Equipment

# Background

- In November 2018, Board approved an award of \$44.8M for Volvo LIGHTS project to demonstrate zero emissions heavy-duty trucks, freight handling equipment, and infrastructure
- Board also approved a contract with UCR CE-CERT for \$1.1M for data collection
- UCR planned to subcontract data collection for infrastructure, off-road equipment and solar to CALSTART but is unable to subcontract services





# Proposal

- South Coast AQMD to amend contract with UCR and execute contract with CALSTART, Inc.
- CALSTART will perform data collection for off-road equipment, infrastructure and solar
- Total CARB funding for data collection remains the same



# Proposed Funding

<b>Source</b>	<b>CARB</b>	<b>Cost-share</b>	<b>Percent of Project</b>
UCR CE-CERT	\$836,258	\$200,000	76
CALSTART, Inc.	\$260,400	\$0	24
<b>Total</b>	<b>\$1,096,658</b>	<b>\$200,000</b>	<b>100</b>

# Recommended Actions

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Amend or execute contracts from the GHG Reduction Special Projects Revenue Fund (67)

- Amend contract with UCR CE-CERT reducing funding to an amount not to exceed \$836,258
- Execute a contract with CALSTART, Inc., for an amount not to exceed \$260,400

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**DRAFT**

**Technology Committee Agenda #2**

BOARD MEETING DATE: February 7, 2020

AGENDA NO.

**PROPOSAL:** Renew South Coast AQMD's Membership in CaFCP for Calendar Year 2020 and Receive and File California Fuel Cell Partnership Executive Board Meeting Agenda and Activity Updates

**SYNOPSIS:** The South Coast AQMD has been a member of the California Fuel Cell Partnership (CaFCP) since 2000. These actions are to renew South Coast AQMD's membership in the CaFCP in an amount not to exceed \$70,000 for Calendar Year 2020 and cofund a portion of the CaFCP Regional Coordinator position and infrastructure development staff activities in an amount not to exceed \$50,000 from the Clean Fuels Program Fund (31). This action is to also receive and file the CaFCP Executive Board Meeting Agenda for October 16, 2019, and Activity Updates for the second and third quarters of 2019.

**COMMITTEE:** Technology, January 24, 2020; Recommended for Approval

**RECOMMENDED ACTIONS:**

1. Authorize the Chairman to execute one or more contracts in an amount not to exceed \$120,000 from the Clean Fuels Program Fund (31) with Frontier Energy, Inc., acting on behalf of the CaFCP, to:
  - a. Continue South Coast AQMD's membership for Calendar Year 2020 for a total amount not to exceed \$70,000 for common expenses of the CaFCP; and
  - b. Support the Southern California Regional Coordinator position and infrastructure development staff activities for a total amount not to exceed \$50,000.
2. Receive and file the attached Executive Board Agenda for October 16, 2019, and activity updates for the second and third quarters of 2019.

Wayne Nastri  
Executive Officer

## **Background**

The California Fuel Cell Partnership (CaFCP) was initiated in 1999 to accelerate response to CARB's Zero Emission Vehicle (ZEV) regulations. The AQMD and the Technology Advancement Office's Clean Fuels Program 2019 Plan Update have identified fuel cells for on- and off-road applications as well as hydrogen technologies and infrastructure as a core technology for attaining and maintaining cleaner air quality. Because of the alignment of South Coast AQMD and CaFCP goals for accelerated fuel cell vehicle commercialization, the Board accepted the CaFCP's formal invitation to join as a full member in March 2000.

Initially, the CaFCP Program focused on development of vehicle, infrastructure and outreach plans. The CaFCP was involved in the demonstration of cars and buses using gaseous and liquid hydrogen as well as methanol through 2003. The first fleet customer placements began in 2002. The CaFCP and members demonstrated several generations of fuel cell cars and buses using gaseous hydrogen fuel at 350 bar and 700 bar pressures. Several automakers started retail placement of fuel cell vehicles near hydrogen stations in early market communities. The CaFCP, with member support, developed a "Roadmap" for the introduction of fuel cell passenger vehicles with sufficient hydrogen fueling stations in California, an initial "Bus Roadmap," a Medium- & Heavy-Duty Fuel Cell Electric Vehicle Action Plan, and the California Fuel Cell Revolution-2030 Vision Report.

With the commitment of funding under AB 8 in 2013 to develop and operate approximately 100 hydrogen retail fueling stations in California through 2023, and the collaboration of California with other states to support ZEVs, automakers are continuing to announce market launches. Some automakers are combining efforts to share intellectual property, build component supply chains and leverage resources. Germany, Japan and South Korea have also committed funding to build more hydrogen stations, and international momentum is building with establishment of the Hydrogen Council in 2017 and former Governor Brown's Executive Order (EO B-48-18) in 2018 to work with the private sector to support 200 hydrogen retail fueling stations by 2025. Changes to CARB's Low Carbon Fuel Standard (LCFS) credit structure are encouraging additional infrastructure investment.

The CaFCP has expanded its presence in Southern California at the request of South Coast AQMD and in light of the increased deployment of vehicles, the large number of fueling stations and the greatest air quality need in this region. A CaFCP Regional Coordinator based in our region supports member activities and outreach and an Infrastructure Specialist facilitates hydrogen station development. South Coast AQMD has cofunded 50 percent of the Regional Coordinator for the last several years..

Major accomplishments during Calendar Year (CY) 2019 include:

- Continued retail production and deployment of fuel cell cars, trucks and buses in California. As of November 1, 2019, there have been 7,703 cumulative total fuel cell electric vehicle (FCEV) sales and leases by Honda, Hyundai and Toyota in California<sup>1</sup>, 43 retail hydrogen stations are open (21 in South Coast) with 20 more new/upgraded retail stations funded. There are 31 fuel cell buses in operation served by 4 stations and 3 truck stations in development. As of November 21, 2019, 48 hydrogen stations were approved for CARB LCFS ZEV infrastructure crediting;
- Implementation of “Medium & Heavy-Duty Fuel Cell Electric Vehicle Action Plan”<sup>2</sup>
- Completed and released “A Road Map for Zero Emission, Fuel Cell Electric Buses in California<sup>3</sup>,” and
- Increased the presence of the CaFCP in Southern California through coordination of ombudsman activities in early market communities. Recent events in our region include presentation to Korean American Energy Association Symposium on Hydrogen in Buena Park, support for El Dorado National FC Bus Open House in Riverside, and support for Kenworth-Toyota Class 8 truck at FC Seminar & Energy Expo in Long Beach.

The CaFCP introduced varying levels of fees to increase interest and reduce the overall cost of membership. Each CaFCP Executive Member has a representative on the Executive Board. Current Executive Members include:

- Seven automotive manufacturers (General Motors, Toyota, Daimler, Honda, Hyundai, Nissan and Nikola Motor Co.);
- Six industry stakeholders (Air Liquide, Anglo American, Cummins, Energy Independence Now, Iwatani and Shell);
- Three government agencies (South Coast AQMD, CARB and CEC); and
- The Governor’s Office of Economic Development (GO-Biz).

In 2019, Cummins joined and Volkswagen withdrew from Executive Board membership. There are currently 33 Full and Associate Members, with commensurate benefits and voting rights.

The CaFCP retains Frontier Energy, Inc., to provide the needed support for the common tasks agreed to by the CaFCP, and each member contracts directly with Frontier Energy acting on behalf of the CaFCP.

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<sup>1</sup>Number of cumulative total FCEV sales data from HybridCars.com and Carsalesdatabase.com

<sup>2</sup>[https://cafc.org/buses\\_trucks#buses\\_action\\_plan](https://cafc.org/buses_trucks#buses_action_plan)

<sup>3</sup><https://cafc.org/sites/default/files/2019-CaFCP-FCEB-Road-Map.pdf>

## **Proposal**

The fee of \$70,000 per Executive Member supports the activities planned for 2020, with additional membership levels designed to encourage participation albeit with lesser benefits and no voting rights on the Executive Board. The non-paying, advisory role is proposed to continue engagement with staff at federal agencies. The proposed budget for 2020 is \$1,248,580, with plans to continue encouraging new membership and evolving to a structure that will support additional growth. Mary Nichols (CARB), served as 2019 Vice-Chair, and Sandra Berg (CARB) will serve as 2020 Chair, with Jerome Gregeois (Hyundai) serving as Vice-Chair. Dr. Burke will serve as South Coast AQMD's representative, along with 16 other Executive Members. The majority of fuel cell vehicle deployment growth is anticipated to be within the South Coast Air Basin over the next couple of years, enhanced by the development of hydrogen stations in more early markets in California and beginning in several northeast states.

The proposed CaFCP activities for 2020 include:

- Develop the necessary infrastructure and processes to support expanded vehicle rollout for the first 200 hydrogen stations and longer-term exponential growth to reach 1,000 stations and related customer interface tools;
- Provide forums and opportunities for members to advance group collaboration and progress within CaFCP and among an expanding stakeholder base, including national coordination; and
- Reach target markets, audiences and communities to educate, inform and promote hydrogen and fuel cell vehicles and accelerate greater commercial adoption.

These actions are to execute a contract with Frontier Energy to renew South Coast AQMD's membership in the CaFCP for CY 2020 and cofund a portion of the CaFCP Regional Coordinator position and infrastructure development staff activities. This action is also to receive and file the CaFCP Executive Board Meeting Agenda for October 2019 and Activity Updates for the second (April-June) and third (July-September) quarters of 2019.

## **Sole Source Justification**

Section VIII.B.2. of the Procurement Policy and Procedure identifies provisions under which a sole source award may be justified. This request for a sole source award is made under provision B.2.d.: Other circumstances exist which in the determination of the Executive Officer require such waiver in the best interests of South Coast AQMD. Specifically, these circumstances are B.2.d.(1): Projects involving cost-sharing by multiple sponsors. The major sponsors expected to contribute financially to the CaFCP include eight automakers, six industry stakeholders and two government agencies (including South Coast AQMD).

**Benefits to South Coast AQMD**

Membership in the CaFCP is consistent with the *Technology Advancement Office Clean Fuels Program 2019 Plan Update* under “Hydrogen and Mobile Fuel Cell Technologies & Infrastructure” and “Assessment and Technical Support of Advanced Technologies and Information Dissemination.” South Coast AQMD supports the development, demonstration and commercialization of zero and near-zero emission vehicles and strives to educate public and private organizations regarding the benefits and characteristics of these vehicles.

**Resource Impacts**

South Coast AQMD’s support of the CaFCP for CY 2020, provided through a contract(s) with Frontier Energy, Inc., will not exceed \$120,000 from the Clean Fuels Program Fund (31), comprised of up to \$70,000 for membership and up to \$50,000 for a portion of the cost of the Southern California Regional Coordinator position and infrastructure development staff activities.

Sufficient funds are available from the Clean Fuels Program Fund, established as a special revenue fund resulting from the state-mandated Clean Fuels Program. The Clean Fuels Program, under Health and Safety Code Sections 40448.5 and 40512 and Vehicle Code Section 9250.11, establishes mechanisms to collect revenues from mobile sources to support projects to increase the utilization of clean fuels, including the development of the necessary advanced enabling technologies. Funds collected from motor vehicles are restricted, by statute, to be used for projects and program activities related to mobile sources that support the objectives of the Clean Fuels Program.

**Attachments**

1. California Fuel Cell Partnership October 16, 2019, Executive Board Meeting Agenda
2. California Fuel Cell Partnership Activity Updates (Quarters 2 and 3 for 2019)





**October 16 CaFCP Public Forum Agenda**  
***Enabling Environmental and Economic Priorities  
through Hydrogen and Fuel Cell Technologies***

California Energy Commission – Rosenfeld Hearing Room  
1516 9<sup>th</sup> Street, Sacramento CA 95814

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**15 minutes**

9:00–9:15am  
CaFCP Chair

**1. Welcome and opening remarks**

Welcome comments by chair and overview of the board agenda

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**75 minutes**

9:15–10:30am  
CaFCP  
Hyundai  
Air Liquide

**2. Transitioning from Market Launch to Revolutionary Success**

2019 witnessed strong progress and significant challenges in early market rollout, providing new insights as stakeholders transition the industry from market launch to scaled deployment. The board will hear the status of market rollout, lessons learned from early market challenges, and gain new understanding of the magnitude and opportunities for scaled rollout to achieve a [\*sustainable market for 2030\*](#).

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**30 minutes**

10:30–11:00am

**Break**

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**60 minutes**

11:00am–12:00pm  
US EPA  
Shell  
Nikola

**3. Heavy-duty Fuel Cell Electric Trucks: Analysis and Strategies**

The CaFCP board tasked staff to focus more on HD applications, especially the nascent FCET market. Since April, staff have been assembling stakeholders, identifying opportunities and challenges, and developing strategies to accelerate progress. The board will hear about collaborations driving the market, the environmental advantages and challenges of FCET deployment, and approaches and strategies to capitalize on this important application.

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**75 minutes**

12:00–1:15pm

**Lunch - on your own**

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**60 minutes**

1:15–2:15pm  
AC Transit  
Ballard  
New Flyer

**4. Heavy-duty Fuel Cell Electric Buses: Progress and Acceleration**

Commercial progress and new regulations have FCEBs poised for a full market transition, and CaFCP's new [\*FCEB Roadmap\*](#) outlines the necessary steps to help make this happen. The board will review a new transit agency outreach proposal designed to help the state reach its 100% zero emission transit bus purchase target with FCEBs.

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**30 minutes**

2:15–2:45pm  
CaFCP

**5. California and National Outreach Activities**

Since the April board meeting the CaFCP government relations and communications task force has been developing CaFCP's messaging priorities and strategies and have developed a proposal for the board to expand current SOSS capabilities. The board will also hear about a new national hydrogen study that will be useful for California's rollout activities.

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**30 minutes**  
2:45–3:15pm

**Break**

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**60 minutes**  
3:15–4:15pm  
Air Liquide  
GO Biz

**6. National Organization Activities**

As the commercial market advances in California, stakeholders and the board have encouraged consolidation and prioritization of collaborative efforts in California and nationally. Following up on the April directive to investigate a more effective national approach, board members will hear progress made, discuss priorities, and decide on next steps toward consolidated collaborative efforts that will propel the market forward.

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**30 minutes**  
4:15–4:45pm  
CaFCP

**7. CaFCP Executive Board Business Meeting**

- April 2019 board meeting decisions and assignments
- Member updates
- Public comment period\*

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**15 minutes**  
4:45–5:00pm  
CaFCP Chair

**8. Closing remarks**

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\* **Public comment period:** The public comment period provides an opportunity for members of the public to address the CaFCP Executive Board on subjects related to the mission and activities of CaFCP. Each person will be allowed a maximum of three minutes to ensure that everyone has a chance to speak.

Agenda items may be taken out of order and times may vary from those listed in the agenda. The board may choose to limit public comment at the chair's discretion.

This meeting is open to the public and will not be available by phone. This facility is accessible to persons with disabilities. Deadline for requesting ADA modification is **October 14, 2019**. Meeting materials will be posted at [www.cafcp.org](http://www.cafcp.org).



### EVENTS/ACTIVITIES | Staff Lead: J Contreras

Quarter 2 and 3, 2019	
3/30-4/2	AICHe Test Drive and Center for Hydrogen Safety Ceremonial Event, New Orleans, LI – (J. Hamilton, K. Malone and J. Contreras)
4/4-5	Shell Econ Marathon Test Drive and Stakeholder Outreach Event, Sonoma, CA (K. Malone, N. Kendall, L. So and J. Contreras)
4/18	Air Liquide Driver Appreciation Day – Palo Alto, CA (J. Contreras)
4/18	Veloz Webinar April 18: Fuel Cell Electric Vehicles and Hydrogen Fueling Infrastructure, Sacramento, CA (Speaker: B. Elrick)
4/19	Air Liquide Driver Appreciation Day – LAX (K. Malone)
4/24-26	California Solar Power Expo, San Diego, CA ( K. Malone. J. Contreras)
4/24-26	ACT Expo, Long Beach, CA (D. Park, N. Bouwkamp)
4/28	Santa Barbara Earth Day Event, Santa Barbara, CA (K. Malone)
4/29-5/2	Annual Merit Review, Washington, D.C. (B. Elrick, J. Hamilton and N. Bouwkamp)
5/14	Carson City, Stakeholder Outreach and Static Display, Carson City, NV. (B. Elrick, K. Malone and J. Contreras)
5/16	Iwatani Grand Opening of West Sacramento Hydrogen Station, West Sacramento, CA. (K. Malone)
5/21	Renewable Power to Fuels Symposium, Portland (Moderator, K. Malone)
5/21-23	Hydrogen Fuel Cell Conference, Vancouver, British Columbia (Speaker, B. Elrick)
5/23	Green Transportation Summit, Tacoma, WA (Speaker K. Malone)
5/31	Air Resources Board ZEV Workshop – Static Display (J. Contreras)
6/11	City of San Francisco Hydrogen Community Workshop, San Francisco, CA (Speaker, J. Hamilton, Speaker, K. Malone and J. Contreras)
6/12	KAEA Energy Symposium, Buena Park, CA (Speaker, D. Park)
8/9	Los Angeles on the International Stage event, (LAEDC offices) (K. Malone)
9/3-5	Pacific Fuels & Convenience Summit, San Diego, CA. (Speaker, K. Malone)
9/5	Webinar Fuel Cell Mobile Emergency Response Vehicle, (J. Hamilton)
9/23-27	Video Shoot for Center for Hydrogen Safety Program, Los Angeles, Palm Desert, Long Beach and San Juan Capistrano, CA (J. Hamilton)
9/23-26	Hydrogen + Fuel Cells International at Solar Power International & Energy Storage International in Salk Lake City,UT (Manage Panel Sessions, J. Contreras, K.Malone, B. Elrick)
9/25	Utah Hydrogen Strategy Outreach Meeting, Salt Lake City, UT (B. Elrick, K. Malone and J. Contreras)

9/26-27

International Zero Emission Bus Conference, San Francisco, CA (B. Elrick, N. Bouwkamp, and K. Malone)

## SECTOR GROUPS

### **AUTOMOTIVE GROUP** | Member Lead: M McClory | Staff Lead: D Park

The Automotive Group initiated activities around a number of SOSS topics

- To provide better clarity when communicating to customers.
- Standardization of station capacity reporting.
  - Evaluation of hardware options.
- Clearance of the Cal State LA hydrogen fueling station for listing on SOSS.
- Review of SOSS listing requirements.

The Group responded to California Energy Commission inquiries related to the Draft GFO (18-HYD-04).

- Station capacity criteria- Staff participated in CEC/USDOE NREL HySCapE workshop & coordinated a joint OEM SDO response to the 18-HYD-04 Docket.
  - HySCapE model usage in station characterization.
  - Fill time/time between fills.
- Near field communications at Point of Sale- Staff coordinated an OEM response on this topic to the 18-HYD-04 docket.

CARB AB8 Report.

- Staff conducted individual company discussions around CARB's 2019 AB8 Report findings and provided feedback to CARB staff.
- Staff facilitated Group discussion of AB8 Report findings and initiated a coordinated response.

Staff provided coverage of CARB and CEC meetings

### **GOVERNMENT GROUP** | Member Lead: G Vacin | Staff Lead: B Xiong

The Station Confirmation Group discussed next steps to complete commissioning of the Cal State LA, Burbank, Berkeley, and the three San Francisco (3<sup>rd</sup> Street, Harrison Street, Mission Street) stations. Once ready, the Cal State LA station will be listed on SOSS as a "Legacy Open Retail Station". CaFCP and Go-Biz has worked with Cal State LA to understand the limitations of the station and language has been developed to communicate to customers the limitations. NEL is working on a timeline to complete lessons learned at the Burbank station from the Norway event. Current City of Burbank administration is asking for lease payment from H2Frontier and is not in their budget to provide this lease payment. A satellite group will be meeting to strategize how to help H2Frontier over this hurdle. Please refer to the Go-Biz SmartSheet for details.

HyStEP will next be at the San Francisco Mission Street station in October.

2 stations were set to Open-retail: Sacramento and Oakland

At the request of the Station Confirmation Group, CaFCP presented options using Power BI to create data visualization reports using SOSS availability data on a map with the ability to filter the data by region and over time. Proposals are being put together for consideration on implementation.

**STATION DEVELOPER/OPERATOR GROUP** | Member Lead: A Harris | Staff Lead: D Park

The SDO Group discussed a number of SOSS upgrade initiatives

- Staff conducted outreach to individual SDOs to determine capacity reporting logic to SOSS
- Staff held group SDO discussion around the topic of standardization of station capacity reporting.
  - Discussion of hardware options.

The Group responded to California Energy Commission inquiries related to the Draft GFO (18-HYD-04).

- Station capacity criteria- Staff participated in CEC/USDOE NREL HySCapE workshop & coordinated a joint OEM SDO response to the 18-HYD-04 Docket.
  - HySCapE model usage in station characterization.
  - Fill time/time between fills.

CARB AB8 Report.

- Staff facilitated Group discussion of AB8 Report findings and initiated a coordinated response.

Staff provided coverage of CARB and CEC meetings

**MHD GROUP (FCET & FCEB)** | Member Lead: N Berry | Staff Lead: K Malone

Emphasized need for dedicated funding to implement HD H2 ZEV fueling infrastructure at CARB HD funding meetings, both for buses and trucks.

Staff moderated the fuel cell electric truck manufacturer industry panel at CHBC's Hydrogen and Fuel Cells for Freight Workshop organized in conjunction with ACT Expo in Long Beach.

Staff met with the Congressional Research Service to discuss FCETs in Washington, DC.

Staff continued the drafting of an HD H2 infrastructure fact sheet for outreach purposes to decision makers based on industry input submitted for this purpose.

Staff attended Green Transportation Summit and Expo in Tacoma, participating in keynote panel and panel discussion on H2 and FCEVs. GTSE Expanded reference and interest in hydrogen and fuel cell technology in the heavy-duty realm. Prior to the event, staff led panel discussion on H2 and FCEVs at Renewable Power to Fuels Symposium in Portland.

Staff participated in and presented about maritime H2 fueling at US DOE and FCHJU's H2@Ports workshop in San Francisco

CaFCP released the Bus Road Map 2.0 "Fuel Cell Electric Buses Enable 100% Zero Emission Bus Procurement by 2029" via email blast and social media.

In collaboration with CHBC staff, staff updated the FCEB Fact Sheet.

Staff attend the Zero Emission Bus Conference in San Francisco. Copies of the Bus Road Map were placed in the hands of key stakeholders.

Staff continues to work with the CaFCP HD FCET industry members task force to draft a strategy for FCETs within CaFCP and for California.

## PROJECT TEAMS

**SAFETY CODES & STANDARDS** | Member Lead: A Harris | Staff Lead: J Hamilton

### CSA Group:

- HGV 4.3 *Fueling parameter evaluation* published in July 2019. Work on the next edition of HGV 4.3 will be to align with definitions in SAE J2601.
- HGV 4.1 *Hydrogen dispensing system* Industry Review closed. Some final comments are being dispositioned by the TSC currently
- HGV 4.9 *Hydrogen fueling stations*. All comments have been dispositioned. The revised draft is being edited and will then be finalized for Technical Committee Ballot.
- SPE 2.1.3 *Best practices for defueling, decommissioning, and disposal of compressed hydrogen gas vehicle fuel containers* is out for Public Review with a close date of October 19, 2019.
- CHMC 2 *Chemical compatibility (Non-Metals)* published in August 2019.
- CSA Group's U.S. Committee Week is scheduled for October 28-30<sup>th</sup> in Cleveland, Ohio. Meetings planned are as follows:
  - HGV 4.4 *Breakaway valves, manual valves and automatic valves* and HGV 2 *Containers*
  - HPRD 1 *Thermally activated pressure relief devices*
  - FC 1 *Stationary fuel cell power systems*
  - HGV 4.10 *Fittings*
  - Hydrogen projects to be launched:
    - HGV 3.1 *Fuel system components for compressed hydrogen gas powered vehicles*
    - HGV 4.2 *Hoses for compressed hydrogen fuel stations*
    - HGV 5.1 *Hydrogen Refueling Appliance*
  -

### NFPA 2:

- Published/available as 2020 version Chris LaFleur (Sandia National Lab) is the new chair

### IFC/CFC:

- Last call on this topic held

### ISO/TC 197:

- **WG 24:** ISO/DIS 19880-1, *Gaseous hydrogen — Fueling stations — Part 1: General requirements*-. The Final Draft International Standard (FDIS) expected to go to ballot in Q4, 2019 upon which the working group will be disbanded.
- **WG 27:** Hydrogen Fuel Quality- ISO 14687 – In FDIS ballot (8/28 to 10/23/19); publication is expected by the end of 2019.
- **WG 28:** Hydrogen Quality Control- ISO 19880-8 In FDIS ballot (8/8 to 10/3/19); the WG will continue with H. Tomioka as the convener.

- **JWG 7: Analytical methods for hydrogen fuel — Proton exchange membrane (PEM) fuel cell applications for road vehicles-ISO 21087** Works in coordination with WGs 27 & 28; Published 6/26/19.

#### **ASTM D03.14 Subcommittee on Hydrogen and Fuel Cells:**

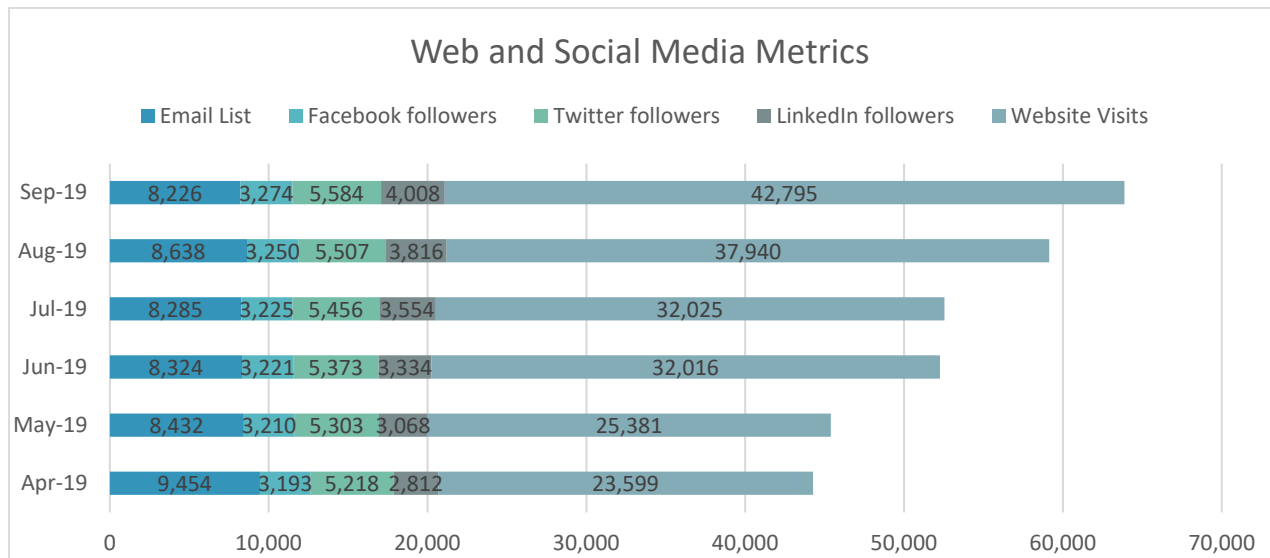
- In-person meeting held in June
  - ILS's on FTIR and Cavity Ring Down Spectroscopy are near completion; samples seemed to have degraded- last lab may not be included if this is the case. Updates to the corresponding documents will occur upon completion (ASTM D7653 and ASTM D7941/D7941M, respectively)
  - Committee agreed that D7652 Standard Test Method for Determination of Trace Hydrogen Sulfide, Carbonyl Sulfide, Methyl Mercaptan, Carbon Disulfide and Total Sulfur in Hydrogen Fuel by Gas Chromatography and Sulfur Chemiluminescence Detection should be put to ballot for withdrawal. The following reasons were cited:
    - Only one lab uses this method
    - There is no technical contact to revise it
    - Not enough labs to do an ILS beyond a single point study
- Planning for the June 2020 ASTM Workshop: Hydrogen Fuel Sampling and Analysis to be held at the in person meeting in Washington, D.C. (see Jennifer for information or to submit an abstract)

#### **SAE International:** In person Fuel Cell Interface and Safety Task Force meetings, June 2109

- **SAE J2600 (Fueling Hardware):** open for revision to add in HD fueling hardware; harmonize with ISO 17268; plan to have a draft doc by early December 2019;
- **SAE J2601 (Fueling Protocol):** proposed publication in late 2019 to early 2020
- **J2601/4 (Ambient Temperature Fueling Protocol):** comments to the draft still being discussed; regular meetings being held
- **SAE J2719 (Fuel Quality):** harmonize with ISO 14687; needs a 14-day affirmation ballot, with publication end of year 2019
- **SAE J2579 (Fuel Systems):** updating for HD storage cylinders and harmonizing with ISO and GTR #13 for material compatibility, performance-based stress rupture, permeation/leak requirement; localized/engulfing fire test

#### **2030 VISION** | Member Lead: M Forrest | Staff Lead: B Elrick

- California Fuel Cell Revolution continues to be referenced and insinuated in all CaFCP public activities, most recently the AB 8 report. Members can access *The California Fuel Cell Revolution* slide deck on Member resources ([http://cafcpmembers.org/system/files/documents/CAFCR\\_Vision2030-Presentation-Final.zip](http://cafcpmembers.org/system/files/documents/CAFCR_Vision2030-Presentation-Final.zip))
- The one-year anniversary was acknowledged through an email blast and social media, highlighting key messages from the vision. A fact sheet is being prepared that provides the highlights and key messaging of the 2030 Vision.



- Staff organized a panel presentation on hydrogen and fuel cell electric vehicles at the Pacific Convenience and Fuels Summit that resulted in strong attendance and strong interest. Based on questions and interactions at the summit, it is clear that gas station owners, fuel marketers and fuel carriers are increasingly interested in hydrogen as a new business opportunity.
- Staff assisted in the organizing and implementation of panel sessions and individual speakers at the Hydrogen + Fuel Cells International that took place in conjunction with Solar Power International in Salt Lake City. Unlike last two HFCIs, attendance at panel discussions were attended mostly by solar industry stakeholders, reflecting a growing interest in hydrogen as a business solution and opportunity.
- A side meeting of Utah stakeholders, including prominent state legislators, at Solar Power International initiated a long-term conversation about the role that state can play, reflecting great interest on the part of Utah. This follows outreach to Nevada state legislators earlier in the year; while it did not produce similar enthusiasm, legislators were interested and open to FCEVs and learning more. They did not harbor biases about the technology.
- Staff assisted in the organizing and implementation of station celebrations, including the Iwatani West Sacramento station and Air Liquide’s Palo Alto and LAX stations. All three experienced good turnout. While the Air Liquide events were focused exclusively on customers, the Iwatani event was focused on a broader audience. Given the amount of effort required for these types of events, and the number of stations expected to open over the next year, the ability for CaFCP staff to organize and manage events may be limited.
- Staff prepared messaging and information to assist members in talking about the Santa Clara Air Products incident in June.
- Staff continue to regularly field calls and emails from news media regarding a variety of topics. While CaFCP does not have the capacity to pitch stories, staff has the ability to respond, refer and assist with information requests.

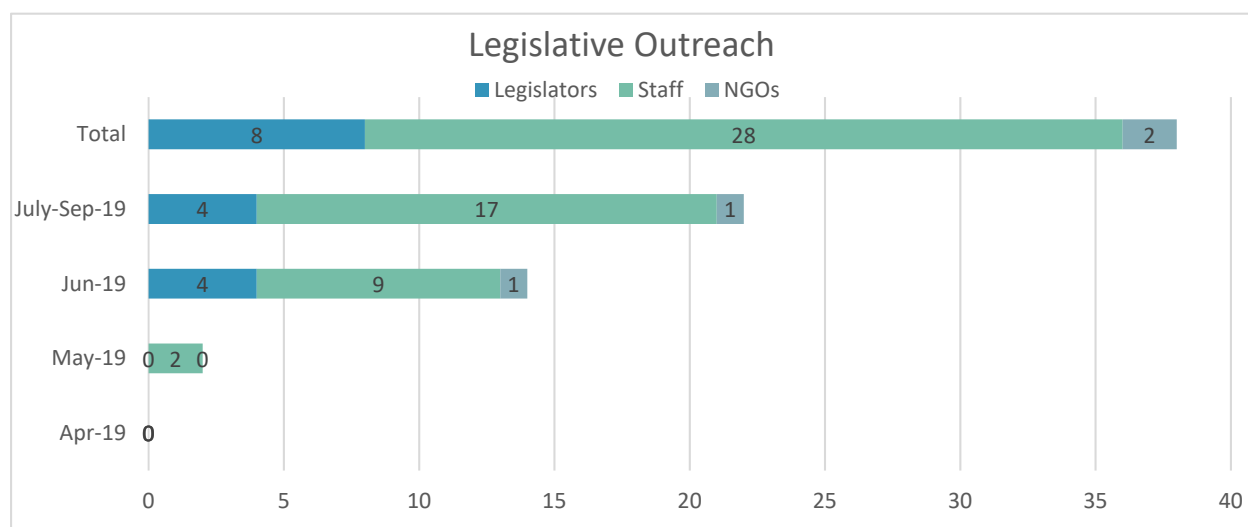


**SOSS | MEMBER LEAD: J BIRDSALL | STAFF LEAD: B XIONG**

Working with CARB and station developers and operators on integrating SOSS and LCFS activities, ongoing. A proposal has been put together to request for an upgrade of SOSS that will cover four major areas: database upgrades, LCFS reporting, data visualization, and customer experience upgrades. A proposal will be presented at the Executive Board to request resources in 2019 to put together detailed proposals for the four areas.

Draft definitions for public-facing SOSS statuses (online, limited, offline, unknown) have been put together by the SDO group. Additional work is underway to produce internal definitions of the statuses and a path forward to make those updates at the stations to have all stations reporting using the same definitions.

**GOVERNMENT AFFAIRS | Member Lead: S Baker | Staff Lead: K Malone**



Email conversation with district aide of State Senator Anthony Portantino (D-Glendale/Pasadena) regarding state bidding process for hydrogen stations and incentives for in-state companies. Conversation was initiated because of complaint by constituent business in Senator’s district. Assembly Member Laura Friedman’s district office similarly reached out when the same business contacted them.

Email conversation with district director of Congresswoman Jackie Speier (D-San Mateo) regarding CaFCP email blast re the “2018 Annual Assessment of Time & Cost Needed to Attain 100 Hydrogen Refueling Stations in California” and CO2 emission reductions of hydrogen. Discussion of decarbonized hydrogen ensued.

Request from district office of Congressman Jim Costa (D-Fresno)office for a fuel cell vehicle in Fresno on National Hydrogen Day. Request came too late to enable assistance.

Staff worked with California Foundation on the Environment and the Economy to host a briefing for legislators and other key opinion leaders that included hydrogen and FCEVs as a topic. Bill Elrick participated in this and a subsequent briefing.

Assisted Renewable Hydrogen Alliance with messaging for their lobbying efforts in Washington State.

Assisted Utah Representative Ballard with industry-government workshop on developing hydrogen and fuel cell opportunities in Utah, leveraging H2+FC North America conference (part of Solar Power

International; largest North America solar and storage conference). Utah eager to learn from California and build upon and expand that success.

Early discussions with California Fuels + Convenience Alliance (gas station owners, fuel carriers and fuel marketers) may lead to a legislative briefing that focuses on fuel cell cars and trucks, and hydrogen infrastructure. The brief would position FCEVs and H2 as an on-ramp and just transition to zero-emission vehicles for this industry. Their March 30 "Day in the Capitol" may be the ideal time.

It should also be noted that many legislative staff are on CaFCP's mail list, and regularly receive emails.

Two meetings (July and October) of the Government Relations and Communications Task Force have taken place, helping guide development of the CaFCP legislative plan for 2020 and beyond. A draft plan will go before Steering Team in November. Fact sheet topics have been identified and staff will begin working with members to identify key message points, information and data. Goal is to have at least key fact sheets ready by end of the year. Task force discussions not only focused on material development, but also the need for a social media and news media educational campaign to complement legislative education and lobbying, and the need for grassroots lobbying development (FCEV drivers, etc.).

# Agenda Item #2

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Renew CaFCP Membership for 2020 and  
Receive and File CaFCP Executive Board Meeting  
Agenda and Activity Updates

# Background



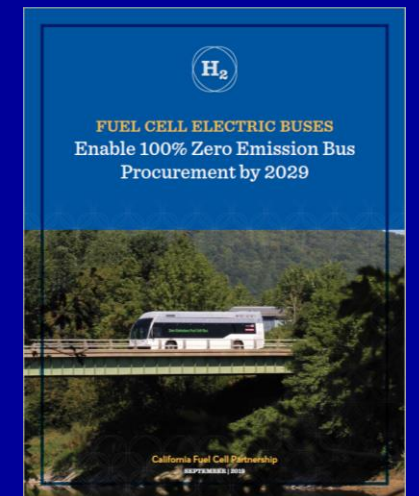
- The CaFCP was created in 1999  
*“Promote fuel cell vehicle commercialization as a means of moving towards a sustainable energy future.”*
- South Coast AQMD joined in 2000
- 17 current Executive Board Members
  - Automobile manufacturers (7)
  - Government agencies (4)
  - Industry stakeholders (6)
- 33 full & associate members

# 2019 CaFCP Highlights

- Continued retail production and deployment of fuel cell cars, trucks and buses in California
- Implementation of “Medium & Heavy-Duty Fuel Cell Electric Vehicle Action Plan”\*
- Completed and released “A Road Map for Zero Emission, Fuel Cell Electric Buses in California”\*\*
- Increased the presence of the CaFCP in Southern California

\*[https://cafcp.org/buses\\_trucks#buses\\_action\\_plan](https://cafcp.org/buses_trucks#buses_action_plan)

\*\*<https://cafcp.org/sites/default/files/2019-CaFCP-FCEB-Road-Map.pdf>



# CaFCP Recent Event Highlights



Korean American Energy Association  
Symposium on Hydrogen  
June 12, 2019  
Buena Park, CA



El Dorado National  
FC Bus Open House  
September 18, 2019  
Riverside, CA



FC Seminar & Energy Expo  
Kenworth-Toyota Class 8  
November 5, 2019  
Long Beach, CA



# CaFCP Goals For 2020

- Support expanded vehicle rollout, including cars, buses and trucks, for the first 200 hydrogen stations and longer term exponential growth to reach 1,000 stations with related customer interface tools
- Provide forums and opportunities for members to collaborate within CaFCP and among an expanding stakeholder base, including national coordination
- Reach target markets and communities to educate and promote hydrogen and FCEVs and accelerate commercial adoption

# Recommended Actions

- Execute contract(s) from the Clean Fuels Program Fund (31) with Frontier Energy, Inc., acting on behalf of the CaFCP:
  - Renew South Coast AQMD's membership for 2020 at Executive Board level not to exceed \$70,000
  - Provide support for Regional Coordinator and infrastructure development staff activities in our region not to exceed \$50,000
- Receive & File October 2019 Executive Board Meeting Agenda and 3rd & 4th Quarter Activity Updates