

BOARD MEETING DATE: March 4, 2022

AGENDA NO. 6

PROPOSAL: Renew Membership in California Fuel Cell Partnership, Execute Contract, Receive and File California Fuel Cell Partnership Executive Board Meeting Agendas and Activity Updates

SYNOPSIS: 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 for Calendar Year 2022, execute a contract from the Clean Fuels Program Fund (31) with Frontier Energy, Inc., acting on behalf of the CaFCP in an amount not to exceed \$40,000 and receive and file the CaFCP Executive Board Meeting Agendas for March 30, 2021 and October 20, 2021; and Activity Updates for 2021.

COMMITTEE: Technology, February 18, 2022; Recommended for Approval

RECOMMENDED ACTIONS:

1. Authorize the Chair to execute a contract with Frontier Energy, Inc., acting on behalf of the CaFCP, to renew South Coast AQMD's membership in the CaFCP for Calendar Year 2022 in an amount not to exceed \$40,000 from the Clean Fuels Program Fund (31); and
2. Receive and file the CaFCP Executive Board Meeting Agendas for March 30, 2021 and October 20, 2021 and Activity Updates for 2021.

Wayne Nastri
Executive Officer

MMM:AK:JI:LHM

Background

California Fuel Cell Partnership 2022 Membership

The California Fuel Cell Partnership (CaFCP) was initiated in 1999 to accelerate response to CARB's Zero Emission Vehicle (ZEV) regulations. The AQMP and the Technology Advancement Office's Clean Fuels Program 2022 Plan Update have

identified fuel cells for on- and off-road applications, especially medium- and heavy-duty vehicles, 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 at the highest level of membership in March 2000.

Each CaFCP Executive Board Member has a representative on the Board of Directors (will be renamed Champion Board Member in 2022). Mayor Carlos Rodriguez serves as the representative on the CaFCP Board of Directors for South Coast AQMD. As of December 31, 2021, Executive Members included:

- Seven automotive manufacturers (cellcentric, Daimler Trucks, Honda, Hyundai, Mercedes, Nikola Motor Co. and Toyota);
- Seven industry stakeholders (Air Liquide, Anglo American, Chevron, Cummins, Iwatani, Shell and SoCalGas);
- Two government agencies (South Coast AQMD and CARB); and
- Energy Independence Now and the California Governor's Office of Economic Development (GO-Biz).

By the end of 2021, there were also 46 Full (will be renamed Champion - Steering Team in 2022) and Associate Members, with commensurate benefits and voting rights.

Major accomplishments during Calendar Year 2021 include:

- Continued retail production and deployment of fuel cell cars, trucks, buses and infrastructure in California. As of January 1, 2022, there have been 12,283 cumulative total fuel cell electric vehicle (FCEV) sales and leases by Honda, Hyundai and Toyota in California¹, 49 retail hydrogen stations are operating (24 in South Coast) with 58 more new/upgraded retail stations planned. Of the 49 operating, three were constructed without CEC co-funding (but will generate LCFS credits during operation). There are 48 fuel cell buses in operation served by four stations plus 58 fuel cell buses in development. Two demonstration truck stations are operating, one demonstration station is in commissioning, plus co-funding was approved for four more truck stations. As of November 4, 2021, 62 light-duty hydrogen stations were approved for CARB LCFS ZEV infrastructure crediting;
- Developed and published the Fuel Cell Electric Truck Vision document in July, supported through presentations at conferences and other opportunities. Conducted monthly teleconferences of the Heavy-Duty Fuel Cell Electric Truck Task Force, providing a forum for members to learn more about funding

¹Number of cumulative total FCEV sales data from HybridCars.com and Carsalesdatabase.com

opportunities and proposed regulations, as well as multiple other sector-focused groups;

- Since in-person events were restricted due to COVID-19, virtual activities included quarterly online briefings about hydrogen station status and vehicle rollout in California, the California Hydrogen Policy Series continues with participation and co-sponsorship from California Hydrogen Coalition, California Hydrogen Business Council and others, and periodic webinars on topics like the CEC – CARB AB 8 joint report, and GO-Biz Briefings; and
- Continued to develop the legal transition to a new non-profit organization to expand capabilities to support implementation of the *California Fuel Cell Revolution*.

Proposal

The proposed CaFCP activities for 2022 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 for light duty, as well as the initial 200 heavy-duty stations, along with related infrastructure tracking and 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 expansion; and
- Reach target markets, audiences and communities to educate, inform and promote hydrogen and fuel cell vehicles and accelerate greater commercial adoption across applications.

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.

Staff proposes the following actions:

- Continue South Coast AQMD's membership for Calendar Year 2022 at the Champion Board of Directors level for a total amount not to exceed \$40,000 for common expenses of the CaFCP.
- Receive and file the CaFCP Executive Board Meeting Agenda for March and 2021 and Activity Updates for 2021.

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 seven automakers, seven industry stakeholders, one non-profit and two government agencies (in addition to South Coast AQMD). CaFCP membership is only available via sole source contract with Frontier Energy.

Benefits to South Coast AQMD

Membership in the CaFCP is consistent with the draft *Technology Advancement Office Clean Fuels Program 2022 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 Calendar Year 2021, provided through a contract(s) with Frontier Energy, Inc., will not exceed \$40,000 from the Clean Fuels Program Fund (31).

Attachments

1. California Fuel Cell Partnership March 30 and October 20, 2021, Executive Board Meeting Agendas
2. California Fuel Cell Partnership Activity Updates for 2021

CaFCP Executive Board Meeting – Teleconference

30 March 2021

10:00am – 12:00pm PT

Remote Only, **please register** here: <https://register.gotowebinar.com/register/7389616850831406608>

AGENDA

- Antitrust statement
- Chair welcome and 2021 direction
- California ZEV Market Strategy report presentation – *Tyson Eckerle, GO Biz*
- CaFCP Program Activities
 - New member proposal
 - FCET Team and Vision document
- Priorities Status Reports
 - New organization status
 - H2 Strike Force proposal
 - Expansion proposal update and discussion
- Public Comment
- Meeting Close

ANTITRUST GUIDELINES

It is the express intent of the CaFCP and its Members that none of the CaFCP's activities violate or be in conflict with any federal, state or local antitrust law, rule or policy (collectively, the "antitrust laws"). Each Member will conduct its affairs in conformity with this intent. Each Member is aware that there are significant civil and criminal penalties for violating the antitrust laws. To the extent possible, the Members of the CaFCP will act in a manner substantially in compliance with the policy entitled "Antitrust Guidelines for Collaboration Among Competitors" issued by the Federal Trade Commission and the Department of Justice in April 2000 ("Antitrust Guidelines"). The Antitrust Guidelines are available for reference on the CaFCP's Member resources website. The Antitrust Guidelines will be referenced in advance of the CaFCP meetings.

CaFCP Executive Board Meeting – Teleconference

20 October 2021

9:00am – 12:00pm PT

Remote Only, please **register** here: <https://register.gotowebinar.com/register/2990470835242058254>

AGENDA – Public Board Meeting

- Antitrust Statement
- Welcome, *Chair Jerome Gregeois*
- CaFCP Program Highlights
- CaFCP Organizational Update
 - New organization development
 - Membership Committee
 - Finance Committee
 - Expansion proposal
- U.S. DOE Update, *HFCTO Director Sunita Satyapal*
- Market Activities
 - FCET Vision
 - H2 Strike Force proposal
- Formal Board decisions
 - 2022 meeting dates
 - 2022 program plan and budget
 - 2022 vice chair/2023 chair nomination
 - New member proposals
- Preparing for 2022, *Vice Chair Joe Cappello*
- Public Comment
- Meeting Close

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The California Fuel Cell Partnership and its members continue to advance the market for fuel cell electric vehicles and the hydrogen infrastructure network, collaborating on ideas and actions that will create a sustainable future for zero-emission cars, trucks and buses. [The California Fuel Cell Revolution](#) continues to be a leading guide towards laying the foundations to achieve 1,000 stations to support the state's objective of 100% light-duty ZEV sales by 2035 while the [Fuel Cell Electric Trucks: A Vision for Freight Movement in California – and Beyond](#) calls for 200 stations serving upwards of 70,000 heavy-duty trucks by 2035 to meet 2045 HD state objectives¹.

SECTOR GROUP UPDATES

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

- Coordination with CaFCP Station Developer/Operator Workgroup;
- [CaFCP Station Map](#) Topics:
 - Map legend categories were updated to more clearly communicate the retail hydrogen fueling network. New categories are “Construction,” “Permitting” and “Proposed” changed from the original, “Development,” “Planning,” and “Proposed.”
 - “Currently Unavailable” stations removal from- and reinstatement to- the map.
 - Heavy-duty Bus and Truck stations were added, noting inaccessibility for cars.
 - Private Station Development listing and methodology ongoing at the end of 2021.
 - Station map update- implement SOSS directly onto the Station Map;
- Station confirmation:
 - OEM Best Practices station confirmation process developed in response to Covid19 related station confirmation bottlenecks, including CARB HySTEP staff travel restrictions.
 - Process can be used in regions outside of CA.
 - Two stations confirmed using this process in 2021.
 - Initiated investigation of a station confirmation process that removes OEMs from the station confirmation process.
- [SOSS](#) Topics:
 - SOSS data visualization activities initiated.
 - POS failure and SOSS “Offline,” ongoing work with SDOs to minimize false positive (POS failure, but “Online” SOSS signal).
 - “Refresh” and station notes data transmission to OEM applications implemented.
 - Initiated Private-funded station methodology and listing on SOSS.
 - Developed a SOSS QR code sticker and distributed to SDOs for hydrogen dispensers.
 - Initiated discussion of proposal to remove H35 from the SOSS main page; Outcome – H35 will continue to be listed on the SOSS main page when still available at a station.
- Station Development Tracking Topics

¹ Members can access these publications and related slide decks and other materials on the CaFCP website's [Resources](#) page

- Initiated proposal for tracking Private Station Development with GoBiz, as it does with publicly funded station developments (multiple new privately-funded stations).
- Facilitated communication of Northeast US hydrogen station development progress to OEM members.
- Station Buyer's Guide - Developed and posted on CaFCP website. OEM group and CaFCP staff developing a proposal of how the document may be further leveraged for greater progress.
- Hydrogen Supply and Distribution updates:
 - CaFCP staff worked with OEMs to provide FCEV drivers accurate messaging regarding supply and distribution of hydrogen during major disruptions.
 - Continue to post [alerts on SQSS](#)/station map regarding network issues, e.g. 2021 summer notices regarding high ambient temperature and station recharge challenges.
 - Back to back alerts posted regarding hydrogen supply chain- demand v. wholesale availability, Covid related supply chain disruptions, Sacramento distribution facility outage, Hurricane Ida disruption, demand vs. wholesale availability. –
 - CaFCP tracking of driver calls to be shared with OEM and SDOs.
- Hydrogen Network Health:
 - Guidance provided to CaFCP staff regarding methodology (metrics, identifying network issues and identifying solutions);
- California Regulatory Proceedings tracking:
 - CEC 2021 Transportation Investment Plan
 - CARB Clean Miles Standard
- CARB Draft 2020 Mobile Source Strategy
- Economic Stimulus
 - US DOE Earthshot CaFCP comment letter developed
- Attracting new OEM manufacturers
 - Initiated joint OEM/SDO discussions of how to attract new entrants to the marketplace.

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

- The Station Confirmation Group continued to meet bi-weekly to discuss next stations to complete commissioning. Please refer to [Go-Biz SmartSheet](#).
- The group continues to review and discuss stations that could potentially be removed from the [CaFCP Station Map](#) dependent on if they meet the new process of station removal. None were removed during this time period.
- 10 stations opened & moved to Open-retail in 2021: Aliso Viejo, Berkeley, Campbell–E. Hamilton, Concord, Costa Mesa–Harbor Blvd., Costa Mesa–Bristol St., Placentia, Sherman Oaks, Studio City, Sunnyvale
- 5 stations open but are Currently Unavailable: Riverside, Berkeley, San Francisco–Harrison Street, Mountain View, Ontario

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

- Hydrogen Supply and Distribution updates:
 - CaFCP staff worked with OEMs and SDOs to provide FCEV drivers accurate messaging regarding supply and distribution of hydrogen during major disruptions.

- Continue to post [alerts on SOSS](#)/station map regarding network issues, e.g. 2021 summer notices regarding high ambient temperature and station recharge challenges.
- Back to back alerts posted regarding hydrogen supply chain- demand v. wholesale availability, Covid related supply chain disruptions, Sacramento distribution facility outage, Hurricane Ida disruption, demand vs. wholesale availability.
- CaFCP tracking of driver calls to be shared with OEM and SDOs.
- Station Map topics
 - Listing of CEC 19-602 NOPA stations on Station Map.
 - Map legend categories were updated to more clearly communicate the retail hydrogen fueling network. New categories are “Construction,” “Permitting” and “Proposed” changed from the original, “Development,” “Planning,” and “Proposed.”
 - “Currently Unavailable” stations removal from- and reinstatement to- the map.
 - Heavy-duty Bus and Truck stations were added, noting inaccessibility for cars.
 - Private Station Development listing and methodology ongoing at the end of 2021.
 - Station map update- implement SOSS directly onto the Station Map;
- Codes and Standards:
 - CSA HGV 4.2; Harmonize requirements for hose standard.
- Frozen Nozzle
 - Outreach to customers how to cope with frozen nozzle.
- Station confirmation:
 - OEM Best Practices station confirmation process developed in response to Covid19 related station confirmation bottlenecks, including CARB HyStEP staff travel restrictions.
- Shell HyConnect wireless communication interface discussion.
- [SOSS](#) Topics:
 - SOSS automated notification for data error offered to SDO as a service.
 - SOSS data visualization activities initiated.
 - POS failure and SOSS “Offline,” ongoing work with SDOs to minimize false positive (POS failure, but “Online” SOSS signal).
 - “Refresh” and station notes data transmission to OEM applications implemented.
 - Initiated Private-funded station methodology and listing on SOSS.
 - Developed a SOSS QR code sticker and distributed to SDOs for hydrogen dispensers.
 - SOSS messaging guidelines
 - Initiated discussion of proposal to remove H35 from the SOSS main page; Outcome – H35 will continue to be listed on the SOSS main page when still available at a station.
 - Override station status feature added.
- Station Buyer’s Guide - Developed and posted on the CaFCP website.
 - Document is designed to communicate to potential station developers that these are the items that should be considered; provides a methodology for OEMs to step back from station confirmation.
- Hydrogen Strikeforce Jobs Survey SDO feedback solicited and subsequently, survey distributed.
- Hydrogen Network Health:
 - Guidance provided to CaFCP staff regarding methodology (chain of information, metrics, identifying network issues and identifying solutions).

- California Regulatory Proceedings tracking:
 - CEC 2021 Transportation Investment Plan
 - CARB Clean Miles Standard
 - CARB Draft 2020 Mobile Source Strategy
- Economic Stimulus
 - US DOE Earthshot CaFCP comment letter developed
- Attracting new OEM manufacturers
 - Initiated joint OEM/SDO discussions of how to attract new entrants to the marketplace.
 - Established recurring monthly CaFCP SDO group meeting for second Wednesday of each month

MHD GROUP (FCET & FCEB) | Member Lead: Shell/Toyota | Staff Lead: N Bouwkamp

- Completed creation and publication of *"Fuel Cell Electric Trucks: A Vision for Freight Movement in California—and Beyond"*, which provides decision-makers with a vision for developing sustainable markets for the HD class 8 truck sector by 2035
 - Hard copies of the document have been distributed to members and stakeholders, including ACT Expo and a number of legislative truck outreach events. Additional copies available upon request.
 - Staff presented the Vision through webinars and targeted stakeholder group presentations
 - Initiated the development of a subsequent roadmap document for FCETs
- Staff continue to track, engage members & provide input to CARB's Advanced Clean Fleet regulatory development process and CEC's EnergIZE (MD/HD ZEV fueling funding) process
- Monthly meeting to provide updates, regulatory process tracking and discuss HD related topics
- Supporting NREL CRADA project to develop publicly available high flow fueling protocol for HD H35 FCEVs (including management of industry contributions and facilitation of industry engagement)
- Supporting CHBC Transit SAG and collaboration with CHBC on topic of FCEBs
 - Initiated the organization of a transit board decision maker targeted FCEB Workshop at SunLine
- Participation in CalSTA process to provide direction to state to meet requirements of SB 671 related to ZET fueling infrastructure coordination/direction
- Participation in FCHEA's MD/HD Workgroup activities

PROJECT TEAMS

SAFETY CODES & STANDARDS | Member Leads: R. Early, S. Mathison | Staff Lead: J Hamilton

- ASTM D03.14 Subcommittee on Hydrogen and Fuel Cells: (Chair)
 - 2021 D03 committee week meeting in Anaheim, CA December 6-9, in person and remote
 - Workshop on in-line hydrogen fuel analyzers held December 9th; six presentations from both industry and National Labs.
 - Coordination of sampling work with SINTEF done in CA (September 2021) for ASTM D7650 (particulate sampling) and ASTM D7606 (gaseous sampling) and ISO 19880-9 Sampling for Fuel Quality Analysis (ISO/TC 197/WG 33) via the MetroHyVe2 project (<https://www.sintef.no/projectweb/metrohyve-2/>). The ASTM documents will most likely be harmonized with the ISO document.

- Inter Laboratory Studies (ILS) on FTIR and Cavity Ring Down Spectroscopy are in process of adding more labs to run the protocols; updates to the corresponding documents will occur upon completion (ASTM D7653 and ASTM D7941/D7941M, respectively)
- Other documents in revision:
 - D7675-2015 Test Method for Determination of Total Hydrocarbons in Hydrogen by FID-Based Total Hydrocarbon (THC) Analyzer
 - D7892-2015 Test Method for Determination of Total Organic Halides, Total Non-Methane Hydrocarbons, and Formaldehyde in Hydrogen Fuel by Gas Chromatography/Mass Spectrometry
 - D7651-2017 Test Method for Gravimetric Measurement of Particulate Concentration of H₂ Fuel
 - All three of these documents have ILS in process
 - CGA Jennifer continues to work with CGA (Rob Early) via the mutual membership and on committees. Below is the status of relevant CGA documents:

Standard	Current edition	Status
CGA G-5, <i>Hydrogen</i>	8 th (2017)	Deadline to submit proposed changes for next edition is 7/7/2022. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=22-019
CGA G-5.3, <i>Commodity specification for hydrogen</i>	7 th (2017)	Deadline to submit proposed changes for next edition is 6/4/2022. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=22-013
CGA G-5.4, <i>Standard for hydrogen piping systems at user locations</i>	6 th (2019)	Deadline to submit proposed changes for next edition is 12/22/2024. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=24-54
CGA G-5.5, <i>Hydrogen vent systems</i>	3 rd (2014)	The 5 th edition has been published and can be found at https://portal.cganet.com/Publication/Details.aspx?id=G-5.5 Deadline to submit proposed changes for next edition is 03/04/2026. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=26-3
		Heat radiation testing at Chart Industries in New Prague, MN date (spring 2021) is to be determined.
CGA G-5.6, <i>Hydrogen pipeline systems</i>	1 st (2005 – reaffirmed 2013)	Deadline to submit proposed changes for next edition is 8/1/2022. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=19-018
CGA H-1, <i>Service conditions for portable, reversible metal hydride systems</i>	2 nd (2011)	Deadline to submit proposed changes for next edition is 2/3/2022. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=22-033
CGA H-2, <i>Guideline for classification and labeling of hydrogen storage systems with hydrogen absorbed in reversible metal hydrides</i>	2 nd (2018)	Deadline to submit proposed changes for next edition is 6/4/2022. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=22-012

CGA H-3, <i>Standard for cryogenic hydrogen storage</i>	3 rd (2019)	Deadline to submit proposed changes for next edition is 12/1/2023. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=23-036
CGA H-4, <i>Terminology associated with hydrogen fuel technologies</i>	3 rd (2020)	Deadline to submit proposed changes for next edition is 12/1/2024. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=24-59
ANSI/CGA H-5, <i>Standard for bulk hydrogen supply systems</i>	3 rd (2020)	The deadline to submit proposed changes for the next edition is 2/26/2024. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=24-010
CGA H-10, <i>Combustion safety for steam reformer operation</i>	2 nd (2018)	Deadline to submit proposed changes for next edition is 12/1/2023. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=23-038
CGA H-11, <i>Safe start-up and shutdown practices for steam reformers</i>	2 nd (2020)	Deadline to submit proposed changes for next edition is 8/1/2025. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=25-30
CGA H-12, <i>Mechanical integrity of syngas outlet systems</i>	1 st (2016)	Deadline to submit proposed changes for next edition is 3/1/2022. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=21-016
CGA H-13, <i>Hydrogen pressure swing adsorber (PSA) mechanical integrity requirements</i>	1 st (2017)	Deadline to submit proposed changes for next edition is 8/1/2022. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=22-027
CGA H-14, <i>HYCO plant gas leak detection and response practices</i>	1 st (2018)	Deadline to submit proposed changes for next edition is 12/8/2023.
CGA H-15, <i>Safe catalyst handling in HYCO plants</i>	1 st (2020)	Deadline to submit proposed changes for next edition is 9/1/2025. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=25-59
CGA H-XXX (TBD), <i>Small scale hydrogen production and delivery</i>	New publication not released yet	Task force is creating first draft that will then go to the CGA membership for review.
CGA P-28, <i>OSHA process safety management and EPA risk management plan guidance document for bulk liquid hydrogen supply systems</i>	4 th (2014)	The draft of the 5 th edition is in staff review before going to Standards Council for final review.
CGA PS-31, <i>Position statement on cleanliness for proton exchange membranes hydrogen piping / components</i>	1 st (2007 – reaffirmed 2019)	Deadline to submit proposed changes for next edition is 6/12/2025. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=25-16
CGA PS-33, <i>Position statement on the use of LPG or propane tanks as compressed hydrogen storage buffers</i>	1 st (2008 – reaffirmed 2020)	Deadline to submit proposed changes for next edition is 12/10/2026. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=25-41
CGA PS-46, <i>Position statement on roofs over hydrogen storage systems</i>	1 st (2017)	Deadline to submit proposed changes for next edition is 3/6/2023. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=23-012
CGA P-48, <i>Position statement on clarification of existing hydrogen setback distances and development of new hydrogen setback distances in NFPA 55</i>	1 st (2016)	Deadline to submit proposed changes for next edition is 2/12/2021. https://portal.cganet.com/Publication/Workspace/Outline.aspx?work_id=21-062

- **CSA Group:** Jennifer is the Chair of the CSA Hydrogen Transportation Technical Committee. Jennifer is also Bill Elrick's voting member for the Transportation Strategic Steering Committee; a member of the Fuel Cells TC, a member of the B51/NGV2/HGV2 Harmonization Combined Task Force, on the Transportation Executive Synchronization Committee, and an active member on the Technical Sub Committees for a number of the documents listed below.

CSA Group 2021 U.S. Committee meetings - virtual only

- Hydrogen Transportation Technical Committee meeting, October 6th.
- Transportation Strategic Steering Committee, November 15th.
- Fuel Cell TC, November 17th

Active Projects

Active / Recently Published Projects		
TSC	Designation/Title	Status
HGV 4.3	HGV 4.3, Test methods for hydrogen fueling parameter evaluation	This project is a revision of an existing standard, and will include content related to MC formula. The Technical Committee Ballot closed 12/4/2021. The ANSI final steps are being completed and the document is being prepped to publish.
HGV 4.2	HGV 4.2, Hoses for dispensing compressed gaseous hydrogen	This project is a revision of an existing standard, and will update to align with current hose technology, and remove requirements for on-board vehicle hoses (content will be transferred to HGV 3.1). The Technical Committee Ballot closed with a negative vote. A Recirculation Ballot of the Technical Committee is closing on 1/8/2022.
HGV 5	HGV 5.2, Compact hydrogen fueling systems	This project is to develop a NEW standard for Compact Hydrogen Fueling Systems (HGV 5.2). The TSC completed content development. The draft is available for public review (closing January 18, 2022). Click here to access: https://publicreview.csa.ca/Home/Details/4410
HGV 3	HGV 3.1, Onboard vehicle components for hydrogen gas vehicles	This project is a revision of an existing standard for technology updates, as well as inclusion of the on-board vehicle hose requirements (transferred from HGV 4.2). The draft is available for public review (closing January 6, 2022). Click here to access: https://publicreview.csa.ca/Home/Details/4400
HGV 2	HGV 2, Compressed hydrogen gas vehicle fuel containers	This project is a revision of an existing standard. A kickoff meeting was held in December 2021. Content development meetings are starting in January 2022.
HGV 4.1	HGV 4.5, Priority and sequencing equipment for hydrogen vehicle fueling	This project is to develop a standard to REINSTATE an updated edition of a Priority and Sequencing standard. A seed document draft has been prepared and a kickoff meeting with the HGV 4.1 TSC is being scheduled for early 2022.
C22.2 No. 22734	Hydrogen generators using water electrolysis	The CSA technical subcommittee continues to work on a binational adoption of ISO 22734. Contact Mark Duda (mark.duda@csagroup.org) with questions or for additional information.

IFC/CFC:

- 2020 NFPA 2 enforceable July 1, 2021
- CA in the 2021 code adoption cycle for 2021 IFC, for 2022 Ca Fire Code that is law January 1, 2023

- IFC is now working on the 2026 version
 - Fire code action committee submitted proposal for hydrogen mobile fueling without limits on amount of fuel.
- ISO/TC 197: (U.S. TAG member)
 - 2021 Plenary held online from Korea; Jennifer did not attend due to conflict with ASTM meetings and timing of sessions. Notes from US TAG Chair, Glenn Scheffler:
 - **WG 5** – Land Vehicle Reconnection Devices Refueling –Joint meetings with SAE to discuss issue of certain H35 high-flow nozzles and H70 receptacles.
 - **WG 15**- Cylinders and tubes for stationary storage – discussion for stationary cylinders around leakage, and expressed desire to address fittings; WG convenor, John Eihusen addressing the issue with WG 15 so as to avoid duplication.
 - **WG 23**: ISO 19880-6, Fittings -work on clarification of document scope
 - **WG 24**: re-instated to work on the NWIP for (heavy duty) high flow with three sub tasks: design, communications, and protocols (proposed documents 19885-1, -2, -3).
 - **WG 27** – Hydrogen Quality-Discussion on revising ISO 14687 for each grade of hydrogen fuel
 - **WG 28**: Hydrogen Quality Control- ISO 19880-8 Working to align with the latest ISO 14687; amendment passed the FDIS ballot; publication coming soon
 - **New WG 29**- ISO/TR 15916:2015-Basic considerations for the safety of hydrogen systems: is revisiting hydrogen liquid as well as the material tables. An exact date is not yet determined
 - **WG 33**: Sampling- to work on hydrogen sampling document, ISO 19880-9, using ISO 19880-1, Annex K as a 'seed' document. Also, likely to harmonize with ASTM D7650 and D7606.
- NFPA 2: (Technical Committee Member)
 - NFPA 2 2020 adopted by Office of the State Fire Marshal during California Intervening Code Cycle, per August meetings; will be enforceable July 1, 2021
 - 2023 version in revision cycle
 - Second draft meetings scheduled virtually for February 28-March 4, 2022.
 - Work ongoing for liquid hydrogen setback distances and inputs via a smaller task force within the Storage Task Group; modifications to the original setback table proposals underway.
- SAE International: (Fuel Cell Standards Council, Interface and Safety Task Force member):
 - SAE J2600 team working with ISO WG 5 to address issues with H35HF nozzles and H70 receptacles; also working to resolve conflicting requirements with the pull forces for breakaways and receptacles between various documents (CSA, SAE, ISO).
 - SAE J2990-1 Gaseous Hydrogen and Fuel Cell Vehicle First and Second Responder Recommended Practice- in revision and being harmonized with SAE J2990 and ISO docs.

Task Force	Document	Title	Date	Status
Interface	J2600_201510	Compressed Hydrogen Surface Vehicle Fueling Connection Devices	21-Oct-15	Being revised in conjunction with ISO 17268
Interface	J2601_202005	Fueling Protocols for Light Duty Gaseous Hydrogen Surface Vehicles	29-May-20	Being revised
Interface	J2601/2_201409	Fueling Protocol for Gaseous Hydrogen Powered Heavy Duty Vehicles	24-Sep-14	Needs affirmation ballot of existing content
Interface	J2601/3_201306	Fueling Protocol for Gaseous Hydrogen Powered Industrial Trucks	12-Jun-13	Ballot passed. Comment reconciliation process underway.
Interface	TIR J2601/4	Ambient Temperature Refueling		Being developed
Interface	J2719_202003	Hydrogen Fuel Quality for Fuel Cell Vehicles	18-Mar-20	Revised
Interface	J2799_201912	Hydrogen Surface Vehicle to Station Communications Hardware and Software	13-Dec-19	Revised
Interface	TIR J3219	Hydrogen Fuel Quality Screening Test of Chemicals for Fuel Cell Vehicle		Ballot passed. Comment reconciliation process underway.
Safety	J1766_201401	Recommended Practice for Electric, Fuel Cell and Hybrid Electric Vehicle Crash Integrity Testing	10-Jan-14	Revised - Action required
Safety	J2578_201408	Recommended Practice for General Fuel Cell Vehicle Safety	26-Aug-14	Revised - Action required
Safety	J2579_201806	Standard for Fuel Systems in Fuel Cell and Other Hydrogen Vehicles	15-Jun-18	Revised
Safety	J2594_201611	Recommended Practice to Design for Recycling Proton Exchange Membrane (PEM) Fuel Cell Systems	15-Nov-16	Reaffirmed
Safety	J2990/1_201606	Gaseous Hydrogen and Fuel Cell Vehicle First and Second Responder Recommended Practice	3-Jun-16	Issued
Safety	J3089_201810	Characterization of On-Board Vehicular Hydrogen Sensors	43382	Issued
Fuel Economy	TIR J3202	Recommended Practice for Measuring and Simulating Fuel Consumption and Range of Heavy Duty Fuel Cell Hybrid Road Vehicles Fueled by Compressed Gaseous Hydrogen		Being developed
Fuel Economy	J2572_201410	Recommended Practice for Measuring Fuel Consumption and Range of Fuel Cell and Hybrid Fuel Cell Vehicles Fuelled by Compressed Gaseous Hydrogen	16-Oct-14	Needs affirmation ballot of existing content

Performance	J2615_201110	Testing Performance of Fuel Cell Systems for Automotive Applications	20-Oct-11	Stabilized
Performance	J2616_201108	Testing Performance of the Fuel Processor Subsystem of an Automotive Fuel Cell System	12-Aug-11	Stabilized
Performance	J2617_201108	Recommended Practice for Testing Performance of PEM Fuel Cell Stack Sub-system for Automotive Applications	12-Aug-11	Stabilized
Safety	J2574_201109	Fuel Cell Vehicle Terminology	6-Sep-11	Stabilized
Safety	J2760_201106	Pressure Terminology Used in Fuel Cells and Other Hydrogen Vehicle Applications	1-Jun-11	Stabilized

- FCHEA
 - **Hydrogen Codes Task Force:** Jennifer is chair, Spencer Quong is vice-chair – asking HCTF members to send any concerns regarding the Public Comments which will be discussed and voted upon at the upcoming NFPA 2 Second Draft Meeting.
 - Regulatory Matrix (as of December, 2021):
<https://static1.squarespace.com/static/53ab1feee4b0bef0179a1563/t/61dc747bfdc5342366009af1/1641837692251/FCHEA+Regulatory+Matrix+Markup+December+31+2021.pdf>

ORGANIZATIONAL AND MEMBERSHIP ACTIVITIES | Staff Lead: B Elrick

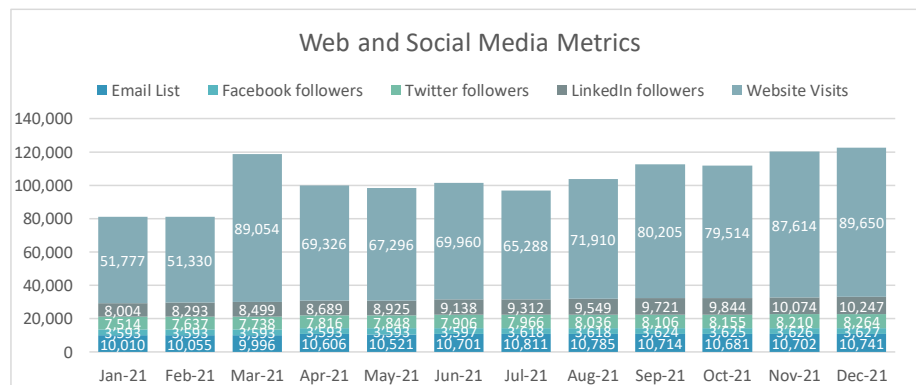
- In 2021 CaFCP approved 10 new members: BayoTech, Faurecia, Hyzon Motors and Air Water America as Champion-Full members, and Choshu Industry Corp., Element Markets, Nikkiso Clean Energy, Marathon Petroleum Logistics, WEH Technologies, and Woodside Energy as Associate members.
- The Membership Committee refined membership criteria guidelines to reinforce the developing new organization's mission and objectives, as well as continued work to develop streamlined membership and approval processes.
- In preparation for accelerated 2022 activities and an expanded organization incoming Chair Joe Cappello interviewed Champion members to identify priorities and needs going forward.
- The Leadership Team and Bylaws Committee developed draft bylaws, operating protocols and conflict of interest documents based on board and steering team guidance for the expanded organization. These documents are being completed for board review in early 2022 and anticipation of formal launch of the new Hydrogen and Fuel Cell Partnership organization during the spring 2022 board meeting.

Vision		
Hydrogen and fuel cells play a crucial role in enabling communities to transition to a robust, 100% decarbonized transportation and energy systems.		
Mission		
To establish a thriving hydrogen and fuel cell electric vehicle market		
Objectives:		
Driving Market Success	Win Hearts and Minds	Be the Trusted Expert Resource
Establish the market conditions to build an expanding and robust hydrogen fuel cell transportation market	Demonstrate, build support and win over Customers' and Decision Makers' to the value and benefit of hydrogen and fuel cells	Bring together thought leaders and experts to share all aspects of transforming our transportation systems. Produce and distribute high-quality data and tools to help inform policy and stakeholder investment decisions.

OUTREACH/EDUCATION | Member Lead: TBD | Staff Lead: K Malone/ Juan Contreras

- Staff worked with a various entities representing a variety of perspectives across the globe that are looking for insights into the California market and policies. Examples:
 - Assisted Japanese agencies NEDO & JETRO with their North American west coast H2 conference
 - Recent launch of U.S.-based Japanese Hydrogen Forum
 - Presentation before German companies interested in the California market

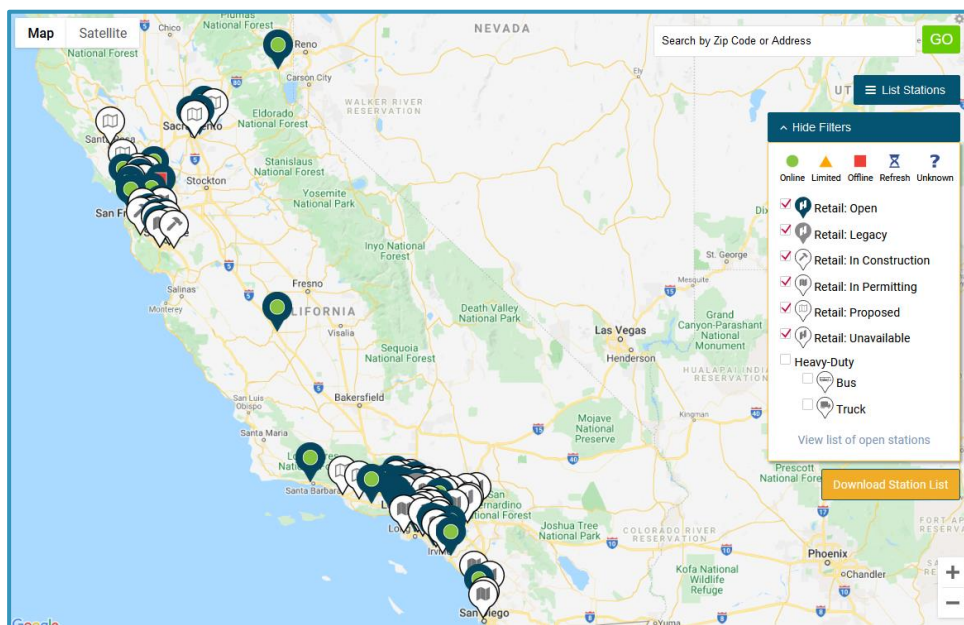
- Discussions with Austrian consulate regarding business delegation, Canadian and Albertan government representatives, and others.
- Discussions and interactions with regional organizations increased
- in anticipation of CaFCP's evolution into a national nonprofit, including organizations and individuals in the Pacific Northwest, Texas, Northeast and other areas.
- CaFCP partnered with, sponsored, assisted, attended and presented at a number of hydrogen conferences and online briefings to ensure CaFCP members were represented, including H2 View, Green Transportation Summit (GTSE), Reuters, Solar Power International (recently renamed RE+), Mission Hydrogen, 2nd American Hydrogen Forum, S&P Global Platts and World Hydrogen Congress, Center for Strategic and International Studies, etc.
- Hosted tours of the Energy Observer in Long Beach and San Francisco. Organized online briefing with the Energy Observer staff.
- News media conversations and interactions increased with interviews, conversations (voice, email, Twitter messaging, LinkedIn messaging, etc.), provision of information to reporters and editors, and mentions of CaFCP regarding data we post on the website. News media included H2 View (regular contact, including pitching stories), Forbes (Alan Ohnsman, David Blehman), Spectrum News SoCal, Capitol Morning Report (legislative), Times of San Diego, etc.
 - Most media attention was the result of the publication of the truck vision document and the distribution of the release via Cision/PRNewswire and an identical blogpost via the CaFCP mailing list (~10,000).
 - Similarly, CaFCP issued a news release and blog post when the CARB self-sufficiency study was released.
- Worked with Hydrogen Forward to support a variety of op-eds they wrote and published.



SOSS | MEMBER LEAD: S REZVANI | STAFF LEAD: B XIONG

- 10 stations added to SOSS in 2021: Aliso Viejo, Berkeley, Campbell – E. Hamilton, Concord, Costa Mesa – Harbor Blvd., Costa Mesa – Bristol St., Placentia, Sherman Oaks, Studio City, Sunnyvale
- SOSS Messaging Guidelines were developed and implemented
- SOSS Data Visualization project underway

- H2 supply and distribution note continues to be updated to alert customers of ongoing H2 supply constraints. The note also alerts customers that some stations may have limited performance or go offline due to high ambient temperatures, mechanical problems or other issues.
 - Back-to-back alerts posted regarding hydrogen supply chain- demand v. wholesale availability, Covid related supply chain disruptions, Sacramento distribution facility outage, Hurricane Ida disruption, retail demand vs. wholesale availability.
- Completed internal notifications feature to alert staff & members when a station reaches low inventory
- A recent Google update disabled the “View in map” for all stations. A fix has been applied
- The SOSS Team has been added to the new Member Resources
- Drupal has been updated to Drupal 7.82. Planned and began coding for SOSS Drupal 9 upgrade.
- Weekly SOSS reports sent out to station developers and operators for review. Added Refresh to reports.
- Quarterly availability reports are sent to all station developers and operators participating in the LCFS HRI crediting program.
- Updated the CaFCP Station Map to include SOSS data (real-time operational status)
- Added ability for station developers & operators to override their status through SOSS. Overrides are tracked and sent to the CARB LCFS team if the station participates in the HRI crediting program.
- Added code to prevent “Inventory” from falling below 0 kg.
- Updated SOSS reporting tables and graphs
- Updated email and SMS notifications to be more concise and to allow users to see the main information on the first line.
- Added ability for SOSS clients to receive Refresh values and inventory values.
- Added ability for station developers and operators to get notified automatically when their stations stop transmitting data and go into Unknown.
- Updated SOSS documentation and uploaded to Member Resources
 - SOSS override for station developers
 - SOSS REST documentation v1.4
 - SOSS Database Requirements Specifications v2.3
 - SOSS Hardware Software Requirements Rev4.1
- SOSS data is currently sent to 8 different organizations (clients) with data sent to both test and production servers: MyLook, Inc., SiriusXM, Shell, Toyota, NREL, Hyundai, Honda, FirstElement Fuel
- Total SOSS accounts to date: 7,776



1 CaFCP.org/stationmap was updated to include SOSS data and distinguish more clearly between stations that are open and those in development or otherwise not available for light-duty fueling.

GOVERNMENT AFFAIRS | Member Lead: | Staff Lead: K Malone

- The Hydrogen Village and Capitol Lobby was again postponed due to COVID, but a new date was identified for April 6, 2022. The event is intended to showcase vehicles, technologies and activities related to hydrogen and fuel cells, bringing together hydrogen stakeholders.
- Hosted the California Hydrogen Policy Series with participation and co-sponsorship from California Hydrogen Coalition, California Hydrogen Business Council and others.
- Staff continue to have formal and informal contact with a variety of legislators and legislative staff.
 - Briefed Long Beach City Council Member Cindy Allen who represents the Port of Long Beach. CaFCP co-hosted the Energy Observer with her when it docked in Long Beach. Her chief of staff, Connor Lock, was briefed by CaFCP seven years ago while an intern for a U.S. Representative. His wife drives a generation Mirai and has been supportive through posts on Instagram.
 - Briefings included the district staff of Assembly Members Kamlarger (now senator and a candidate to replace Congresswoman Karen Bass), Rivas, Reyes, Rubio, Garcia, Friedman and State Senators Roth, Newman and Hertzberg. Staff also participated in a briefing of State Senator Durazo at the Cal State LA station.
 - Briefed State Senator Josh Newman (D-Fullerton), a fuel cell car driver, about SOSS and received his input regarding proposed modifications.
 - Met with Sacramento City Council Member and Sacramento Metro AQMD board chair Eric Guerra. He is also staff to State Senator Connie Leyva (D-Chino).
 - Staff supported two outreach events at State Capitol with California Hydrogen Coalition, including serving as spokesperson at press conference.
 - Staff supported legislative tour of the Shell Ontario hydrogen station.

- Staff continue to consult with colleagues of various California, regional and national associations to ensure coordination of messaging and complementary activities in legislative education and outreach.
 - Worked Western Governors Association for their EV Road Map activities led by Oregon Governor Brown.
- Engaged with a number of public affairs and non-governmental organizations that are supportive of or interested in learning more about hydrogen and fuel cells, some for the first time. These groups included Hydrogen Forward, the Clean Hydrogen Future Coalition, The California Council For Environmental And Economic Balance (CCEEB), the California Foundation on the Energy and the Environment (CFEE), the Los Angeles Area Chamber of Commerce, Climate Resolve, MOVE LA, and the Clean Air Task Force. CaFCP continues to participate in their activities, provide input and seek areas of common interest for working together.
- Engaged with a variety of local jurisdictions, including Shasta Regional Transportation Authority (briefing for board members), City of Elk Grove (truck plaza application), City of West Sacramento, City of Palm Springs (sustainability coordinator), in addition to members, City of San Francisco and City of Lancaster.

EVENTS/ACTIVITIES | Staff Lead: J Contreras

EVENTS



****due to the COVID-19 several of the events below have been UPDATED or POSTPONED****



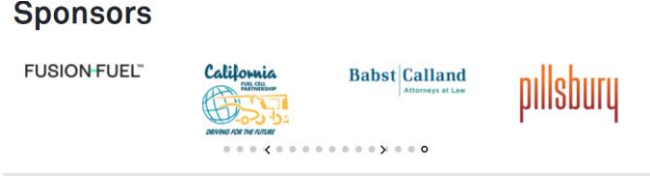
Q1 2021

****DUE TO THE COVID-19 SEVERAL OF THE EVENTS BELOW HAVE BEEN UPDATED OR POSTPONED****

01/12/21	Renewable Hydrogen Programs (K. Malone) (Link)
01/13/21	California Hydrogen Policy Series Briefing 3: An ongoing conversation about hydrogen and the Golden State (CaFCP Organized) (Bloomberg did not approve of us posting the video)
01/14/21	Clean Air Conversation #1 – Alternatives to diesel generators (Sponsor) (Link)
01/15/21	USEA Virtual Press Briefing: Green Hydrogen – The New Utility Frontier (K. Malone) (Link)
1/15/21	Spectrum News SoCal Interview with K. Malone
01/19/21	Hydrogen and Workforce Development (K. Malone, J. Contreras) (Link)
01/21/21	CARB's Project 800: Zero- Emission Truck Forum (N. Bouwkamp, K. Malone) (Link)
01/22/21	ZEV State Policy Discussion Happening this Week (K. Malone) (Link)
01/26/21	Leveraging Public Private Partnerships (K. Malone, N. Bouwkamp) (Link)
01/27/21	Road Map to a U.S. Hydrogen Economy Northeast Region Launch (CaFCP promoted the event through social media channels) (Link)
01/27/21	Renewable Gas Portfolio/Procurement Standards State Leadership (CaFCP promoted the event through social media channels) (Link)
<p>Endorsing Orgs:</p> 	
01/27/21	2021 2 nd Edition Global Hydrogen Industrial Virtual Summit (B. Elrick) (Link)

01/28/21	Modeling and Simulation of Fuel Cells and Electrolyzers (CaFCP promoted the event through social media channels) (Link)
02/2/21	Foothill Transit's Zero- Emission Journey (N. Bouwkamp) (Link)
02/9/21	Mobility Pioneer will Showcase the Greatest Innovations in Mobility for 2021 (B. Elrick) (Link)
2/16/21	Secure Funding from California Proposition 1B Goods Movement Emission Reduction Program (CaFCP promoted the event through our social media channels) (Link)
2/17/21	ZEV Market Development Strategy: Ready to Go! (CaFCP promoted event through social media (Link)
03/03/21	CERAWeek 2021 (B. Elrick, J. Contreras) (Link) 
03/17/21	2020 TRANSform Conference and Expo (Link) POSTPONED TILL NOV. 8, 2021
03/18/21	New Opportunities to Convert Biomass "Waste" to Renewable Methane and Green Hydrogen (CaFCP endorses of the event) (Link) 
03/18/21	Upcoming Solicitation Regarding Pilot test and Demonstration of Hydrogen Blending into Existing California Natural Gas System (N. Bouwkamp and D. Park) (Link)
03/23/21	CONNECTING GREEN HYDROGEN APAC 2021 (Link) POSTPONED TILL JULY 19, 2021
03/23/21	Pan - Asia ESG Conference 2021 - Focus on Carbon Neutrality (B. Elrick) (Link)
03/30/21	Public Workshop on the Fiscal Year 2021-22 Funding Plan for Clean Transportation Incentives (D. Park and N. Bouwkmap) (Link)
03/31/21	2021 World Hydrogen Fuelcells (B. Elrick) (Link)

03/31/21	NAS - Assessment of Technologies for Improving Fuel Economy of Light-Duty Vehicles--2025-2035 Report Release Webinar (K. Malone) (Link)
04/01/21	WHA (WHA INTERNATIONAL, INC.) Get Hydrogen Safety Training (CaFCP promoted the event through our social media channels) (Link)
04/12/21	Pre-Solicitation Workshop for the CEC Recovery and Reinvestment Initiative (D. Park and N. Bouwkamp) (Link)
04/13/21	California to Unveil \$50 Million Initiative to Accelerate Charging and Refueling for Zero-Emission Trucks and Buses (K. Malone) (Link)
04/15/21	Bay Area EV Acceleration Plan Public Comment Period & Webinar (K. Malone and J. Contreras) (Link)
04/16/21	Hydrogen Stations Webinar: Update on Network Development Status in California - April 16, 2021 (CaFCP organizer) (Link)
	
04/20/21	2 nd Virtual Transportation, Air Quality, and Healthy Symposium (Sponsor) (Link)
	
04/21/21	Maritime Hydrogen Projects Showcase (CaFCP promoted event through social media channels) (Link)

04/27/21	<p>Energy Observer Long Beach Delegation (K. Malone, J. Contreras)</p> 
04/29/21	<p>H2 Talks: Hydrogen's Surprising Role in the Future of Energy (CaFCP promoted on events page) (Link)</p>
04/29/21	<p>CEC- Clean Transportation Program Investment Plan Advisory Committee Meeting (Tech Team) (Link)</p>
04/29/21	<p>Safety of Water Electrolysis (CaFCP promoted through our social media channels) (Link)</p>
05/05/21	<p>The Energy Observer Visits California: A Maritime Perspective on the Global Hydrogen Revolution (CaFCP Organized webinar (Link)). CaFCP hosted delegations visited the Energy Observer (B. Elrick, J. Hamilton, J. Contreras)</p> 
05/06/21	<p>S&P Global Platts – 2nd Annual H2 Markets Americas Virtual Conference (Sponsor, B. Elrick) (Link)</p> <p>Sponsors</p> 
5/10/21	<p>Shell Torrance 10th Anniversary (K. Malone and D. Park)</p>

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05/12/21

Harnessing Renewable Hydrogen for Long Term Energy Storage (Endorsing Sponsors) ([Link](#))



05/19/21

Innovations in Hydrogen Rail: Project Showcase (K.Malone) ([Link](#))

5/19/21

Setting the Standard – Compressed Gas Association (CGA) Role in the Hydrogen Revolution (J. Hamilton) ([Link](#))

Panelist: Jennifer Hamilton, CaFCP

Jennifer Hamilton is Program Manager – Safety, Education, Codes & Standards at the California Fuel Cell Partnership (CaFCP). She has been with CaFCP since 2006, and has worked in hydrogen for 15 years. Jennifer actively participates with and supports the development of national and international safety, codes and standards. She also leads hydrogen education and outreach to the emergency response and permitting official communities.



Jennifer, along with the rest of the CaFCP staff, works with members to grow the hydrogen market in California and beyond. She holds a BS from California State University, Chico and an MS from the University of California at Davis.




















5/21/21

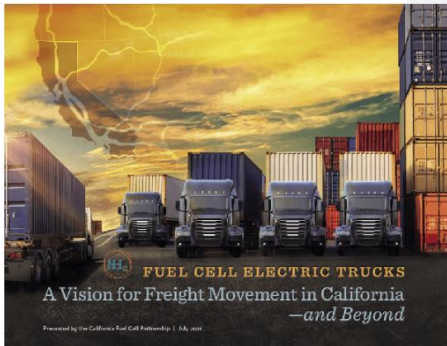

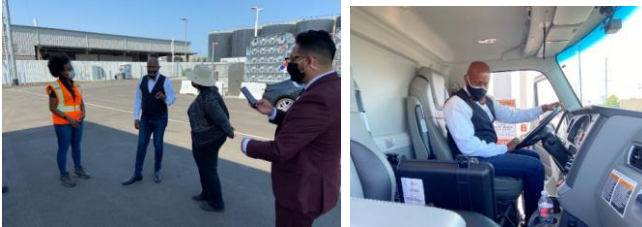
Reuters Events – Seize Market Share in the Hydrogen Economy – (Sponsors) ([Link](#))






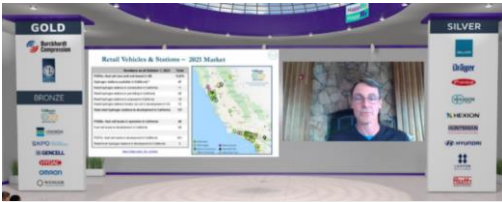
6/2/21	<p>Medium- and Heavy-Duty Zero-Emission Vehicle Fueling Infrastructure Forum (N. Bouwkamp) (Link)</p> 
06/10/21	<p>CARB - Public Workshop Series to Commence Development of the 2022 Scoping Plan Update to Achieve Carbon Neutrality by 2045 (Tech Team) (Link)</p>
06/09/21	<p>Seoul Forum 2021 (B. Elrick) (Link)</p> 
6/7-/11/21	<p>DOE Hydrogen Program 2021 AMR (B. Elrick, N. Bouwkamp, J. Hamilton) (Link)</p>
6/16/21	<p>Mission Hydrogen – Green Hydrogen for the Transport Sector – an EU and a German Perspective (Sponsors) (Link)</p>
6/17/21	<p>CHBC Hydrogen Policy Briefing Series Hydrogen 101 – Facts vs Myths (CaFCP to promote through our social media channels) (Link)</p>
6/23/21	<p>Mission Hydrogen - A life under pressure - X-STORE type 4 high-pressure storage technology (Sponsors)</p>
6/24/21	<p>9th WHTC f-cell + HFC - Empowering Hydrogen Innovation (B. Elrick, N. Bouwkamp) (Link)</p>



	<div>  WHTC - Hydrogen and the Transportation Sector #2 Rail, bus, FCEV commercialization approaches </div> <div>  11:05 AM - 01:05 PM  June 23, 2021 </div> <div>  Alan Kneisz Global Business Development Director, Cummins </div> <div>  Nico Bouwkamp Technical Program Manager, California Fuel Cell Partnership </div> <div>  Omar Herrera Senior Program Manager, The University of British Columbia </div> <div>  William (Bill) Elrick Executive Director, California Fuel Cell Partnership </div>	
6/24/21	Coolest in L.A. 2021 (Sponsors) (Link) <div>     </div>	
6/29/21	CHFC: Hydrogen 101: Clean Hydrogen Projects & Policy (K. Malone)	
6/30/21	CW Clean Cities: It Pays to Decarbonize (K. Malone)	
6/30/21	DOE – Hydrogen and Fuel Cell Technologies Office: H2IQ: What’s New with HFTO (Tech Team)	
6/30/21	CARB – Work Group Meeting to Discuss the Clean Vehicle Rebate Project (Tech Team)	
6/30/21	DOE - Hydrogen and Fuel Cell Technologies Office: H2IQ: What's New with HFTO? (Tech Team)	
6/30/21	CARB- Work Group Meeting to Discuss the Clean Vehicle Rebate Project (Tech Team)	
7/1/21	US DOE Hydrogen Shot Initiative by Dr. Sunita Satyapal (CaFCP Staff)	
7/15/21	CHBC Briefing – The Business Case for Light Duty Hydrogen Stations (N. Bouwkamp and K. Malone)	
7/21/21	DOE Webinar – H2IQ Hour: How Are DOE’s Applied Energy Labs Moving the Needle on Hydrogen? (N. Bouwkamp and K. Malone)	
7/21/21	AIChE Academy – Global Hydrogen Safety Codes and Standards (Speaker: J. Hamilton)	


	 <p>CENTER FOR Hydrogen SAFETY Connecting a Global Community</p> <p>Global Hydrogen Safety Codes and Standards</p> <p>Jennifer Hamilton Program Manager: Safety, Education, Codes & Standards July 21, 2021</p>	
7/21/21	<p><i>SCAQMD – Secure Funding for California Combustion Freight & Marine Projects (K. Malone, N. Bouwkamp and D. Park)</i></p>	
7/21/21	<p><i>Infocast Virtual Master Class: Green Hydrogen Business & Investment Models: 2021 (Speaker J. Hamilton)</i></p> <div data-bbox="263 835 950 1171"> <p>INSTRUCTORS</p> <p>Contributing Instructors</p> <div>  Jason Goodhand, MBA, B.E.Sc. Global Business Lead – Energy Storage DNV ENERGY SYSTEMS CANADA INC. </div> <div>  Omar J. Guerra Research Engineer NREL </div> <div>  Sheila Harvey Partner, Energy Department PILLSBURY </div> <div>  Jennifer Hamilton Program Manager: Safety, Education, Codes and Standards CAFCP (CALIFORNIA FUEL CELL PARTNERSHIP) </div> </div>	
7/23/21	<p><i>MOVE LA Climate Series: Emerging Hydrogen and Renewable Gas Technologies (CaFCP sponsors) (K. Malone)</i></p>	
7/27/21	<p><i>Legislative Outreach Event with Senator Archuleta (J. Contreras, K. Malone and B. Elrick)</i></p> <div data-bbox="263 1308 1011 1585">  </div>	
7/28/21	<p><u>Session 1 - IEPR Commissioner Workshop on Hydrogen to Support California's Clean Energy Transition (D. Park and CaFCP Staff)</u></p>	


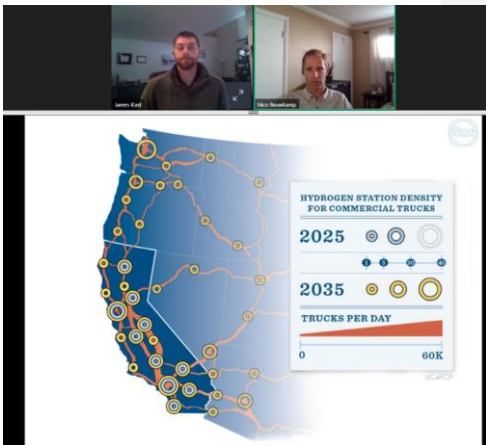
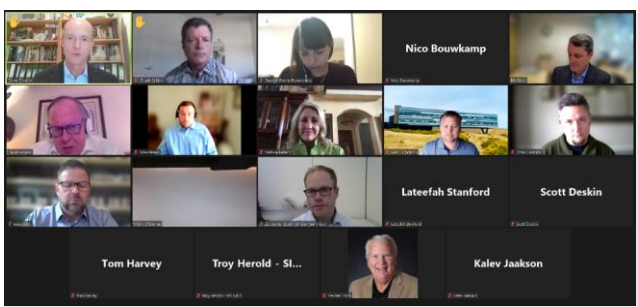
7/28/21	CEC - Session 2 - IEPR Commissioner Workshop on Hydrogen to Support California's Clean Energy Transition (D. Park and CaFCP Staff)	
7/29/21	Global Mass Transit's Virtual Conference (N. Bouwkamp and K. Malone)	
8/3/21	CaFCP Webinar: Hydrogen Station Network Update (B. Xiong, D. Park, K. Malone and J. Contreras)	
8/11/21	Webinar: Californian Energy Commission Business Meeting (Tech Team)	
8/12/21	Mitsubishi Power - A Change in Power Webinar - Hydrogen: Creating a Pathway to Decarbonization in the WECC (K. Malone)	
8/12/21	CaFCP Webinar: CA Hydrogen Policies Series - Zero- emission heavy-duty trucking in California (Speakers: N. Bouwkamp and Toyota)	
8/13/21	Senator Durazo Tour (K. Malone and CSULA)	
8/13/21	Senator Gipson Tour (D. Park, Toyota and Shell)	
8/17/21	2021 CGA Young & Emerging Professionals Summit Week 3: Hydrogen (Speaker: J. Hamilton)	







8/18/21	<p>Green Transportation Summit and Expo (Speaker N. Bouwkamp) (K. Malone)</p> 
8/26/21	<p>Zero- C Hydrogen in a Circular Carbon Economy (K. Malone)</p>
8/30/21	<p>CHBC at ACT Expo for the Hydrogen – It Really Does Work Today! Workshop (N. Bouwkamp)</p>
8/31/21	<p>California Hydrogen Policies Series - Achieving California's ZEV Transition: hydrogen and fuel cell vehicle targets (Moderator: B. Elrick, Speakers CARB, Toyota and First Element Fuel) (CaFCP Staff)</p>
8/31/21	<p>CaFCP and CHC Legislative Outreach Event (J. Contreras & K.Malone)</p> 
9/1/21	<p>DOE – The Hydrogen Shot Summit (CaFCP Staff)</p>
9/2/21	<p>ACT Expo Advanced Clean Transportation Expo (N. Bouwkamp)</p>
9/2/21	<p>CARB Webinar - Public Workshop on Draft Regulatory Language and Updated Cost Assumptions for the Advanced Clean Fleets Regulation (D. Park and Tech Team)</p>
9/2/21	<p>CARB Webinar- Draft Cap-and-Trade Auction Proceeds Fourth Investment (D. Park and Tech Team)</p>
9/6/21	<p>City of Lancaster MOU with SGH2 & Iwatani (K. Malone)</p> 

9/8/21	CARB Webinar: 2022 Scoping Plan Update – Short Lived Climate Pollutants Workshop (D. Park)	
9/10/21	Pacific Fuels & Convenience Summit (J. Contreras, K. Malone, D. Park)	 
9/17/21	2021 International Zero Emission Bus Conference (N. Bouwkamp and K. Malone)	
9/22/21	Accelerating Clean Hydrogen: State of the U.S. Industry and Opportunities for New York (K. Malone)	
9/22/21	DOE Earthshots Webinar: Finance and Markets Pre-Summit (CaFCP staff)	
9/23/21	DOE Earthshots Webinar: Long Duration Storage Shot Summit (CaFCP staff)	
9/29/21	DOE - September H2IQ Hour: Market Segmentation of Medium- and Heavy-Duty Vehicles (N. Bouwkamp and K. Malone)	
10/7-8/21	Mission Hydrogen - Hydrogen Online Conference (HOC) 2021 (Speaker: B. Elrick) (virtual exhibit: J. Contreras and K. Malone)	 

10/8/21	<p><i>CaFCP Policy Series Webinar: 2021 Annual Evaluation of Fuel Cell Electric Vehicle Deployment and Hydrogen Fuel Station Network Development (Speaker: A. Martinez Moderator: B. Elrick)</i></p>	
10/14/21	<i>SoCal Gas Webinar: Materials - Based Hydrogen Storage for Heavy Duty Vehicles (CaFCP staff)</i>	
10/14/21	Plug Symposium 2021: Here Comes Green Hydrogen (Tech Team)	
10/14/21	<i>MoveLA Webinar: Emerging Technology in Passenger Transit: Planes, Trains, Buses and Ships (K. Malone) (CaFCP Sponsors)</i>	
10/14/21	<p>West Sacramento Visit by Senator Pan (B. Elrick, J. Contreras, Iwatani and CHC)</p> 	
10/19/21	<p><i>H2View: North American Hydrogen Summit (Speaker: B. Elrick) (K. Malone) 10/28/21</i></p> 	
10/28/21	<i>Energy Futures Initiative Webinar: The Potential for Clean Hydrogen in the Carolinas (K. Malone)</i>	

10/28/21	<p><i>CleanStart - What's New With Alternative Fuels? (Speaker: J. Hamilton) 11/16/21</i></p> 
10/29/21	<p><u>CEC Webinar: Staff Pre-Solicitation Workshop for Zero-Emission Vehicles and Zero-Emission Vehicle-Related Manufacturing (D. Park and Tech Team)</u></p>
11/3/21	<p><i>Innovation Norway Webinar: Nordic Dialogue on Decarbonizing Maritime Vessels (K. Malone)</i></p>
11/4/21	<p><u>SoCalGas: Decarbonizing Steel Production with Green Hydrogen (Tech Team)</u></p>
11/4/21	<p><u>The New Jersey Clean Cities Coalition and Energy Vision present: "Decarbonizing Gas in New Jersey", a virtual workshop highlighting RNG & H2 (K. Malone)</u></p>
11/9/21	<p><u>Discussion on the role of hydrogen in the implementation of climate protection policies in NYC. (K. Malone)</u></p>
11/9/21	<p><u>GTI Tech Talk Webinar Meeting the demand for low-carbon hydrogen resources (N. Bouwkamp)</u></p>
11/9/21	<p><u>SAE Webinar: Toyota Hydrogen Fuel Cell for Heavy Duty Applications (N. Bouwkamp, J Contreras)</u></p>
11/10/21	<p><u>Green Connections 2021 by Swedish American Chamber of Commerce San Diego (K. Malone)</u></p>
11/16/21	<p><i>5th Annual California Germany Bilateral Energy Conference (K. Malone)</i></p>
11/16/21	<p><u>ODOE to Hold Virtual Workshop on Renewable Hydrogen (K. Malone)</u></p>
11/16/21	<p><i>Center for Strategic and International Studies - Building Blocks for a Hydrogen Economy (Speaker: B. Elrick)</i></p>

11/18/21	<p><u>CalState L.A. - Urban Sustainability Symposium (Speaker: N Bouwkamp)</u></p> 
11/30/21	<p><i>CaFCP FCET Truck Vision Webinar for CTA and CFCA Members (Speaker: N. Bouwkamp and Toyota) (CaFCP Staff)</i></p> 
12/1/21	<p><u>Reuters Event: Hydrogen North America (sponsors) (Speakers: B. Elrick)</u></p> 
12/1/21	<p>Cummins Grand Opening in West Sacramento (B. Elrick and J. Contreras)</p>

	   
12/2/21	<u>CHBC Briefing: The Interplay between Electricity, Hydrogen and Natural Gas - The Opportunity to Combat Renewable Energy Curtailment (CaFCP Staff)</u>
12/2/21	<p>NEDO/JETRO SESSION 1: Building Hydrogen Corridors in the Pacific West for a Carbon Neutral Future (Moderator: B. Elrick Speakers: Iwatani, AC Transit, First Element Fuel and HTEC)</p> 
12/3/21	<u>32nd Annual Clean Air Awards (K. Malone)</u>
12/7/21	<u>Center for Hydrogen Safety - Ventilation Considerations for Hydrogen Safety (J. Hamilton)</u>
12/7/21	<p>Hyundai Xcient Tour – SCAQMD (K. Malone)</p> 
12/9/21	<p>Cummins - Ahead of the Curve with Cummins Rail (K. Malone)</p>
12/9/21	<u>Global Mass Transit - Clean Buses in Canada (K. Malone and N. Bouwkamp)</u>

12/13/21	<u>EPRI - Scaling Up U.S. Hydrogen: A 360 View</u>	
12/16/21	<u>CHBC Webinar - Hydrogen's Role in the Transportation Sector – The path from 200 to 1000 LD stations in California Confirmation (Speaker: B. Elrick)</u>	
12/16/21	Hyundai Xcient Tour – (B. Elrick, N. Bouwkamp and J. Contreras)	