



CALIFORNIA HYDROGEN BUSINESS COUNCIL

Hydrogen Means Business in California!



2019 ANNUAL REPORT

The California Hydrogen Business Council connects hydrogen technology developers, businesses, energy leaders, government, and infrastructure providers with a common vision of energy and transportation fueled by zero-emission hydrogen. Our members develop, adapt, and implement technology and services that are taking the hydrogen economy into the mainstream.

www.californiahydrogen.org

CALIFORNIA HYDROGEN BUSINESS COUNCIL

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2019 – Inform, Influence, Impact

California has long been viewed as a pioneer for clean energy technologies, with significant investment from the state to reduce its greenhouse gas (GHG) emissions, improve air quality, and mitigate the affects of climate change. The state continues to be at the forefront of hydrogen and fuel cell technology adoption, but the industry continues to lag behind other zero emission technology options in terms of investment. The 2019 Program Plan and Budget set ambitious goals for the CHBC to support the expansion of the market in all sectors through a more formal and aggressive advocacy effort.

In 2019, the CHBC focused on restructuring its advocacy efforts around issue-based initiatives to increase effectiveness and impact. These member-led initiatives are chaired by a Board Director and consist of a small, select group of members with vested interest in the sector of interest.

2019 CHBC program committees were the following:

- **Advocacy Committee** – established to coordinate and execute CHBC’s policy priorities and goals.
 - **Initiatives:**
 - Renewable Hydrogen, Renewable Energy and Climate
 - Hydrogen Blending and Gas System Integration
 - Hydrogen Fueling Station Build-out
 - Stakeholder Advocacy Campaign
- **Communications and Business Expansion Committee** – established to coordinate the development of CHBC educational materials, events, website, and communications.

2019 CHBC Sector Action Groups were the following:

- **Public Transport SAG** – principally, buses, and hydrogen fueling infrastructure for transit agencies. At the end of the year, the SAG grew more interested in rail activities taking place ARB.
- **Goods Movement and Clean Ports SAG** – principally FCEV medium and heavy duty vehicles and all mobile and stationary hydrogen and fuel cell products for freight systems, especially in relation to the ports.”
- **Hydrogen Energy Storage and Renewable Hydrogen SAG** – the focal point for energy storage, renewable pathways to hydrogen and work that relates to utilities and stationary power, the Public Utility Commission and Cal ISO

The CHBC functioned as a **convener** of leaders; enabler of **collaboration**; **communicator** of information to the public; and **advocate** for CHBC market sector interests. The SAGs took on the programmatic activities outlined in the 2019 Program Plan, while the executive/legislative/regulatory activities were moved to the newly established advocacy initiatives, with the exception of the Heavy Duty, Goods Movement, and Clean Ports SAG and Public Transport SAG, which continued to cover advocacy items related to their sector (due to the lack of a heavy duty transportation focused initiative).

2019 PROGRAM ACTIVITY

In the next sections, detailed information on the CHBC's activities in each program area are provided. Supplementary information is referenced in the Appendices.

ADVOCACY

The **CHBC Advocacy Committee** restructured to incorporate member driven initiatives that target specific issues facing the hydrogen and fuel cell industry. The restructured committee was led by chair Dr. Jeff Reed (APEP at US Irvine), co-chair Tanya Peacock (Southern California Gas Company), and La Stanja Baker (Toyota North America). The Advocacy Committee established four initiatives for the 2019 CHBC program:

- **Renewable Hydrogen, Renewable Energy and Climate.** Initiative leads Lorraine Paskett and Steve Jones. The objective of the initiative is to advance policies, programs and regulations that support the role of renewable hydrogen in the California transportation and energy sectors.
- **Hydrogen Blending and Gas System Integration.** Initiative lead Tanya Peacock. The objective of the initiative is to ensure that supportive regulations are established to allow hydrogen blending on the natural gas system, ensure optimal use of the gas grid for long-term/seasonal energy storage, and integrating pipeline and electric grids to maximize both thermal and electric renewable and decarbonized energy options.
- **Hydrogen Fueling Station Build-out.** Initiative lead La Stanja Baker. The objective of the initiative is to secure state funding support adequate to ensure the build-out of the hydrogen refueling station network to 200 stations and beyond.
- **Stakeholder Advocacy Campaign.** Initiative leads Mark Abramowitz and Bob Desautels. The objective of this initiative is, in close collaboration with the other initiatives, to execute a targeted campaign to increase the awareness and favorable image of hydrogen as a transportation and energy solution among key California stakeholders, particularly those with significant impact on legislation, policy and regulation.

These four initiative were responsible for determining the scope of their activities and how to engage with the legislature and the state agencies, predominantly through comments, letters, events, and other lobbying activities, with oversight provided by the advocacy committee. In April 2019, the "Renewable Hydrogen, Renewable Energy and Climate" and "Hydrogen Blending and Gas System Integration" Initiatives hired the Weideman Group, an Sacramento-based lobbying firm, to jointly represent the two initiatives in regulatory proceedings and legislature.

For a full listing of all advocacy comments and letters, see Appendix D or visit:
<https://www.californiahydrogen.org/policy-issues/2019-policy/>

The Advocacy Committee also organized a second Policy Retreat, which resulted in the creation of the CHBC Policy Strategy and Action Plan.

COMMUNICATIONS AND BUSINESS EXPANSION

The Communications and Business Expansion Committee was tasked with identifying low cost high value efforts to educate customers, policymakers, investors, media and other stakeholders on the facts related to hydrogen energy and fuel cells.

Chaired by Bob Desautels and Anca Faur, the committee worked to develop or connect parties to information resources that advance the level of knowledge and interest in hydrogen and fuel cell technologies, products and markets. The committee helped identify key issues facing the industry that could be addressed through education and outreach and help develop strategies for reaching out to key stakeholders and decision makers on these issues. It also helped guide the organization's development of educational resources and materials and resources for the CHBC website, and provided input on hydrogen information materials.

In 2019, the Committee established a new weekly newsletter (Wednesday Weekly) to keep members informed of the CHBC's growing portfolio of activities, funding opportunities, and industry news. The Committee engaged with the regional Air Quality Management Districts on the AB 617 (Community Air Protection Program) to educate stakeholders on the potential of hydrogen and fuel cell technology to reduce emission and improve local air quality.

The engagement on AB 617 led to the production of a hydrogen 101 video and seven 30-second videos on different applications for hydrogen.

- America's Future – Hydrogen and Fuel Cells: Clean Energy, Clean Fuel - <https://vimeo.com/359365239>
- Hydrogen Fuel Cells for Shipping and Maritime - <https://vimeo.com/360602659>
- Fuel Cells for Backup Power - <https://vimeo.com/360602216>
- Hydrogen and Fuel Cells for Trucking - <https://vimeo.com/362360977>
- Hydrogen and Fuel Cells for Port Applications - <https://vimeo.com/360602941>
- Hydrogen Fuel Cells for Public Transit - <https://vimeo.com/362364522>
- Hydrogen and Fuel Cells for Passenger and Freight Rail - <https://vimeo.com/360603082>
- Hydrogen Fuel Cells for Warehouses and Distribution Centers - <https://vimeo.com/362364622>

In addition to the video series, the committee advanced the following in 2019:

- Drafted CHBC Communications Plan
- CHBC Membership Directory Handbook
- Supported the development of CHBC events

PUBLIC TRANSPORT SECTOR ACTION GROUP

The Public Transport SAG was led by Co-Chairs Lauren Skiver and Nicolas Pocard. The SAG completed an array of activities, focusing mainly on buses and outreach to transit agencies.

In 2019, the SAG focused on educating transit agencies on FCEBs and hydrogen infrastructure, which became more critical as the transit agencies developed their ZEB Rollout Plans under the Air Resources Board adopted Innovative Clean Transit Regulation (ICT). The ICT placed procurement targets on transit agencies to purchase 100% ZEBs by 2029 and full zero emission fleets by 2040.

2019 accomplishments include:

- CHBC Executive Director, Jeff Serfass, moderated a panel at the Air Resources Board Zero Emission Bus Symposium in February. The session focused on hydrogen infrastructure.
- Completed a four part webinar series with the California Transit Association on FCEBs, hydrogen infrastructure, and funding options.
 - [Part 1 >>](#)
 - [Part 2 >>](#)
 - [Part 3 >>](#)
 - [Part 4 >>](#)
- Updated the [FCEB fact sheet](#) with the latest NREL data on FCEBs
- Supported CAFCP Bus road map launch
- Sent a letter to California transit agencies on complying with the ARB Innovative Clean Transit Regulation. The ICT letter included resources for transit agencies to learn about the FCEB option. [Access letter here >>](#)
- Responded to Hydrogen infrastructure starter kit” challenge – WIP to develop low cost solution with H2 partners to help TA in starting deployment of FCEB
- CHBC Executive Director, Jeff Serfass, moderated the FCEB panel at the California Transit Association Annual Meeting in November 2019.

HYDROGEN ENERGY STORAGE AND RENEWABLE HYDROGEN SECTOR ACTION GROUP

The Hydrogen Energy Storage and Clean Ports SAG was led by Co-Chairs Jack Brouwer and Steve Jones. This SAG focused on education and outreach activities, such as events webinars, materials development, and research.

2019 accomplishments include:

- Created a Electrolytic Hydrogen fact sheet, that addresses P2G/P2X. This fact sheet provided updates since the SAG developed the Power-to-Gas White Paper in 2016.
- Started tracking renewable hydrogen production facilities (California, US, International). [Tracker available here >>](#)
- Developed the workshop framework to educate CPUC staff on hydrogen and fuel cells’ role in California. The CHBC continues to work with the CPUC on scheduling the workshop.
- Organized CHBC’s partnership with Intersolar North America’s January 2020 conference. The SAG developed a 4 hour workshop, 2 hour main conference session, and presentations for the expo hall stage. The event was meant to foster additional collaboration and project development between the hydrogen and solar industries.
- Considered development of a renewable hydrogen definition, but was dropped due to the advocacy-nature of a policy definition.

HEAVY DUTY, GOODS MOVEMENT, AND CLEAN PORTS SECTOR ACTION GROUP

The Heavy Duty, Goods Movement, and Clean Ports SAG was led by Gus Block and Andreas Truckenbrodt, with the support of CHBC Development Specialist, Cory Shumaker.

The SAG focused on educating and promoting the potential for hydrogen and fuel cells in the ports, maritime, off-road and freight sectors, which are capable of the high demand cycles for each of these applications.

2019 accomplishments include:

- Conducted webinar to present the findings of the 2018 Hydrogen and Fuel Cells in Ports & Maritime Workshop – March
- Conducted Webinar to present the findings of the On-Road Freight Workshop – August
- Hosted the Hydrogen and Fuel Cells in Ports and Maritime Lunch and Learn at POLB – November
- Created heavy/medium-duty hydrogen fuel cell projects tracker
- Development of FC electric truck fact sheet
- Coordination with Coalition for a Safe Environment for commercially available ZE technology
- Added verbal and written comments to:
 - CAAP Clean Truck Program Rate Workshop
 - CAAP Container Handling Equipment Feasibility Study
 - CARB HD 3Y Investment Strategy Workshop
 - CARB VW Settlement funding from Environmental Mitigation Trust
 - CARB Proposed Airport Shuttle Regulation
 - CARB Zero-Emission Powertrain Certification Regulation

EVENTS

VIP Luncheon with US Congressman Mike Levin (D-CA) – April 22, 2019

The CHBC Advoacy Committee organized a VIP luncheon with Representative Mike Levin (D-CA), who represents part of Orange County and former CHBC Board Director under FuelCell Energy. Ten CHBC members and two staff attended the luncheon and discussed issues facing the hydrogen and fuel cell industry in California.

Hydrogen and Fuel Cells for Freight Workshop – April 23, 2019

The 2019 Hydrogen and Fuel Cells for Freight Workshop was planned and organized by members of the CHBC’s Heavy-Duty, Goods Movement and Clean Ports Sector Action Group. We particularly thank co-chairs Gus Block and Andreas Truckenbrodt, as well as CHBC Development Specialist Cory Shumaker. The CHBC partnered with ACT Expo to deliver its third hydrogen fuel cell workshop focused on freight. This year’s workshop at ACT Expo had over 220 registrants and over 180 attendees, the largest half-day event the CHBC has conducted, indicating the interest in this topic.

Infrastructure Sponsors



Fleet Sponsors



CHBC and CHFCA Ports Workshop – May 21, 2019

The CHBC and Canadian Hydrogen and Fuel Cell Association (CHFCA) hosted this Ports Workshop to discuss the hydrogen and fuel cell activities in ports and maritime, and hear the needs and challenges from port and maritime customers of ports in the northwest to reduce their emission footprint. The workshop had presentations from port authorities, terminal operators, trucking companies, and hydrogen and fuel cell technology providers. This workshop was conducted at the f-cell and HFC Conference in Vancouver, Canada and was organized by the CHBC Heavy Duty, Goods Movement and Clean Ports SAG.

Sponsors



CHBC Policy Retreat – August 27, 2019

The CHBC Advocacy Committee organized its second annual Policy Retreat, which discussed the progress industry has made, remaining barriers, and 2020 priorities. The CHBC's newly appointed Policy Director, Diane Moss, led the working sessions. The result of the meeting was a CHBC Policy Strategy and Action Plan.

Hydrogen Fuel Cell Lunch and Learn – November 20, 2019

The CHBC organized a 2-hour briefing on hydrogen and fuel cell technology for port applications. The CHBC invited the terminal operators, labor unions and other port stakeholders to the Port of Long Beach Maintenance Yard for a special luncheon that presented the potential of hydrogen and fuel cells as a zero emission solution for container handling equipment. Presentations by the leading fuel cell equipment manufacturers provided the latest updates on the emerging hydrogen and fuel cells solution. The luncheon also included a fuel cell equipment and hydrogen refueling display.

APPENDICIES

APPENDIX A - STAFF AND CONTRACTORS

Technology Transition Corporation (www.ttcorp.com) continued to manage and staff the growing depth and breadth of the CHBC's activities. TTC is a known name in the hydrogen and fuel cell industry, having managed the National Hydrogen Association (NHA) from its founding in 1989 to the merger with the U.S. Fuel Cell Council to create the Fuel Cell and Hydrogen Energy Association (FCHEA) in 2010. TTC also continues to manage the Hydrogen Education Foundation (HEF) and its programs, the Hydrogen Student Design Contest (www.hydrogencontest.org) and H-Prize (www.hydrogenprize.org).

Jeff Serfass, President of TTC has over two decades of experience in clean energy, mainly in hydrogen sector, serving as President of the NHA and the HEF. As CHBC Executive Director he provides strategic guidance to the organization and oversees management.

Emanuel Wagner, TTC Program Director, has 8 years experience in managing clean energy projects for the Hydrogen Education Foundation and 8 years experience of program management for the Biomass Thermal Energy Council. Since 2012, he serves the CHBC as Deputy Director, managing the day-to-day operations of the organization.

Peter Thompson, TTC Project Coordinator, has 4 years experience working within trade associations for the forest products industry and representing locally owned businesses in Raleigh, NC. He was hired in July 2017 to support senior CHBC staff in administrative, communication, and project activities, including research, membership support, and event planning.

TTC contracted with several consultants to provide their experience and California relationships and connections to assist with on-the-ground support for special events like technology tours and meetings as well as information gathering and policy support. Contractors are:

- Diane Moss supports CHBC as an Advisor in PUC and energy storage related issues. She is owner of dima Communications & Strategic partnerships, which provides consulting services on communications and forging key relationships to sustainability related projects and businesses. Areas of core expertise include public relations, policy analysis, government affairs, business development, events, media.
- Cory Shumaker was hired to provide staff support in Los Angeles and lend his expertise on goods movement and transportation, having worked at Vision Motor Company until 2014. At the end of 2017, Cory's role with the CHBC shifted to Development Specialist, where he spearheads the effort to make interenational connections for the CHBC in addition to broadening the network of ports interested in hydrogen.
- The Weideman Group, an Sacramento-based lobbying firm, was hired to jointly represent the "Renewable Hydrogen, Renewable Energy and Climate" and "Hydrogen Blending and Gas System Integration" Initiatives in regulatory proceedings and the legislature.

APPENDIX B – LIST OF MEMBERS

PLATINUM EXECUTIVE

Southern California Gas Company

PLATINUM MEMBERS

Air Liquide	Mitsubishi Hitachi Power Systems
American Honda Motor Company	Americas
Ballard Power Systems, Inc.	Orsted
Bay Area Air Quality Management District (BAAQMD)	Pacific Gas and Electric Company - PG&E
Cambridge LCF Group	Plug Power
Hydrogenics	Toyota Motor Sales

GOLD MEMBERS

Alameda-Contra Costa Transit District (AC Transit)	Linde PLC
Dominion Energy	Nel Hydrogen (US)
EWII Fuel Cells LLC	South Coast Air Quality Management District
ITM Power Inc	Sumitomo Corporation of Americas
Johnson Matthey Fuel Cells	Sumitomo Electric

SILVER MEMBERS

Black & Veatch	Hexagon Lincoln
BMW of North America LLC	Hydrogenious Technologies
Center for Transportation and the Environment (CTE)	HyET - Hydrogen Efficiency Technologies
Chesterfield Special Cylinders, Ltd.	Hyundai Motor Company
Chiyoda Corporation	IGX Group Inc
CP Industries	Intertek
ElDorado National - California	Iwatani Corporation of America
Energy Independence Now (EIN)	Kiewit Infrastructure West Co.
FIBA Technologies, Inc.	Kraft Powercon
Fiedler Group	Life Cycle Associates
First Element Fuel Inc	Loop Energy
Fueling & Service Technologies Inc	Magnum Energy
General Motors, Infrastructure Planning	Neuman & Esser USA, Inc
Giner ELX	New Flyer of America Inc
Gladstein, Neandross & Associates	Nikola Motor Corporation
H2Safe, LLC	Nuvera Fuel Cells
	PDC Machines

Port of Long Beach
Renewable Hydrogen Alliance
Rio Hondo College
Rix Industries
Sacramento Municipal Utility District
(SMUD)
SAFCell Inc

Sunline Transit Agency
TLM Petro Labor Force
Trillium - A Love's Company
Valley Pacific Petroleum Services Inc
Winkelmann Flowform Technology
Worthington Industries

INNOVATOR MEMBERS

Anaerobe Systems
Charm Industrial
CMB
Community Environmental Services
Dash2energy
Daylight Transport
Eco Energy International, LLC
EcoNavitas
EPC - Engineering, Procurement &
Construction
General Engineering & Research
Geoffrey Budd G&SB Consulting Ltd
GTA Inc
Horizon Fuel Cell Technologies
HyperSolar, Inc.
Ivys Inc.
Longitude 122 West, Inc.
M.R.S. Enterprises
Manticore Advocacy LLC
Millennium Reign Energy

Next Hydrogen
Noyes Law Corporation
Pacific Northwest National Laboratory
(PNNL)
Planet Hydrogen Inc
Primidea Building Solutions
Renewable Hydrogen Canada
Corporation (RH2C)
RG Associates
Sheldon Research and Consulting
Starworks
Strategic Analysis Inc
T2M Global
Tatsuno North America Inc.
Terrella Energy Systems Ltd
The Leighty Foundation
Vaughan Pratt [Individual]
Ways2H Inc.
Zero Carbon Energy Solutions

AFFILIATES

California Air Resources Board (CARB)
California Fuel Cell Partnership
CALSTART
Canadian Hydrogen and Fuel Cell Association
Coalition for Clean Air

Renewable Hydrogen Alliance
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APPENDIX D – 2019 ADVOCACY

Our comments and letters submitted throughout the year include:

- On December 2, the CHBC submitted comments to the CPUC in support of the FuelCell Energy (“FCE”) and Toyota Motor North America (“Toyota”) Petition to Modify Decision 15-09-004, and in support of expedited attention to the Petition. [Read the comments here >>](#)
- On December 2, the CHBC submitted comments to the California Energy Commission regarding the SB 100 Technical Workshop. [Download the comments here >>](#)
- On November 27, the CHBC submitted comments on the Draft 2019 IEPR . [Download the comments here >>](#)
- On November 21, the CHBC submitted comments on the September 24, 2019 workshop on AB 74 Studies on Vehicle Emissions and Fossil Fuel Demand and Supply, hosted by CalEPA, which expressed support for the state’s goal of achieving carbon neutrality by 2045 and that including hydrogen related issues among the priorities of the two studies is essential. [Read the full recommendations in the comments here >>](#)
- On November 11, the CHBC submitted comment to the CEC regarding the public workshop on the Revised Natural Gas Price Forecast and Draft Outlook Electricity Modeling and Results. [Download the comments here >>](#)
- On November 5, the CHBC submitted reply comments to the CPUC regarding Microgrids Pursuant to Senate Bill 1339. [Read the comments here >>](#)
- On October 29, CHBC staff and members attended the Southern California SB 100 Scoping Workshop at the SCAQMD Headquarters in Diamond Bar to provide oral comments on the role of renewable and zero carbon hydrogen to achieve the deep decarbonization goals established by SB 100. The input provided reflected the previous comments submitted for the California Energy Commission’s Joint Agency Workshop on the Senate Bill 100 Report held on September 19. [Download the September 19 comments here >>](#)
- On October 18, the CHBC submitted comments for the CPUC rulemaking proceeding regarding microgrids. The comments relayed the important roles hydrogen and fuel cells play in microgrid systems in California, as essential providers of long duration, flexible storage, generation, and grid support services. The CHBC also expressed its support for the proposed scope as laid out in the OIR. [Read the comments here >>](#)
- On October 17, the CHBC submitted comments to the California Energy Commission regarding the 2019 IEPR Workshop on Near Zero Electricity. [Download the comments here >>](#)
- On October 2, the CHBC submitted comments to the California Energy Commission on the Distributed Energy Resources (DER) Research Roadmap, expressing support for efforts to develop a strategic DER Research Roadmap that would address both long-term and short-term energy system goals for California. The comments outlined decarbonized hydrogen as a solution with great potential in California. [Download the comments here >>](#)
- On October 2, the CHBC submitted comments to the California Energy Commission regarding the Joint Agency IEPR Workshop on Climate Adaptation. The comments outlined the need to have a diverse set of energy solutions to ensure reliable and resilient energy services. Hydrogen has the potential to play a prominent part of the strategy to adapt to the changing climate. [Download the comments here >>](#)
- On September 24, the CHBC submitted comments to the California Energy Commission regarding the Joint Agency Workshop on Energy Efficiency and Building Decarbonization conducted on the August 27. The comments urged the joint agencies to support a technology-neutral approach to decarbonizing California’s buildings, rather than narrow the strategy to electrification-only of all end uses for all buildings. [Download the comments here >>](#)
- On September 19, the CHBC submitted comments to the California Energy Commission regarding the Joint Agency Workshop on the Senate Bill 100 Report, held on September 5, 2019. The comments emphasized the

collaborative opportunity to accelerate the transition to clean energy economy-wide, and not just minimally deliver on statutory requirements. [Download the comments here >>](#)

- On September 10, the CHBC sent a letter to the LA Metro Board regarding the Metro Bus Fleet Forecast and Zero Emission Bus Program Update. [Read the CHBC comments here >>](#)
- On August 29, the CHBC submitted comments to the Air Resources Board regarding the Carbon Neutrality: Scenarios for Deep Decarbonization Workshop. The CHBC outlined the role of renewable and zero carbon hydrogen in achieving California's decarbonization goals post 2030 and expressed its support for efforts to evaluate multiple pathways to deep decarbonization by maximizing synergy between currently distinct energy sectors and industries in California. [Read the comments here >>](#)
- On August 20, the CHBC submitted a letter to the Port of Los Angeles (POLA) and Port of Long Beach (POLB) regarding the Clean Air Action Plan Clean Truck Fund Rate. The CHBC expressed its support for the Clean Truck Fund Rate, specifying that the rate should be high enough to make a difference in the subsequent use of the funds to incentivize zero emission trucks. [Read the CHBC letter here >>](#)
- On August 14, the CHBC submitted comments to the California Energy Commission regarding the Transportation Forecast workshop. [Read the comments here >>](#)
- On August 13, the CHBC submitted comments to the CPUC regarding the R.19-01-011 Building Decarbonization proceeding. The CHBC expressed disagreement with the CPUC staff proposal to limit eligibility of the BUILD Program to all-electric homes. In light of California's vulnerability to natural disasters, homeowners should have options and not be forced to choose between decarbonization and resiliency. [Read the comments here >>](#)
- On August 13, the CHBC submitted comments on the Integrated Energy Policy Report on Advancing Energy Equity. The comments outlined the benefits of hydrogen and fuel cells to support the disadvantaged communities (DACs), the need to develop an education program on hydrogen and fuel cells for policymakers and DACs, and provided a series of policy recommendations to expand availability of hydrogen fuel cell technologies to DACs. [Read the comments here >>](#)
- On August 12, the CHBC submitted comments on the Draft Technology Pathways and Status Updates for the Heavy-Duty Three-Year Investment Strategy, expressing support for the strategy and its goal to develop the zero-emission and low-emission technologies needed to enable air quality and climate change goals. [Read the comments here >>](#)
- On August 2, the CHBC submitted comments to the Air Resources Board regarding the Role of the Industrial Sector in Meeting California's Carbon Neutrality Goals. The comments outlined the great potential renewable hydrogen to help reduce greenhouse gas (GHG) emissions in the industrial sector. Specifically, decarbonization of the ammonia production, oil refining, and steel manufacturing. [Read the CHBC comments here >>](#)
- On August 1, the CHBC submitted comments to the California Energy Commission regarding the Clean Transportation Plan. The comments outlined six recommendations for the CEC to consider, which would address challenges that may impede maintaining current progress or achieving future success in the Clean Transportation Program. [Read the CHBC comments here >>](#)
- On July 31, the CHBC sent a letter to CPUC Commissioner Clifford Rechtschaffen urging the CPUC to open a process within the R.13-02-008 proceeding to consider issues related to hydrogen injection into the common carrier system. The CHBC stated that examining pipeline blending protocols and standards is a crucial next step in establishing regulatory frameworks that support scaling up renewable and low carbon hydrogen in California. [Read the CPUC letter here >>](#)
- On July 30, the CHBC submitted comments to the Port of Long Beach and Port of Long Angeles Environmental Planning and Management Department regarding the recently released 2018 Feasibility Assessment for Cargo-Handling Equipment. The CHBC's comments expressed overall support for the CAAP and its goal of transitioning

all equipment to zero emission and desire further consideration of fuel cells as the technology develops. [Read the CAAP comments here >>](#)

- On July 30, the CHBC submitted comments to the Air Resources Board regarding the Work Group Meeting for Heavy Duty Projects in the 2019-2020 Funding Plan. The comments proposed that the ARB consider funding large interconnected projects of zero emission heavy duty fuel cell electric vehicles and applications through a competitive solicitation process. These projects would combine new and existing zero emission fuel cell projects in order to validate operational feasibility with regards to endurance, operational range and cost-effectiveness. [Read the ARB comments here >>](#)
- On July 10, CHBC submitted a list of hydrogen projects in operation or under development in response to a request by California Energy Commission Commissioner Patty Monahan. This is in addition to CHBC's IEPR comments submitted on July 2. [Read the projects document here >>](#)
- On July 2, the CHBC submitted comments to the CEC on the May 2, 2019 IEPR Commissioner Workshop on the Status of the Zero Emission Vehicle (ZEV) Market. The CHBC expressed strong support for Commission's regular examination of the ZEV market, but expressed concern that the workshop focused virtually exclusively on plug-in/battery electric vehicle (BEV) technology and ignored hydrogen fuel-cell vehicle (FCEV) technology. [Read the comments here >>](#)
- On June 25, the CHBC submitted comments to the CEC on the June 6, 2019 Energy Commission staff workshop on the Natural Gas Distribution Infrastructure and Decarbonization Targets regarding the assumptions and principle conclusions of the study, particularly those regarding the viability of renewable gas in comparison to electricity. [Read the comments here >>](#)
- On May 31, the CHBC submitted a letter of support to Senator Nancy Skinner for SB 44, which establishes a strategy for medium and heavy duty vehicle deployment. Read the [letter here >>](#)
- On May 28, The CHBC sent a letter of congratulations to newly confirmed California Energy Commission Chair, David Hochschild. Read the CHBC letter to Chair Hochschild [here >>](#)
- On May 15, the CHBC sent a letter of support (if amended) for AB 491, which requests a study on the impacts of injecting/blending hydrogen into the existing natural gas pipeline. Read the [letter here >>](#)
- On May 14, the CHBC submitted a letter of opposition to the CPUC on the Revised Alternate Proposed Decision Regarding Biomethane Tasks in Senate Bill 840 (R.13-02-008). Read the [letter here >>](#)
- On May 14, the CHBC submitted a letter opposing the Revised Alternative Proposed Decision Regarding Biomethane Tasks in SB 840. Read the CHBC's [letter here >>](#)
- On May 7, the CHBC submitted reply comments to the CPUC regarding R. 13-02-008, on Alternate Decision Regarding Biomethane Tasks in SB 840. Read the CHBC's [reply comments here >>](#)
- On May 2, the CHBC submitted comments to CPUC regarding R. 13-02-008, on Alternate Decision Regarding Biomethane Tasks in SB 840. Read the CHBC's [comments here >>](#)
- On May 2, the CHBC submitted a letter of support to the California State Assembly in support of the GoBiz ZEV Budget request. Read the CHBC's [letter here >>](#)
- On April 22, the CHBC submitted a letter to California Gov. Newsom continue the R.13-02-008, Biomethane Standards and Requirements, Pipeline Open Access Rules, and Related Enforcement Provisions (OIR). Read the CHBC's [letter here >>](#)
- On April 3, CHBC submitted a letter expressing support for SB 662, Green Electrolytic Hydrogen, which would allow California utilities to invest in hydrogen production and fueling infrastructure. Read the [CHBC's letter here >>](#)
- On April 1, CHBC submitted a letter in support of AB 745, a bill which would exempt the sale of hydrogen for fuel cell vehicles from state and local sales and use tax for a limited time. Read the [CHBC's letter here >>](#)

- On March 26, the CHBC submitted reply comments to the CPUC regarding R.19-01-011, Order Instituting Rulemaking Regarding Building Decarbonization. Read the CHBC's [reply comments here >>](#)
- On March 15, the CHBC submitted reply comments to the CPUC regarding the R.16-02-007, Administrative Law Judge's Ruling Seeking Comment on Proposed Scenarios for the 2019-2020 Reference System Portfolio. Read the CHBC's [comments here >>](#)
- On March 11, the CHBC submitted its opening comments to the CHBC regarding R.19-01-011, Order Instituting Rulemaking Regarding Building Decarbonization. Read the CHBC's [opening comments here >>](#)
- On March 5, the CHBC submitted comments to the CPUC regarding R.16-02-007, Administrative Law Judge's Ruling Seeking Comment on Proposed Scenarios for the 2019-2020 Reference System Portfolio. Read the CHBC's [comments here >>](#)
- On February 26, the CHBC submitted reply comments to the CPUC regarding R.18-12-006, Order Instituting Rulemaking to Continue the Development of Rates and Infrastructure for Vehicle Electrification. Read the CHBC's [reply comments here >>](#)
- On February 4, the CHBC submitted its opening comment to the CPUC regarding the R.18-12-006, Rulemaking to Continue the Development of Rates and Infrastructure for Vehicle Electrification. Read the CHBC's [comments here >>](#)
- On February 1, the CHBC submitted a research reference list for hydrogen blending limits for injection in natural gas systems. This was a follow-up to a meeting the CHBC had with Commissioner Clifford Rechtschaffen, who requested the list. Read the [list of studies here >>](#)
- On January 15, the CHBC submitted reply comments to the CPUC regarding the R.16-02-007 on Inputs and Assumptions for Developments of the 2019-2020 Reference System Plan. Read the CHBC [reply comments here >>](#)
- On January 8, the CHBC sent a letter to Governor Gavin Newsom, congratulating him on his successful gubernatorial campaign and informing him on the opportunities to continue California's emission reduction with hydrogen technology. Read the [letter here >>](#)
- On January 4, the CHBC submitted comments to the CPUC regarding the R.16-02-007 for the IRP on Inputs and Assumptions for Development of the 2019-202 Reference System Plan. Read the CHBC [comments here >>](#)