

2020 CHBC 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.

Contents

2020 ANNUAL REPORT – EXECUTIVE SUMMARY..... 2

2020 PROGRAM ACTIVITY 3

ADVOCACY 3

COMMUNICATION AND OUTREACH 3

PUBLIC TRANSPORT SECTOR ACTION GROUP 4

HYDROGEN ENERGY STORAGE AND RENEWABLE HYDROGEN SECTOR ACTION GROUP 5

HEAVY DUTY, GOODS MOVEMENT, AND CLEAN PORTS SECTOR ACTION GROUP 6

2020 California Hydrogen and Fuel Cell Summit | March 5-6, 2020 | Sacramento, CA 7

Membership Updates 7

APPENDICIES 9

APPENDIX A - STAFF AND CONTRACTORS..... 9

APPENDIX B – LIST OF MEMBERS 10

APPENDIX C – 2020 BOARD OF DIRECTORS..... 12

APPENDIX D – 2020 ADVOCACY 13

Appendix E – Communications and Outreach 19

This report was authored by Emanuel Wagner and Peter Thompson.

Report Published: March 10, 2021

For feedback and comments, contact:
Emanuel Wagner | CHBC Deputy Director
ewagner@californiahydrogen.org
310-455-6095

2020 Annual Report – Executive Summary

In many respects, 2020 was an unusual and challenging year for the world and significant transitions and changes for the CHBC. The COVID-19 pandemic required policymakers to prioritize treatment and containment of the virus and the state's immediate financial stability above all else. The 2020/2021 budget forecast projected an unprecedented shortfall of over \$50 billion in California. This deficit had broad implications on the state's ability to resource traditionally funded programs, including those that support the development of the hydrogen and fuel cell market. While the state legislature prioritized its response to the COVID-19 pandemic and economic fallout, its regulatory agencies continued various proceedings virtually.

The CHBC executed the long-planned transition to a full-time Executive Director with Bill Zobel joining the organization in June 2020, following Jeff Serfass, who had led the CHBC since 2012. The CHBC and its members remained highly active in advancing the "Policy Strategy and Action Plan," which was developed and adopted at the close of 2019. The CHBC Advocacy Committee and the four issue-based Initiatives focused on relevant state legislation and engagement in regulatory proceedings at California Air Resources Board, California Public Utilities Commission, and California Energy Commission. The Sector Action Groups continued to develop educational content to inform policymakers, allied stakeholders, and the general public on hydrogen and fuel cell technology solutions.

2020 CHBC Committees, Initiatives, and Sector Action Groups were the following:

- **Advocacy Committee** – established to coordinate and execute CHBC's policy priorities and goals.
- **Initiative Committees** – front line CHBC policy engagement committees which include:
 - Renewable Hydrogen, Renewable Energy and Climate
 - Hydrogen Blending and Gas System Integration
 - Light Duty Vehicles and Infrastructure (previously called Stations)
 - Heavy Duty Vehicles and Infrastructure – formed in 2020
- **Public Transport SAG** – principally, buses and hydrogen fueling infrastructure for transit agencies and emerging rail interests.
- **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 at 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 CAISO

The Board disbanded the Communications and Business Expansion Committee at the beginning of the year due to a lack of member engagement, overlap with other committee activities, and constrained resources. A detailed reporting on each Committee, Initiative, and Sector Action Group activities throughout the year are outlined in the sections below. Supplemental information can be found in the appendices.

2020 PROGRAM ACTIVITY

ADVOCACY

The **CHBC Advocacy Committee** restructured to incorporate member-driven initiatives that target specific issues facing the hydrogen and fuel cell industry. At the beginning of the year, the restructured committee was led by chair Dr. Jeff Reed (APEP at US Irvine), co-chair Tanya Peacock (Southern California Gas Company), and Vice-Chair La Stanya Baker (Toyota North America). The Advocacy Committee established four initiatives for 2020:

- **Renewable Hydrogen, Renewable Energy and Climate.** The initiative's objective 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.** The initiative aims to create regulation to allow hydrogen blending into the natural gas system, utilize the gas grid for long-term and seasonal energy storage, and integrate pipeline and electric grids to maximize both thermal and electric renewable and decarbonized energy options.
- **Hydrogen Fueling Station Build-out.** 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.
- **Heavy Duty and Transit.** This initiative intends to ensure California legislation and regulations include hydrogen fuel cell mobility for heavy duty transportation applications.

These four initiatives are 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.

For a complete listing of all advocacy comments and letters, see Appendix D or visit:

<https://www.californiahydrogen.org/policy-issues/2020-advocacy-activities/>

COMMUNICATION AND OUTREACH

At the start of 2020, the CHBC Board of Directors disbanded the Communications and Business Expansion Committee due to a lack of member engagement. Mid-year, CHBC Executive Director Bill Zobel and staff contractor, Technology Transition Corporation took on the communications and outreach functions. Peter Thompson was named Communication Director to manage the organization's communications efforts through newsletters, social media, webinars, and quality assurance of comments submitted for government proceedings. CHBC staff relied on its membership to develop and provide content to be distributed to a cross-sectoral audience of government, environmental, and industry stakeholders. Supplemental information can be found in Appendix E.

2020 Activities:

CHBC's website has received a significant web traffic growth compared to last year due to the CHBC Summit. Overall, the CHBC website has seen an increase in several key metrics in 2020, compared to 2019, including:

- Users: 20K (23.2% increase from 2019)
- Sessions: 26K (32.3% increase from 2019)
- Bounce Rate: 72.56% (7.8% decrease from 2019)
- Session Duration: 1 minute 25 seconds (27.2% increase from 2019)
- CHBC continued to send two weekly member newsletters; “This Week in Hydrogen” (sent each Monday) and the “Wednesday Weekly” (sent each Wednesday).
 - CHBC emails have an open rate of 20% and a click rate of 13%. The industry average for non-profits is 17% open rate and 6% click rate, respectively.
- Increased CHBC social media presence to expand followership on LinkedIn and Twitter:

Platform	Followers		Gain
LinkedIn	618 (June 1, 2020)	1,525 (December 1, 2020;)	+907, 147% increase
Twitter	3,431 (June 1, 2020)	3,917 (December 1, 2020;)	+486, 14% increase

- Created a Hydrogen and Fuel Cell Presentation Library that provides presentations slides that cover hydrogen, fuel cells, and the sectors that utilize the technology options. This resource allows CHBC members and staff to have a comprehensive database when presenting to various audiences interested in hydrogen. CHBC’s Sector Actions Groups assisted in the development of this presentation library. Presentation Library available here:
https://drive.google.com/file/d/1qc_7vLGfduit0Ut73v9Fg3V72UCn4VuB/view?usp=sharing

PUBLIC TRANSPORT SECTOR ACTION GROUP

Co-Chairs Lauren Skiver and Tim Sasseen led the Public Transport SAG. The SAG completed an array of activities, focusing mainly on buses and outreach to transit agencies.

In 2020, the SAG continued to focus on educating transit agencies and transit-oriented organizations on the potential of fuel cell electric buses and hydrogen infrastructure to meet the CARB Innovative Clean Transit Regulation. The ICT Regulation requires California transit agencies to submit ZEB Rollout Plans, which outline a transit agency's compliance pathway to meet the mandate of the ICT.

CHBC had planned to conduct an in-person workshop on FCEBs and hydrogen in 2020, but this was not possible due to the COVID-19 pandemic. Transit agencies were among the most impacted sectors by the pandemic due to loss of ridership revenues from limited economic activity. **2020 Activities:**

- Created a FCEB Infopage on the CHBC website to provide an information hub on FCEBs and H2 infrastructure for transit agencies and municipalities. [FCEB infopage >>](#)
- SAG is supporting CaFCP on its California FCEB tour development.
- SAG conducted an in-person meeting at Member Day on March 4.
- Exploring infrastructure comparison for 100 FCEBs to BEBs.
- Visited Breathe California of Los Angeles County on February 7 to present the case for hydrogen and fuel cells to staff through a series of videos and presentation slides.
- Attended the Planning and Policymaking for Transit-Oriented Development, Transit, and Active Transport in California Cities Webinar on March 26. [Summary >>](#)
- Attended the April 7 CARB HVIP Workgroup 1 Webinar. [Summary >>](#)
- Attended the April 10 CEC Webinar Draft Solicitation Transit ZEV Infrastructure Workshop. [Summary >>](#)

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 Sean Ebnet. This SAG focused on education and outreach activities, such as webinars, materials development, and research.

The SAG focused its efforts on conducting webinars to educate policymakers on hydrogen strategies outside California and hydrogen as a means to achieve the SB100 goals.

2020 Activities:

- Organized Intersolar hydrogen conference session, planned a workshop (subsequently canceled) and exhibit hall presentations for a solar industry audience.
- Finalized and published Hydrogen Energy Storage/P2X Fact Sheet.
https://www.californiahydrogen.org/wp-content/uploads/2017/10/HES-Fact-Sheet-Content_V3.pdf
- Organizing a Renewable Hydrogen for Freight webinar with Act Expo (Scheduled for May 26)
- SAG conducted in-person meeting at the March 4 Member Day
- Attended the GFO-19-305 Developing non-Lithium Ion Energy Storage Technologies Pre-application Workshop on January 7.
- Attended Renewable Gas 360 (former Rethink Methane) on January 23. [Summary >>](#)
- Attended the April 14 Re-Imagining the Energy Ecosystem with Green Hydrogen Webinar.
- Attended the International Partnership for Hydrogen and Fuel Cells in the Economy on June 18.
[Summary >>](#)
- On July 27, CHBC attended the Atlantic Council webcast on opportunities and challenges on offshore wind with speakers Karen Douglas, CEC Commissioner, Thomas Brostrom, CEO Orsted North America, David Hayes, State Energy and Environmental Impact Center (and former Obama and Clinton appointee), and Hannes Pfeifenberger, Brattle Group. [Summary >>](#)
- On August 25, attended the National Capital Area Chapter of the United States Association for Energy Economics “Hydrogen: Hype or a Glide Path to Decarbonizing Natural Gas?” webinar. [Summary >>](#)
- Attended the September 9 Waste-to-Hydrogen: Emerging Source for Clean Mobility Fuel Production Webinar. [Summary >>](#)
- Attended the September 9 RG360 Exploring Renewable Hydrogen Production Pathways Webinar.
[Summary >>](#)
- Organized the September 10 webinar on the German National Hydrogen Strategy. [Report and recording here >>](#)
- Attended the September 14 Schatz Energy Research Center Webinar — Exploring the Feasibility of Offshore Wind Energy for the California North Coast: Energy Production and Delivery, and Economic Development. [Summary >>](#)
- Organized the October 22 Webinar on Long-Duration Energy Storage: Key to Achieving SB 100. [Available here >>](#)

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

The Heavy Duty, Goods Movement, and Clean Ports SAG was led by Kim Okafor and Andreas Truckenbrodt, with CHBC Development Specialist Cory Shumaker's support.

2020 Activities:

- Organized The Facts on Fuel Cell Electric Trucks Webinar Series with ACT News (April 14 and 21). <https://www.californiahydrogen.org/resources/webinars/>
 - Over 1,000 people registered, 670 attended the first webinar, over 900 people registered and over 600 attended the second webinar.
- Working with Jesse Marquez to update the CSAFE commercial vehicle list, which currently includes vehicles that are not available for purchase.
- SAG conducted in-person meeting at the March 4 Member Day
- Continued to track policy developments until the HD Initiative began formal meetings (ACT Regulation, FY 2020-21 Funding Plan for Clean Transportation Incentives,
- Working to engage with the Clean Cities organizations contact at DOE.
- Informed members of potential ARB RFI for MD-HD ZEV's EER, info provided by Yachun Chow.
- Participated in the January 15 CAAAP Stakeholder Advisory Workshop. [Summary >>](#)
- Attended the January 22 CARB Work Group Meeting for Heavy-Duty Demonstrations, Pilots, and HVIP from the Fiscal Year 2019-20 Funding Plan. [Summary >>](#)
- Attended the January 24 Pre-Application Workshop #3 - GFO-19-602 Hydrogen Refueling Infrastructure. [Summary >>](#)
- Attended the January 30 CARB Work Group Meeting for the Fiscal Year 2020-21 Heavy-Duty Investment Strategy. [Summary >>](#)
- Attended the January 30 CARB Control Measure for Ocean-Going Vessels At Berth Webinar. [Summary >>](#)
- Attended the February 6 SCAQMD Clean Fuels Program Advisory Meeting. [Summary >>](#)
- Attended the March 27 CORE Voucher Project Work Group Webinar.
- Attended the April 2 CEC Staff Webinar to Discuss Two Draft Solicitation Concepts - Heavy-Duty Zero-Emission Vehicles. [Summary >>](#)
- Attended the April 16 CARB Work Group Webinar for the Fiscal Year 2020-21 Heavy-Duty Investment Strategy. [Summary >>](#)
- Attended the April 16 SCAQMD Air Quality Management Plan Advisory Group Meeting. [Summary >>](#)
- [Attended the June 24 Clean Air Action Plan Stakeholder Advisory Meeting. Summary >>](#)
- On September 15, the California Air Resources Board (CARB) held a Webinar/Teleconference work group meeting on the Fiscal Year (FY) 2020-21 Long-Term Heavy-Duty Investment Strategy. The Strategy, built upon previous years' work, is required under SB 1403, the California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program (Lara, Chapter 370, Statutes of 2018). [Report on the workshop here >>](#)
- The San Pedro Bay Ports (Port of Los Angeles and Port of Long Beach) updated the public on progress toward the goals of its Clean Air Action Plan (CAAP) during a videoconference meeting on Wednesday, October 14, from 10 a.m. to noon, via Zoom. [Report here >>](#)

2020 California Hydrogen and Fuel Cell Summit | March 5-6, 2020 | Sacramento, CA

The CHBC hosted its annual California Hydrogen and Fuel Cell Summit March 5-6, 2020, in Sacramento. The 2020 Summit focused on policy roundtables between industry and government stakeholders at the Governor's Office, State Legislature, and Regulatory Agencies. A post-Summit report is available at:

www.californiahydrogen.org/wp-content/uploads/2020/07/CHBC_SummitReport.pdf

Title Sponsor



Program Sponsors



Networking Sponsors



Vehicle Display Sponsor



Host



Organizers



Membership Updates

CHBC has attracted 27 new members to-date in 2020, adding \$55,450 in revenue to the organization.

- | | |
|------------------------------------|-----------|
| • Advanced Structural Technologies | Silver |
| • Anca Faur [Individual] | Innovator |
| • Baker Botts LLP | Platinum |
| • Bennett Pump Company | Silver |
| • Bloom Energy | Gold |
| • Burckhardt Compression (US) Inc. | Silver |
| • Coalition for Advanced ZEV | Innovator |
| • Electro-Active Technologies | Innovator |

• Fuel Solutions, Inc.	Innovator
• Green Car Race	Innovator
• HyPoint Inc	Silver
• Landi Renzo USA Corporation	Silver
• Look Inc	Innovator
• Mpower Innovation Inc	Silver
• Oberon Fuels, Inc.	Innovator
• Parsons Corporation	Gold
• Planetary Hydrogen	Innovator
• Quantum Fuel Systems LLC	Silver
• Resato North America	Innovator
• Ricardo, Inc.	Silver
• STM Group Inc	Innovator
• Technology & Investment Solutions LLC	Innovator
• Tokyo Boeki Machinery	Silver
• US Gain	Gold
• Versallis Tech Services LLC	Innovator
• Worley	Silver
• Yosemite Clean Inc	Innovator

CHBC lost 13 members in 2020 who decided against renewing their 2020 dues on the order of \$36,550.

• Cambridge LCF Group (True North)	Platinum
• RG Associates	Innovator
• Eco Energy International, LLC	Innovator
• Hydrogenious Technologies	Silver
• HyperSolar, Inc.	Innovator
• ITM Power Inc	Gold
• Magnum Energy	Silver
• Planet Hydrogen	Innovator
• Primidea Building Solutions	Innovator
• SAFCell Inc	Silver
• Starworks	Innovator
• Terrella Energy Systems Ltd	Innovator
• Valley Pacific Petroleum Services Inc	Silver

APPENDICIES

APPENDIX A - STAFF AND CONTRACTORS

Bill Zobel joined the CHBC in June 2020 as the organization's first full-time Executive Director. Bill has over 30 years of experience in the energy sector, covering a wide range of issues and responsibilities. Before joining the CHBC, Bill was Vice President of Business Development & Marketing for Trillium. Before entering the alternative fuels market, Bill served as the Director of Environmental and Climate Change Policy for Semptra Energy. As Director of Strategy and Business Analysis for BP North America, he helped develop BP's U.S. brand and policy following the acquisitions of Amoco and ARCO. In his 15 years with ARCO, Bill was instrumental in developing and executing the nation's first regional smog trading program, RECLAIM, and worked on developing the nation's first reformulated gasoline, EC-1.

The CHBC retained the services of several contractors in 2020, including:

- Technology Transition Corporation (www.ttcorp.com): TTC is a known name in the hydrogen and fuel cell industry. TTC has 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 manages the Hydrogen Education Foundation, the American Biogas Council, and numerous other industry trade and professional organizations. TTC staff that served the CHBC are:
 - Emanuel Wagner, TTC Program Director, has more than ten years of experience in project and program management for the Hydrogen Education Foundation 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 five years of 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 communication and project activities, including communications, operations, and membership engagement.
- Diane Moss supports CHBC as an Advisor in regulatory and legislative issues. She is the owner of dima Communications & Strategic partnerships, which provides consulting services on communications and forging critical 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 international connections for the CHBC in addition to broadening the network of ports interested in hydrogen.

APPENDIX B – LIST OF MEMBERS

PLATINUM EXECUTIVE

Southern California Gas Company

PLATINUM MEMBER

Baker Botts LLP

Ballard Power Systems, Inc.

Bay Area Air Quality Management
District (BAAQMD)

Cummins

Mitsubishi Power Americas

Orsted

Pacific Gas and Electric Company - PG&E
Plug Power

GOLD MEMBERS

Alameda-Contra Costa Transit District
(AC Transit)

Bloom Energy

Chart Industries, Inc.

Dominion Energy

IRD Fuel Cells

Johnson Matthey Fuel Cells

Linde PLC

Nel Hydrogen (US)

Nikola Motor Corporation

Parsons

South Coast Air Quality Management
District - SCAQMD

Sumitomo Corporation of Americas

Sumitomo Electric

Toyota Motor Sales

US Gain

SILVER MEMBERS

Advanced Structural Technologies

Black & Veatch

BMW of North America LLC

Burckhardt Compression (US) Inc.

Chiyoda Corporation

CP Industries

ElDorado National - California

Energy Independence Now (EIN)

FIBA Technologies, Inc.

Fiedler Group

First Element Fuel Inc

Fueling & Service Technologies Inc

General Motors, Infrastructure Planning

Gladstein, Neandross & Associates

GTA Inc

H2Safe, LLC

Hexagon Lincoln

HyPoint Inc

Hyundai Motor Company

IGX Group Inc

Intertek

Iwatani Corporation of America

Kiewit Infrastructure West Co.

Landi Renzo USA Corporation

Loop Energy

Neuman & Esser USA, Inc

New Flyer of America Inc

Nikola Motor Corporation

Nuvera Fuel Cells

PDC Machines

Port of Long Beach
Quantum Fuel Systems LLC
Ricardo, Inc.
Rix Industries
Sacramento Municipal Utility District
(SMUD)
Sunline Transit Agency

TLM Petro Labor Force
Tokyo Boeki Machinery
Toyota Motor Sales
Trillium - A Love's Company
Worley
Worthington Industries, Inc

INNOVATOR MEMBERS

Anaerobe Systems
Charm Industrial
CMB
Coalition for Advanced ZEV (RG
Associates)
Community Environmental Services
Dash2energy
EcoNavitas
EPC - Engineering, Procurement &
Construction
General Engineering & Research
Geoffrey Budd G&SB Consulting Ltd
Green Car Race
Horizon Fuel Cell Technologies
HyET - Hydrogen Efficiency Technologies
Ivys Inc.
Longitude 122 West, Inc.
M.R.S. Enterprises

Millennium Reign Energy
Next Hydrogen
Noyes Law Corporation
Pacific Northwest National Laboratory
(PNNL)
Renewable Hydrogen Canada
Corporation (RH2C)
Sheldon Research and Consulting
STM Group Inc
Strategic Analysis Inc
T2M Global
Tatsuno North America Inc.
Technology & Investment Solutions LLC
The Leighty Foundation
Vaughan Pratt [Individual]
Ways 2 H Inc.
Yosemite Clean Inc
Zero Carbon Energy Solutions

AFFILIATES

California Fuel Cell Partnership
CALSTART
Center for Transportation and the
Environment (CTE)
Coalition for Clean Air

Renewable Hydrogen Alliance
National Fuel Cell Research Center at UC
Irvine
Advanced Power and Energy Program at
UC Irvine

APPENDIX C – 2020 BOARD OF DIRECTORS

Officers

Lauren Skiver (Chair) - 2021

CEO/General Manager
SunLine Transit
32505 Harry Oliver Trail
Thousand Palms, CA 92276-3501
lskiver@sunline.org
office: 760-343-3456 x100

Stephen Szymanski (Vice Chair) -2021

Director, Business Development
Nel Hydrogen
10 Technology Drive
Wallingford, CT 06492
sszymanski@nelhydrogen.com
office: 203-678-2338
cell: 203-980-3182

Anca Faur (Treasurer) - 2020

410 Hauser Blvd., #1H
Los Angeles, CA 90036
avaintl99@gmail.com
mobile: (213) 309-6259

Immediate Past Chair

Jeffrey Reed

Chief Scientist for Renewable Fuels
and Energy Storage
Advanced Power and Energy Program
- UC Irvine
Engineering Laboratory Facility
Irvine, California 92697-3550
jgr@apep.uci.edu
cell: 858-735-7590

Directors at Large

Gus Block - 2022

Director, Marketing and Government
Affairs
Nuvera Fuel Cells LLC
129 Concord Road, Building 1
Billerica, MA 01821
gblock@nuvera.com
office: 617-245-7553
mobile: 978-852-5774

Jack Brouwer, PhD. - 2021

Director
UC Irvine, National Fuel Cell Research
Center
Engineering Laboratory Facility, Bldg
323
Irvine, CA 92697-3550
jb@apep.uci.edu
office: 949-824-7302 x11221

Gerard Conway - Platinum

General Counsel, Vice President of
Government Affairs
Plug Power
968 Albany Shaker Road
Latham, NY 12110
gconway@plugpower.com
office: 518-782-7700 x1970

Sean Ebnet – Platinum

Lead Business Developer, Business
Innovation Markets & Bioenergy
Orsted
437 Kipling St, Suite 200
Palo Alto, CA 94301
seaeb@orsted.com
cell: 857-343-2089

Brian Goldstein – 2022

Executive Director
Energy Independence Now (EIN)
8522 National Blvd., Suite 102,
Culver City, CA 90232
brian@einow.org
cell: 303-520-6353

Elias Greenbaum – 2022

President
GTA, Inc.
11403 Morgan Overlook Dr
Knoxville, TN 37931
greenbaum@gtah2.com
office: (865) 223-9551

Austin Hastings – Platinum

Director, Wholesale Marketing and
Business Development
Pacific Gas & Electric
245 Market St
San Francisco, CA 94105
aah7@pge.com
office: 559-263-5165

Jaimie Levin - 2021

Senior Program Manager and Director
of West Coast Operations
Center for Transportation and the
Environment (CTE)
878 Peralta Ave
Berkeley, CA 94707
jaimie@cte.tv
cell: 510-851-0625

Kim Okafor – 2022

Manager of Zero Emission Solutions
Trillium – A Love's Company
2929 Allen Pkwy #4100
American General Center
Houston, TX 77019
kimberly.okafor@trilliumcng.com
office: 713-332-5706

Tanya Peacock - Platinum

Environmental Policy Manager
Southern California Gas Company
555 West Fifth St.
Los Angeles, CA 90013
tpeacock@semprautilities.com
office: 213-244-5554

Jim Petrecky – 2021

Director of Hydrogen Energy | North
America & Europe
PDC Machines
1875 Stout Drive
Warminster, PA 18974
j.petrecky@pdcmachines.com
cell: 518-763-9777

Nicolas Pocard - Platinum
Director, Marketing
Ballard Power Systems
9000 Glenlyon Parkway
Burnaby, BC V5J 5J9, Canada
nicolas.pocard@ballard.com
office: 604-412-3133
cell: 778-968 5702

Jeff Seger - Platinum
General Manager - Fuel Cell
Powertrain Integration
Cummins Inc.
jeff.p.seger@cummins.com
cell: 812-447-0100

Andreas Truckenbrodt - 2021
Chair of the Board
Loop Energy
2880 Production Way
Burnaby, BC, V5A 4T6, Canada
andreas.truckenbrodt@loopenergy.com
cell: 604-250-3656

Ex-officio Government Liaison

Gerhard Achtelik
Manager, Zero Emission Vehicle
Infrastructure
California Air Resources Board
1001 I Street
Sacramento, CA 95812
gerhard.achtelik@arb.ca.gov
office: 916-323-8973

CHBC Staff

Bill Zobel
CHBC Executive Director
wzobel@californiahydrogen.org
cell: 760-590-3420

Emanuel Wagner
CHBC Deputy Director
1211 Connecticut Ave NW Suite 650
Washington, DC 20036
ewagner@californiahydrogen.org
office: 310-455-6095 x360

Diane Moss
CHBC Policy Director
35316 Mulholland Hwy
Malibu, CA 90265
dimacommunications@yahoo.com
cell: 310-457-6141

Peter Thompson
CHBC Communications Director
1211 Connecticut Ave NW Suite 650
Washington, DC 20036
pthompson@californiahydrogen.org
office: 310-455-6095 x322

Cory Shumaker
CHBC Development Specialist
cshumaker@californiahydrogen.org
cell: 310-598-9383

APPENDIX D – 2020 ADVOCACY

CHBC comments and letters submitted throughout the year include:

California Governor's Office

- The California Hydrogen Business Council (CHBC) believes Governor Gavin Newsom's [Executive Order N-79-20](#) underscores the importance of hydrogen electric fuel cells to the future of mobility in California. The Executive Order is California's latest action to combat climate change by requiring new car and drayage truck sales be zero emission beginning in 2035. The Governor announced his order in the wake of a devastating wildfire season that has thus far consumed 3.6 million acres. [Read the full statement here >>](#)
- On September 1, the CHBC sent a letter to Governor Gavin Newsom, requesting his signage of AB 3163, which would expand the definition of biomethane to include the non-combustion thermal conversion of eligible biomass. AB 3163 will support an important new pathway to creating renewable hydrogen, which is the only gas that emits zero greenhouse gas over its lifecycle and a key enabler of California's climate goals. [Read the letter here >>](#)
- On February 19, the CHBC sent a letter to Governor Gavin Newsom regarding the proposed 2020-2021 budget. The CHBC expressed appreciation for the Governor's continued support of climate, energy, and air quality issues, as well as support for the Climate Catalyst Fund. [Read the letter here >>](#)

California Assembly and Senate

- On June 12, the CHBC sent a letter of support to Senate Committee on Energy, Utilities, and Communications Chair, Senator Ben Hueso, for AB 3163, which would expand the definition of biogas to include the non-combustion thermal conversion of eligible biomass. This legislation will support an important pathway to

creating renewable hydrogen, which is the only gas that emits zero greenhouse gas over its lifecycle and a key enabler of California's climate goals. [Read the letter here >>](#)

- On May 29, the CHBC sent a letter to Assemblymember Richard Bloom and Budget Subcommittee 3 in response to the Governor's Proposed Budget and the Revisions proposed by the Administration on May 14, 2020. The CHBC urged the Assembly to consider postponing any decision on 2020-2021 Greenhouse Gas Reduction Funds (GGRF) until after the next auction results are known in August and to take immediate action to modify the proposals in the Governor's budget to ensure public health is maximized in the current compounded crisis of COVID-19 and the increased catastrophic wildfire threat. [Read the letter here >>](#)
- On May 20, the CHBC sent a letter of support for AB 3163 to Assembly Member Lorena Gonzalez Fletcher, Chair of the Assembly Appropriations Committee. The bill would expand the definition of biogas to include the non-combustion thermal conversion of eligible biomass, supporting an important new pathway to creating renewable hydrogen. [Read the letter here >>](#)
- On May 11, the CHBC sent a letter of support for SB 1352 to Senator Ben Hueso, recognizing that the bill will not advance in the 2020 legislative session due to the COVID-19 pandemic. SB 1352 would establish a renewable gas standard (RGS) by 2030 and help drive the market development for renewable gas, including hydrogen. [Read the letter of support here >>](#)
- On March 24, the CHBC sent a letter of support for SB 1122 to Senator Nancy Skinner. The proposed legislation would provide clarification that green electrolytic hydrogen ought to be eligible as a zero carbon-emitting supply-side resource in any plans developed to help California develop a cost-effective, reliable, and balanced power portfolio. [Read the letter here >>](#)

California Public Utilities Commission (CPUC)

- On November 17, the CHBC submitted reply comments to the CPUC on the Order Instituting Rulemaking to Establish Policies, Processes, and Rules to Ensure Safe and Reliable Gas Systems in California and Perform Long-Term Gas System Planning. The CHBC agreed with several parties who called for greater inclusion of green hydrogen and methanated green hydrogen in gas system planning. By supporting green hydrogen in this proceeding, the CPUC will send market signals that ensure solutions are ready and available, as required in the energy system. [Read the comments here >>](#)
- On November 2, the CHBC submitted comments to the CPUC on R.20-01-007 Track 1A: Reliability Standards and Track 1B: Market Structure and Regulations, Workshop Report and Recommendations. The CHBC expressed its appreciation that the Workshop Report including a summary of comments in support of hydrogen by Dr. Jeff Reed on behalf of the CHBC at the Track 1B workshop, along with CHBC's oral comments. Additionally, CHBC was concerned and disappointed that the report's recommendations completely neglect to include actions to examine or advance the incorporation of hydrogen into future state gas and electricity system planning. [Read the comments here >>](#)
- On October 16, the CHBC submitted reply comments to the California Public Utilities Commission on the ALJ's Ruling Setting Prehearing Conference and Directing Comments on Energy Division Phase II Staff Proposal. [Read comments here >>](#)
- On October 2, the CHBC submitted comments to the CPUC's ruling seeking comment regarding Policy Questions and an Interim Approach for Minimizing Emissions from Generation During Transmission Outages. [Read the comments here >>](#)
- On August 28, the CHBC submitted reply comments to the CPUC on the "Track 2 Microgrid and Resiliency Strategies Staff Proposal, Facilitating the Commercialization of Microgrids Pursuant to Senate Bill 1339." The CHBC appreciated the Commission's recognition that hydrogen is one of the fuels to be considered in microgrid planning and that fuel cells are to be considered as a generation resource. [Read the reply comments here >>](#)

- On August 21, the CHBC submitted reply comments to the CPUC for the Administrative Law Judge’s Ruling Requesting Comments on Wireline Provider Resiliency Strategies. [Read the comments here >>](#)
- On August 14, the CHBC submitted its opening comments to the CPUC on the proposal titled “Facilitating the Commercialization of Microgrids Pursuant to Senate Bill 1339.” The CHBC expressed its appreciation that the Commission recognized that hydrogen is one of the fuels to be considered in microgrid planning and that fuel cells are to be considered as a generation resource. The CHBC also recommended the Commission select Proposal 3 Option 2 for a simple standardized tariff for customer-owned, behind-the-meter microgrids. [Read the comments here >>](#)
- On July 7, the CHBC submitted reply comments to the California Public Utilities Commission on the Order Instituting Rulemaking Regarding Policies, Procedures, and Rules for the Self-Generation Incentive Program and Related Issues. The CHBC comments called attention to and agreed with the interest expressed by a number of parties in green hydrogen being included in the SGIP program as a clean and resilient generation resource capable of providing reliable power. [Read the comments here >>](#)
- On July 1, the CHBC submitted comments to the CPUC on the Proposed Decision Adopting Wireless Provider Resiliency Strategies. The CHBC expressed disappointment that the decision continues to allow use of polluting diesel generators while doing nothing to encourage use of zero emissions hydrogen fuel cell backup generators to ensure that critical services, including telecommunication, remain resilient and reliable 24/7/365 without emitting criteria air pollutants or air toxics. [Read the comments here >>](#)
- On June 30, the CHBC submitted comments to the CPUC regarding the OIR to Continue Electric Integrated Resource Planning and Related Procurement Processes. [Read the comments here >>](#)
- On June 29, the CHBC submitted comments to the CPUC regarding the Order Instituting Rulemaking Regarding Policies, Procedures and Rules for the Self-Generation Incentive Program and Related Issues. [Read the comments here >>](#)
- On June 15, the CHBC submitted comments to the CPUC regarding the OIR to Continue Electric Integrated Resource Planning & Related Procurement. The CHBC’s main points were: (1) including green electrolytic hydrogen in IRP modeling is in line with state law; (2) green electrolytic hydrogen is the most scalable, geographically flexible long duration storage option and more cost effective than lithium ion batteries at longer durations; (3) additional variable renewable generation, which will be needed to achieve state policy targets and which is part of the PUC’s proposed integrated resource planning, risks not being financeable without electrolytic hydrogen as a storage resource, and; (4) by including hydrogen as a storage and electricity generation in IRP modeling, the PUC would be responding to rising interest not only internationally, but also in the US and California, by investing in renewable hydrogen solutions to decarbonize the electricity sector while maintaining system reliability. [Read the comments here >>](#)
- On May 26, the CHBC submitted comments to the CPUC regarding the proposed decision adopting short-term actions to accelerate microgrid deployment and related resiliency solutions. The CHBC supported the comments of several parties calling for the Track 1 microgrid proposed decision to be expanded to include fuel cells (and hydrogen-based fuel cells), to ensure more resilient, reliable, pollution-free energy service 24/7 in all weather conditions, which current proposed solutions cannot supply on their own. [Read the comments here >>](#)
- On April 27 the CHBC submitted comments to the CPUC Energy Division on the draft transportation electrification framework (TEF). [Read the comments here >>](#)
- On April 17, the CHBC submitted reply comments to the CPUC for the R.18-03-011 proceeding proposal, which addressed Communications Service Provider Resiliency and Disaster Response Requirements. The CHBC comments highlighted hydrogen fuel cell backup generation as a means to ensure that critical services, including telecommunication, remain resilient and reliable 24/7/365 without emitting criteria air pollutants. [Read the comments here >>](#)

- On March 17, the CHBC submitted its reply comments to the CPUC regarding the R.16-02-007 proceeding on the Proposed Decision on the 2019-2020 Resource Portfolios. The CHBC expressed its agreement with comments made by CESA and EDF that support the Commission to include a wide range of long duration storage technologies in the resource portfolio by 2026. [Read the comments here >>](#)
- On March 12, the CHBC submitted its opening comments to the CPUC regarding the R.16-02-007 proceeding on the Proposed Decision on the 2019-2020 Resource Portfolios. [Read the comments here >>](#)
- On March 12, the CHBC submitted its reply comments to the CPUC on the R.20-01-007 proceeding, which will establish policies, processes, and rules for the gas system. [Read the comments here >>](#)
- On March 9, the CHBC submitted comments to the CPUC regarding the proposed decision to establish building decarbonization pilot programs. [Read the full comments here >>](#)
- On February 26, the CHBC submitted comments to the CPUC regarding the “OIR to Establish Policies, Processes, and Rules to Ensure Safe and Reliable Gas Systems in California and Perform Long-Term Gas System Planning.” The comments outlined the role of renewable gas to address short lived climate pollutants, the need for a rigorous, peer-reviewed analysis to optimize the use of hydrogen, and consideration of electric/gas grid interconnection. [Read the full comments here >>](#)
- On February 6, the CHBC submitted reply comments to the CPUC regarding the R.19-09-009 proceeding on the Track 1 Microgrid and Resiliency Strategies Staff Proposal. [Read the full comments here >>](#)
- On January 30, the CHBC submitted comments to the CPUC regarding the staff proposal titled, “Short-Term Actions to Accelerate the Deployment of Microgrids and Related Resiliency Solutions.” The CHBC comments addressed prioritizing interconnection applications to deliver resiliency services at key sites and locations. [Read the full comments here >>](#)
- On January 27, the CHBC submitted comments to the CPUC on the R.13-02-008 Phase 4, which is addressing a variety of issues related to hydrogen. The CHBC continues to strongly support establishing hydrogen injection standards and protocols, a technical study to determine safe blending limits, and a preliminary injection standard within 12 months, which will help enable California to achieve its GHG reduction targets. However, the CHBC disagreed with the sentiment that “consideration of injecting hydrogen into the natural gas pipeline is a distraction to increasing the injection of renewable methane (biomethane).” [Read the comments here >>](#)
- On January 10, the CHBC submitted comments to the CPUC regarding the R.13-02-008 proceeding, which will consider issues related to hydrogen. The CHBC’s opening comments covered an array of points for the CPUC to consider as it works to establish injection standards and protocols for California. Overall, the CHBC strongly supports the opening of Phase 4 of the proceeding due to its potential to expand renewable hydrogen production and distribution in the state. [Read the CHBC comments here >>](#)

California Energy Commission (CEC)

- On September 15, the CHBC submitted comments to the California Energy Commission on the SB 100 Draft Results Workshop, which focused on draft modeling results and in the wake of Governor Newsom’s announcement to accelerate state climate goals, including the schedule for achieving California’s 100% zero carbon electricity target. [Download the comments here >>](#)
- On September 9, the CHBC submitted comments to the California Energy Commission on the Commissioner Workshop on Clean Transportation Funding Programs – Clean Transportation Equity, Jobs, and Economic Recovery. [Download the comments here >>](#)
- On August 20, the CHBC submitted comments to the California Energy Commission SB 100 Joint Agency Report Docket No. 19-SB-100, urging inclusion of a zero-carbon scenario and green electrolytic hydrogen as a long-duration storage and electricity generation resource. Green electrolytic hydrogen holds great promise to provide dispatchable, decarbonized firm power that can be stored in vast quantities until needed, such as during seasonal and peak demand periods. It also presents many economic opportunities for California, due to its high

potential for a rapid downward cost trajectory and for creating and retaining good, green jobs in the state. [Download the comments here >>](#)

- On July 30 the CHBC submitted comments to the California Energy Commission on the IEPR Update Workshops on Accessing the Future Role of Microgrids, which occurred on July 7 and 9. [Download the comments here >>](#)
- On July 23, the CHBC submitted comments to the California Energy Commission on the recently held IEPR Update Workshops on Hydrogen Supply, Infrastructure, and Fuel Cell Electric Vehicle Market Status, urging the CEC to join ARB in calling for an extension of AB 8 funding of hydrogen fueling infrastructure, the only current policy mechanism that provides FCEV OEMs the forward-looking certainty they require to do their critical part in meeting the 5 million ZEV goal of Executive Order B-48-18. Download the comments here: <https://lnkd.in/dd4hfwg>
- On July 2, CHBC executive director, Bill Zobel, provided comments during the California Energy Commission IEPR Commissioner Workshop on Hydrogen and Fuel Cell Electric Vehicle Market Status. The comments focused on the need for regulatory certainty to attract more private capital to make its way into this market and achieve the scale necessary to meet the challenge and leverage the full economic potential of hydrogen; the importance of extending AB 8 funds beyond the 2023 sunset date; and need policies that accelerate production of decarbonized hydrogen at scale to achieve cost-competitiveness. [Read the comments here >>](#)
- On July 2, the CHBC submitted comments to the California Energy Commission on the June 11 and June 12 IEPR Update workshops focused on Transportation Trends and a Light-Duty Zero-Emission Vehicle Market Update. The CHBC comments focused on the opportunities and policy issues related to accelerating light duty hydrogen fuel cell electric vehicles, as well as scaling of hydrogen production. [Read the comments here >>](#)
- On June 12, the CHBC submitted comments to the CEC on the May 29 Distributed Energy Resources Research Roadmap Workshop. The comments clarified the record on the commercial availability of zero emissions hydrogen fuel cells and urged the CEC to add hydrogen fuel cells to the technologies considered for research on microgrids and backup generation, which will ensure that resiliency does not compromise State clean air and climate goals. In addition, the CHBC supported the DER Research Roadmap inclusion of green electrolytic hydrogen among priorities identified for energy storage research. [Download the comments here >>](#)
- On June 8, the CHBC submitted comments to the CEC regarding the Commissioner Workshop on Heavy-Duty Zero-Emission Vehicle Market Trends. The CHBC expressed disappointment due to the agenda for this workshop excluding any focus or panelist experts on hydrogen fuel cell electric vehicles (FCEVs), which has become a common pattern at the Commission and risks creating a misperception that ZEV is equivalent battery electric vehicles (BEVs). Additionally, the CHBC expressed appreciation to CEC staff and Commissioner Monahan for their comments and questions during the workshop that recognized hydrogen fuel cell electric technology as an important piece of the Heavy Duty ZEV market and their expression of support for including this solution in future 2020 IEPR update workshops. [Download the comments here >>](#)
- On April 24, the CHBC submitted comments to the CEC on the EPIC Program Policy and Innovation Coordination Group (PICG) Partnership Area Framework results workshop. [Read the comments here >>](#)
- On April 24, the CHBC submitted comments to the CEC on Docket #19-TRAN-02 Zero-Emission Transit Fleet Infrastructure Deployment and focused on the need for the CEC to help balance zero emissions transportation funding to support hydrogen fuel cell electric transit fleet technology deployment. There are currently no funding mechanisms in other California agency programs to insure the Innovative Clean Transit Regulation's (ICT) success. [Download the comments here >>](#)
- On March 30, the CHBC submitted comments to the CEC on the draft staff report on the 2020-2023 Investment Plan Update for the Clean Transportation Program. [Download the comments here >>](#)
- On March 20, the CHBC submitted comments to the CEC on the staff Workshop on Research and Development Opportunities for Floating Offshore Wind. The comments supported the recommendation to facilitate advanced hydrogen and other technologies to integrate offshore wind into the grid. Additionally, the CHBC recommended

including studies and projects related to coupling offshore wind and hydrogen technologies in the research database. [Download the comments here >>](#)

- On March 9, the CHBC submitted comments to the CEC regarding the SB 100 Joint Agency Report. The CHBC agreed with the direction of commenters thus far to ensure implementation of SB 100 is not prescriptive, maximizes optionality, and is technology inclusive. [Download the comments here >>](#)
- On January 31, the CHBC submitted comments to the CEC regarding the draft scoping order for the 2020 IEPR. [Download the full comments here >>](#)
- On January 21, the CHBC submitted comments to the California Energy Commission on the proposed draft of the 2020 Load Management Rulemaking Scoping Memo (Scoping Memo). The CHBC expressed its general support to deploy an array of load management technologies to enable achievement of the state's renewable and carbon neutral energy goals. [Download the comments here >>](#)

California Air Resources Board (CARB)

- On November 16, the CHBC sent a letter to CARB Chair Mary Nichols, expressing its appreciation for CARB taking the lead on examining how to achieve carbon neutrality economy wide by 2045, as called for in Executive Order B-55-18. The CHBC also welcomed CARB to generally include hydrogen in E3's analysis for heavy duty vehicles, rail, electricity generation, industry, and agriculture. [Read the letter here >>](#)
- On September 9, the CHBC Submitted comments to the California Air Resources Board on the Public Workshop to Discuss Achieving Carbon Neutrality in California: A Report by E3, which initiated a dialogue on significant issues and questions related to how California should implement the state's goal to achieve carbon neutrality economy-wide by 2045. The Draft Report included key roles for hydrogen in all the scenarios considered, and especially the widespread use of hydrogen in the Balanced Scenario and Zero Carbon Scenario. which presents a prime opportunity to retain jobs in the gas and industrial sectors and create a massive number of new green jobs across the hydrogen supply chain, from production to distribution to end use. [Read the comments here >>](#)
- On August 5, the CHBC submitted comments to the California Air Resources Board on the July 15 workshop on Fuels and Infrastructure for a Carbon Neutral Economy. The CHBC focused on two major areas that require efforts to decarbonize fuels and realize a carbon neutral economy. [Read the comments here >>](#)
- On June 12, The CHBC and 33 member signatories sent a letter to CARB Chair Mary Nichols to include in its Scoping Plan update and other programs nine recommendations to help drive renewable and green electrolytic hydrogen market development. [Read the letter to Chair Nichols here >>](#)
- On April 17, the CHBC submitted an addendum to the Air Resources Board Chair and Members, which provided information on hydrogen and fuel cell technology. This addendum was developed in response to the ACT Coalition's letter the Board received in March on battery electric technology. These materials were provided to the ARB as it develops the Advanced Clean Truck Regulation, which will require a certain percentage of new truck sales be zero emission and a reporting requirement for large companies and fleets. [Read the CHBC addendum here >>](#)
- On March 6, the CHBC submitted comments to the CARB regarding its Webinar on California's Carbon Neutrality Goals: Approaches for the Industrial Sector Meeting. The CHBC expressed its support continued focus on industrial sector emissions in its efforts to pursue statewide carbon neutrality by 2045. [Read the full comments here >>](#)

California Environmental Protection Agency (CalEPA)

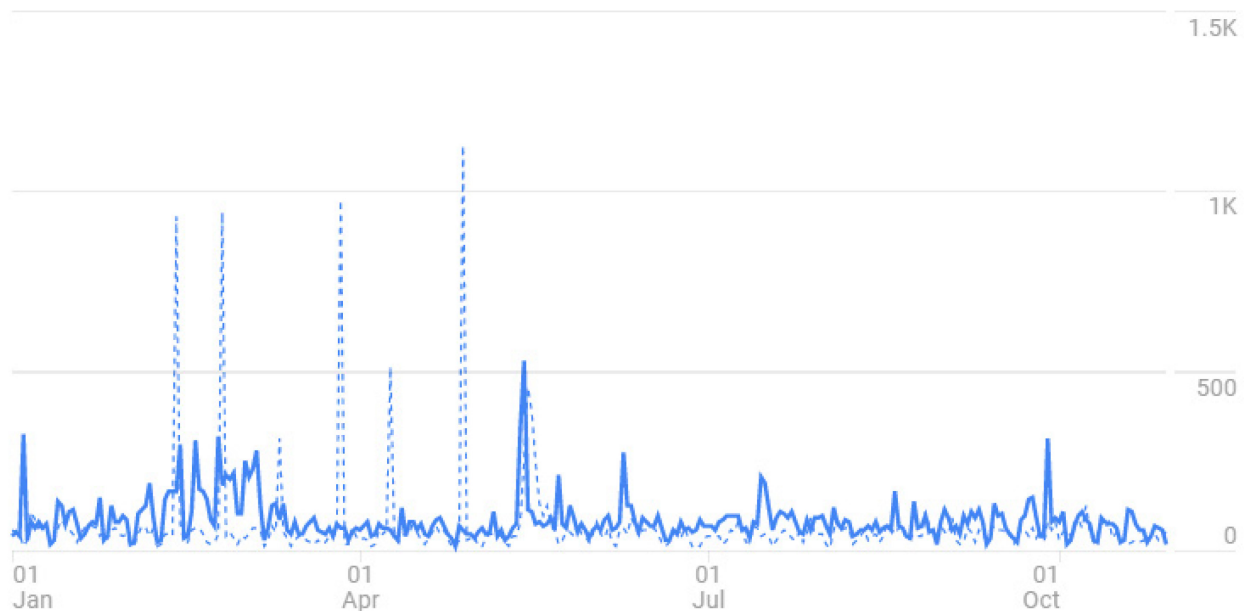
- On June 12, the CHBC and 32 member signatories sent a letter to Secretary Jared Blumenfeld encouraging the California Environmental Protection Agency (CalEPA) to consider hydrogen and fuel cell development as a pillar of its strategy to address the economic devastation caused by the global COVID-19 pandemic, outlining nine recommendations to do so. [Read the letter to Secretary Blumenfeld here >>](#)

- On May 5, the CHBC sent a letter to CalEPA Secretary Jared Blumenfeld, requesting the expeditious implementation of SB 1383, which is imperative to reduce short lived climate pollutants (SLCPs), the most imminently dangerous greenhouse gas emissions. Renewable hydrogen can contribute to achieving SB 1383's SLCP reduction goals by displacing fossil natural gas with a zero greenhouse gas alternative in the gas pipeline. [Read the letter here >>](#)

APPENDIX E – COMMUNICATIONS AND OUTREACH

Website Performance:

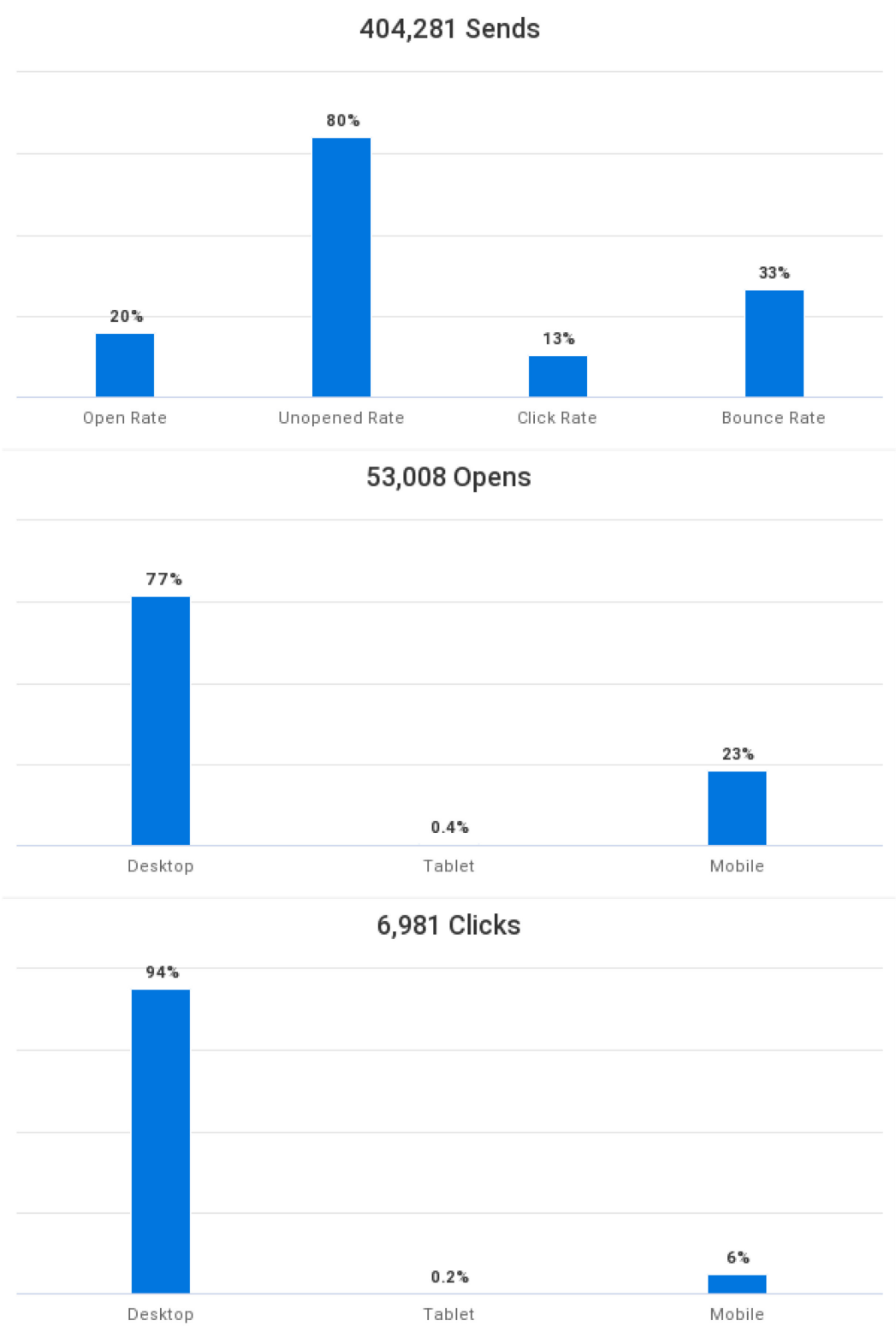
Users	Sessions	Bounce Rate	Session Duration
20K	26K	72.56%	1m 25s
↑23.2%	↑32.3%	↓7.8%	↑27.2%



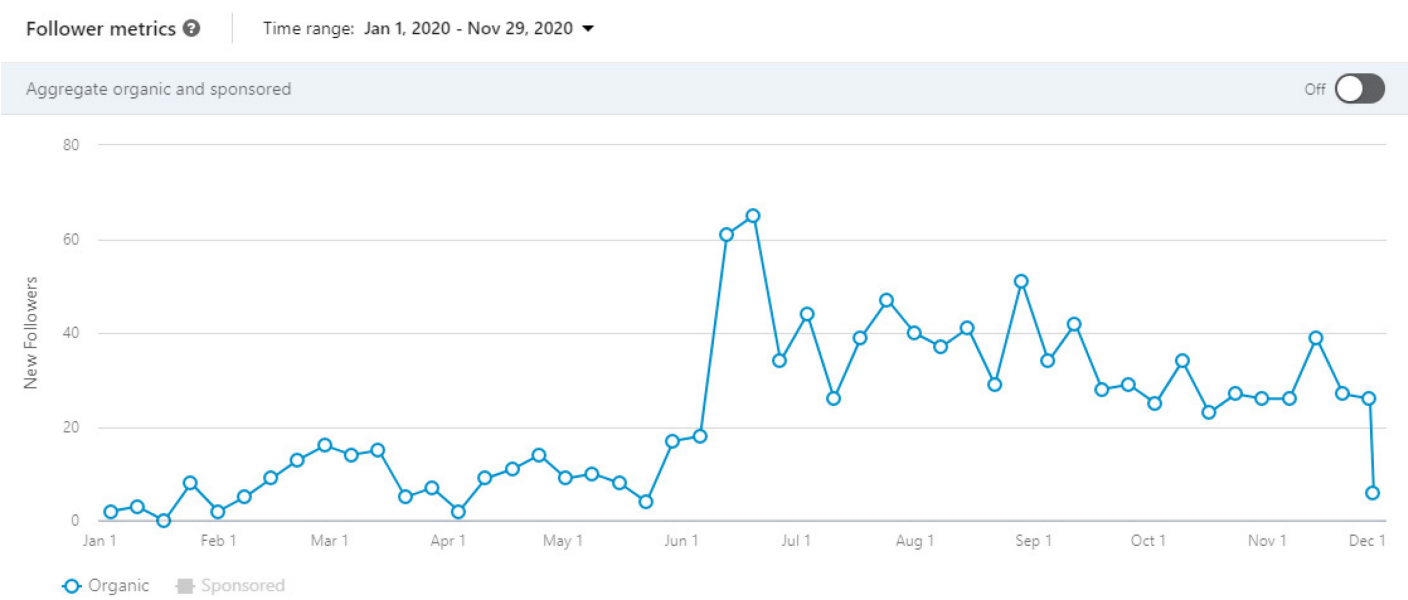
Jan 1, 2020 - Oct 29, 2020 ▼

[AUDIENCE OVERVIEW >](#)

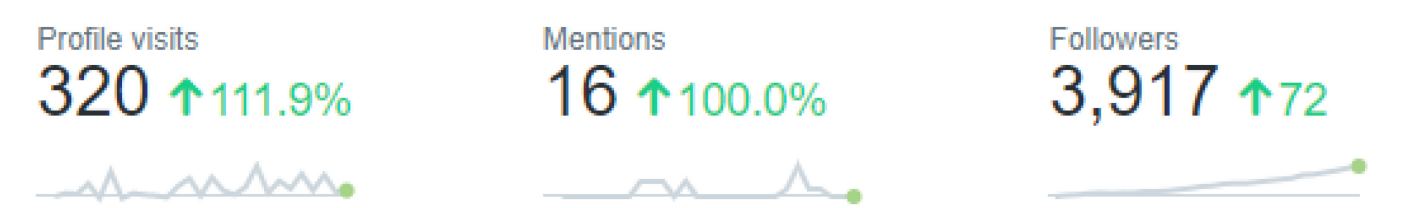
Constant Contact Newsletters:



LinkedIn:



Twitter:



Previous 28 days as of December 1, 2020

- +72 followers
- 16 mentions
- 320 profile visits