



9/1/2020

Retail Hydrogen Fueling Station Network Update

Ben Xiong, Keith Malone, Dave
Park



CaFCP Members



— 20 years of collaboration —



California H2 stations in 2020, 2025 and 2030

100 

hydrogen stations by **2020**.
Funded by Assembly Bill 8 (2013).

BY 2020

Funded
Light Duty

200 

hydrogen stations by **2025**,
pursuant to the Governor's 2018
ZEV infrastructure Proposal.

BY 2025

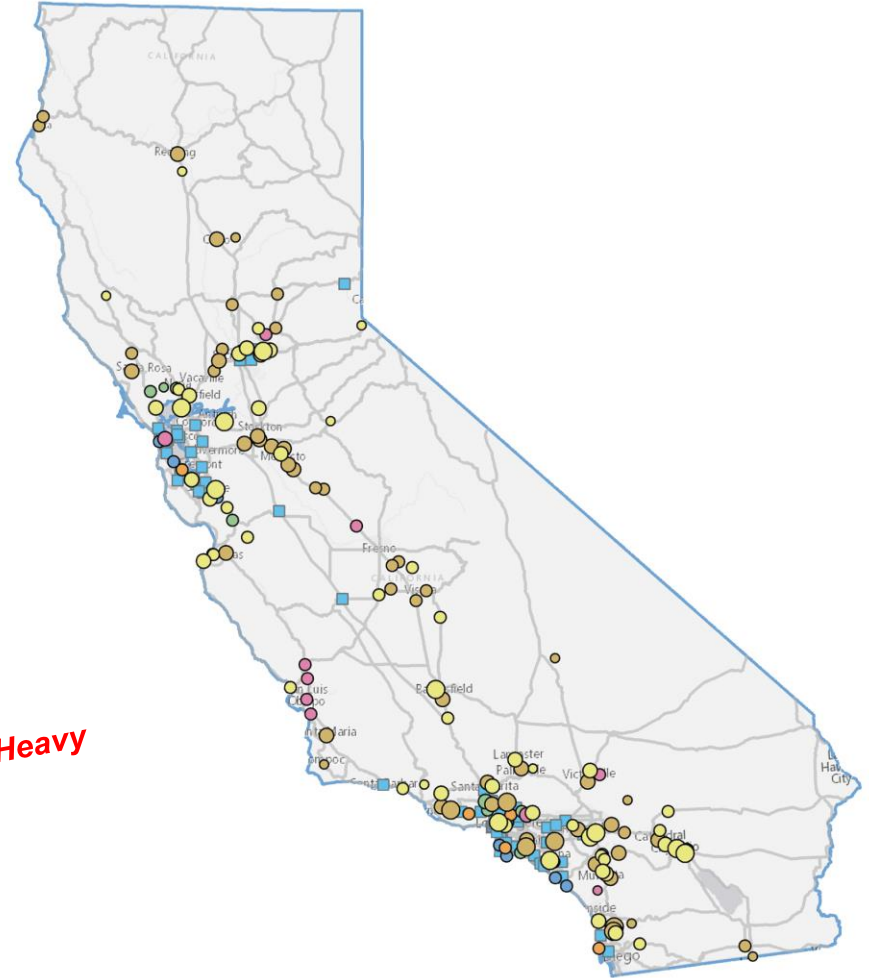
Planned
Light Duty

1000 

hydrogen stations by **2030** with favorable
market conditions and state policies pursuant
to the CAFCP 2030 vision. Will support
1,000,000 fuel cell electric vehicles.

BY 2030

Envisioned
Light, Medium and Heavy



Governor's goal of 5,000,000 zero-emission vehicles by 2030.



By the Numbers

	Numbers as of August 1, 2020	Total
*FCEVs—Fuel cell cars sold and leased in US		8,475
FCEBs—Fuel cell buses in operation in California		48
***Hydrogen stations available in California		42
Fuel cell buses in development in California		7
Fuel cell shuttles in development in California		4
**Retail hydrogen stations in development in California		15

*Vehicle sales data from Baum and Associates. Sales data is based on car sales sold by a dealer to a retail or fleet customer. [FCEV Sales Data sheet](#)

FCEB Source: AC Transit, Orange County Transportation Authority (OCTA), SunLine Transit, UC Irvine

Hydrogen station source: Air Liquide, Air Products, GO-Biz, ITM Power, Iwatani, Shell, True Zero

**Stations in development is based on stations planned for light-duty hydrogen fuel cell vehicles following applicable standards. See below for a listing of California funded stations.

***Open for retail and available to light-duty hydrogen fuel cell vehicles following applicable standards. A listing of California funded stations can be found [here](#).



Cars cars cars cars cars!

Bloomberg

Business

BMW's X5 SUV Will Get a Hydrogen Fuel-Cell Version in 2022

By [Oliver Sachgau](#)
July 24, 2020, 2:00 AM PDT

► Carmaker is sticking to strategy of making all drive types
► BMW i Hydrogen NEXT will be produced in limited numbers

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Hyperion XP-1

- Prototype
- 1,016-mile range
- 0 to 60 mph in 2.2 seconds
- Fueling in 5 minutes
- 300 units available





Retail Hydrogen Stations & Network Health

Opened in Q2 2020

- Fountain Valley



In commissioning

- Berkeley
- Mission Hills
- Sunnyvale
- Campbell
- Sherman Oaks
- Woodside



Stations currently unavailable

- Ontario
- Riverside
- Newport Beach



Stations removed

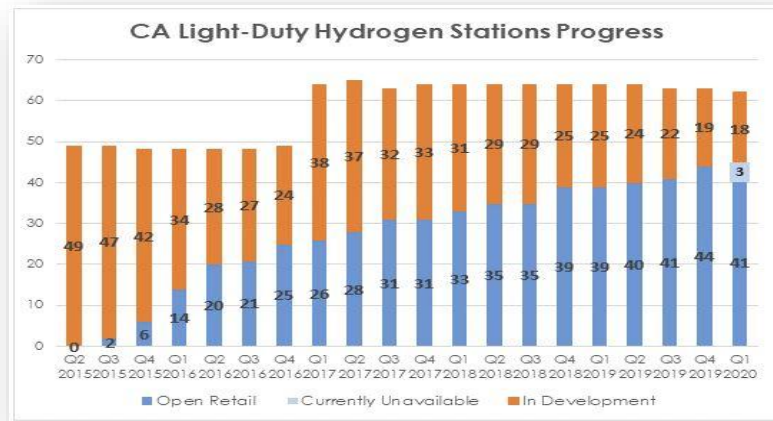
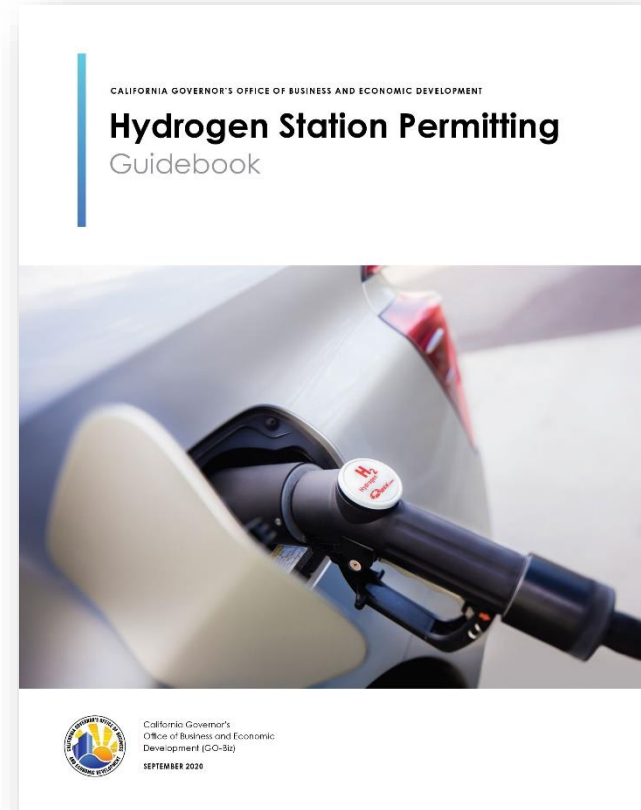
- Burbank
- Santa Clarita

H2 stations list - https://cafcp.org/sites/default/files/h2_station_list.pdf



An Expanding Hydrogen Station Network

- California Energy Commission hydrogen station developmental grants (GFO 19-HYD-04)
- California Air Resources Board LCFS
- Private investment inquiries
- GoBiz Permitting Guidebook, 2020 edition



H2 Station Permitting Guidebook webinar
 Tuesday September 22

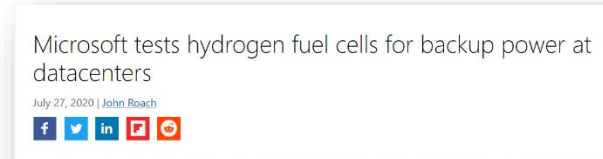
Source: Governor's Office of Business and Economic Development



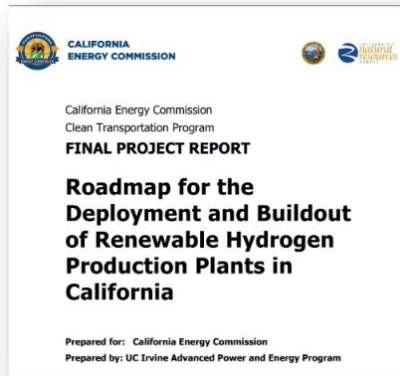
Hydrogen & Fuel Cell Activity – U.S.

Microsoft

- U.S. Hydrogen Road Map contributor
- Record of 48 hours powering data center servers



“We very much see ourselves as a catalyst in this whole hydrogen economy.”



UC Irvine Road Map for Renewable Hydrogen Production

- Renewable hydrogen sector can reach self-sustainability by mid-to late 2020s



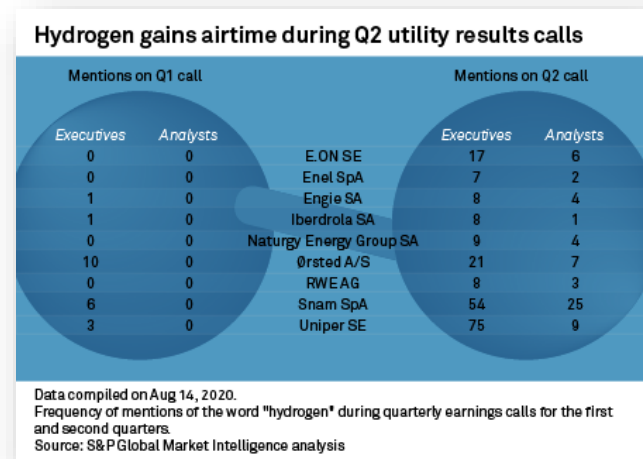
GTI, EPRI and 18 utilities, including SoCalGas, SCE and Los Angeles DWP.



Hydrogen & Fuel Cell Activity - Global

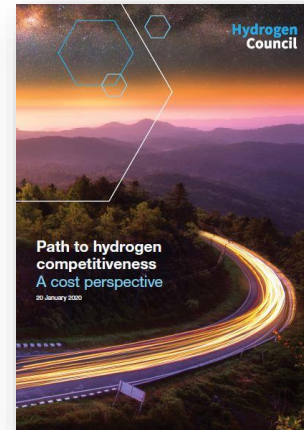
Europe

- German H2 Strategy
 - South Korean investment response
- European H2 Strategy
- Increase in H2 chatter on European utilities earnings calls, from Q1 to Q2



Headlines...

- As China moves to dominate the EV industry, Britain frets about energy security
- Britain lacks a clear hydrogen strategy



- 91 members, including new member, Microsoft
- Chinese version released

“Economic recovery measures should support large scale initiatives that can accelerate cost competitiveness of hydrogen”

-Hydrogen Council



CaFCP Station Map & SOSS

California FUEL CELL PARTNERSHIP
 HOME CARS STATIONS BENEFITS BUSES & TRUCKS RESOURCES

Map Satellite
 Download Station List

Search by Zip Code or Address GO

List Stations
 Filter By

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Search by Zip Code or Address GO

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 Filter By

TRUCK
 Ontario
 Under Construction
 Ontario, CA
 Details =

TRUCK
 Wilmington
 Under Construction
 Wilmington, CA
 Details =

TRUCK
 Long Beach - Port of Long Beach
 Under Construction
 925 Harbor Plaza
 Long Beach, CA 90801
 Details =

BUS
 Santa Ana - OCTA Bus Yard
 4301 E MacArthur Blvd
 Santa Ana, CA 92704
 Details =

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<http://cafcp.org/stationmap>

California FUEL CELL PARTNERSHIP
 LOGIN | SIGN UP

Station Status

Online Limited Offline Refresh Unknown

Open Retail Stations	H70	H35	
Anaheim	Offline		Air Liquide
Campbell	Online	Online	TRUE ZERO
Citrus Heights	Online		Shell
Costa Mesa	Online	Online	TRUE ZERO
Del Mar	Online	Online	TRUE ZERO
Diamond Bar	Limited	Limited	Air Products
Emeryville	Online	Online	MESSER Gases for Life
Fairfax-LA	Online	Online	Air Products
Fountain Valley (New)	Offline	Offline	TRUE ZERO
Fremont	Online	Online	TRUE ZERO
Harris Ranch	Online	Online	TRUE ZERO
Hayward	Online	Online	TRUE ZERO
Hollywood	Online	Online	TRUE ZERO

<http://m.cafcp.org>



SOSS Refresh

- Hourglass on homepage
- “REFRESH” on detailed page
- More information popup

Open Retail Stations	H70	H35	
Anaheim			
Campbell			
Citrus Heights			
Costa Mesa			
Del Mar			

California Hydrogen LOGIN | SIGN UP

Costa Mesa

H35* Status: **REFRESH**
 H35* Inventory: 121 KG
 H70* Status: **REFRESH**
 H70* Inventory: 112 KG

Last Updated: Tuesday, 7/14/2020, 1:33 PM
 *H35 = 35 MPa or 5,000 PSI
 *H70 = 70 MPa or 10,000 PSI

Refresh

The station is accessible and operational but is recharging its [dispensable/high pressure] inventory. **Ability to fuel is delayed. There will be a wait before you can fill.**



Heavy Duty: Bus & Truck

Light duty needs heavy duty; heavy duty needs light duty

Fuel Cell Electric Trucks

- Advanced Clean Truck rule
- Fueling infrastructure projects
 - 3 heavy duty H2 stations
 - Ontario, Wilmington and Port of Long Beach
 - 1-2 temporary fuelers
- CARB & CEC Heavy Duty ZEV funds
 - Include heavy duty infrastructure

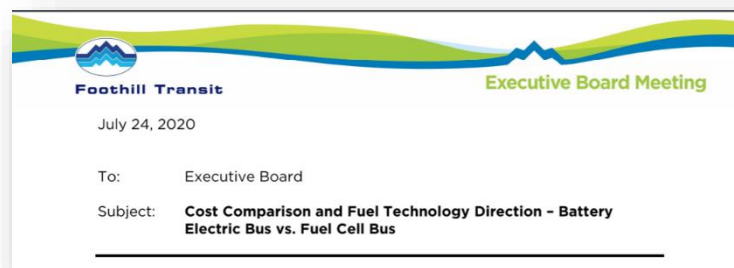


The Other Electric Bus

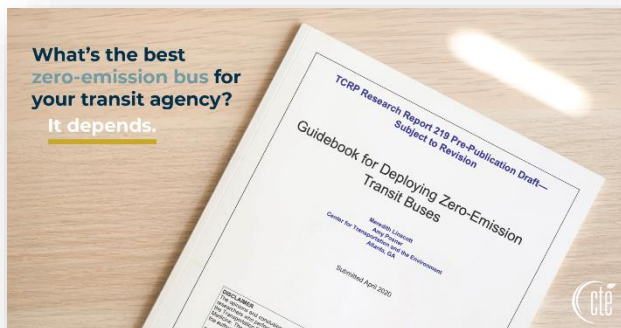
Advanced Clean Transit regulation

- Transit buses on zero-emission pathway
- First wave of Zero Emission Bus Rollout Plans submitted

Foothill Transit cost comparison of BEBs and FCEBs



CTE Guidebook for Deploying Zero-Emission Transit Buses





References

- **KEY DOCUMENTS**

- California Fuel Cell Revolution - <https://cafcp.org/sites/default/files/CAFCCR.pdf>
- CA Governor's Executive Order B-48-18 - <https://www.gov.ca.gov/2018/01/26/governor-brown-takes-action-to-increase-zero-emission-vehicles-fund-new-climate-investments/>
- U.S. Hydrogen Road Map (full report) - <https://cafcp.org/sites/default/files/Road%2BMap%2Bto%2Ba%2BUS%2BHydrogen%2BEconomy%2BFull%2BReport.pdf>
- Fuel Cell Bus Road Map - <https://cafcp.org/sites/default/files/2019-CaFCP-FCEB-Road-Map.pdf>
- Hydrogen Council-Path to hydrogen competitiveness A cost perspective (full study) - https://cafcp.org/sites/default/files/Path-to-Hydrogen-Competitiveness_Full-Study-1.pdf
- CTE Guide for Deploying Zero-Emission Buses
<http://cte.tv/guidebook-release/>
- Zero Emission Bus Rollout Plans in California – www.cafcp.org/resources: key word is rollout
- Hydrogen Station Permitting Guidebook - <https://www.businessportal.ca.gov/zero-emission-vehicle-program/zev-resources/>

- **CAFCP PAGES**

- Station Map – www.cafcp.org/stationmap
- SOSS – <http://m.cafcp.org>
- Resources – www.cafcp.org/resources
- News clips – www.cafcp.org/news



Keith Malone

kmalone@cafcp.org

Ben Xiong

ben.xiong@cafcp.org

Dave Park

dpark@cafcp.org



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change for a brighter,
healthier future.**

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