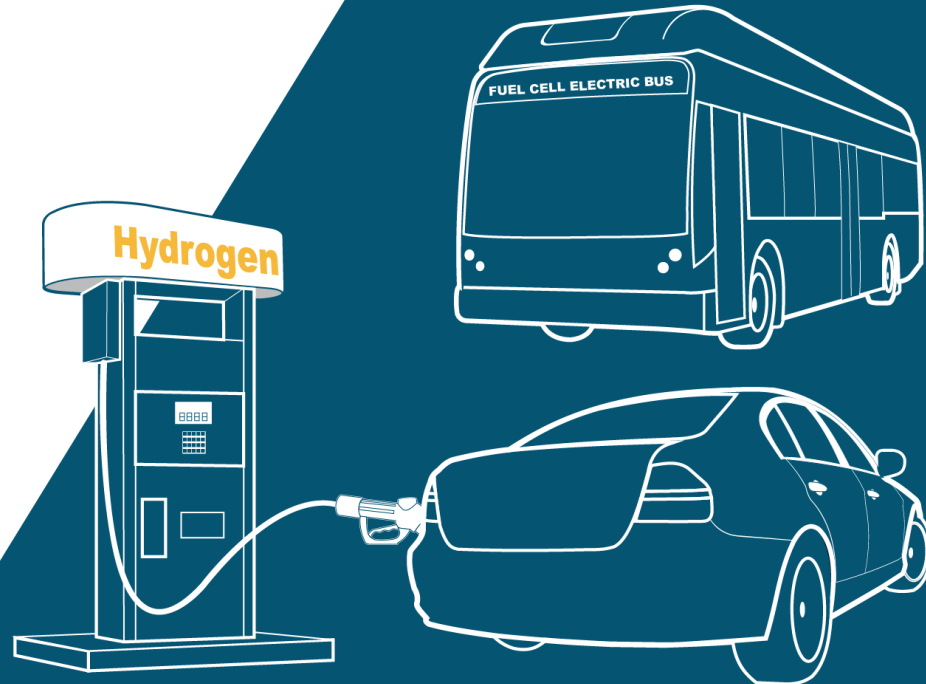
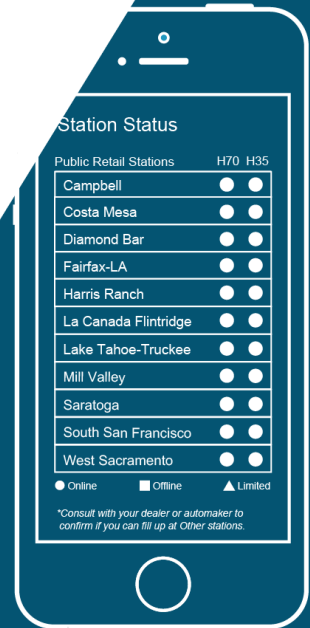


Retail Hydrogen Fueling Station Network Update

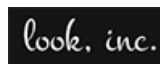
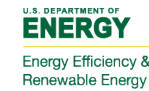
Ben Xiong, Keith Malone, Dave Park,
Chris White and Jane Berner

February 14, 2019





CaFCP Members





By the Numbers

	Numbers as of February 1, 2019	Total
*FCEVs—Fuel cell cars sold and leased in US		6,012
FCEBs—Fuel cell buses in operation in California		30
Retail hydrogen stations open in California		39
Fuel cell buses in development in California		22
Fuel cell shuttles in development in California		4
**Retail hydrogen stations in development in California		25



A Vision for 2030 in California

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

100 

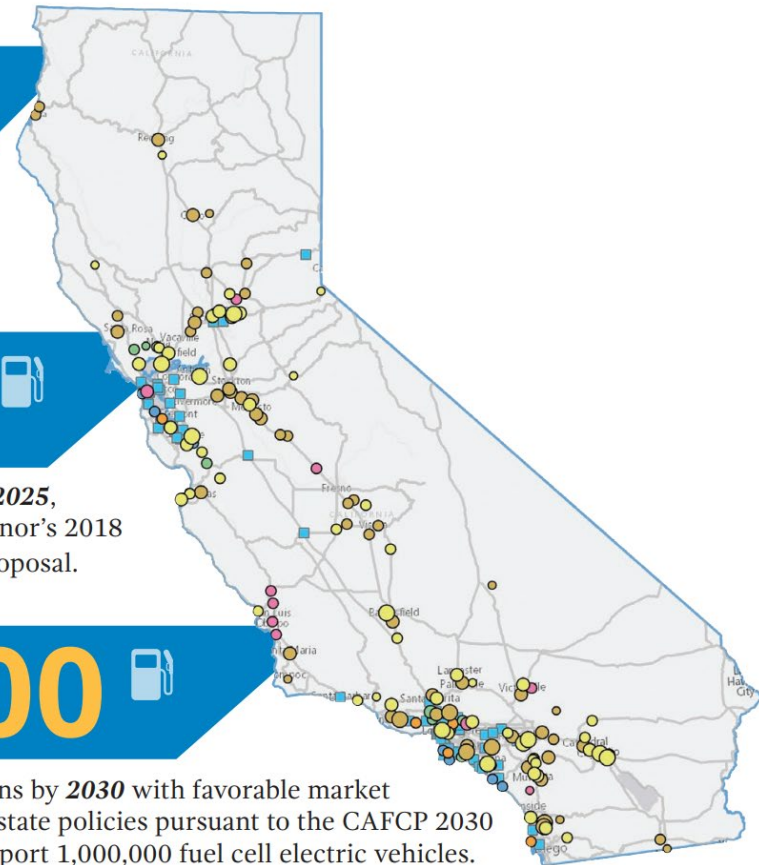
hydrogen stations by **2020**.
Funded by Assembly Bill 8 (2013).

200 

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

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.

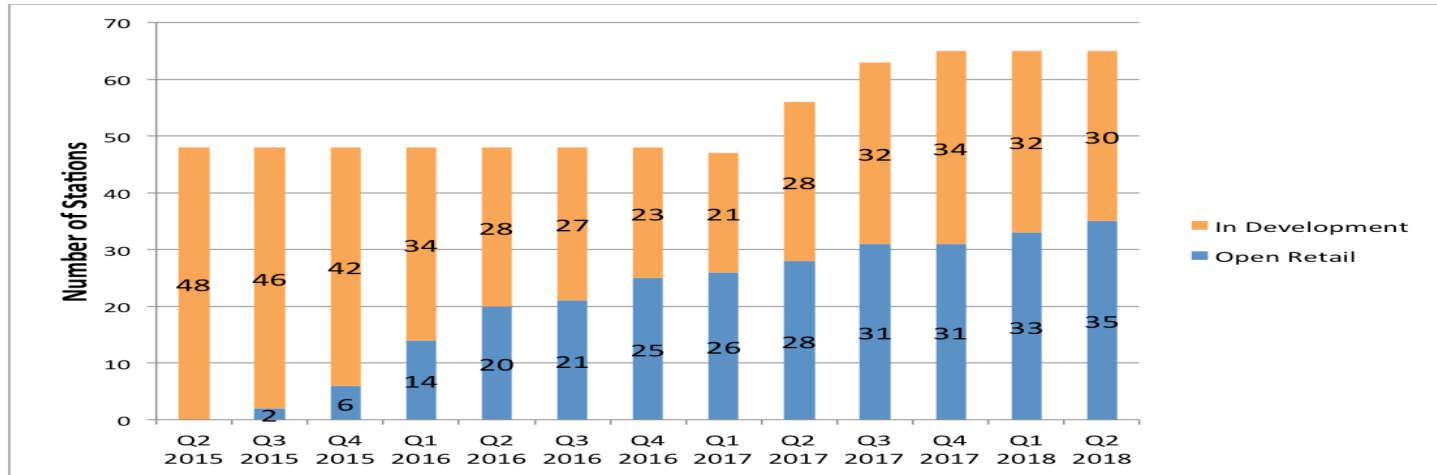


California Fuel Cell Revolution - <https://cafc.org/sites/default/files/CAFCR.pdf>

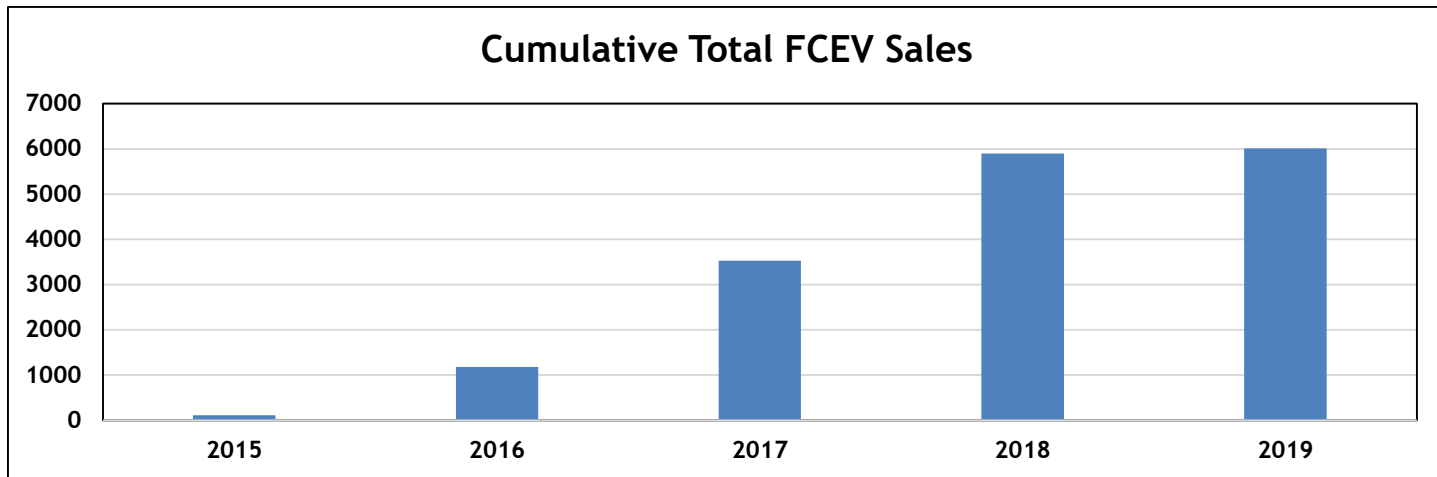
100-200-1000 handout - https://cafc.org/sites/default/files/hydrogen-stations_100-200-1000.pdf

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-for-a-cleaner-climate/>

California H2 Station Network & FCEV Totals



Source: Governor's Office of Business and Economic Development



Source: HybridCars.com, Carsalesbase.com, OEMs



Retail Stations - Highlights

Among the ~14 slated to open in 2019

- Burbank (upgrade)
- Sacramento
- Woodside
- Cal State LA
- San Francisco - 3rd Street

Stations in maintenance

- Ontario
- Newport Beach
- Mountain View



CaFCP Station Map & SOSS

California FUEL CELL PARTNERSHIP
DRIVING FOR THE FUTURE

HOME CARS STATIONS BENEFITS BUSES & TRUCKS RESOURCES

Map Satellite
Download Station List

Search by Zip Code or Address GO

List Stations
Filter By

© CALIFORNIA FUEL CELL PARTNERSHIP
Managed by Frontier Energy
Powered by the fastest molecule on earth!™

SOSS | 916.371.2870
3300 Industrial Blvd, Suite 1000, West Sacramento, CA 95691

<http://cafcp.org/stationmap>

<http://m.cafcp.org>



2018 Joint Agency Staff Report on Assembly Bill 8

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California Fuel Cell Partnership

February 14, 2019

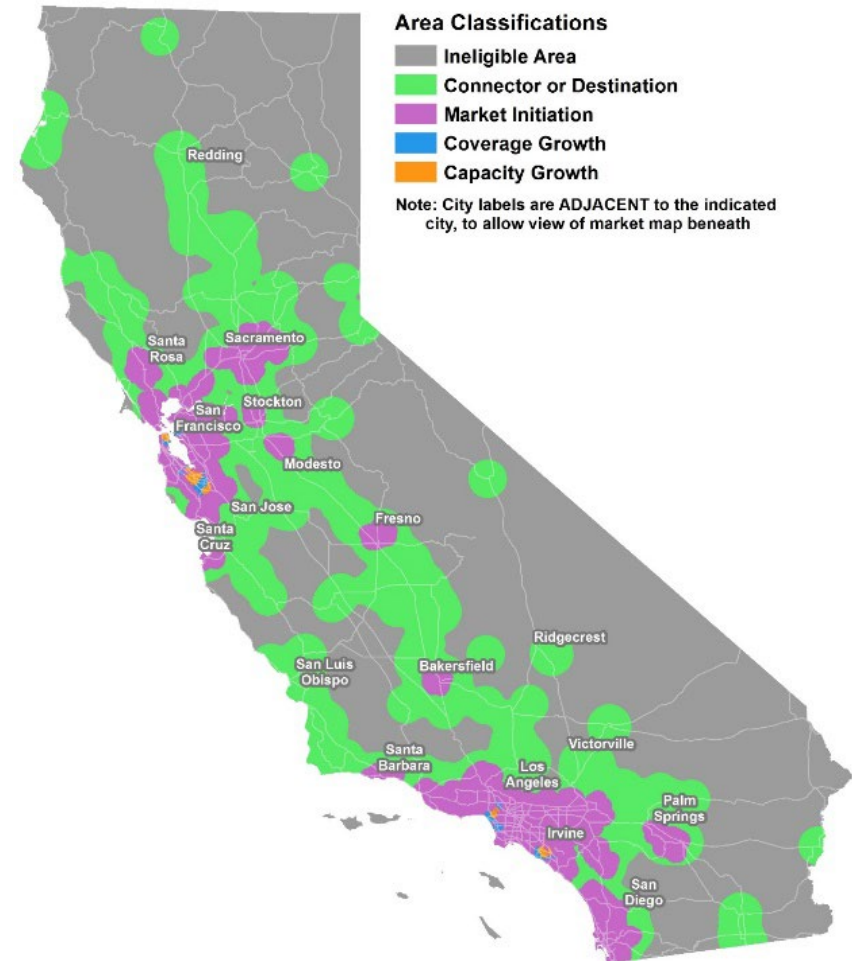
Presentation link: <https://cafcp.org/sites/default/files/2018-AB-8-Joint-Report-Presentation-CaFCP-2019-02-14.pdf>



CEC Draft Solicitation Concepts for Light-Duty Hydrogen Refueling Infrastructure

18-HYD-04 HIGHLIGHTS

- Up to \$22.6MM projected annual grant
- Proposed \$110MM total investment
-to be appropriated-
- Tranches and batches of stations





2019 CaFCP OEM Priority Hydrogen Station Location Recommendations

- 114 total locations
- Station density and expanded network coverage
 - Expansion (Sacramento, Greater San Francisco, Los Angeles-Orange County-Inland Empire)
 - Enable the San Diego Market
 - Central Valley
 - Central Coast
 - Las Vegas connector
- Group 1- 56 locations expand existing markets
- Group 2- 58 locations provide additional expansion and interconnection



Fuel cell electric buses in California

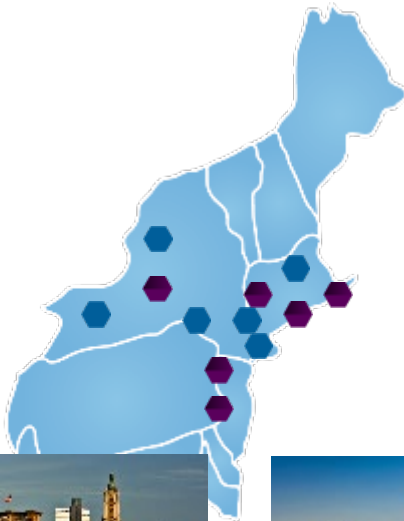
- 30 buses in revenue service
- Another 22 funded and in development
- 4 cutaway shuttles in development
- 18 years of experience
- 14 years of federally collected performance data
- 4+ million miles of service





Northeast Retail H2 Stations

- 4 stations built and awaiting vehicles
 - One station open - filling by appointment only
 - 5th in commission phase
- Awaiting MA DOT approval regarding tunnels.



Network of 12 stations in collaboration with:



Dedicated hydrogen supply chain provided by:



New York

Bronx, NY
Hempstead, NY
Site Location TBA



New Jersey

Lodi, NJ
Whippany, NJ



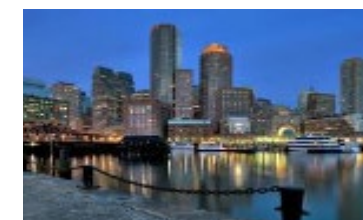
Rhode Island

Providence, RI



Connecticut

Hartford, CT



Massachusetts

Braintree, MA Site Location TBA
Mansfield, MA Site Location TBA
Site Location TBA
Site Location TBA



Pacific Northwest Retail H2 Stations

- Washington State Senate Bill 5588
 - Authorizes public utilities to produce, distribute and sell renewable hydrogen.
- Renewable Hydrogen Alliance is hosting a policy symposium on May 20, 2019 re renewable fuels
- HTEC is developing a total of 6 British Columbia H2 fueling stations in partnership with others, including Shell and Esso/Exxon

Senate Bill 5588 - <https://app.leg.wa.gov/billsummary?BillNumber=5588&Year=2019&Initiative=false>

RHA symposium - <https://www.eventbrite.com/e/renewable-power-to-fuels-symposium-tickets-55438777877>



HTEC's British Columbia Retail H2 Stations



Station #	Location	Opening
Station #1 -Shell	8686 Granville Street, Van	Station 1: opened June 2018
Station #2 –Shell	4505 Canada Way, Bby	Station 2: opens Q2 2019
Station #3 –TBA	Victoria	Station 3: open Q4 2019
Station #4 –TBA	North Vancouver	Station 4: open Q4 2019
Station #5 – Shell	Vancouver	Station 5: open 2020
Station #6 – TBA	Vancouver	Station 6: open 2020



In Closing

- More than 6,000 light-duty FCEVs on CA roadways
- Network of 39 light-duty retail hydrogen stations open
 - ~14 expected to open in 2019
 - 3 stations for heavy-duty funded
- CA Governor's goal of 200 stations by 2025
- All CA stations use minimum 33% renewable H₂; 40% starting in 2019
 - Hydrogen Council goal of 100% decarbonized H₂ fuel by 2030.
- In Northeast, 4 stations ready for cars, 1 station fueling by appointment, awaiting tunnel decision
- In Northwest, 1 retail station in Vancouver, BC, expecting 3 in 2019
 - Activity on the policy front in OR and WA
- In Hawai'i, 1 station on outskirts of Honolulu
- CaFCP Vision 2030 document to accelerate market expansion to 1,000+ retail stations, and guide efforts for buses, trucks and renewable H₂
 - Members beginning work on potential policy mechanisms to accelerate commercial FCEV market & decrease costs



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