



10/08/2021

# 2021 Annual Evaluation of Fuel Cell Electric Vehicle Deployment and Hydrogen Fuel Station Network Development

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Andrew Martinez, California Air Resources Board

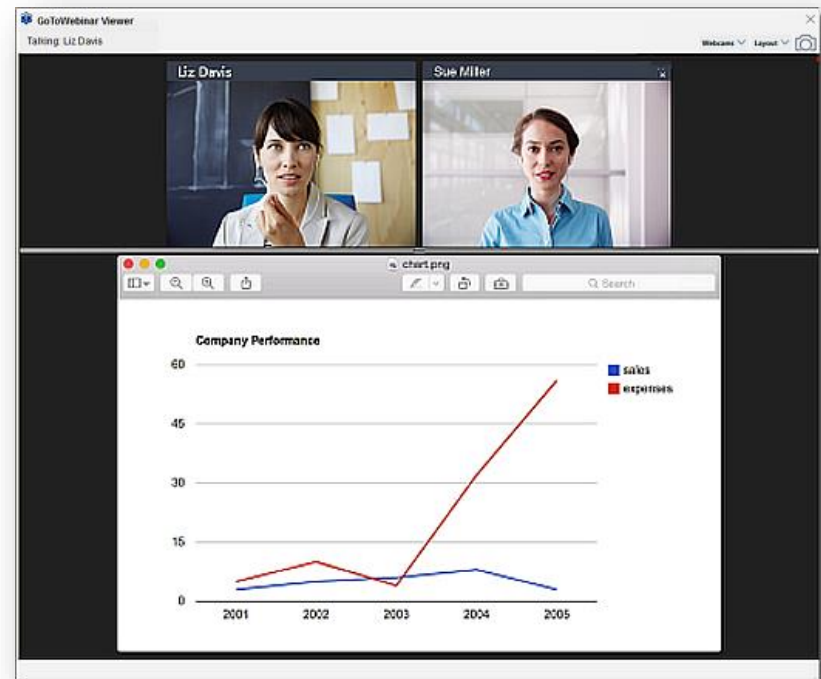
David Park, CaFCP

Bill Elrick, CaFCP



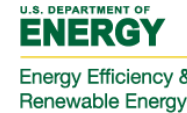
# Housekeeping Items

- An email will be sent out when the webinar recording and presentation slides are posted
- Use the GoToWebinar “Questions” feature to ask questions
- Camera settings





# CaFCP Members



— 20+ years of collaboration —

# Hydrogen Supply Chain Chronology, 2021

## Year-to-Date



- **January 2021**, National Covid-19 surge
- **February 2021**, Severe winter storms & Covid-19 disrupts national truck freight transport, including national hydrogen supply chain & deliveries
- **March 2021**, Hydrogen supply constraints worsen
- **June – August 2021**, Record heat impacts performance of some retail fueling stations – increased fill times and short fills
- **August 2021**, Northern California liquid hydrogen distribution facility outage impacts statewide hydrogen supply and deliveries
- **August - September 2021**, Hurricane Ida impacts national hydrogen supply chain
- **October 2021**, Hydrogen supply constraints begin improving but remain short of demand until year end/beginning 2022

FCV drivers faced a year of ongoing hydrogen supply disruptions



# Hydrogen Supply Chain Countermeasures

- **Wholesale Investments/Improvements:**
  - Linde 30+ tons per day liquid hydrogen production facility, La Porte, Texas (Began operation July 2021)
  - Air Liquide Nevada hydrogen production plants coming online in early 2022
  - Air Products 30 tons per day liquid hydrogen production facility, La Porte, Texas (Begins operation October 2021)
  - Air Products announced a \$1.3B hydrogen production complex in Edmonton, Alberta, expected online in 2024
  - Investments in bulk hydrogen storage and distribution facilities in Northern California
  - Investment in hydrogen delivery trucks (For both bulk delivery and station delivery)
- **Retail Station Improvements:**
  - Surge in retail station technicians and support staff to better support existing infrastructure and for developing new infrastructure
  - Investment in 127 new retail hydrogen fueling stations above and beyond current 47 stations; (4 new stations opened since April)
    - Faster station development time, e.g., *GoBiz Hydrogen Station Permitting Guidebook*
  - Higher capacity, multiple fueling position stations are the new normal
  - Station performance and durability upgrades / countermeasures are showing great improvements, but still in progress
  - Improvements in equipment reliability continues (e.g., hardware, software and new nozzle technology)

Both supply-side issues and retail station challenges are being addressed  
station support, uptime and performance continue to improve



# <https://m.cafcp.org/> (SOSS) is your friend

SAVE TIME! Check station availability status

[m.cafcp.org](https://m.cafcp.org)



SOSS  
Station Operational Status System

For iOS or Android

- Save [m.cafcp.org](https://m.cafcp.org) to your homepage for instant access



California FUEL CELL PARTNERSHIP  
OPENING FOR THE FUTURE

LOGIN | SIGN UP

Update: Hydrogen Distribution and Supply in California

## Station Status

● Online ▲ Limited ■ Offline ⌛ Refresh ? Unknown

Open Retail Stations	H70	H35	
Aliso Viejo (New)	●		TRUE ZERO
ⓘ Anaheim	■		Air Liquide
Campbell	●	■	TRUE ZERO
Campbell - East Hamilton AVE (New)	●	●	TRUE ZERO
Citrus Heights	●		Shell Hydrogen
ⓘ Concord (New)	■	■	TRUE ZERO
Costa Mesa	●	■	TRUE ZERO
Del Mar	●	●	TRUE ZERO
Diamond Bar	●	●	AMT PRODUCTS
ⓘ Emeryville	■	■	MESSEER Gases for Life
Fairfax-LA	●	●	AMT PRODUCTS



# 2021 ANNUAL EVALUATION OF FUEL CELL ELECTRIC VEHICLE DEPLOYMENT & HYDROGEN FUEL STATION NETWORK DEVELOPMENT

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