

# ITEM 11: 2022 Low or No Emissions Grant & Project Concept

PRESENTATION TO THE GCTD BOARD OF DIRECTORS

April 6, 2022



# Low or No Emissions & Bus & Bus facilities Program

- Both programs makes funds for Low or No emissions buses and zero emissions facilities available for competitive awards.

## Low-No Program

“The **Low-No Program (5339(c))** provides funding for the purchase or lease of zero-emission and low-emission transit buses as well as for the acquisition, construction or leasing of supporting facilities and equipment.”

## Buses and Bus Facilities Program

“The **Grants for Buses and Bus Facilities Program (5339(b))** authorizes FTA to award grants to assist in the financing of buses and bus facilities capital projects including:

- Replacing, rehabilitating, purchasing, or leasing buses or related equipment
- Rehabilitating, purchasing, constructing or leasing bus-related facilities”

# Low or No Emissions & Bus & Bus facilities Program

## Available Funding: \$1.72 billion

- Bus & Bus Facilities Competitive: \$545 million
- Low or No Emissions: \$1.176 billion

Important Dates	
Notice of Funding Opportunity	March 4, 2022
Applications Due	11:59pm EST May 31, 2022
Project Evaluations	June-July, 2022
Award Announcement	No Later than August 15, 2022
Pre-Award Authority	Starts on date of project announcement
Available for Obligation	The year of award plus 3 years – September 30, 2025



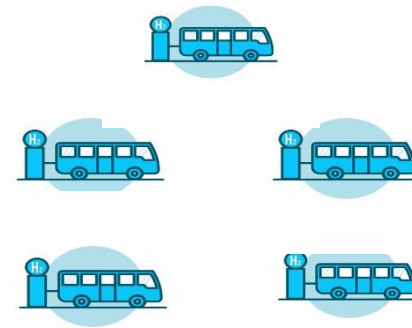
# Low or No Emissions & Bus & Bus facilities Program

## Project Concept: 3 Elements

### Hydrogen Fueling Station



### 5 Hydrogen Fuel Cell buses



### Workforce Development



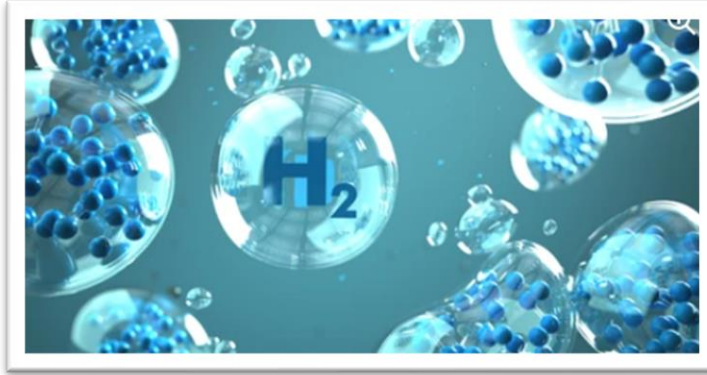
# Low or No Emissions & Bus & Bus facilities Program

## Project Budget

ITEM	ESTIMATED COST	LOW OR NO PROGRAM	CMAQ	LOCAL MATCH
Hydrogen Fueling Station	\$5,000,000	\$4,250,000	---	\$750,000
Hydrogen Fuel Cell Buses	\$5,500,000	\$2,416,638	\$2,729,700	\$353,662
5% Workforce Development	\$525,000	\$446,250	---	\$78,750
<b>Totals</b>	<b>\$11,025,000</b>	<b>\$7,112,888</b>	<b>\$2,729,700</b>	<b>\$1,182,412</b>



# Hydrogen Fuel Cell Zero Emission Project Concept

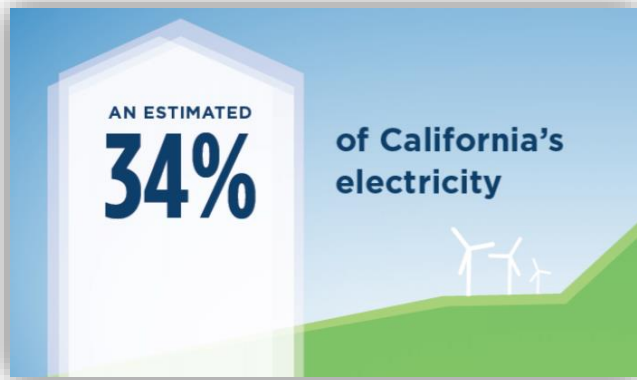


# Hydrogen Fuel Cell Zero Emission Project Concept

*“We want to plan our service around the needs of the community..., not the needs of our fleet”.*



# Renewable Energy



Currently, only 17.7% of electricity produced in the United States comes from renewable sources. Nationwide, wind turbines generate the most electricity, followed by hydroelectric power plants and solar thermal power. Biomass, such as wood and agricultural waste, as well as geothermal energy, are renewable sources that account for a very small share of the U.S. energy mix.

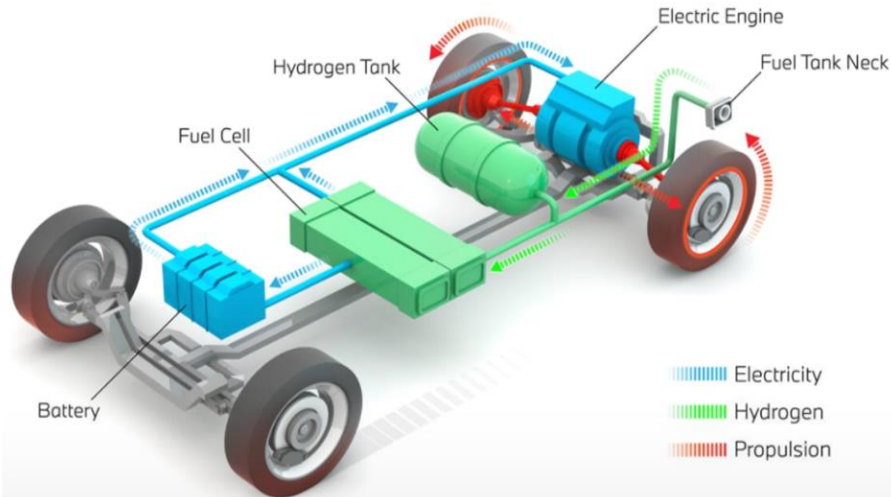
Only 2.7% of electricity produced in Ohio comes from renewable sources

66% of electricity used in California has a non-renewable footprint upstream. 37% of electricity is generated by natural gas.





# Auto Industry Moving Forward with Hydrogen Fuel Cell Technology



**2022 NEXO Fuel Cell**  
Our hydrogen-powered fuel cell vehicle.



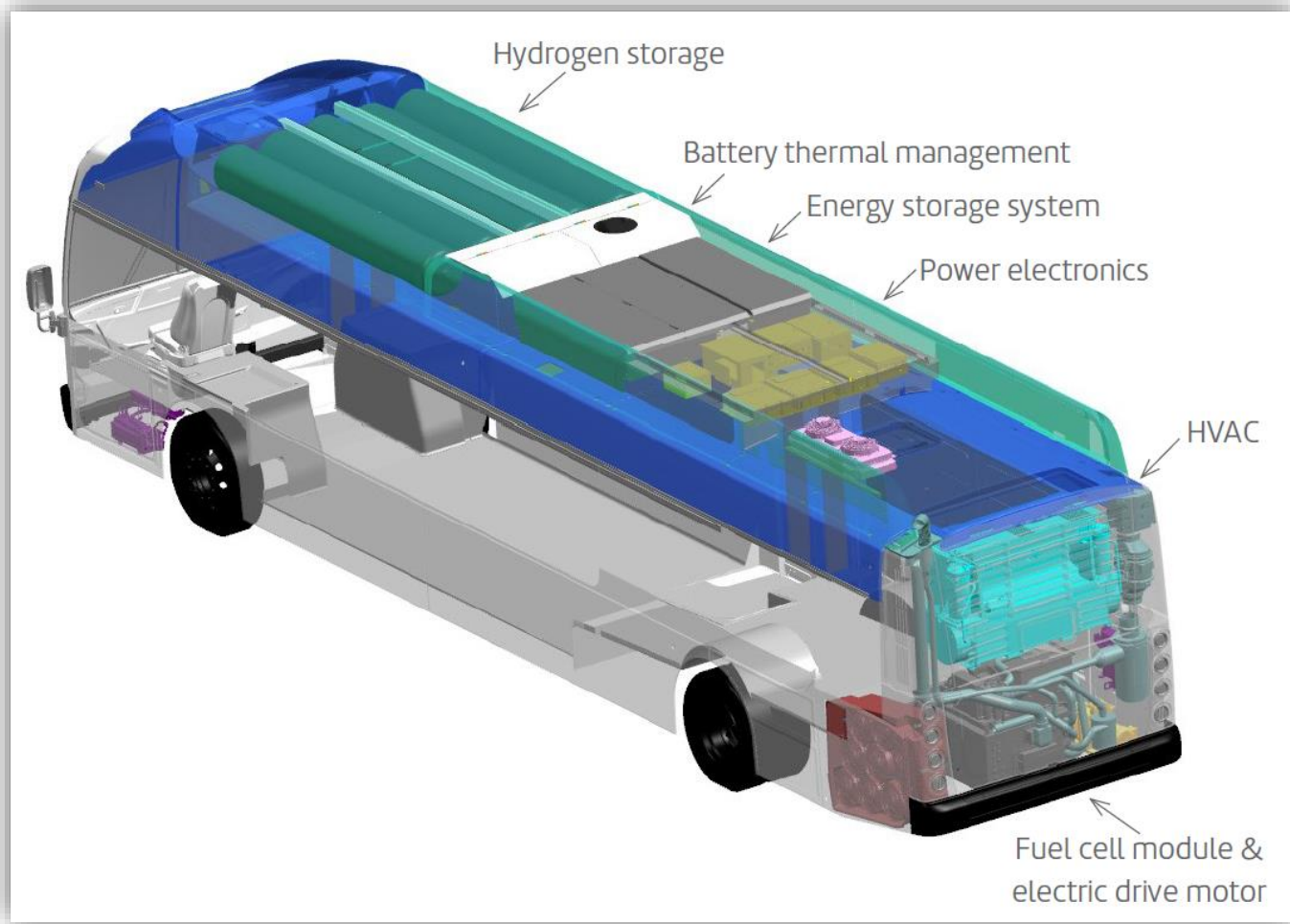
Aug 29, 2021, 11:37pm EDT | 21,114 views

## Toyota To Launch Hydrogen-Powered Prius And Corolla In 2023

### Five minutes to refuel

Filling up with hydrogen is just as easy as pumping gas. ⓘ

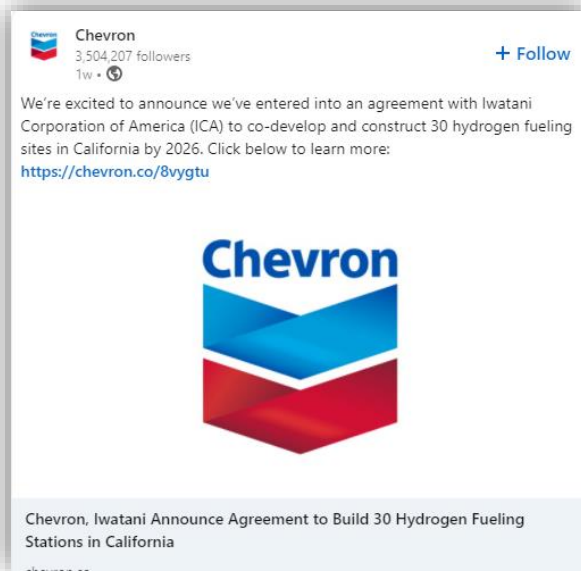
# Hydrogen Fuel Cell Bus



# Big Oil Going In On Hydrogen Technology

## BP Smacks Exxon Upside Head With New Green Hydrogen Scheme

Lightsource BP is looking to make a quick detour into the field of green hydrogen, which could rain all kinds of hurt on natural gas stakeholders.



# Cummins Making Efforts to Transition to Zero-emission “Green” Hydrogen

Florida Power & Light Company selected Cummins electrolyzers to power Florida’s first of its kind “green” hydrogen plant – which could lay the groundwork for a 100% carbon-free energy future.

#PoweringThePlanet #Cummins

**Powering  
Florida’s first “green”  
hydrogen plant**



FPL announces Cummins to supply electrolyzer for Florida’s first “green” hydrogen plant | Cummins Inc.



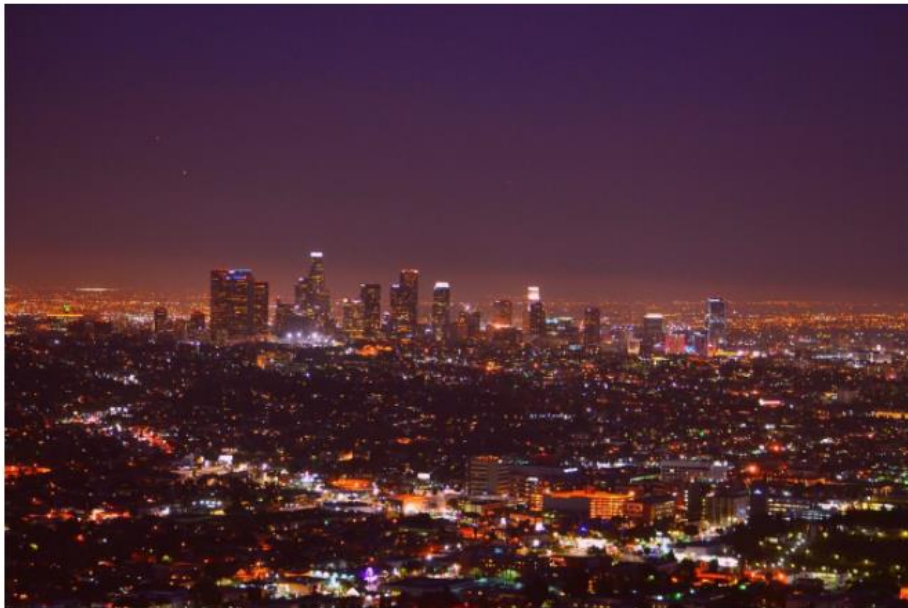
# Green Hydrogen Coming to Southern California (SCG)

## Los Angeles soon be home to the largest US green hydrogen infrastructure system

Southern California Gas Company is submitting an application to build a 10 to 20GW electrolyzer and 25 to 35GW of new and curtailed wind and solar, along with 2GW of energy storage, to deliver green hydrogen to the Los Angeles Basin.

FEBRUARY 18, 2022 JOHN FITZGERALD WEAVER

HIGHLIGHTS HYDROGEN TECHNOLOGY AND R&D UTILITY SCALE PV UTILITY SCALE STORAGE UNITED STATES



Los Angeles

One goal of the program includes:

- Lowering the cost of Hydrogen to **\$1/kilogram** by 2032. (Currently at \$8)

# The Air Liquide Hydrogen Fuel Plant Under Construction in North Las Vegas, Nevada

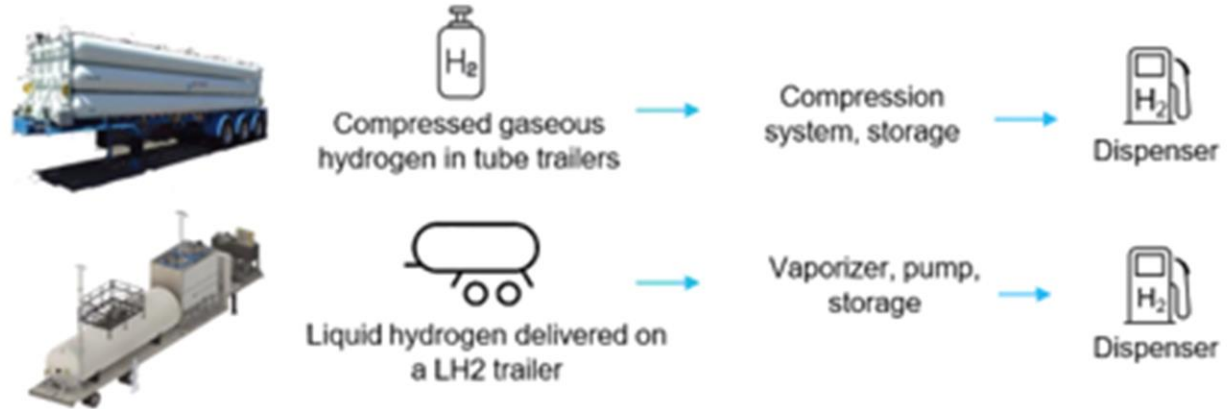
New hydrogen fuel plant in Nevada launches greater role for Hydrogen Fuel Cell Vehicles in zero-emission transportation mix

Plant expected to open in November, begin operations in early 2022

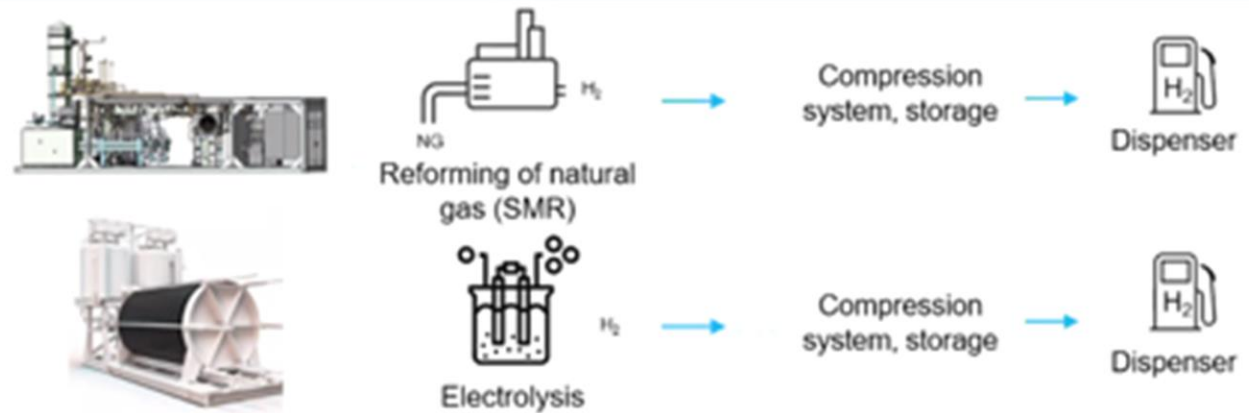


# Hydrogen Fueling Station Supply Models

## Off site production of hydrogen & delivery by trucks



## On-site production



# Hydrogen Fueling Station Model

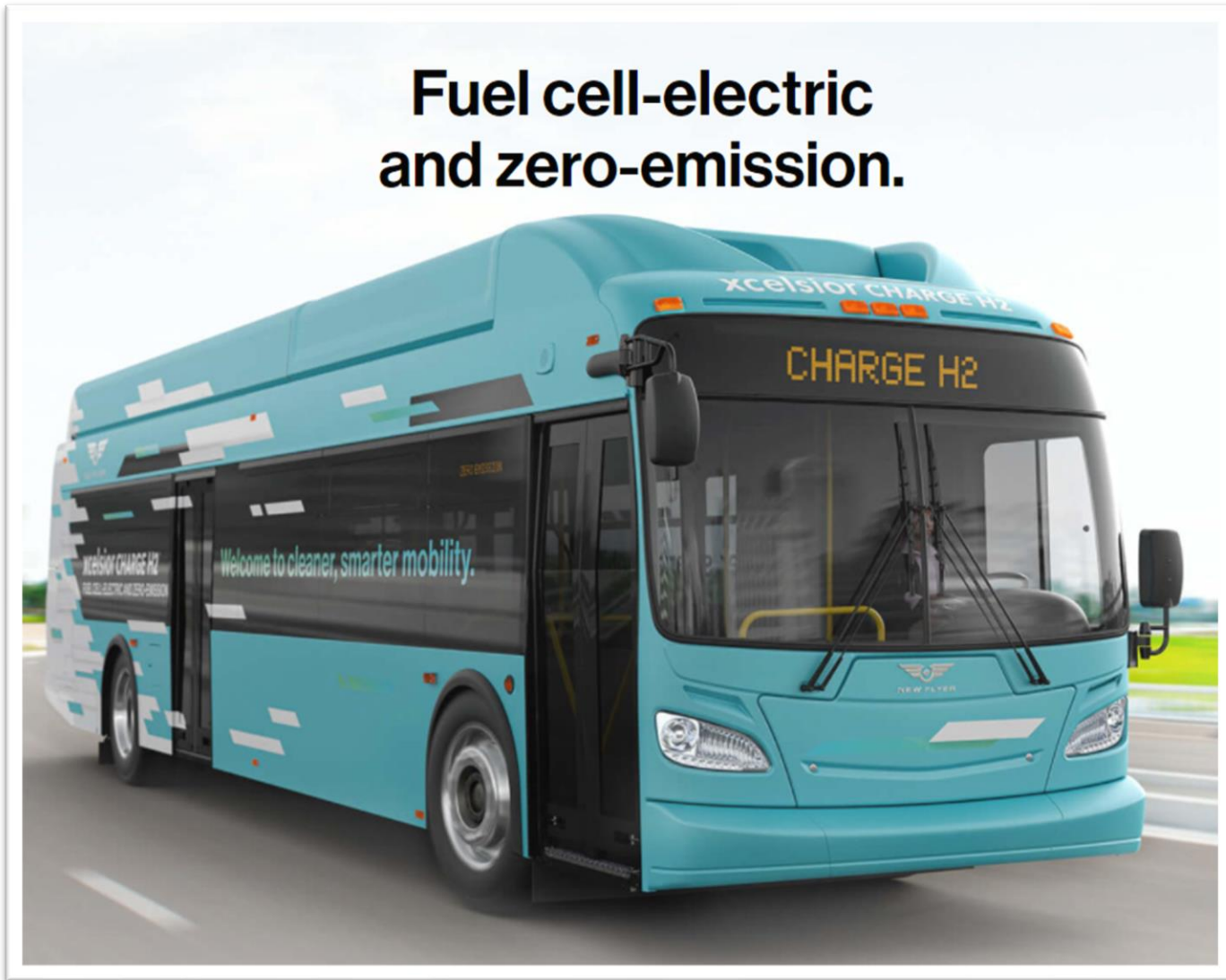


- GCTD is recommending moving forward with OCTA's current pilot model.
- Trucked in hydrogen with the capability to service 50 buses and scalable to 100 buses.
- Allows GCTD to pivot regarding hydrogen supply and availability.





# Fuel Cell Bus Demo - New Flyer : June 1<sup>st</sup>



# Gold Coast Transit District Ventura County Zero-Emissions Summit: October 17, 2022



**Zero Emission**



# Recommendation:

*It is recommended that the GCTD Board of Directors receive this presentation and authorize staff to develop an application for funding for a Hydrogen fueling facility and Hydrogen Fuel Cell Battery buses due to the FTA by May 31, 2022.*

# Questions?

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