# Gold Coast Transit District Hydrogen Station Update

**Presentation to the GCTD Board of Directors**
**February 4, 2025**


GOLDCOAST TRANSIT

# Low - Zero Emission at GCTD

- **2018-** Board adopted a “Zero/Near Zero Emissions Policy”
- **2019 -** CARB Adopted Innovative Clean Transit (ICT) rule requiring agencies set a goal of zero emissions fleets by 2040
- **2019/2020 -** GCTD completed “near zero” engine replacements
- **2020 -** Purchased 9 electric sedans (relief cars)
- **2022 -** Zero-Emission Rollout Plan
- **2022 -** FTA Lo-No Grant (12.1 Million)
- **2023 -** First Z.E.B. (Battery Electric) in revenue service (Demand Response)
- **2024 -** Issue RFP for Hydrogen Station Design Build
- **2025 -** ARCHES Hydrogen Hub Cancelled
- **2026 -** Decision to pause project

# CARB's "ICT" RULE & WHAT IT MEANS?

**In 2018, California Air Resources Board (CARB)**
**"Innovative Clean Transit" Rule**
**GOAL: Transition to Zero Emissions by 2040**

**Transition Plan Submitted in 2023**

**2026:** Innovative Clean Transit (ICT) regulation states 25% of all buses purchased by GCTD must be zero-emission.

**2029**: All purchases must be 100% zero-emissions for small transit agencies (Fewer than 100 buses).

**2040**: All transit agencies transition to 100% zero-emissions fleets.

Exemptions may be granted for operational and financial needs.

GOLDCOAST TRANSIT

# CARB: Innovative Clean Transit Regulation

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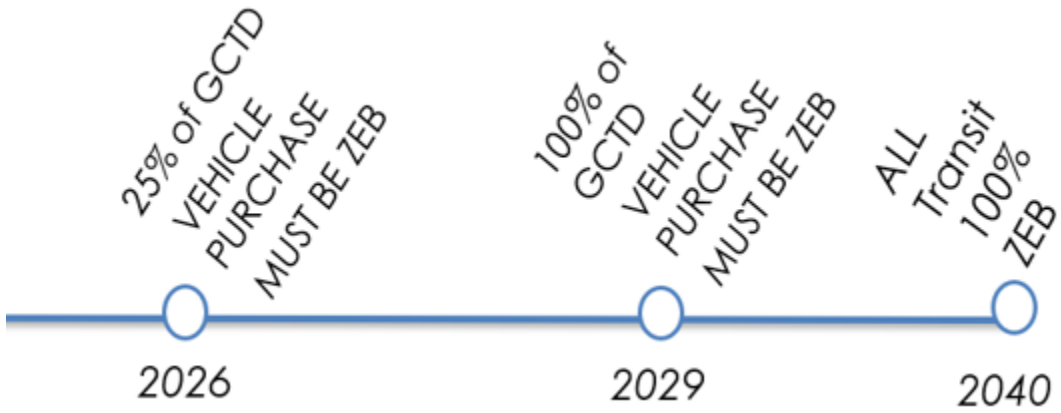
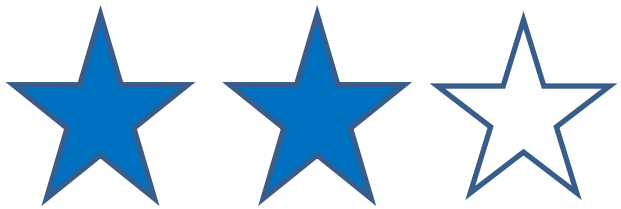
**2040**: All transit agencies transition to 100% zero-emissions fleets.



# 2022 Technology Study Findings

Stantec

## BEB



## HFCB

**300-340 miles**
**Proven range**
(300 to 340 miles, with advanced fueling technology that can extend this range by almost double)

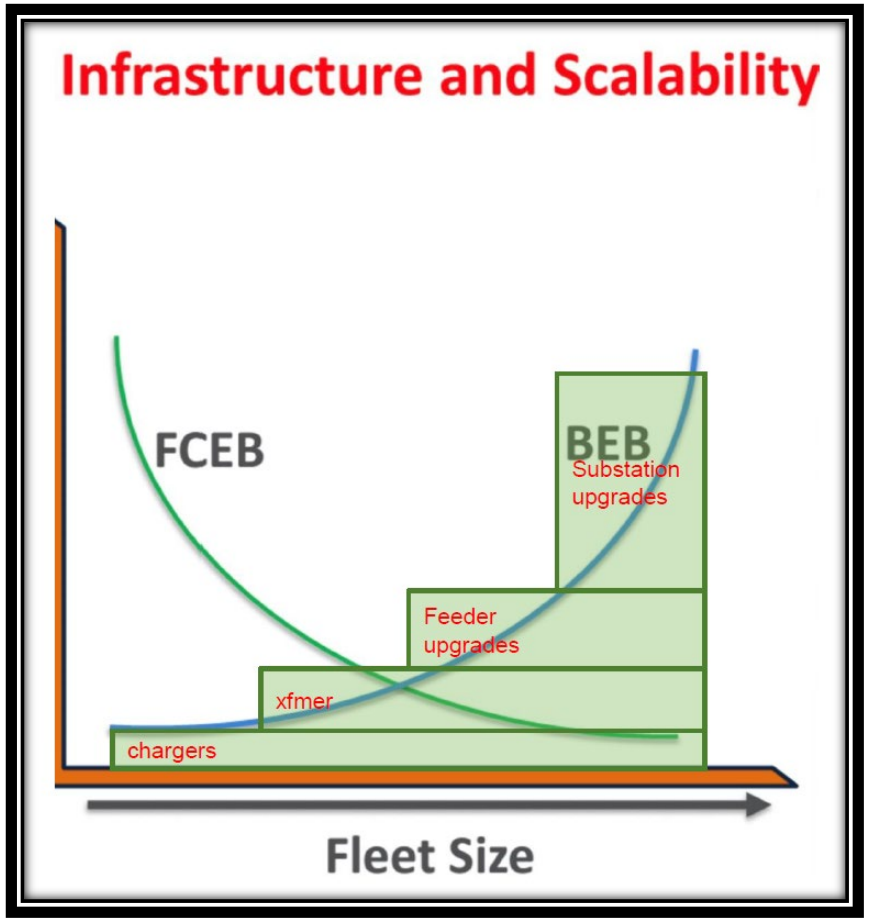
**Significant reduction in vehicle weight**
and vehicle axle weight to maximize passenger loads

**Fast refueling speeds**
comparable to conventional diesel and CNG buses

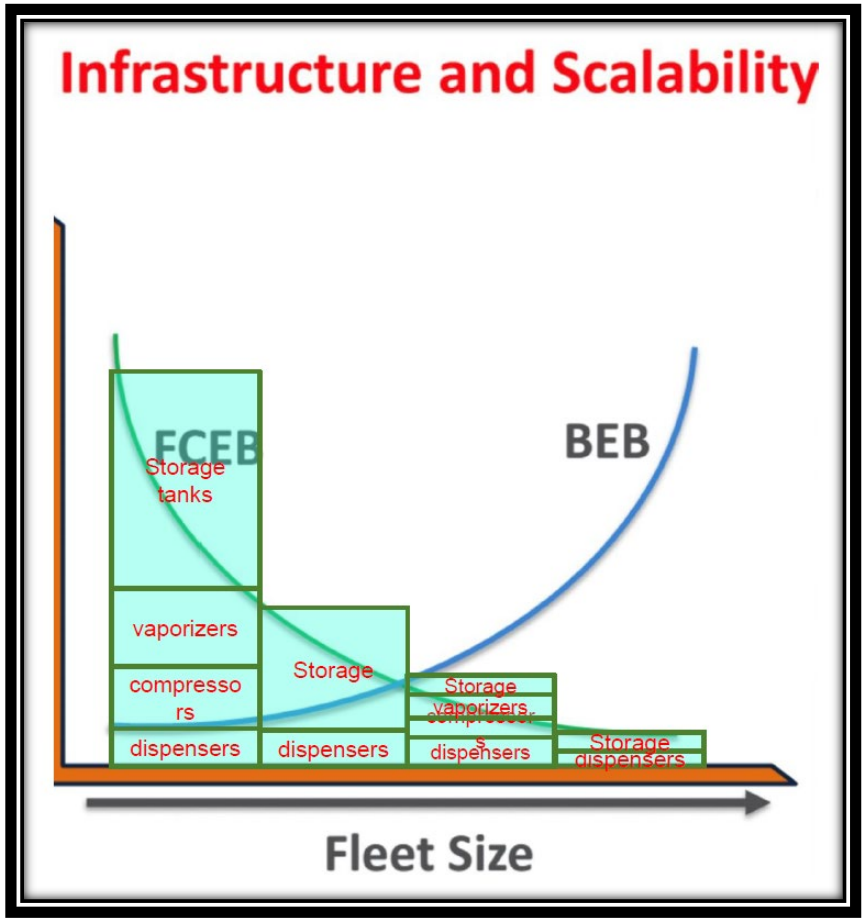
**1:1 replacement of conventional buses**
enabling full flexibility for route planning and operations

GOLDCOAST TRANSIT

# Electric

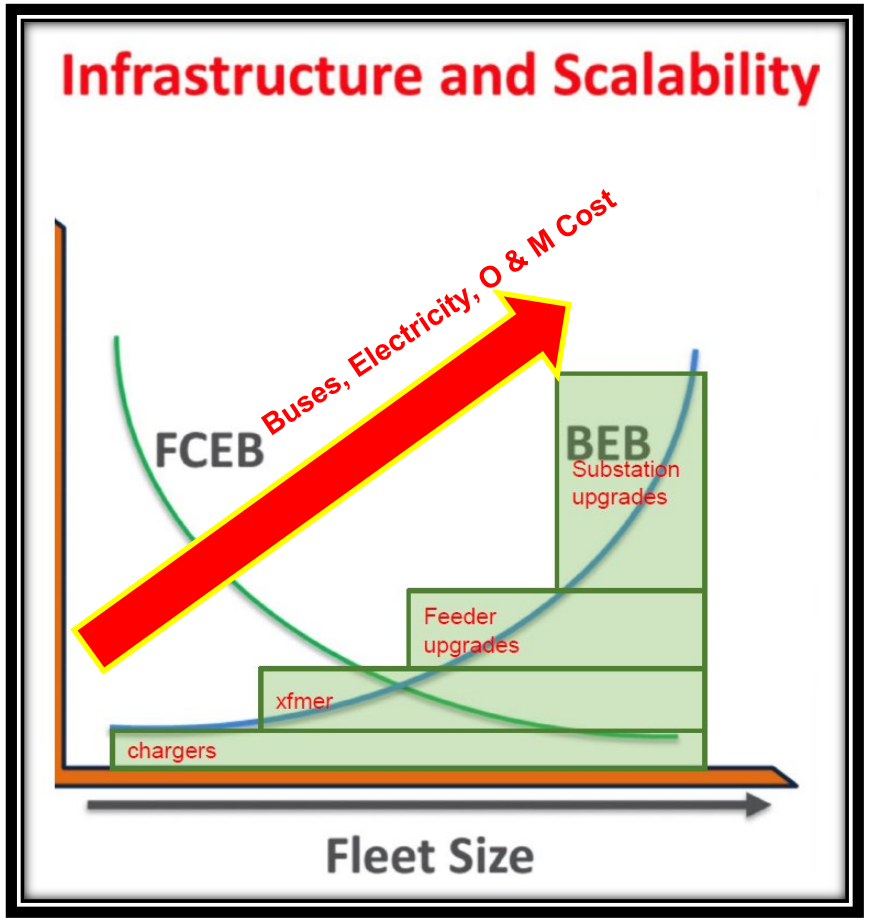



# Hydrogen




# PROJECTED

# Electric

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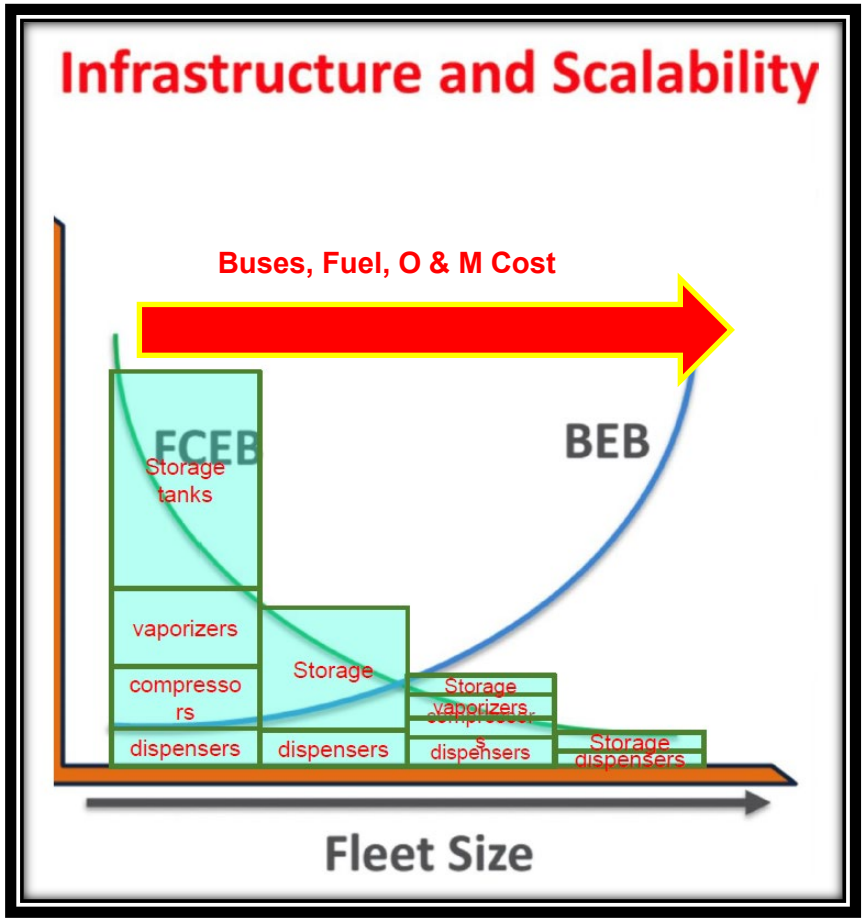


# Actual

# Present & Future Cost

Here's a summary of current and projected **monthly** fuel expenses for 5 HFC buses and Operation & Maintenance for the hydrogen station:

**Actual Current Costs for 61 CNG Buses**
CNG Station O & M = $5,000
Fuel - Compressed Natural Gas (61 buses) = $35,000
**Current Monthly Cost = $40,000 / $639 (per bus per month)**

Now, as we are nearing 60% design on the station project, below are conservative estimates of the cost to operate and maintain the H2 station, fuel costs.

**New 2026 Projected Cost Estimate**
Hydrogen Station O & M = $16,666
**Boil Off Gas (BOG) Compressor O & M = $4,000*
Fuel - assuming fueling only (5) Buses = $35,362 (projected to be $9-10 per kilogram)
Monthly Fuel Delivery Cost = $3,365 (Delivered monthly from Las Vegas)
**Total Estimated Monthly Cost = $59,393 Monthly / $11,878 (per bus per month)**

*Boil Off Gas Capture System is optional but recommended to reduce loss of H2 fuel from evaporation as tank will not be filled frequently.

GCTD is in contact with several agencies that have deployed Hydrogen Fuel-Cell buses. This real time data provides lessons learned to apply to our own ZEB deployment. Here are some current events shaping decision making.

- D.O.E. ARCHES Hydrogen Hub Defunded
- FTA not funding ZEB projects (HFC & Electric Buses cost $1.4 to $1.5 million)
- Two bus manufactures push out HFC buses indefinitely. (Leaving only 1)
- Foothill Transit cancelled fueling station and 20 bus order. (Change to CNG)
- Golden Empire Transit reduced order from 20 HFC buses to 5 HFC buses.
- California looking at large budget deficit.
- C.A.R.B. having webinar in February to explain exemption process.

# Next Steps

Due to the significant cost increases in station maintenance, operations, fuel costs and delivery, we feel currently it is appropriate to temporarily pause work on this project to allow us to take the following actions:

1. Arrange meetings with CARB, VCTC, and Federal Funding partners to explore any funding opportunities that could offset zero-emission bus **operating and fuel costs**.

2. Develop detailed cost comparisons between operations of zero-emission and conventional near-zero emissions (CNG) bus options; using updated cost estimates.

3. Work with FTA to identify potential options to modify our Lo-No emissions grant award to purchase of conventional near-zero emissions CNG buses or electric buses.

4. Update GCTD's Zero Emissions Roll-Out Plan (initially approved in 2022) using current cost estimates to project a possible path forward to zero-emissions.

5. Evaluate the agency's projected financial condition and capacity to absorb increased costs.

6. Return to the Board with a formal recommendation, which may include a request for temporary exemption from the CARB ICT regulation.