



*The following information comprises the minutes for a special meeting of the City Council, a joint meeting of the Banning City Council and Banning Utility Authority and a joint meeting of the Banning City Council and the Banning City Council sitting in its capacity as the Successor Agency Board.*

**MINUTES  
CITY COUNCIL**

**3/14/2023  
SPECIAL MEETING**

COUNCIL MEMBERS PRESENT: Council Member Sheri Flynn  
Council Member Reuben Gonzales  
Council Member Rick Minjares  
Mayor Alberto Sanchez  
Mayor Pro Tem Colleen Wallace

COUNCIL MEMBERS ABSENT: None

OTHERS PRESENT: Doug Schulze, City Manager  
Serita Young, City Attorney  
Art Vela, Director of Public Works  
Thomas Miller, Electric Utility Director  
Marie Calderon, City Clerk  
Laurie Sampson, Assistant City Manager  
John Garside, Multimedia Specialist

**1. CALL TO ORDER**

Mayor Sanchez called the special meeting to order at 4:17 p.m.

**1.1 Roll Call**

COUNCIL MEMBER	PRESENT:	ABSENT
Flynn, Sheri	X	
Gonzales, Reuben	X	
Minjares, Rick	X	
Sanchez, Alberto	X	
Wallace, Colleen	X	

**2. PUBLIC COMMENT – Agenda Items**

None

**3. WORKSHOP**

3.1. Zero-Emission Bus (ZEB) Rollout and Implementation Plan Technology Selection

Art Vela, Director of Public Works, presented the staff report.

**4. ADJOURNMENT**

The Special City Council meeting adjourned at 4:49 p.m.

Minutes Prepared by:

  
Caroline Patton, Deputy City Clerk

**This entire meeting may be viewed here:**

**<https://banninglive.viebit.com/index.php?folder=City+Council+Meetings>**

**All documents related to this meeting are available here:**

**<http://banning.ca.us/Archive.aspx?ADID=2788>**

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**ATTACHMENTS:**

**Exhibit A** – Agenda Item 3.1: Staff Presentation



# Zero Emission Bus Transition

## Banning Connect Transit Service



Art Vela, P.E.  
Public Works Director  
March 14, 2023

## Why are we here today?

- In 2018 CARB adopted the Innovative Clean Transit (ICT) regulation, which set the goal to have all transit buses 100% zero emission by 2040. It applies to the City's Transit Program.
- City staff and other small operators asked RCTC for assistance.
- In June 2021, RCTC secured a grant of \$271,380 from Caltrans to conduct ZEB Rollout and Implementation Plans for the small bus operators.
- In April 2022, RCTC awarded a contract to CTE to conduct the necessary steps to complete the required bus rollout plans.



**The Ask:** That the City Council consider all information provided during the Innovative Clean Transit (ICT) and Zero-Emission Bus (ZEB) Roll-out and Implementation Plan workshop in preparation of a future meeting date of March 28, 2023, for the selection of a zero-emission bus fuel technology.



# CARB ICT Regulation

- Adopted in 2018
  - CARB will develop funding opportunities after assessing the financial analysis of each rollout plan submitted
- Goal: 100% ZEB Fleet by 2040
- Mandate to reach the goal:
  - Small CA Transit Agencies (<100 buses) must submit a board-approved **ZEB Rollout Plan by July 1, 2023**
  - Purchasing Rules

## Purchasing Rules:

Starting January 1	ZEB Percentage of Total New Bus Purchases
2026	25%
2027	25%
2028	25%
2029	100%

Per the ICT procurement schedule, Banning Connect's first ZEB purchase is required in 2028.



# CARB ICT Rollout Plan Requirements

ZEB Rollout Plans must include:

- A goal of a complete fleet transition to zero-emission buses by 2040
- Avoiding early retirement of conventional ICE buses
- Identification of the types of zero-emission bus technologies
- A purchasing schedule
- Location details for ZEB facilities and a schedule of infrastructure operations
- A Disadvantaged Communities Service Plan
- A Training plan and schedule for ZEB operators, maintenance, and repair staff
- Identification of potential funding sources





# Financial Analysis Overview

Financial impacts of ZEB technology transition for the Banning Connect Transit Service (CCTS) include:

- Fleet Capital Cost
- Fuel Costs
- Maintenance Costs
- Preliminary Infrastructure Projects & Costs
- Total Cost of Ownership
- Benefits and Drawbacks of Each Technology



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## ICT Approved ZE Propulsion Technologies Overview



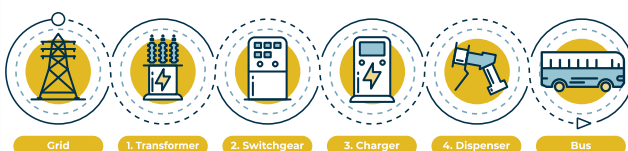
### Battery Electric Buses (BEBs)

- Fueling time longer than CNG bus
- Overnight and opportunity on-route charging would be required.
- Fuel cost highly variable but could prove to be preferred based on internal partnership with Banning Electric Utility
- BEB bus fuel cost approximately 50% lower than a mixed fleet or hydrogen fuel-cell
- Infrastructure costs are lower than other options but could increase per bus when scaled up

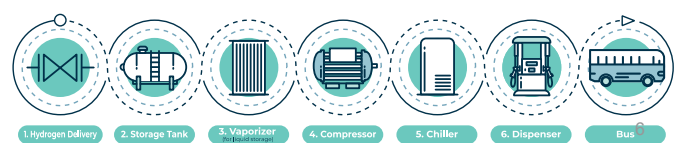
### Fuel Cell Electric Buses (FCEB)

- Comparable range to ICE bus – 1:1 replacement ratio
- Fueling time comparable to ICE bus
- Fuel cost significantly higher than fossil fuel
- Bus cost higher than BEB
- High infrastructure costs but may reduce per bus when scaled up
- Greater resilience
- Purchase or produce hydrogen

### BEB Fuel Delivery Pathway

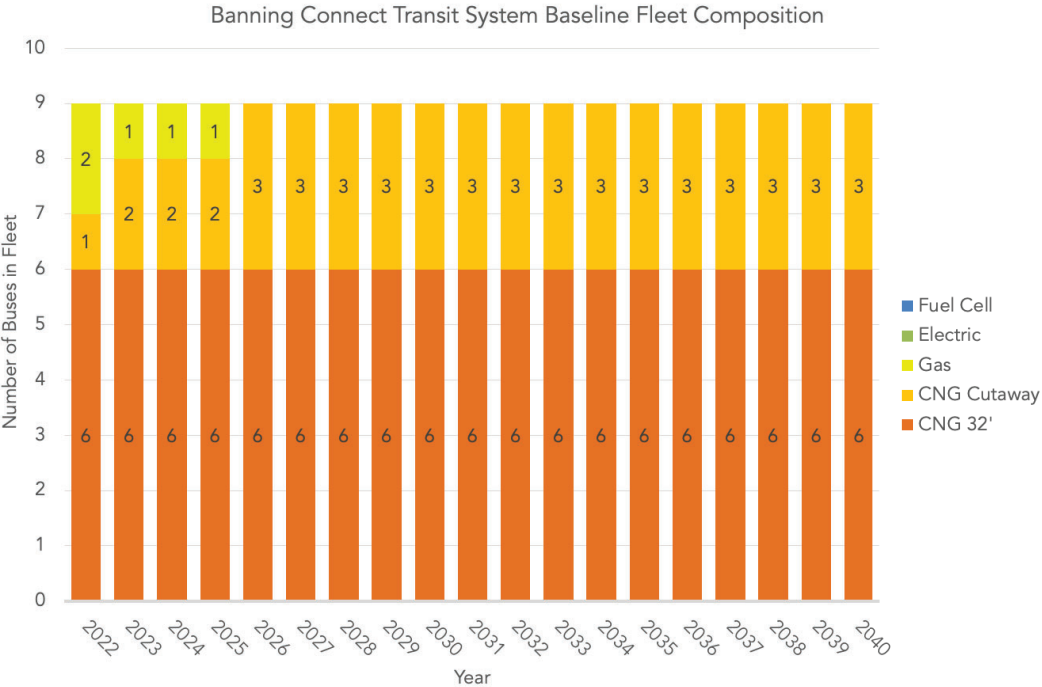


### FCEB Fuel Delivery Pathway



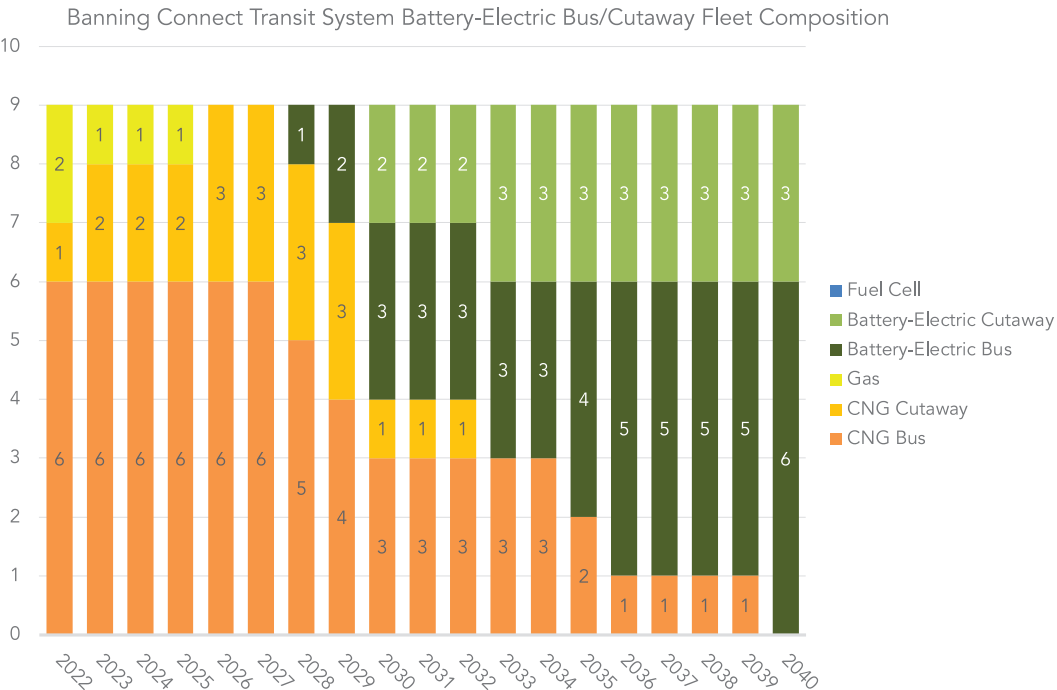
# Fleet Composition

## Baseline



# Fleet Composition

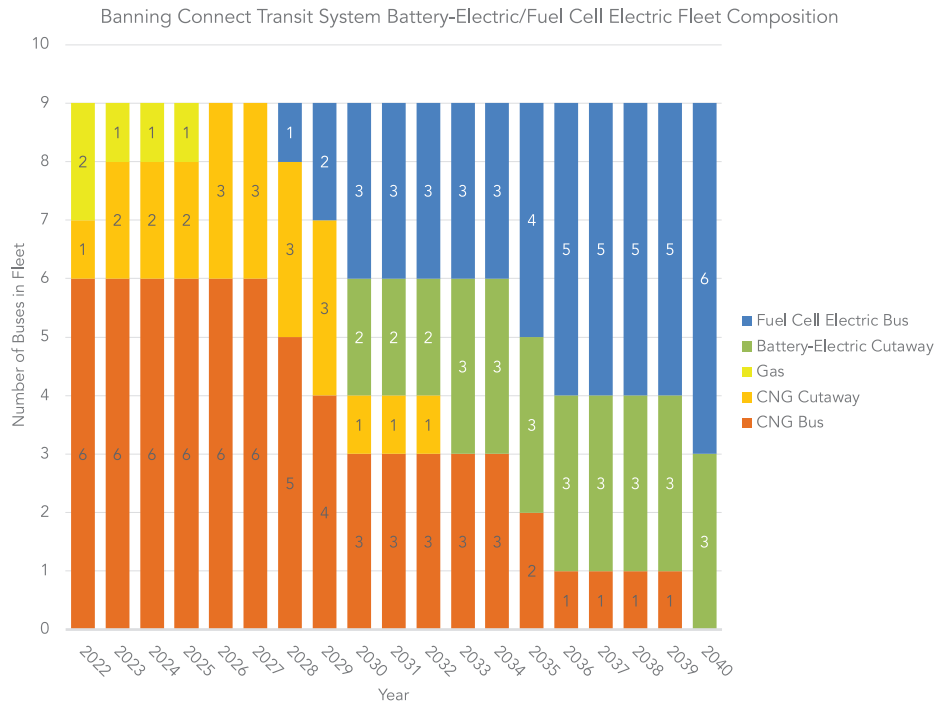
## BEB





## Fleet Composition

### Mixed Fleet

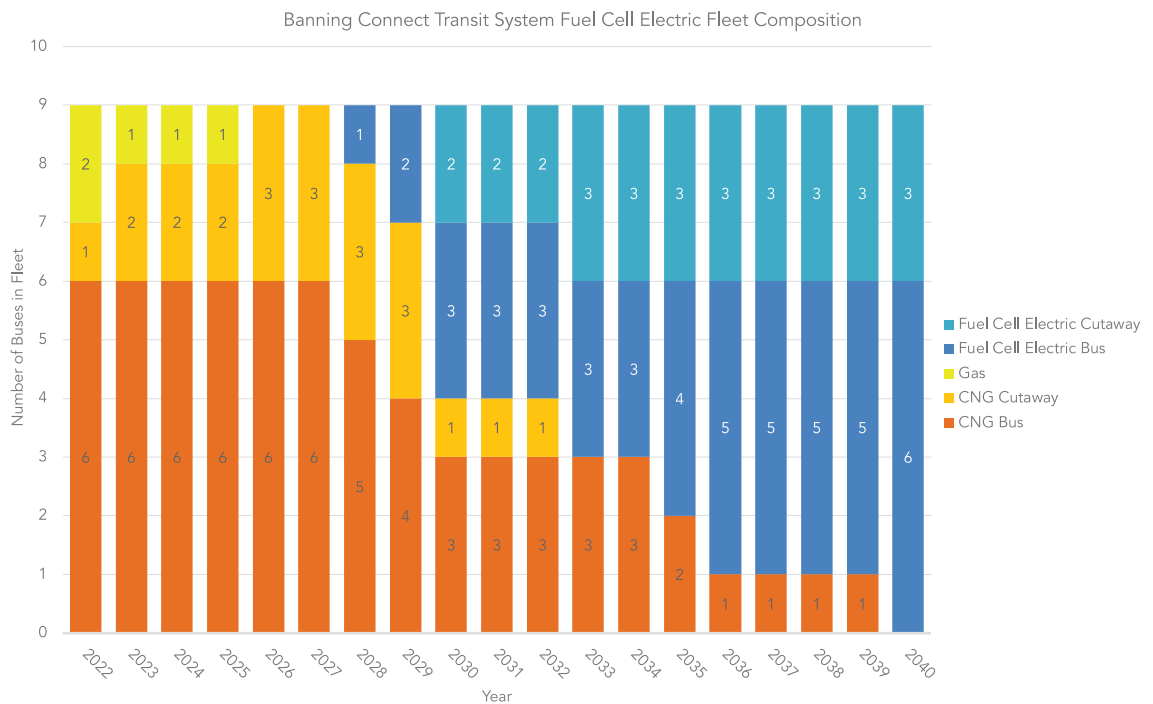


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## Fleet Composition

### FCEB

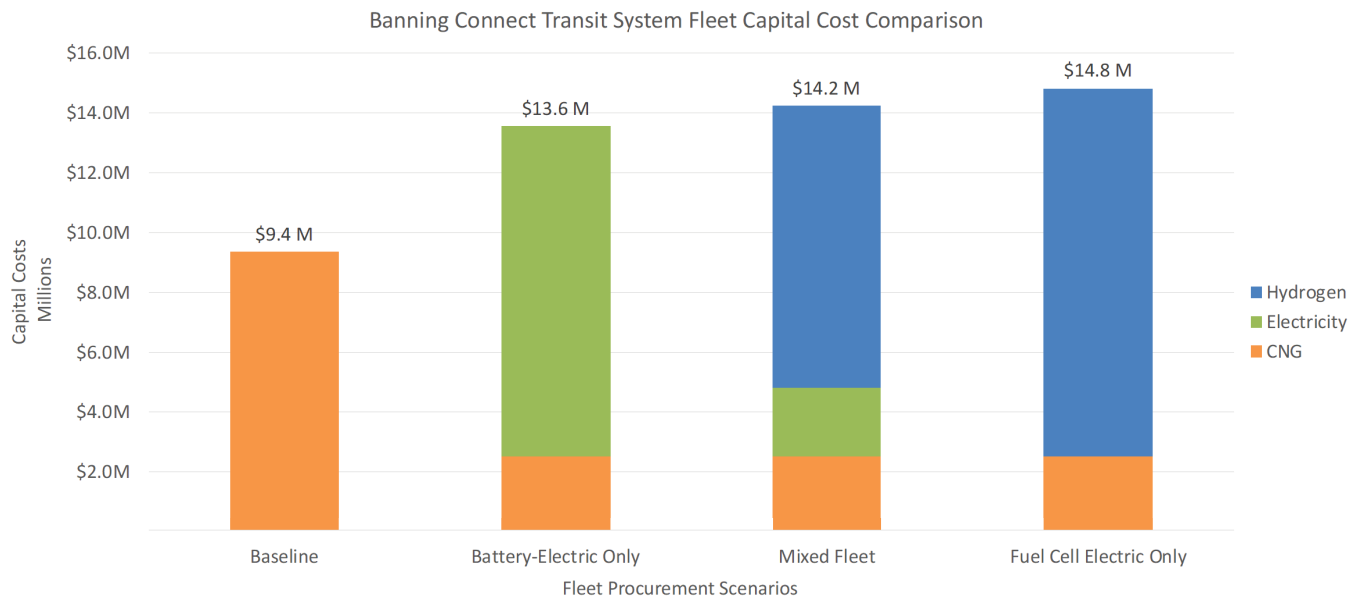


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## Comparative Fleet Capital Costs

### Entire Transition Period, All Scenarios

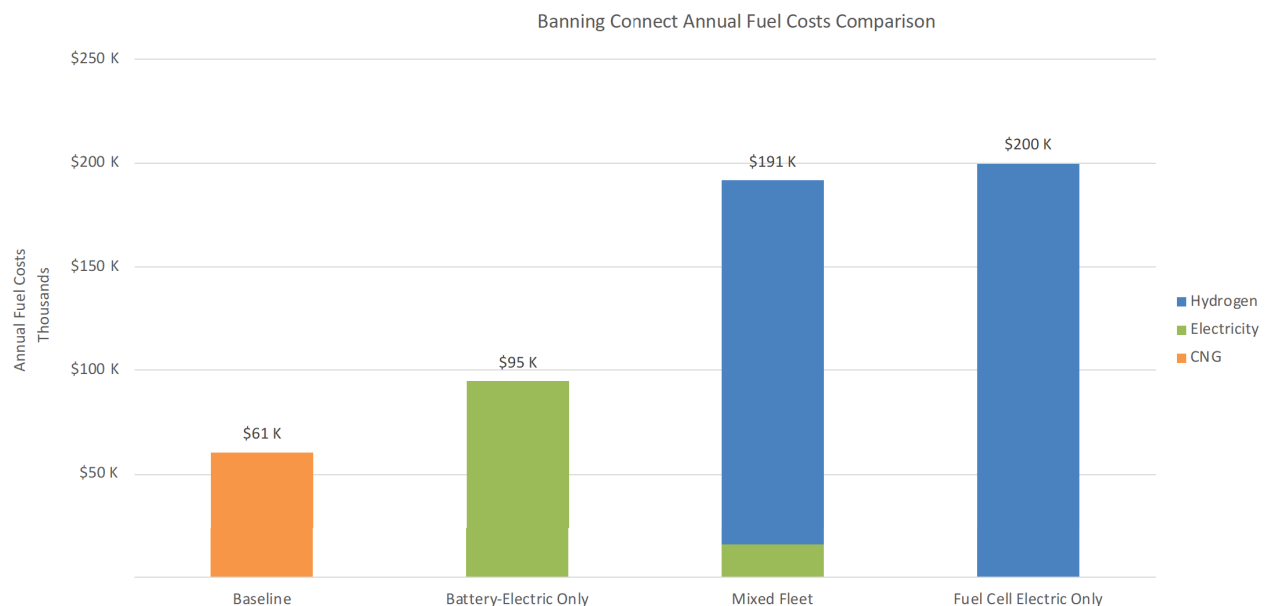


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## Comparative Annual Fuel Costs

### For Transitioned Fleet 2040, All Scenarios



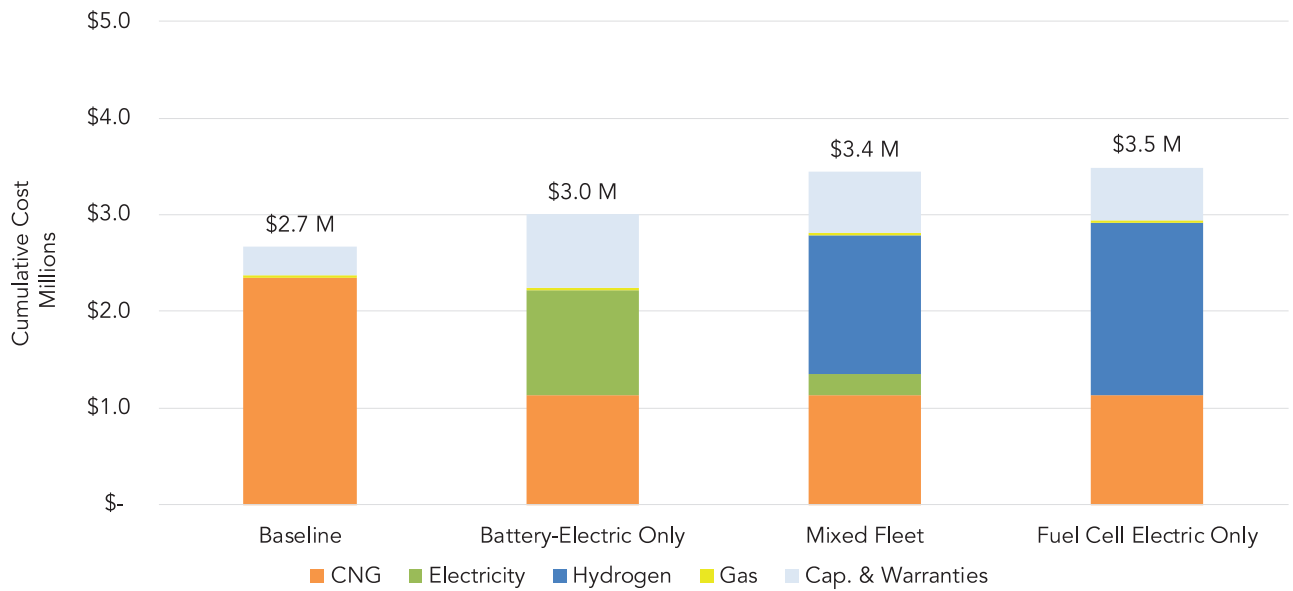
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## Comparative Annual Maintenance Costs For Transitioned Fleet 2040, All Scenarios



Banning Connect Fleet Maintenance Cost Comparison

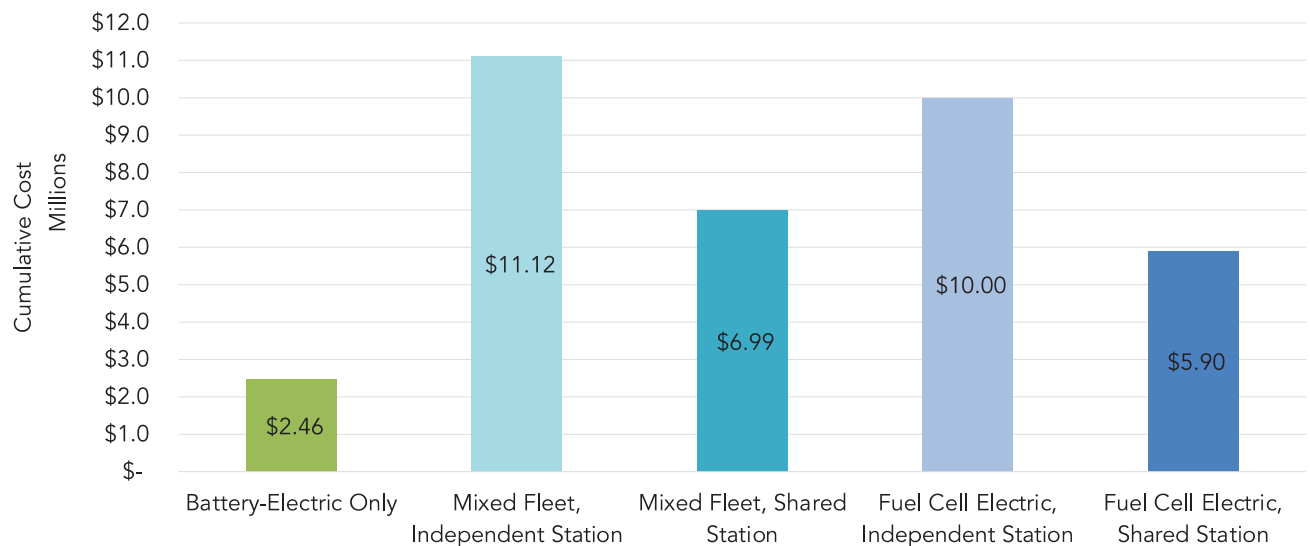


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## Comparative Infrastructure Costs Entire Transition Period, All Scenarios



Banning Connect Fleet Infrastructure Cost Comparison



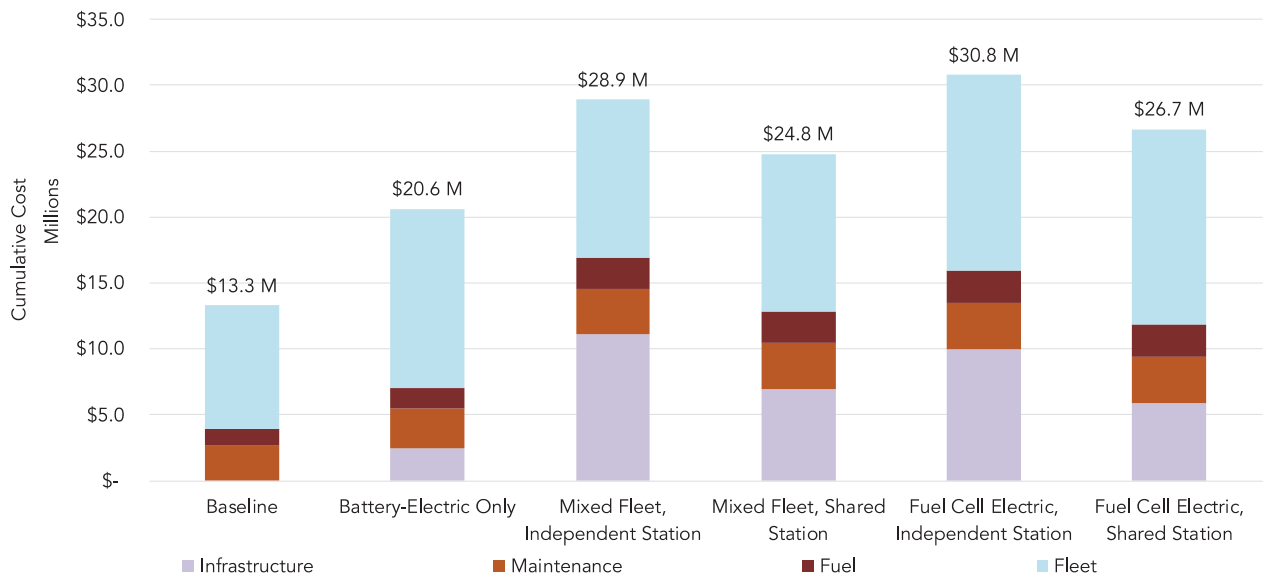
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# Comparative Total Cost of Ownership

## Entire Transition Period, All Scenarios



Banning Connect Total Cost of Ownership Comparison



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# Considerations for Selecting ZE Propulsion Technology



## BEB Fleet

### Pros

- Familiar and widely used technology
- Retrofit existing site for depot chargers (no additional land needed)
- Less costly, cumulatively, of all options
- Potential partnership with BEU

### Cons

- Acquisition costs for on-route charger location is unaccounted for in TCO analysis
- Requires infrastructure restructuring in the depot and potential loss of parking spaces
- In the event of a grid down situation, transit services could be impacted

## Mixed Fleet

### Pros

- Two technologies provide greater redundancy and resilience benefits; less reliant on the grid or fuel supply

### Cons

- Operationally challenging due to the creation of sub-fleets by technology
- Two different fueling infrastructures will be required at depot
- Most expensive option

## FCEB Fleet

### Pros

- Operationally similar to current fleet. No service or schedule changes are required due to the technology
- Anticipated fuel price reduction due to regional renewable H<sub>2</sub> supply developments

### Cons

- Land acquisition cost unknown
- Delivery of hydrogen occurs through diesel trucking in cost analysis



March 19, 2023



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# Other Considerations



- These analyses are based on the Existing Conditions Report published in October 2022.
- Transition plans are living documents that are meant to be revisited as the market matures.
- There are operational costs and impacts that may increase the need for personnel such as ZE project managers, operations staff, trainings, grants managers, which are not included in this analysis.
- Scheduling changes are not included in this assessment. Operators can review operational modifications that may simplify their transitions to ZEB.
- Prices used in the analysis are a snapshot of today's market, while they are evidence-based predictions, the hydrogen market is dynamic and will likely see pricing drops with increased supply and commercialization.



# Other Considerations Continued



- While shared infrastructure offers cost savings, there is potential for increased deadhead with shared infrastructure.
- Selecting a single technology can increase operational simplicity and cost savings.
- Selecting multiple technologies does make a fleet more resilient to grid-down or fuel supply shortage scenarios.
- City must also consider compliance with City wide fleet conversion in compliance with CARB's Advance Clean Fleet regulation.





# What Are Local Partners Doing?

- **Riverside Transit Agency** – Fuel Cell Electric per submitted ICT Rollout
- **SunLine Transit Agency** – Fuel Cell Electric per submitted ICT Rollout
- **OmniTrans** –Battery Electric per submitted ICT Rollout
- Cities of **Beaumont, Corona** and **Riverside**, and **PVVT**A are in the process of reviewing options for ICT Rollouts developed in concurrence with **City of Banning**

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## Staff's Recommendation:

# BATTERY ELECTRIC BUSES

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# Next Steps for ZEB Transition Planning Project

- ICT and ZEB Roll-out and Implementation Plan Workshop – March 14
- Council Meeting for Technology Selection – March 28
- Council Approves ICT Rollout Plan & Resolution – May 23
- RCTC staff to compile ZEB rollouts for all operators to develop a countywide Financial Strategy for future funding and implementation – July to October 2023

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# Questions?