

REGIONAL ZEB FLEET TRANSITION PLAN TECHNOLOGY ASSESSMENT and FUNDING OPPORTUNITIES

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ARC TCC

PROJECT BACKGROUND

- ▶ Through IIJA, FTA is providing **\$6.1 billion in discretionary funds** primarily targeted for Zero Emission Buses (ZEBs) from FFY2022 – FFY2026.
- ▶ A ZEB Fleet Transition Plan is a **required** component of the Bus and Bus Facilities and Low-No Emissions grant programs.
- ▶ Atlanta-Region Transit Link Authority (ATL) aims to enhance operator competitiveness for these programs by supporting their development of ZEB Fleet Transition Plans.
- ▶ ATL aims create a cohesive and coordinated approach for all regional fixed route public transit operators to transition their bus fleets to ZEBs.

WHY ZERO EMISSION BUSES?

- ▶ More efficient, lower energy consumption compared to ICE vehicles
 - Zero tailpipe emissions
 - Lower source emissions
- ▶ Lower maintenance costs
- ▶ Lower fuel cost in some parts of the country
- ▶ Quieter, preferred by passengers
- ▶ US-produced fuel source



ZEBs: BATTERY ELECTRIC AND HYDROGEN FUEL CELL

Battery Electric Buses (BEB)

- ▶ Readily available buses and charging infrastructure
- ▶ BEBs are already being incorporated into regional fleets (Xpress and MARTA)

Hydrogen Fuel Cell Electric Buses (FCEB)

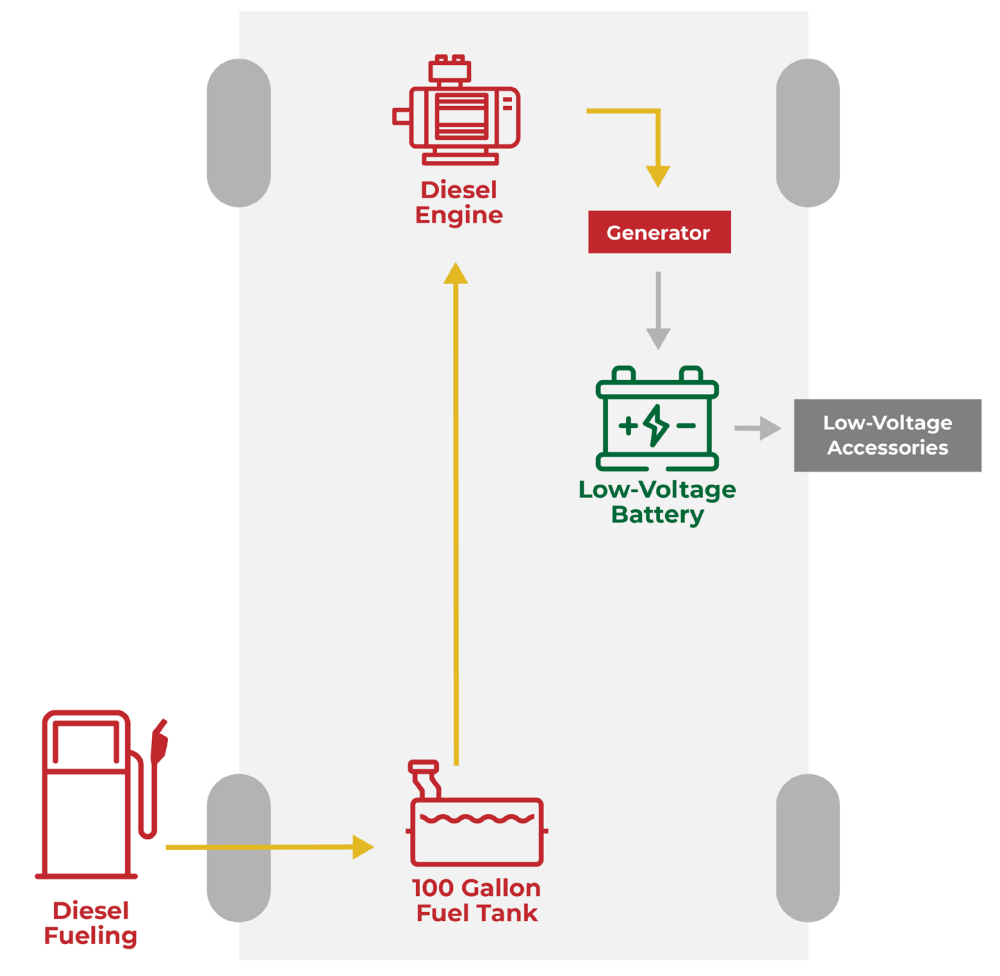
- ▶ Current difficulty around procuring or producing hydrogen efficiently
- ▶ No FCEBs currently in the region
- ▶ Quickly escalating investments across the country, including major investment in distribution centers by the Federal government.



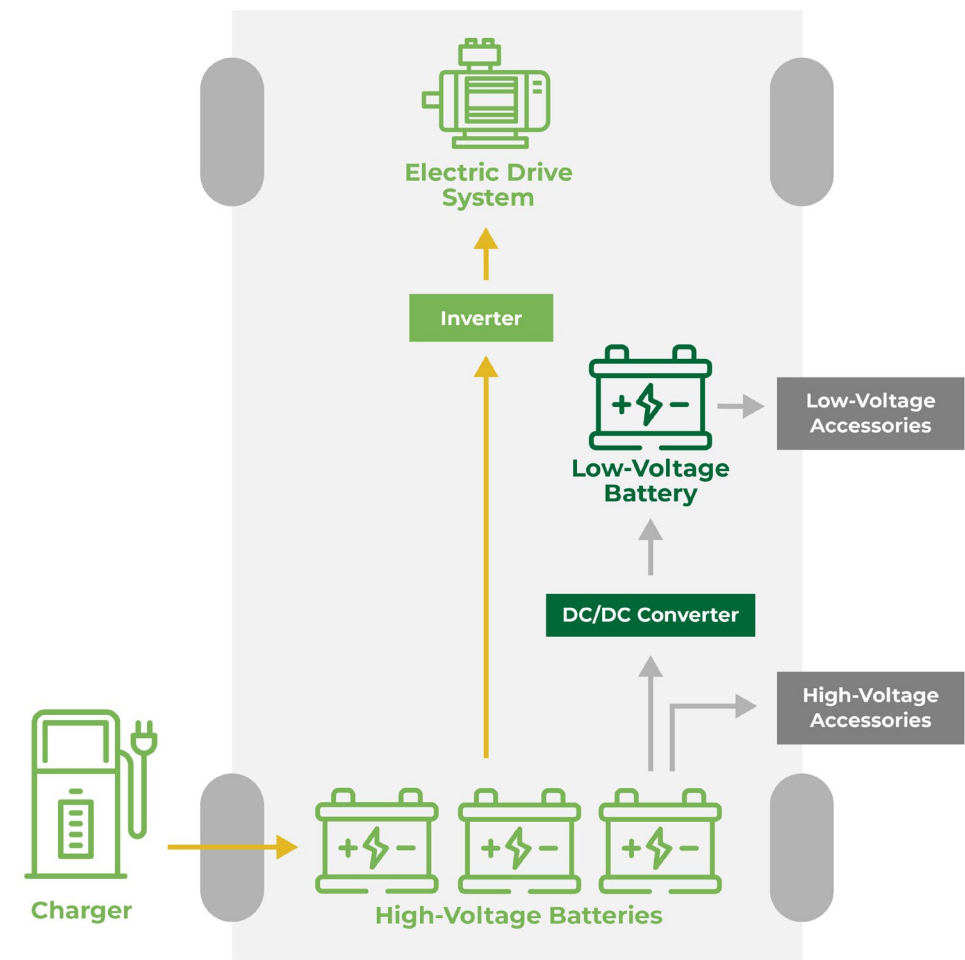
Battery Electric Buses (BEB)

BATTERY ELECTRIC BUSES

DIESEL VEHICLE

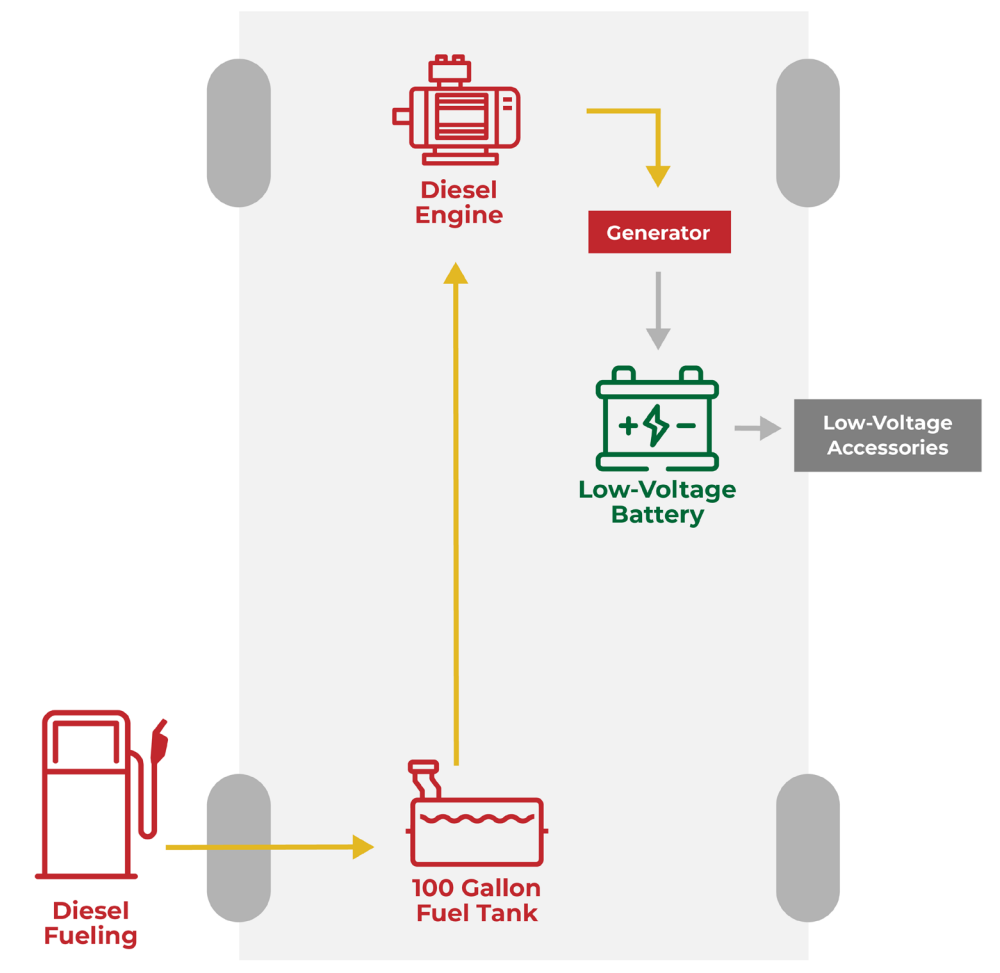


BATTERY ELECTRIC VEHICLE

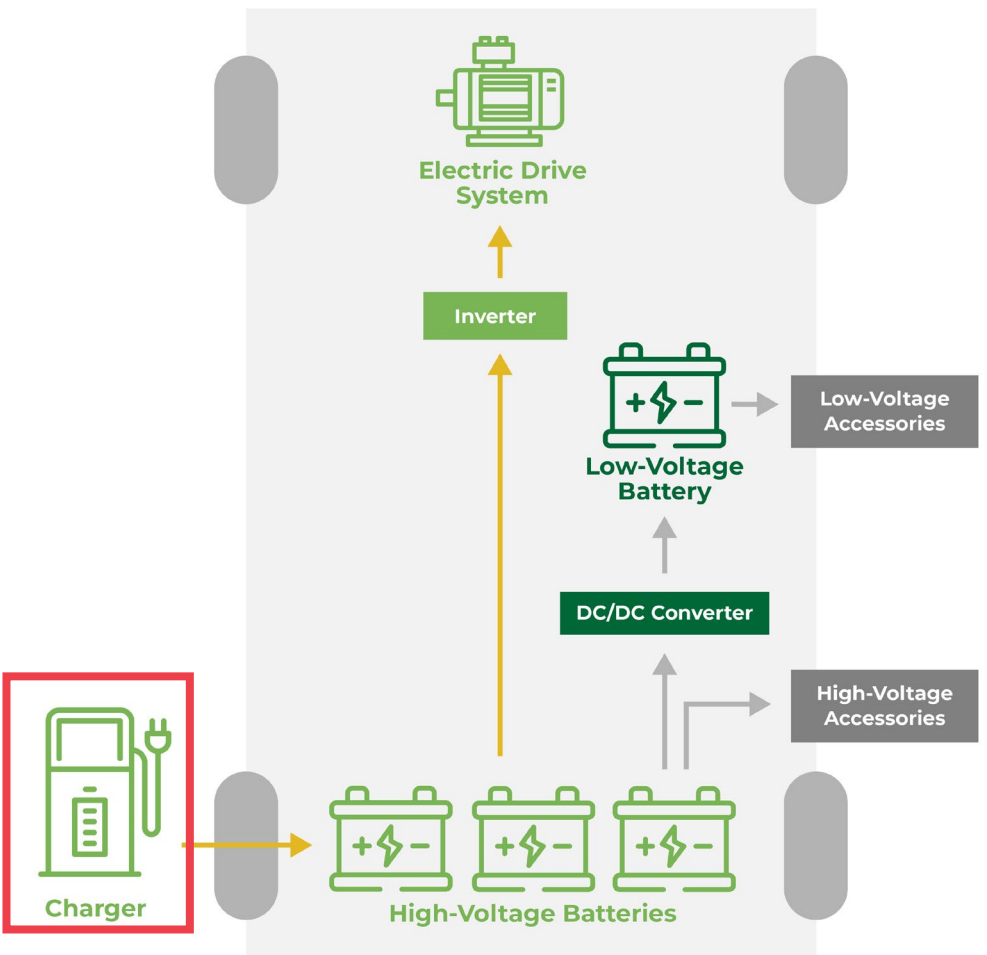


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DIESEL VEHICLE

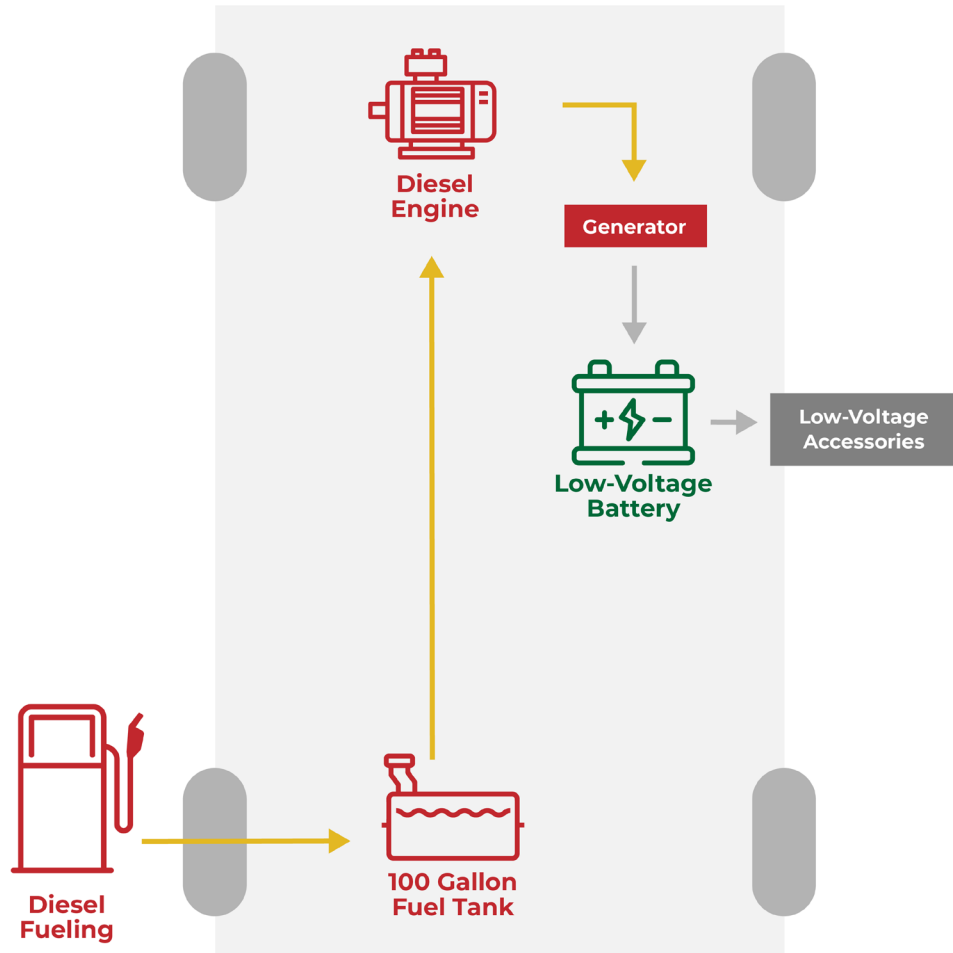


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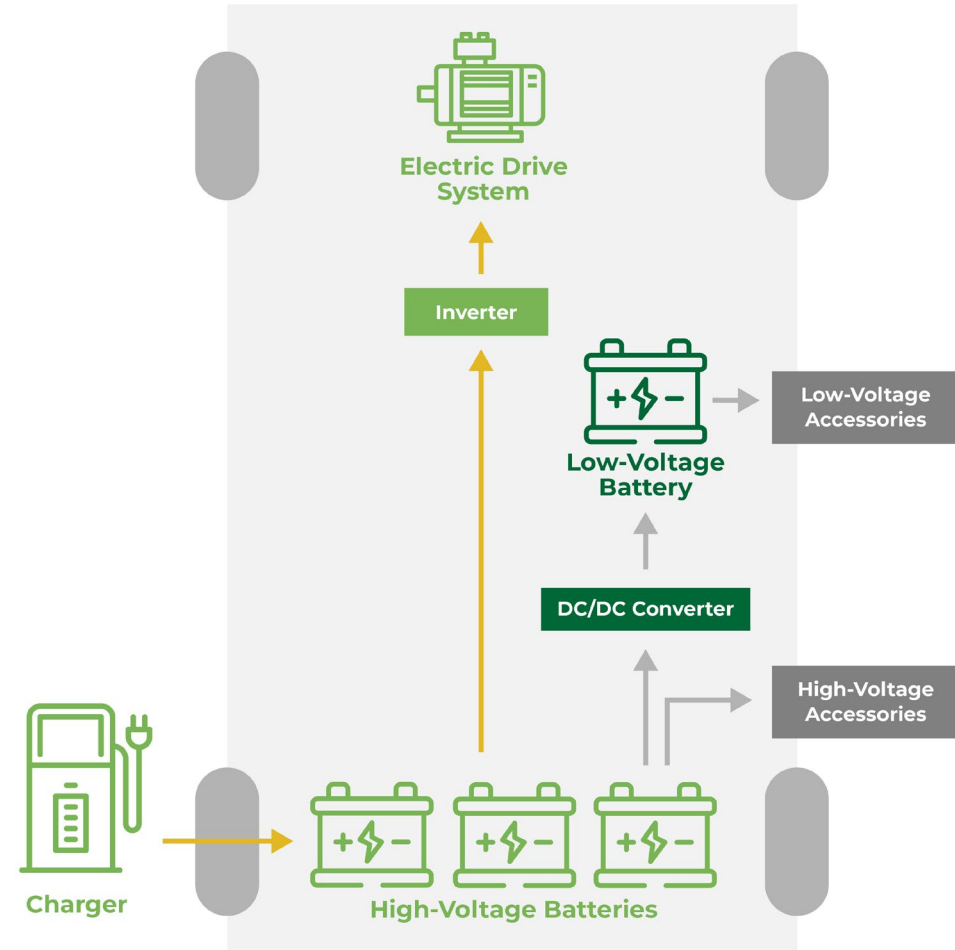


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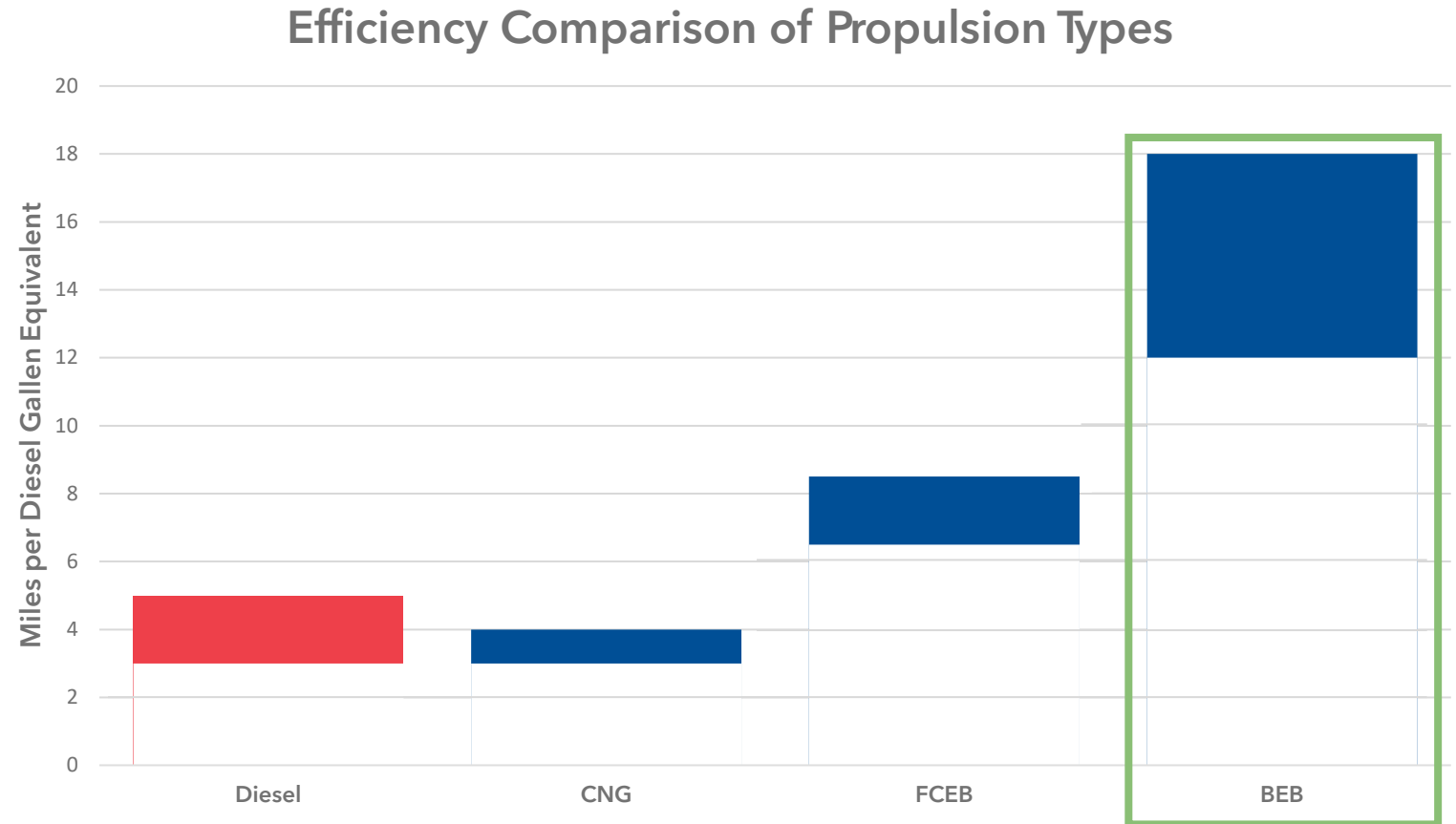


BATTERY ELECTRIC VEHICLE



EFFICIENCY COMPARISON

- ▶ Battery Electric Buses (BEB) are ~4x more efficient than diesel
- ▶ BEB efficiency and range are affected by driving habits and route characteristics.



CHARGERS

- ▶ Variety of charger styles offered by different OEMs
 - Plug-in chargers (Integrated and remote dispensers)
 - Overhead chargers (pantographs up and down)
 - Wireless/Inductive chargers
 - Scalable depot charging (typically overhead cable or pantographs)

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heliox
Xpress

SIEMENS
MARTA



Integrated charger and dispenser



Charging cabinet with **Remote** dispenser

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heliox
Xpress

SIEMENS
MARTA



Pantograph Up

Extendible charging arm mounted on bus



Pantograph Down

Charging arm mounted on charging structure

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In-ground with no physical connections or overhead obstructions.
Alignment is critical.

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Overhead Cable

Reel, boom, or hanging styles



Overhead Pantograph

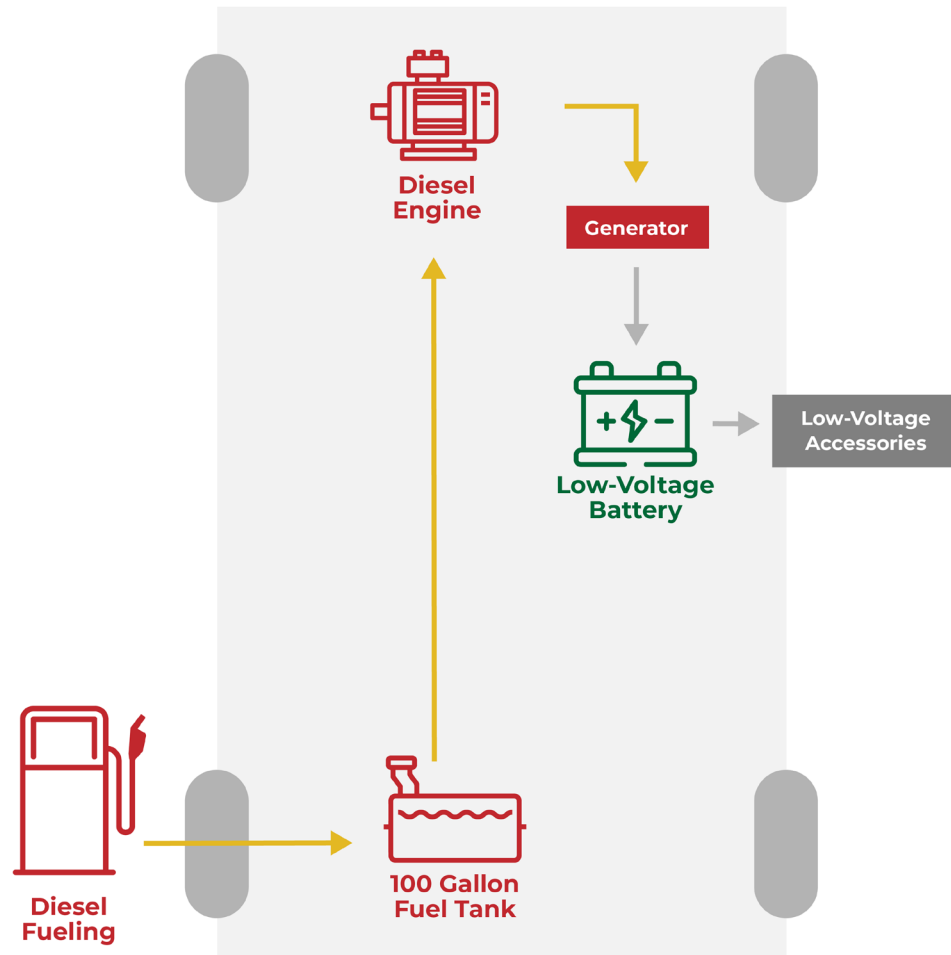
Automated operation with minimal yard obstructions



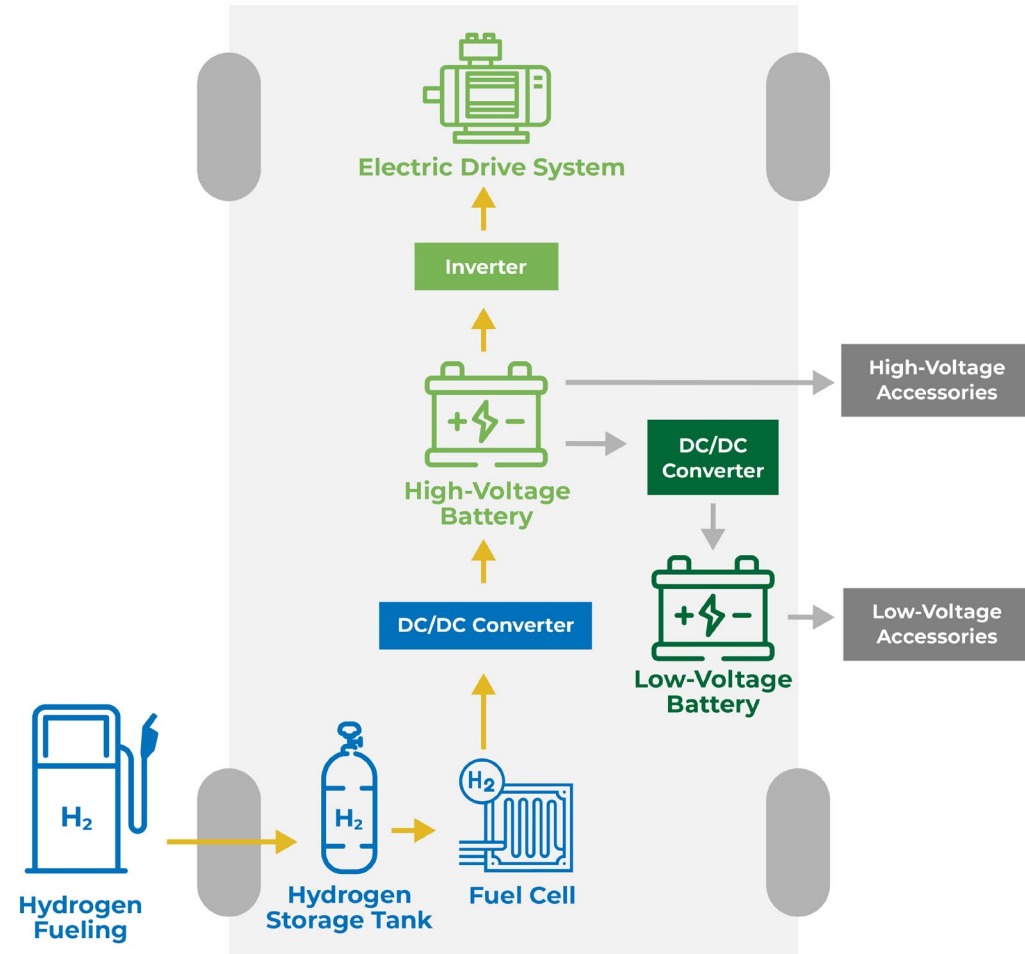
Hydrogen Fuel Cell Electric Buses (FCEB)

HYDROGEN FUEL CELL ELECTRIC BUSES

DIESEL VEHICLE

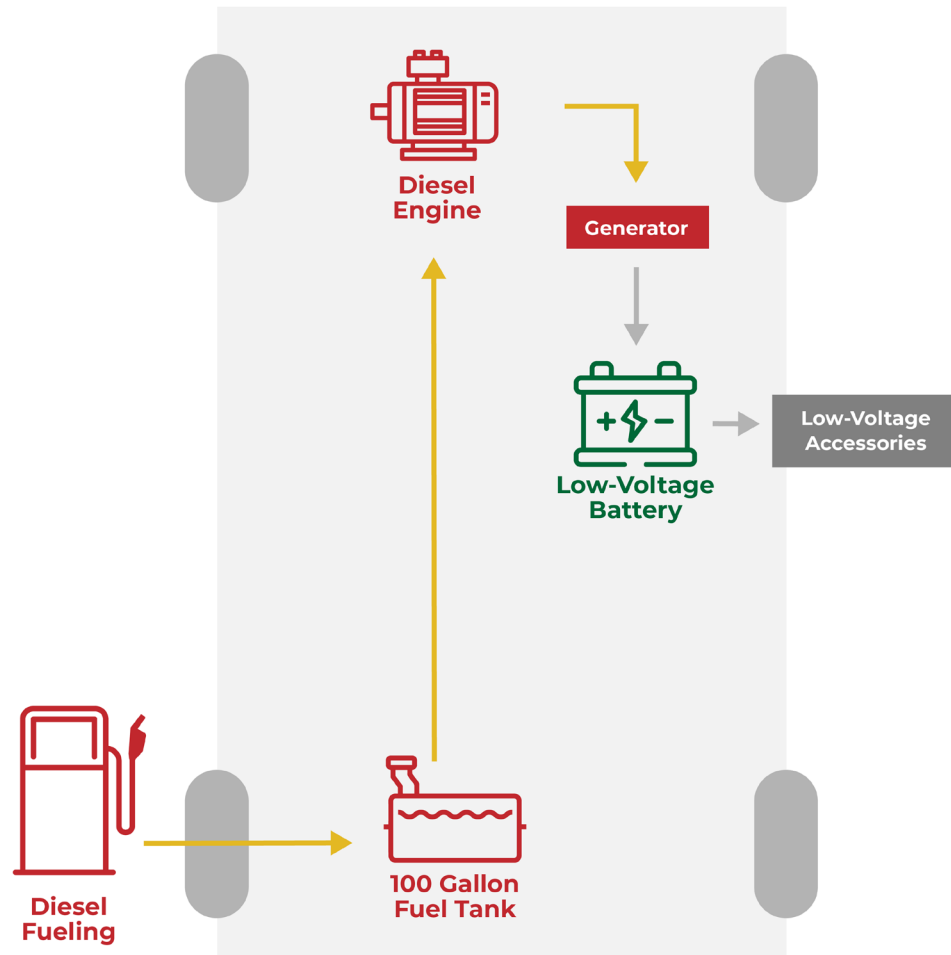


FUEL CELL ELECTRIC VEHICLE

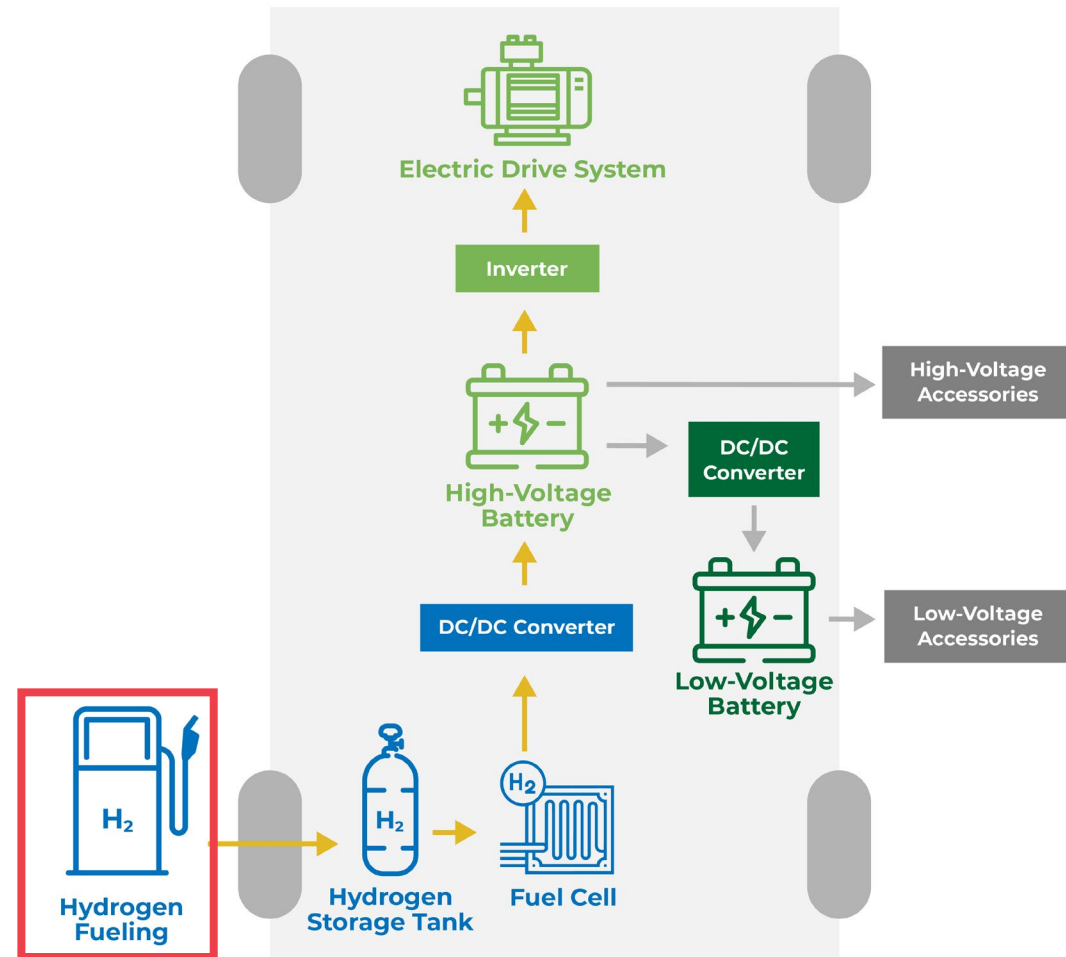


HYDROGEN FUEL CELL ELECTRIC BUSES

DIESEL VEHICLE

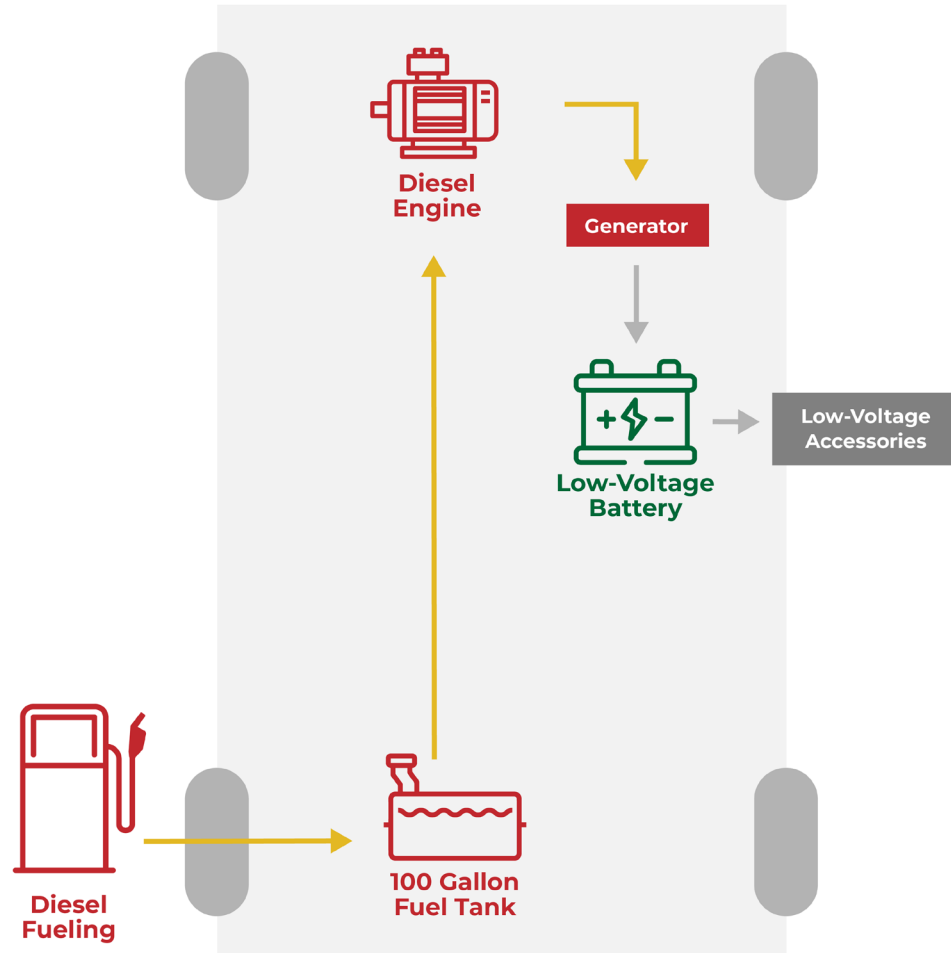


FUEL CELL ELECTRIC VEHICLE

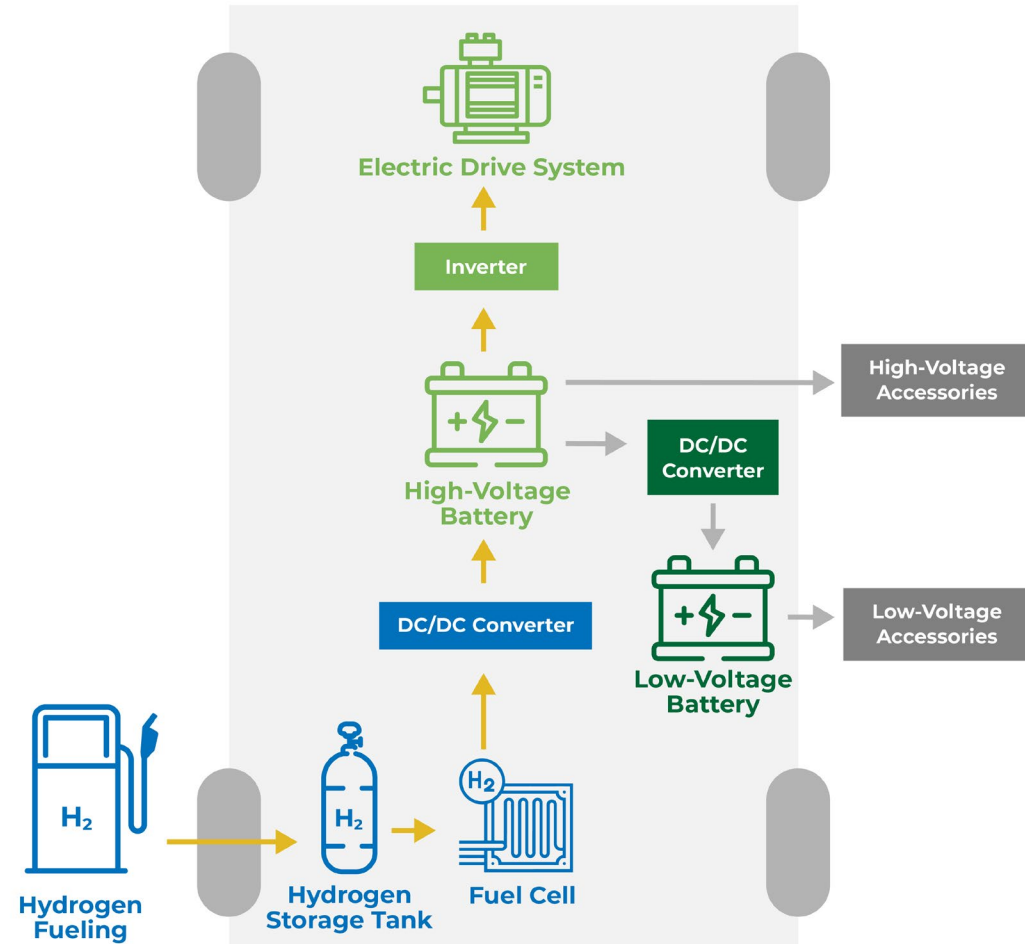


HYDROGEN FUEL CELL ELECTRIC BUSES

DIESEL VEHICLE

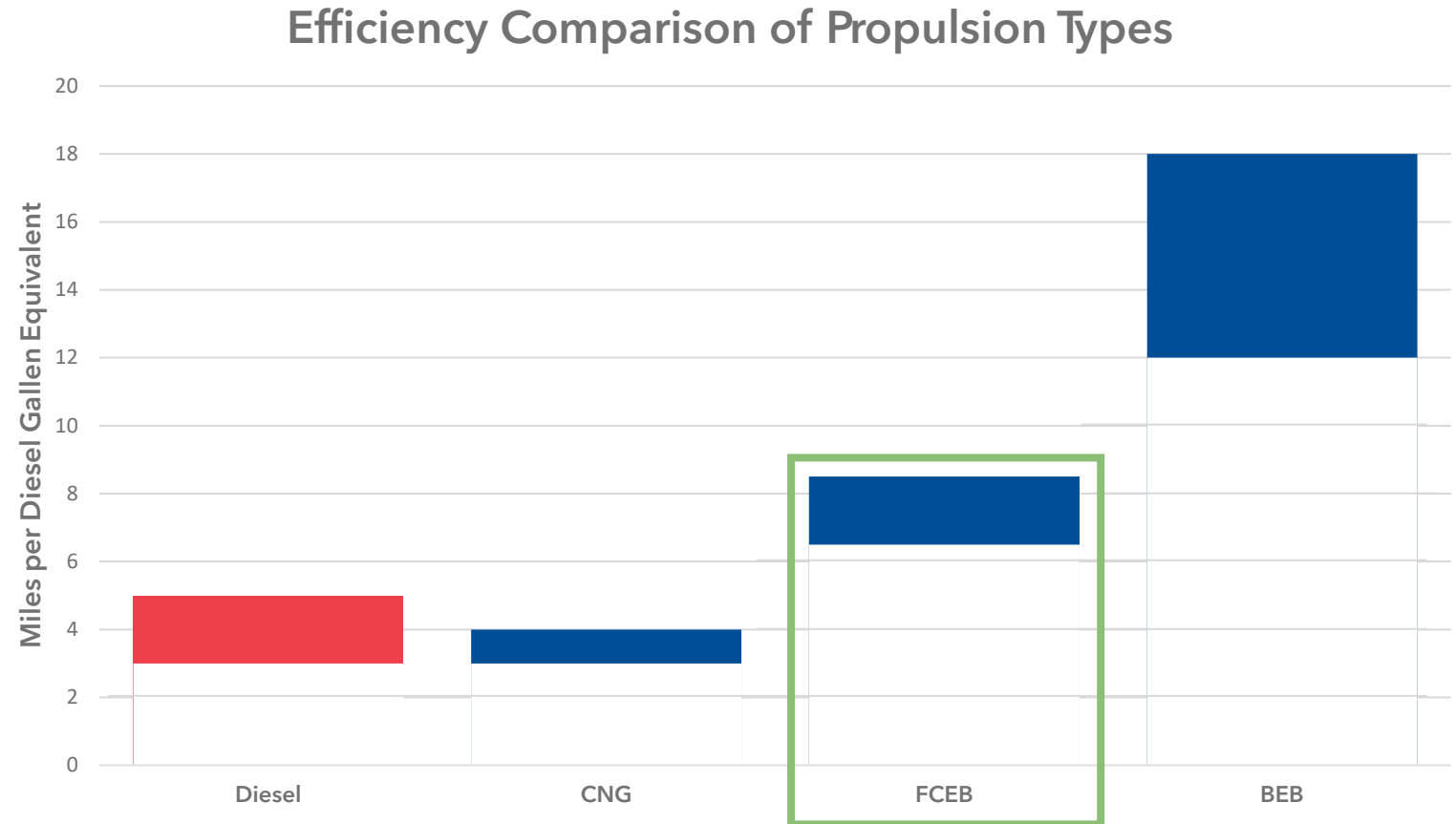


FUEL CELL ELECTRIC VEHICLE

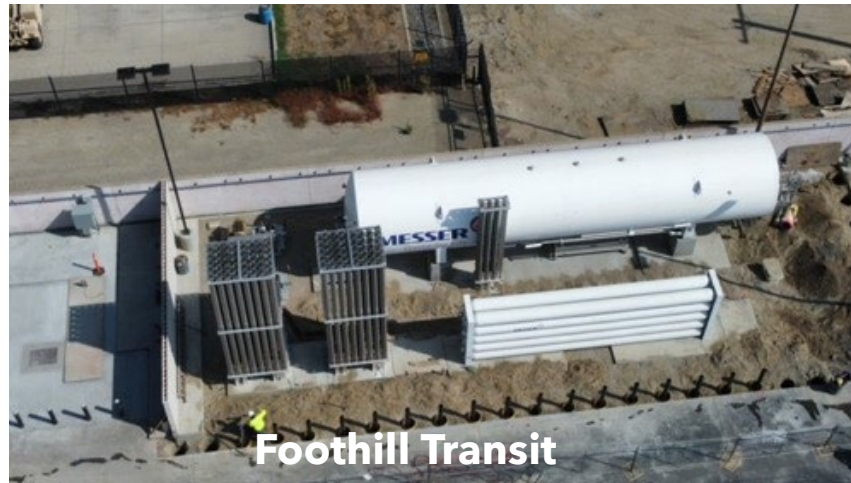


EFFICIENCY COMPARISON

- ▶ Fuel Cell Electric Bus (FCEB) are less efficient than BEB but more efficient than Diesel
- ▶ FCEB efficiency and range are not affected to the same extent by driving habits and route characteristics.



ACTIVE TRANSIT FCEB STATIONS

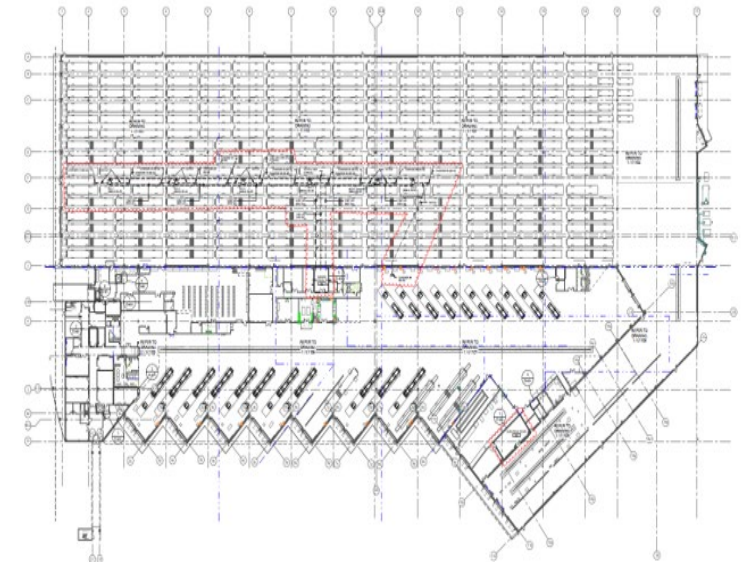
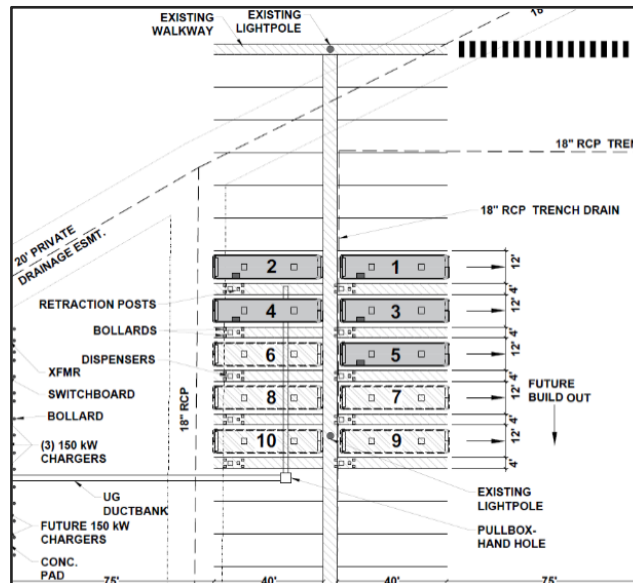


Approximately 36' x 85' footprint

ZEB FACILITY PLANNING

► Key considerations

- Changing service needs (overhead servicing, battery lifts)
- Increased ventilation, leak detection, fire detection, fall protection
- Operational flow such as vehicle movements (e.g. counterclockwise, minimize backing)
- Collaboration with the local utility company
- Charge management system





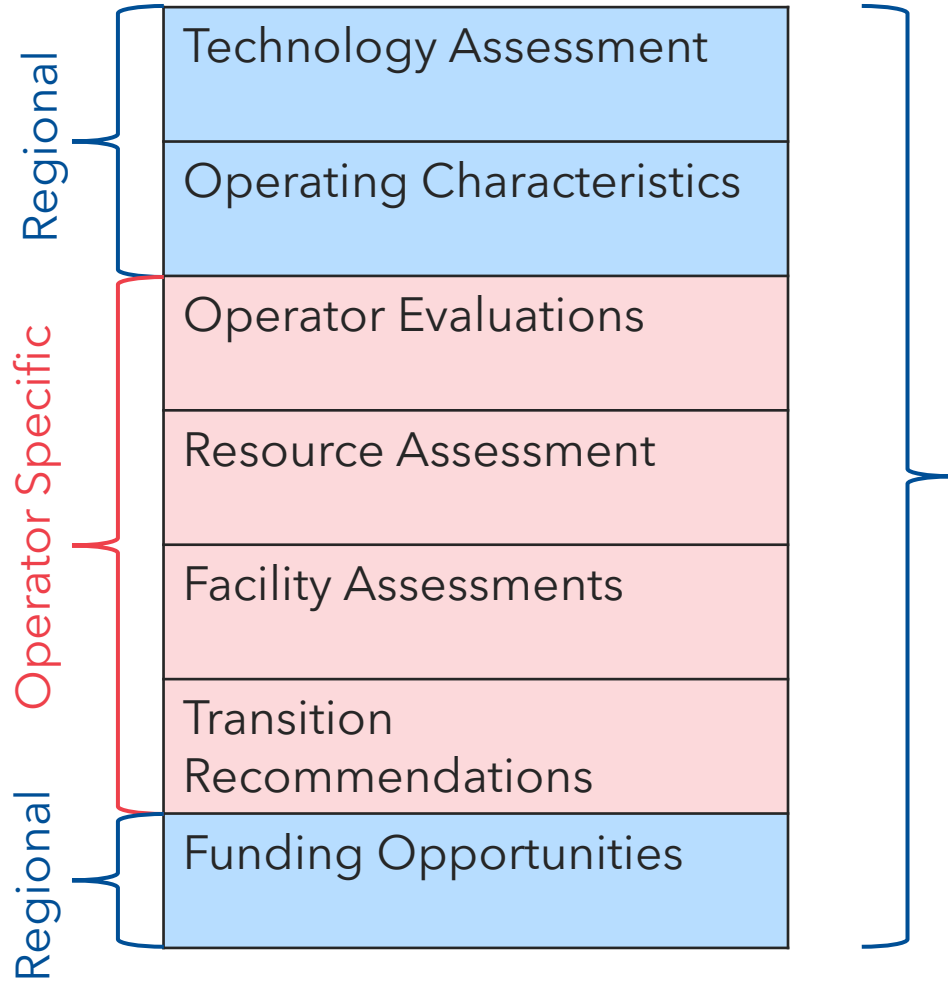
ATL's Regional ZEB Fleet Transition Plan & IIJA Funding Opportunities

ATL'S REGIONAL ZEB FLEET TRANSITION PLAN

- ▶ Goal: Create one **regional** plan that lays out a gradual fleet transition by integrating **agency-specific** assessments and results
 - 10-year transition goal
 - Focused on fixed-route operators, but potential to include non-fixed route

- ▶ Individual operators can easily extract their portion of the plan and adopt it locally to meet new federal application requirements

SCOPE ELEMENTS



Regional ZEB Fleet Transition Plan

PROJECT PARTNERS

► This includes providing support to the following agencies in developing their Zero Emission Fleet Transition Plan:

Local Service	Commuter Service
CobbLinc	CobbLinc
Ride Gwinnett	Ride Gwinnett
Cherokee Area Transit	ATL Xpress
Henry County Transit	
Connect Douglas	
MARTA*	

*This study will not directly analyze MARTA’s fleet, instead it will incorporate MARTA’s independent results at the regional scale.

PROJECT PARTNERS

► This includes providing support to the following agencies in developing their Zero Emission Fleet Transition Plan:

	Local Service	Commuter Service
353 buses	CobbLinc	CobbLinc
	Ride Gwinnett	Ride Gwinnett
	Cherokee Area Transit	ATL Xpress
	Henry County Transit	
	Connect Douglas	
539 buses	MARTA*	

*This study will not directly analyze MARTA’s fleet, instead it will incorporate MARTA’s independent results at the regional scale.

PROJECT TEAM





35+
Bus Operations
& Maintenance
Facilities



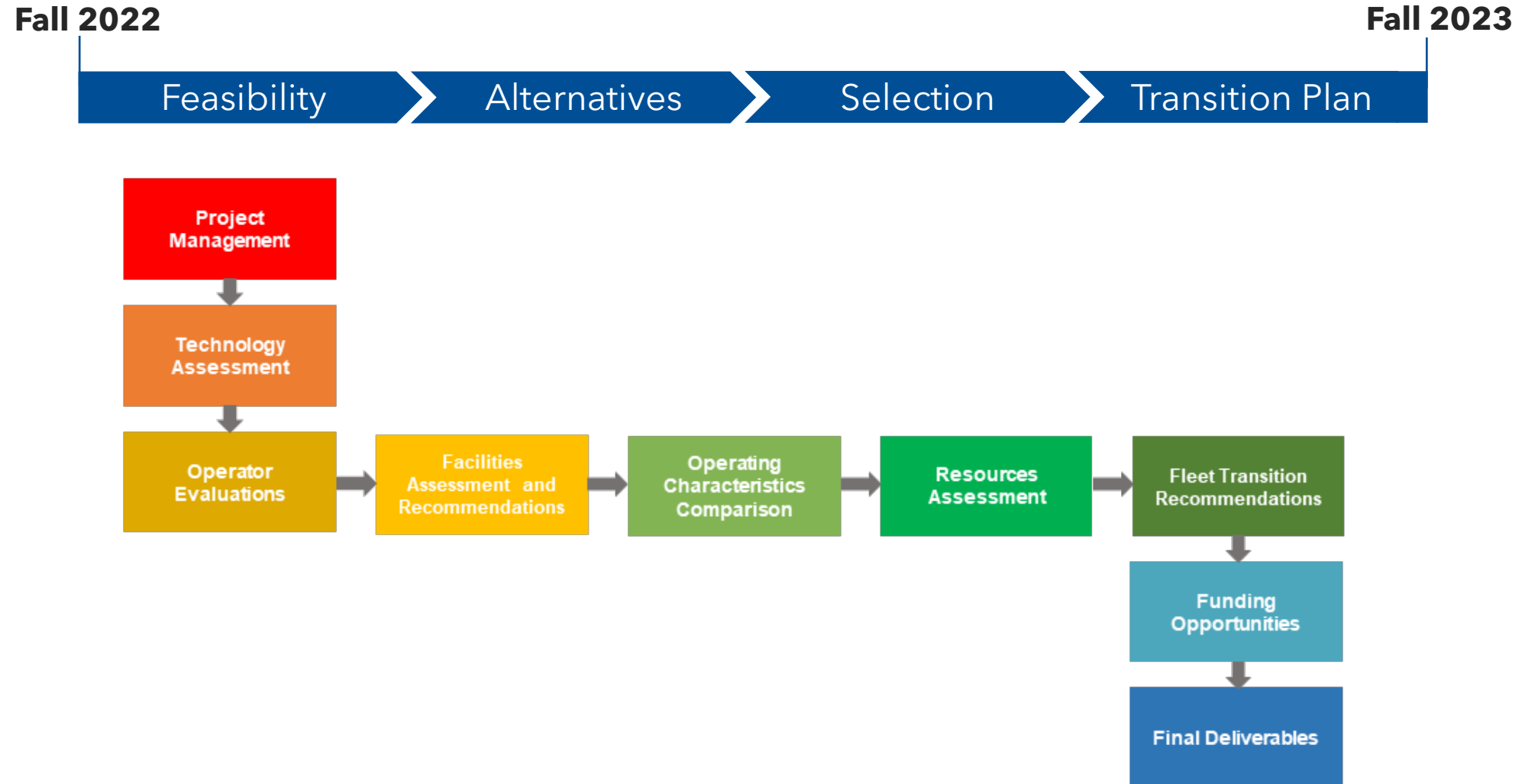
75+
Transit
Agencies

25+
ZEB Transition
Plans

70+
BEB
Deployments

30+
Hydrogen Fueling
Stations

ESTIMATED PROJECT TIMELINE



INFRASTRUCTURE INVESTMENT AND JOBS ACT (IIJA)

- ▶ Going forward, a ZEB fleet transition plan is **required** to receive funding under:
 - Buses and Bus Facilities competitive program
 - \$2 billion over five years
 - \$469 million for FY 2023
 - Low or No Emission Vehicles competitive program
 - \$5.5 billion over five years
 - \$1.2 billion for FY 2023
- ▶ Federal intent is for applicants to develop a long-term fleet management strategy specific to ZEBs

FY23 NOTICE OF FUNDING OPPORTUNITY

- ▶ Joint NOFO currently open for BBF and Low-No
- ▶ Applications due April 13, 2023
- ▶ Going forward, we expect the NOFO to open early in the calendar year.
 - New requirement that these NOFOs open within 30 days of the passage of a full funding bill.
- ▶ ATL will work with partners to coordinate applications from the Atlanta region and help to identify opportunities for multi-agency applications allowing for more competitive submissions.

FY23 ADDITIONAL CONSIDERATIONS

► During the selection process, FTA will prioritize applications that:

- Create significant **environmental benefits**
- Support the conversion of the agency fleet to **zero emissions**
- Support **workforce development**, jobs, and wealth creation
- Commit to **limiting customization** to streamline procurement
- Demonstrate consultation with **workforce representatives**
- Support the **Justice40** initiative



SUMMARY OF JOINT NOFO FOR LOW-NO AND BUS AND BUS FACILITIES

Agency: FTA

Applications Due: April 13, 2023 11:59 PM Eastern

Federal Cost Share: 80/20 (or up to 90/10 for CAA and ADA applicants)

Additional Information

This is a **joint** NOFO for both the Low or No Emissions grant and the Bus and Bus Facilities grant. Because there is overlap between eligible projects, applicants can apply for either or both grants using the same application, but they will only be awarded funding from one program. Between both programs, there is **\$1.69 Billion available**.

FTA requires that 25% of the Low-No awards go to low emission projects other than zero emission vehicles or related facilities. Not all of the available 25% low emission project set-aside funding was allocated for FY22 awards and the remainder rolled over to FY23. Therefore, for FY23 there is a \$357,113,282 set aside for low emission projects. FTA requires that 15% of the Bus and Bus Facilities awards will go to rural areas.

FTA intends to award as many meritorious projects as possible. See the Table 1 below for more information.

Table 1. Available Funding for FY23

	Low-No	Bus and Bus Fac.
FY23 Authorization	\$ 73,056,178	\$ 383,544,933
BIL Advance Appropriation	\$ 1,029,000,000	\$ -
Additional Appropriation	\$ 49,625,000	\$ 90,000,000
FY22 Rollover	\$ 69,668,939	\$ -
Oversight Takedown	\$ -	\$ (4,099,509)
FY23 Total Available	\$ 1,221,350,117	\$ 469,445,424

FTA allows up to 0.5% of federal share of project cost to go toward general workforce development not specific to low or no emission vehicles. Projects that include zero emission vehicles (including vehicles, facilities, or equipment) **must spend 5% of the federal share of the project cost on workforce development** including to retrain the existing workforce and develop the workforce of the future, including registered apprenticeships and other joint labor-management training programs, as outlined in the applicant's Zero Emission Fleet Transition Plan. Supportive services such as childcare and transportation assistance may be an eligible use of the program (further guidance forthcoming).

Eligible Projects

Eligible projects for **Low-No** include the following [see NOFO section C(3)]:

- Purchasing or leasing low or no emission buses
- Acquiring low or no emission buses with a leased power source
- Constructing or leasing facilities and related equipment for low or no emission buses
- Constructing new public transportation facilities to accommodate low or no emission buses





Thank you!

Questions?

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