

ZEB Environmental Benefits



- LA Metro is committed to reducing regional carbon pollution and using clean fuel sources to power our bus fleet.
- While Metro's bus fleet contributes only 0.2% of LA County transport emissions, transitioning to ZEB is an impactful strategy for reducing emissions, especially as local utilities also transition to a carbon-free grid power.
- 45 ZEB buses are in service. Remaining buses use renewable natural gas (RNG), equipped with ultra-low NOx engines, which emit 90% less NOx than that allowed by EPA emissions standards.
- While Metro faces significant cost and service-related challenges as we transition the fleet, staff recognizes the urgency of improving air quality and reducing carbon emissions and remains committed to being a local and national leader in zero emission technology.

GHG Reduction by Vehicle Replacement (BEB)

Annual reduction per bus

 $75_{\text{metric ton } CO_2e}$

Total bus fleet reduction*

* **152,325** *metric ton CO₂e*

Per mile reduction*

 $1.26_{pounds\ CO_2e}$

Future economic damages that can be avoided by reducing GHG emissions per vear**

\$9.6M

Metro

Progress Made to Date



July 2017

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Metro's Board endorsed a ZEB Strategic Plan to transition bus fleet to ZE by 2030 contingent on ZEBs achieving cost and performance parity with CNG

2018

Compliance with California Air Resources Board's (CARB) Innovative Clean Transit (ICT) regulation mandates

2016-2019

ZEB Procurements/Workforce Development – RFPs issued and contracts awarded for 145 BEBs

2017-2020

Transition to Renewable Natural Gas (RNG) completed October 2020

2021

Electrification of the G Line (Orange) completed

2024

Secured \$446M in funding to date, one of most-awarded transit agencies in the nation

- \$350 million in federal and State discretionary grants
- Recently requested \$200 million through EPA CPRG and \$140 million through FTA LoNo

Upcoming

Project Milestones:

- Solicitation to procure 260 battery-electric buses (BEB) plus 800 option buses (Apr 2024)
- Execute contract to construct charging infrastructure at Division 9 (May 2024)
- Release a Progressive Design Build (PDB) solicitation to electrify Divisions 18 & 7 (Jul 2024)
- J Line fully electrified (2025)
- NSFV and North Hollywood-Pasadena BRTs electrified (2026-27)



Metro's ZEB Program Leadership



- Vice Chair APTA Bus Technical Maintenance Committee since 2019
- Board Member California Transit Training Consortium (CTTC), a leading provider of technical training to the transit industry
- Active member UITP Working Groups and Bus Committee, worldwide association of public transport stakeholders (hosted committee in April 2024)
- CEO participated in the White House Roundtable on Clean Bus Manufacturing in January 2024
- Founding member and Vice President of Advanced Transit Vehicle Consortium (ATVC) Ad Hoc Committee of local agencies exploring alternative fuels
- Evaluation of alternative delivery options (Charging-as-a-Service) and market soundings (2021 2023)
- Developing a regional procurement approach for ZEB purchases that includes municipal operators (November 2023 present)



Acknowledging Challenges



BEB Performance

- Range
- Reliability
- Maintainability
- Operability
- Obsolescence

Utility, Infrastructure, & Supply Chain

- Long lead time for grid upgrades
- Grid capacity
- Market availability

Maintaining Reliable Service

- Ensure reliable operation of Metro's 7 million annual revenue service hours
- ZEB technology must prove reliable and able to support the majority of bus routes
- Phase Division construction to avoid impacts to storage, maintenance, and operation of 2,000+ bus fleet

Costs

- ZEB continues to cost more to purchase than CNG buses
- Charging infrastructure costs are significant
- Operating costs of BEBs have been high with initial deployments.
- The 2030 target requires an estimated \$675 million in annual cash flow.

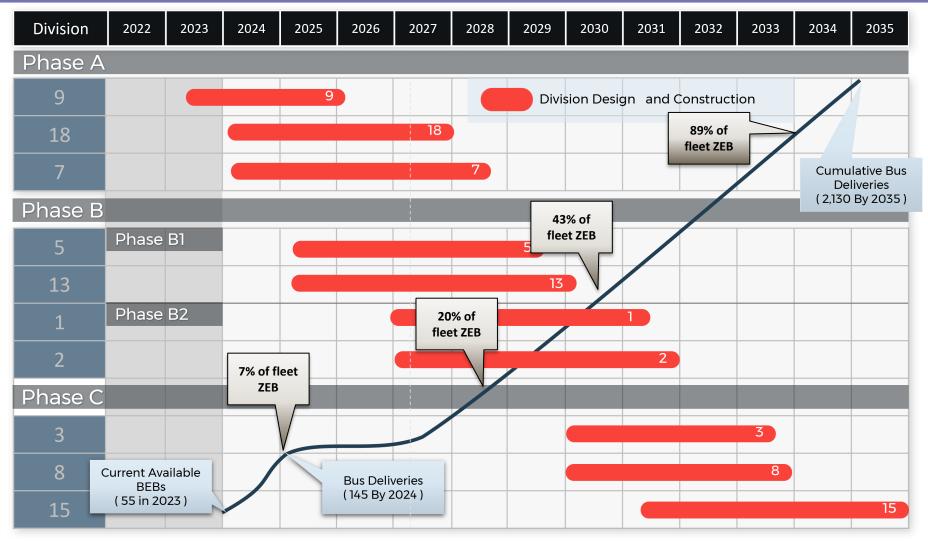
U.S. Bus Market

- Two Buy America compliant OEMs remain (three exited market past 12 months)
- Historically, one of the remaining OEMs does not participate in large solicitations



Revised ZEB Program Phasing Schedule







Current Status – Phase A Equity Lens



- Prioritizing the J Line will bring environmental benefits to some of the region's most densely populated, congested, and polluted communities, many of which are EFCs
- **Division 9 is** located within an EFC and CalEnviroScreen DAC. 59% of communities served are designated DACs.
- **Division 18** is located within a DAC. 70% of communities served are designated DACs.
- Division 7 52% of communities served are designated DACs.



