METROBÚS

2025 Sustainable Transport Award

November 18, 2025

SYSTEM DATA

Metrobús CDMX is Mexico's largest BRT system, with more than 843 buses, 7 operational lines, and 1.8 million trips daily.

Since its creation, Metrobús has promoted a reduction of more than 1.5 million tons of CO_2, and has been a pioneer in the incorporation of clean technologies (natural gas, hybrids, and electric vehicles).

In 2025, the first pilot program for electric bi-articulated buses was implemented in Latin America, setting a regional technical and operational benchmark.

HISTORY OF ELECTROMOBILITY IN METROBUS

2020

The first two prototype electric buses arrive for lines 3 and 4, manufactured by YUTONG and Volvo

2021

Incorporation of a fleet of 9 YUTONG articulated buses for line 3

2022

50 new YUTONG articulated buses for line 3

2023

10 new YUTONG articulated buses for line 3

2024

55 BYD 15 low-floor buses added to line 4

2025

Addition of 26 electric articulated buses on lines 2, 5 and 6; and 4 prototype bi-articulated electric units on line 1. Low-floor buses will be incorporated on line 4, and on line 7, two 12-meter prototypes and one 15-meter prototype.

EVALUATION PROCESSES

Fleet monitoring through measurement of consumption, range, availability, emissions, and satisfaction, combining telemetry and operational analysis.

Minimum trial duration

6 months

Route selection

Different scenarios

Parameters

Kilometers Traveled

Energy Consumption

Regeneration

Measurement tools

Operational Support System (OSS)

Field Data

Management platforms

CHARACTERISTICS OF OUR ELECTRIC FLEET

	1	2	3	4	5	6	4
Consumption average for 2025	1.3 - 1.8 kWh/km	1.0- 1.2 kWh/km	1.06-1.16 kWh/km	1.08-1.2 kWh/km	1.05- 1.2 kWh/km	1.0-1.2 kWh/km	0.45 -0.5 kWh/km
Number of units in operation	4 Prototype units	16 units	60 units	55 units	6 units	8 units	19 units

Vehicle type in operation	Bi-articulated	Articulated	Articulated	Low bed	Articulated	Articulated	Low bed

Total MB System:
168 electric units







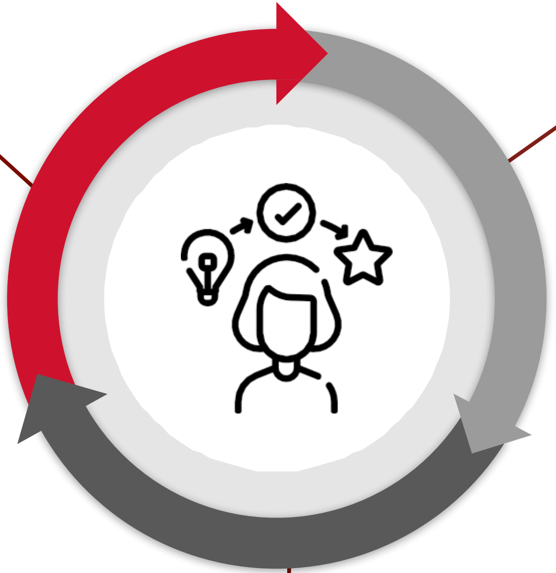
SOCIAL ANALYSIS

SOCIO-MATERIAL SYSTEM

For mobility, electric buses transform the ways we travel; and through substitution, it drives change towards more sustainable energy systems

SHARED MOBILITY

Electric buses represent one of the clearest expressions of shared electric mobility.



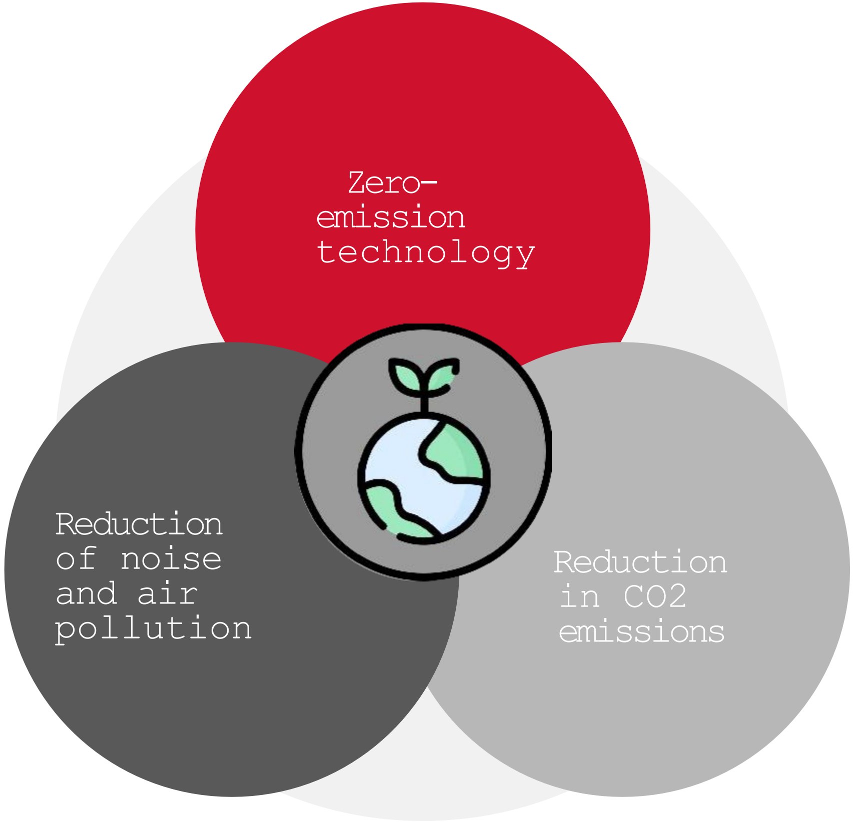
Transportation provides access to social services such as employment, culture, recreation, education, and family care, among others.

Basic principles of efficiency, safety, equity, well-being, competitiveness, and health.

SUSTAINABLE MOBILITY

Meeting society's needs to move freely, access, communicate, trade, or establish relationships without sacrificing other basic human and ecological values, both current and future.

ECOLOGICAL IMPACT



AREAS OF OPPORTUNITY

Generation and use of clean and sustainable energy sustainable energy.

Responsible use of technologies and reduction of hazardous waste.

Circular economy models for achieving the SDGs.

SOCIAL - ENVIRONMENTAL - HEALTH

1 **Reduction of air contaminants**

Reduces exposure of operators and users to polluting gases from internal combustion engine vehicles.

2 **Reduction of pollution**

For users: less stress and fatigue. better concentration and rest during the journey, greater comfort

For operators: reduced stress and fatigue and greater concentration while driving.

USER EXPERIENCE

INTRINSIC

Perception:
Promotes a clean and organized city, as a safer and better monitored space.

Noise reduction:
It creates a feeling of calm and well-being in public spaces.

EXTRINSIC

Temperature:

Electric technology completely eliminates the excessive heat radiated by the combustion engine.

TECHNOLOGICAL DEVELOPMENT

Electric bi-articulated vehicles

- Implementation in pilot operation, with performance equivalent to diesel units.
- Plan to replicate the technology on higher-volume lines and evaluate interoperability with different scenarios

Road safety and autonomy

- Autonomy level 1: Incorporation of ADAS systems (automatic braking, lane control, fatigue monitoring).
- Analysis of semi-autonomous driving platforms and advanced telemetry.

Integration of clean energy

- Assessment of electricity supply from renewable sources (solar and wind).
- Development of smart charging infrastructure
- Institutional coordination with CFE and SEDEMA to maximize the sustainability of the electricity system.

CONCLUSIONS

The transition to electromobility in Metrobús is technically, operationally, and financially viable, with electric units that meet the needs of the service and demonstrate autonomy, efficiency, and high availability.

The immediate challenge is to consolidate sustainable and scalable models that integrate clean energy and green financing, while strengthening smart charging infrastructure and road safety through advanced technologies. The challenge is to consolidate sustainable and scalable models.

Metrobús reaffirms its leadership and commitment to modern, safe, and environmentally responsible mobility.

THANK YOU

Rosario Castro Escorcia

General Manager