LOCAL-LEVEL MEASURES TO ENHANCE ELECTRIC VEHICLE ACCESS

SOLUTIONPLUS POLICY PAPER

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PROJECT PARTNERS

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LOCAL-LEVEL MEASURES TO ENHANCE ELECTRIC VEHICLE ACCESS

Policy Paper as part of the SOLUTIONSplus project

Sandra Wappelhorst, ICCT
May 2024

This paper outlines various policy actions that have been implemented to improve the accessibility of electric vehicles, with a particular emphasis on shared, public, and commercial e-mobility options. These initiatives aim to foster the development of healthier, cleaner, and more sustainable urban areas. The analysis examines selected city regions in Europe, South America, and Asia which serve as case studies to demonstrate the implementation and the impact of these policies. Specifically, it includes the following cities/regions and policy examples:

EUROPE

Brussels Capital Region (Belgium): An equitable mobility budget for private households to test electric vehicle options

Brussels Capital Region (Belgium): Equitable purchase incentives for smaller businesses to support the switch to electric light commercial vehicles and electric cargo bikes

Hamburg (Germany): Purchase incentives for taxi operators to switch to electric vehicles

SOUTH AMERICA

Bogotá D.C. (Colombia): Charging infrastructure for zero-emission buses

Bogotá D.C. (Colombia): Technology Development Plan to transition to electric buses

ASIA

Jakarta (Indonesia): Guidelines for electric bus procurement

EUROPE

BRUSSELS CAPITAL REGION (BELGIUM): AN EQUITABLE MOBILITY BUDGET FOR PRIVATE HOUSEHOLDS TO TEST ELECTRIC VEHICLE OPTIONS

Background

The Brussels Capital Region has made strides to promote greener, more sustainable transportation options while safeguarding the health of its residents. By 2036, the latest, solely electric vehicles (including mopeds, motorbikes, scooters, cars, vans, minibuses, and buses) will be permitted for use. This gradual phase in of electric vehicles (EVs) is mandated as a component for the region's low emission zone (LEZ). Coaches and heavy goods vehicles will be required to meet low-emission standards.[1] To facilitate the shift to EVs, the Brussels Capital Region has introduced a range of measures specifically designed to cater to different segments of the population, including both individuals and businesses.

One measure, established in 2006 to improve the local air quality, is the Bruxell'Air bonus, or Prime Bruxell'Air. This measure was designed for private households, incentivizing households that choose to decrease the number of private cars within the household for a minimum of 1 year. In return, they can receive a mobility budget that can be utilized for a variety of mobility services, such as a public transport subscriptions, the purchase of a bicycle, bicycle accessories, or micromobility services, shared bicycle subscriptions (including electric ones), car sharing system subscriptions (including electric options), and access to taxi services (including electric options).[2] Guidance on mobility choices can be sought from dedicated mobility coaches.

The bonus amounts were modified in March 2022 to include a social equity component, which adjusted bonus amounts based on household income and disability status. In March 2024, the maximum bonus amounts and income brackets were raised, with a focus on increasing benefits for individuals in lower income brackets (Table 1).

Table 1. Bonus amounts of the Bruxell'Air bonus

Income/status or private households	Bonus amount
March 2022 to February 2024	
Person with a disability, regardless of income	€900
< €37,600 (single person) or < €52,600 (cohabitant/couple)	€900
€37,600 - €75,100 (single person) or €52,600 - €90,100 (cohabitant/couple)	€700
> €75,100 (single person) or > €90,100 (cohabitant/couple)	€500
From March 2024	
Person with a disability, regardless of income	€1,010
< €43,381 (single person) or < €60,688 (cohabitant/couple)	€1,010
€43,381 - €86,647 (single person) or €60,688 - €103,954 (cohabitant/couple)	€705
> €86,647 (single person) or > €103,954 (cohabitant/couple)	€505

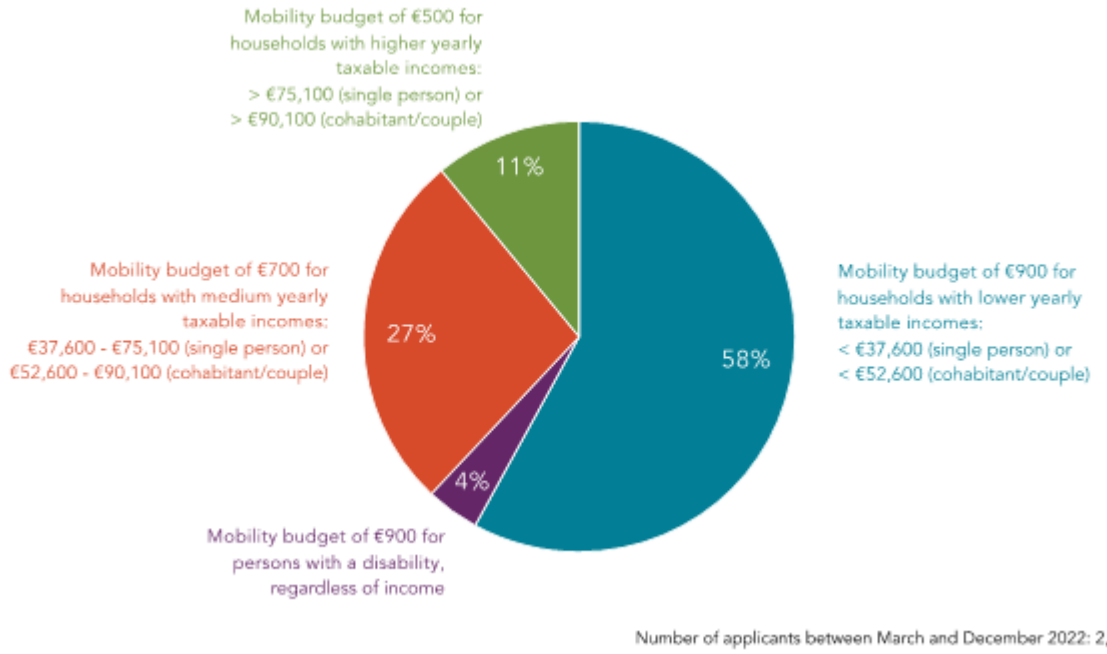
1 "Low Emission Zone," City of Brussels, accessed May 10, 2024, https://www.brussels.be/lez.
2 "The Bruxell'Air Mobility bonus, to get around the capital differently," environment.brussels, accessed May 10, 2024, https://environnement.brussels/citoyen/services-et-demandes/primes-et-aides-financieres/la-prime-mobilite-bruxellair-pour-se-deplacer-autrement-dans-la-capitale.

Results and success factors

The Bruxell'Air bonus has effectively targeted residents in the lowest income brackets to test private car alternatives including electric mobility services. From March to December 2022, more than 2,000 individuals applied for the mobility package.[3] Among them, 62% belonged to households that could receive the full aid amount of €900 (i.e., those falling within the lowest eligible income thresholds with annual taxable income below €37,600 for single people or below €52,600 for cohabitants/couples) or qualified for a disabled parking card (Figure 1).

In 2023, more than 1,200 bonuses were granted. Of these, again, 60% were for households in the lower income groups.

Figure 1. Share of recipients of the Bruxell'Air bonus by aid amount and eligibility between March and December 2022.



3 "La prime Bruxell'Air, pour mieux respirer en ville – rapport annuel 2022 [The Bruxell'Air bonus, to breathe easier in the city – annual report 2022]," environment.brussels, accessed May 10, 2024, https://environnement.brussels/citoyen/la-prime-bruxellair-pour-mieux-respirer-en-ville; "Evaluation de la zone à basses émissions – rapport 2022 [Assessment of the low emission zone – report 2022]."

BRUSSELS CAPITAL REGION (BELGIUM): EQUITABLE PURCHASE INCENTIVES FOR SMALLER BUSINESSES TO SUPPORT THE SWITCH TO ELECTRIC LIGHT COMMERCIAL VEHICLES AND ELECTRIC CARGO BIKES

Background

The Brussels Capital Region also aims to encourage eco-friendly, sustainable, healthier transportation options through customized incentives for the purchase of electric light commercial vehicles. The financial assistance program is intended to help businesses replace light commercial vehicles that are currently banned from driving in the LEZ or will soon face restrictions. It is specifically targeted at private self-employed individuals, micro-, small-, and medium-sized businesses in Brussels, particularly those operating in sectors such as waste management, water sanitation, construction, vehicle/motorcycle repair, and accommodation/catering.[4]

Businesses must own at least one non-LEZ compliant light commercial vehicle. Maximum grant amounts and limits within certain percentages depend on whether the new or secondhand purchased/leased or repowered vehicle runs on gasoline or compressed natural gas (CNG) or is electric. If applying for grants between 2023–2024, non-compliant vehicles include pre-Euro 5 light commercial vehicles for diesel (typically registered before 2011) and pre-Euro 2 for gasoline/gas vehicles (typically registered before 1997). Table 2 summarizes the aid to businesses.

Table 2. Amounts of the Bruxell'Air bonus

	SCRAPPAGE OF A NON-LEZ COMPLIANT GASOLINE, NATURAL GAS, OR DIESEL LIGHT COMMERCIAL VEHICLE		REPOWERING OF A NON-LEZ COMPLIANT GASOLINE, NATURAL GAS, OR DIESEL LIGHT COMMERCIAL VEHICLE TO A BEV OR FCEV
	REPLACEMENT WITH A NEW OR SECOND-HAND LEZ COMPLIANT LIGHT COMMERCIAL VEHICLE (GASOLINE OR NATURAL GAS)	REPLACEMENT WITH A NEW OR SECOND-HAND LEZ-COMPLIANT LIGHT COMMERCIAL VEHICLE OR QUADRICYCLE (ELECTRIC)	
Micro businesses (fewer than 10 employees, annual turnover max. €2 million or balance sheet max. €2 million)	€3,000	€15,000 (including €1,000 for a charging station)	€7,500 (including €1,000 for a charging station)
Small businesses (fewer than 50 employees, annual turnover max. €10 million or balance sheet max. €10 million)			
Medium businesses (fewer than 250 employees, annual turnover max. €50 million or balance sheet max. €43 million)	€2,000	€10,000 (including €1,000 for a charging station)	€5,000 (including €1,000 for a charging station)

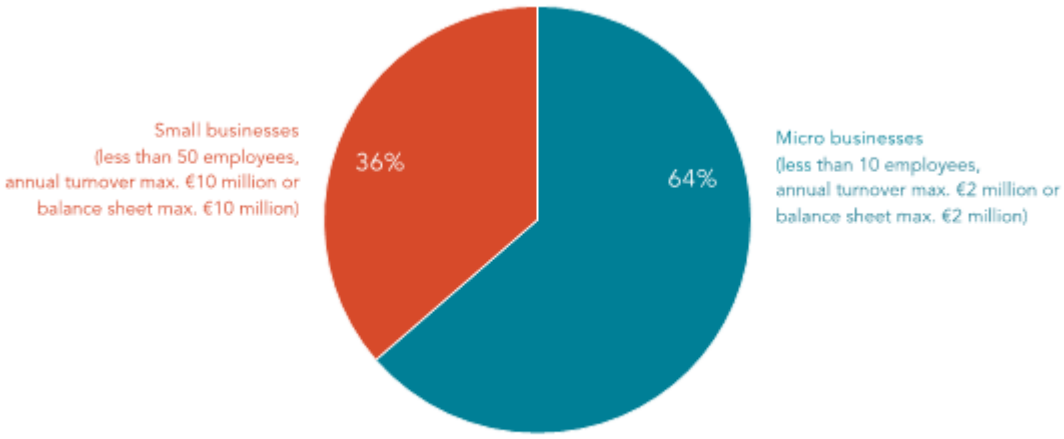
Note: Bonus amounts reflect maximum values. Businesses must operate or be active in the Brussels Capital Region. BEV = battery electric vehicle, FCEV = fuel cell electric vehicle.

The bonus also allows for the purchase of cargo bikes (cycles and electric motorized cycles designed for the transport of bulky cargo) or bike trailers, covering up to 70% of the investment (up to a maximum of €4,000 per cargo bike and €2,000 per bike trailer).[5]

Results and success factors

In 2022, 11 purchase bonuses were granted: 7 to micro businesses and four to small businesses (Figure 2).[6] This measure has been less successful than measures such as the mobility budget described above. While there is no documentation of potential reasons, there could be a variety: Insufficient need, insufficient financial support, insufficient charging options, or lack of information.

Figure 2. Share of recipients of the LEZ bonus for businesses.



Number of applicants for LEZ bonus for businesses in 2022: 7

4 Arrêté du Gouvernement de la Région de Bruxelles-Capitale relatif à l'aide pour la mise en conformité aux normes de la zone de basses émissions [Decree of the Government of the Brussels-Capital Region relating to aid for compliance with the standards of the low emission zone] of the Brussels Capital Region, accessed May 10, 2024, http://www.ejustice.just.fgov.be/eli/arrete/2021/11/25/2021022555/moniteur.

5 "Prime Utilitaire électrique [Electric Utility Bonus]," Brussels Regional Public Service, accessed May 11, 2024, https://economie-emploi.brussels/prime-utilitaire-electrique.

6 "Échec des primes Lez pour entreprises : seules 11 primes ont été octroyées en 2022 pour l'achat d'un utilitaire électrique [Failure of Lez bonuses for businesses: only 11 bonuses were granted in 2022 for the purchase of an electric utility vehicle]," Dhnet, accessed May 10, 2024, https://www.dhnet.be/regions/bruxelles/bruxelles-mobilite/2023/06/09/echec-des-primes-lez-pour-entreprises-seules-11-primes-ont-ete-octroyees-en-2022-pour-lachat-dun-utilitaire-electrique-GWCX52O-4D5COBKCO6QAQPC36XE/.

HAMBURG (GERMANY): PURCHASE INCENTIVES FOR TAXI OPERATORS TO SWITCH TO ELECTRIC VEHICLES

Background

Hamburg is Germany's first federal state to issue new licenses to electric taxis only beginning in 2025. This was part of Hamburg's January 2024 Climate Protection Stregthening Act (Klimaschutzstärkungsgesetz).[7] It states, among other things, that from January 1, 2025, only locally emission-free taxis and rental cars can be put into operation in Hamburg. For taxis with more than eight seats and those suitable for wheelchair transport, this date is January 1, 2027. Vehicles that are already licensed for the taxi company before these deadlines can continue to be operated regardless of the fuel type of the vehicle.

In 2021, the project "Future Taxi" (Zukunftstaxi) started in Hamburg to reduce emissions from inner-city traffic.[8] The project provides purchase incentives for taxi companies in Hamburg licencing emission-free battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEVs). It is a joint project of the City of Hamburg, Hamburg's cab associations and brokers, the Hamburg Chamber of Commerce, and Hamburg's taxi companies.

In the first stage, companies that licensed BEVs/FCEVs by December 31, 2021 received up to €10,000 over a 2-year period. Funding was available for 130 vehicles. €1,000 were transferred every 3 months for 2 years from the date of concession. After the first and second year, a further €1,000 could be claimed if single-vehicle operators could prove they had achieved at least 15,000 occupied kilometers per year. Multi-vehicle operators had to provide evidence of 20,000 occupied kilometers. In addition, 20 BEVs/FCEV or low-emission wheelchair-accessible vehicles (electric wheelchair taxis) were funded with up to €20,000. Due to the lower availability of suitable vehicles, plug-in hybrid electric vehicles (PHEVs) that could be charged externally were also accepted if they emitted a maximum of 25 g CO2/km and had a purely electric minimum range of at least 100 km. Table 3 shows the various funding periods, funding amounts, and number of vehicles that could be/are funded.

Table 3. Bonus amounts of Hamburg's "Future Taxi" project.

FUNDING PERIOD	ACCEPTED VEHICLE TYPES	FUNDING AMOUNT	NUMBER OF VEHICLES THAT COULD BE FUNDED
April 2021–December 2021 (Phase 1)	BEVs and FCEVs	€10,000	130
	BEVs, FCEVs, and PHEVs up to 25 g CO2/km and a minimum electric range of 100 km	€20,000 (wheelchair accessible taxis)	20
October 2021–June 2022 (Phase 2)	BEVs and FCEVs	€5,000	170
	BEVs, FCEVs, and PHEVs up to 25 g CO2/km and a minimum electric range of 100 km	€10,000 (wheelchair accessible taxis)	30
April 2023–December 2023 (Phase 3)	BEVs and FCEVs	€2,500	approx. 230
	BEVs, FCEVs, and PHEVs up to 25 g CO2/km and a minimum electric range of 100 km	€20,000 (wheelchair accessible taxis)	5
December 2023–October 2024 (Phase 4)	BEVs and FCEVs	€5,000	approx. 130

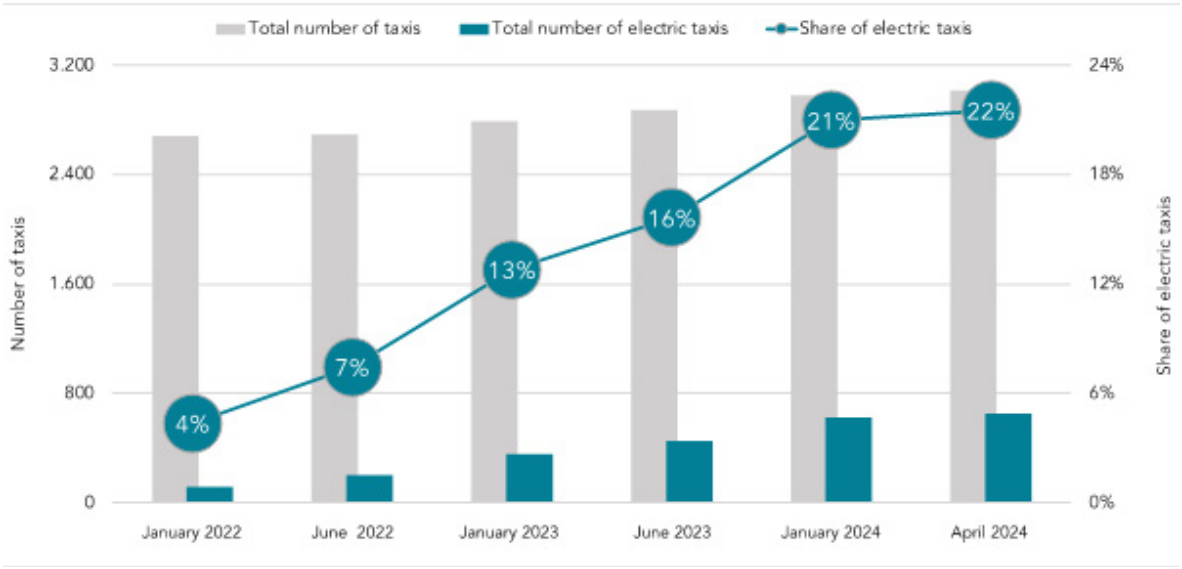
Note: amounts reflect maximum values. BEV = battery electric vehicle, FCEV = fuel cell electric vehicle.

Additional amounts between €2,500– €3,000 were made available by Uber and Free Now. In addition to the compensation payments for the additional operating costs from the Hamburg "Future Taxi" project, taxi operators could also benefit from the national purchase incentive of up to €9,000 provided by the German government and car manufacturers (available until August 2023 for companies).

Results and success factors

The project has sparked interest among Hamburg's approximately 1,870 taxi operators. High incentive amounts are helping drive interest. Figure 1 shows the growth of Hamburg's newly licensed electric taxis (both in total numbers and market shares) compared to the overall taxi fleet from January 2022 to April 2022. The data indicates substantial growth in the number of electric taxis, climbing from 117 in January 2022 to 650 in April 2024, while the total taxi count remained relatively steady (fluctuating between approximately 2,700 and 3,000).[9]

Figure 3. Development of electric vehicles in Hamburg's taxi fleet since January 2022.



7 "Von der Hamburger Bürgerschaft verabschiedet – Klimaschutzstärkungsgesetz [Adopted by the Hamburg citizens – Climate Protection Strenghtening Act]," hamburg.de, accessed 11 May, 2024, https://www.hamburg.de/klimaschutzgesetz/17322294/hamburgischesklimaschutzgesetz/.

8 "Projekt Zukunftstaxi [Project Future Taxi]," Freie und Hansestadt Hamburg, accessed May 11, 2024, https://www.hamburg.de/contentblob/14985474/593462cda9ae5c5088c0957cead59bfa/data/zukunftstaxi-broschuere.pdf; "E-Taxen Projekt Zukunftstaxi hat bereits 600 E-Taxen auf Hamburgs Straßen gebracht - Hamburg verdoppelt Förderung für E-Taxen auf 5.000 Euro [E-taxi project Zukunftstaxi has already put 600 e-taxis on Hamburg's roads - Hamburg doubles funding for e-taxis to 5,000 euros]," December 20, 2023, https://www.hamburg.de/bvm/medien/17954192/2023-12-20-bvm-projekt-zukunftstaxi/.

9 "Anzahl Taxikonzessionen in 2022 / 2023 / 2024 [Number of taxi licenses in 2022 / 2023 / 2024]," June 17, 2024, accessed July 10, 2024, https://hh-taxi.de/2024/05/05/anzahl-taxikonzessionen-in-2022/.

SOUTH AMERICA

BOGOTÁ D.C. (COLOMBIA): CHARGING INFRASTRUCTURE FOR ZERO-EMISSION BUSES

Background

Colombia emerged as the second-largest electric bus (e-bus) market globally in 2021. As of September 2022, the country boasted a fleet of more than 1,589 e-buses.[10] Colombia is a frontrunner in terms of its commitment and initiatives towards decarbonizing mass transportation. The city of Bogotá D.C. plays a pivotal role in driving this transformation.

Colombia has implemented public policies to ensure at least 30% of the public transport fleet consists of EVs by 2025. The national government has set specific requirements for large cities, which include a minimum purchase of e-buses. Starting in 2025, cities must purchase a minimum of 10% e-buses; this percentage will progressively increase until reaching 100% by 2035. These measures reflect the government's commitment to promoting the use of EVs and transitioning towards a greener transportation system.

Bogotá's government has gone further, banning new internal combustion buses starting in 2022 (or 2024 in certain cases). Work remains to set the business models, vehicle specifications, and charging infrastructure.[11]

The TransMilenio Bus Rapid Transit (BRT) system, overseen by TransMilenio S.A. as part of Bogotá's Integrated Mass Transit System (Sistema Integrado de Transporte Público, or SITP), is leading these changes. TransMilenio has made significant efforts to ensure that vehicles utilized to provide services are equipped with modern technology, focusing on reducing emissions and minimizing the environmental impacts of transportation. By late September 2022, Bogotá's public mass transit fleet had 1,485 e-buses (nearly 94% of the national total). These vehicles were integrated gradually by phasing out diesel buses.

In terms of charging infrastructure, nine of the system's 58 depots in Bogotá D.C. provide electrical charging. Buses are always charged at the depot site. Compared to conventional diesel-powered buses, e-buses require a new business model, as the upfront costs of the buses and their charging infrastructure must be included, along with the total cost of ownership for the useful lifetime of each e-bus, which is less than that of a diesel bus.

Results and success factors

In Bogotá D.C., an important lesson learned was the requirement for the private sector to take on certain costs, particularly when deciding to merge supply and operating services to address infrastructure expenses. Another insight was the significance of partnering with the public sector to tackle regulatory hurdles, exemplified by the experience of TransMilenio S.A. Formulating an operational framework for projects involving e-buses and charging infrastructure necessitates a detailed assessment specific to each market scenario. Conclusions should be based on a thorough analysis of the specific market.

10 "Electric bus, main fleets and projects around the world," Sustainable Bus, January 16, 2023, https://www.sustainablebus.com/electric-bus/electric-bus-public-transport-main-fleets-projects-around-world/; E-Bus Radar, "América Latina, accessed March 13, 2023, https://www.ebusradar.org/.

11 Samantha Pettigrew, Helmer Acevedo, and Oscar Delgado, Charging Infrastructure for Zero-Emission Buses – Strategies in Bogotá D.C., Colombia (International Council on Clean Transportation, 2023), https://theicct.org/wp-content/uploads/2023/12/ID-53-–-Zero-emission-buses-in-Colombia_final.pdf.

BOGOTÁ D.C. (COLOMBIA): TECHNOLOGY DEVELOPMENT PLAN TO TRANSITION TO ELECTRIC BUSES

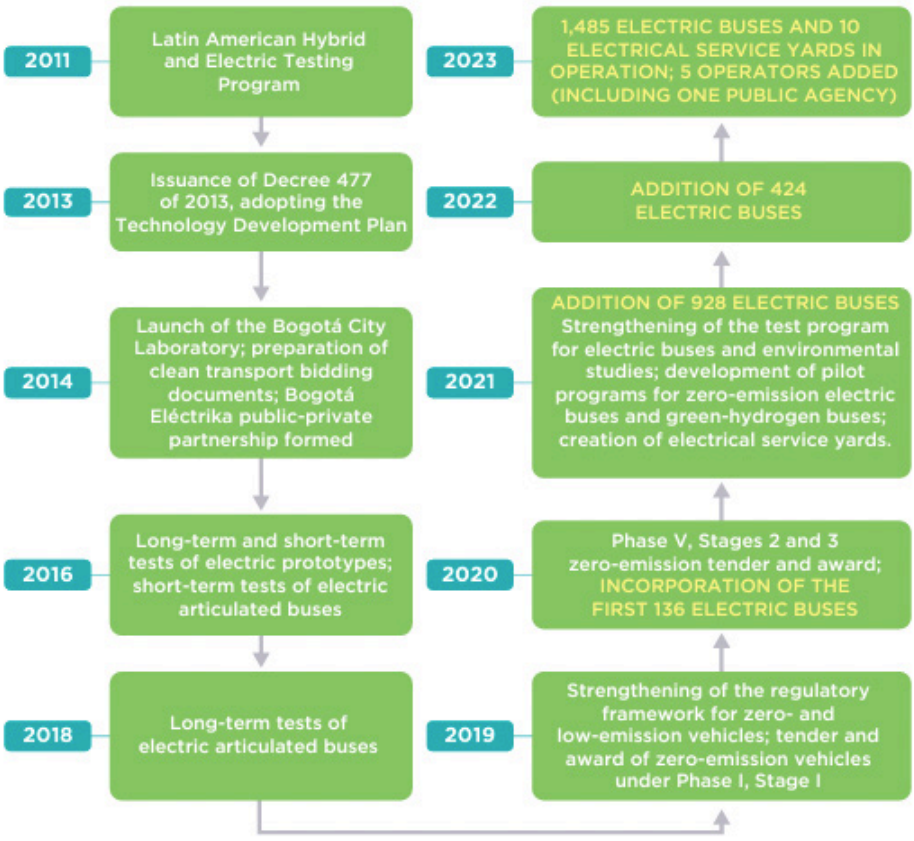
Background

Based on Decree 477 of 2013, the goal of the Technology Development Plan is "to improve air quality and reduce the effects of air pollution on public health in the city of Bogotá D.C. through the implementation of zero- or low-emission technologies on SITP (Bogotá's Integrated Mass Transit System) routes by means of the future conversion of the fleet, the establishment of operating procedures, and monitoring and follow-up measures."[12]

The Technology Development Plan mandates the future transition of the fleet to zero- and low-emission vehicles, outlining corresponding operational protocols and monitoring and evaluation measures. A comprehensive database must be maintained to facilitate effective tracking and oversight activities. The first element entails the designation of Bogotá D.C. as a laboratory city, while the other two elements concentrate on technological development in the system's zonal and trunk components (e.g., creating pioneering routes, evaluating environmental and energy performance, and replacing used vehicles).

The plan calls for the development of a methodological manual for assessing zero- and low-emission technologies integrated into the SITP. Figure 4 shows the pathway for incorporating a zero-emission bus fleet inot Bogotá's Integrated Mass Transit System through the Technology Development Plan.

Figure 4. Pathway toward incorporating a zero-emission bus fleet into Bogotá's Integrated Mass Transit System through the Technology Development Plan.



RESULTS AND SUCCESS FACTORS

Bogotá's results in implementing a zero-emission fleet for the Integrated Mass Transit System were achieved through several key factors:

- The city received support from international partners to launch pilot programs using low-emission vehicles and to develop financial models for bidding processes.
- The Technology Development Plan, proposed by TransMilenio S.A., played a crucial role in enforcing the use of zero-emission technologies.
- Through the plan, effective collaboration was established among the transportation and environmental authorities in Bogotá D.C., fostering an environment conducive to technological advancements in both the trunk and zonal transit systems.
- The objectives of the plan encompassed enhancing air quality, mitigating the impact of transportation on public health, and curbing energy consumption, aligning with the objectives established at the national level by the Ministry of Mines and Energy.
- The Technology Development Plan made it possible to structure the bidding proceedings for zero-emission fleets for Phase V (Stages 1, 2, and 3) of the SITP, and to generate inputs for the regulatory frameworks governing those fleets.

12 Helmer Acevedo, Samantha Pettigrew, and Oscar Delgado, The Technology Development Plan as a Tool for the Transition to Electric Buses in the City of Bogotá D.C. (International Council on Clean Transportation, 2023), https://theicct.org/wp-content/uploads/2023/12/ID-45-–-El-plan-English_final-1.pdf.

ASIA

JAKARTA (INDONESIA): GUIDELINES FOR ELECTRIC BUS PROCUREMENT

Background

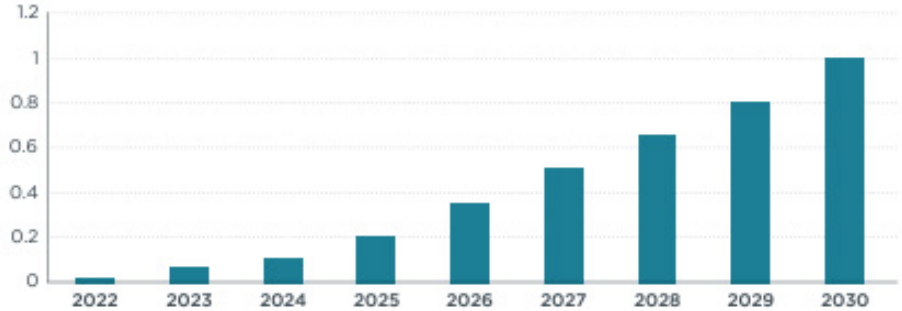
Electric public transit buses directly and effectively curb a city's greenhouse gas (GHG) emissions and enhance air quality. Jakarta, the capital of Indonesia, has committed to expedite the transition to e-buses. This includes the endorsement of the C40 Fossil Fuel Free Street Declaration, which aims to procure only zero-emission buses by 2025, and the pledge to electrify the TransJakarta fleet by 2030. The government has also set a target of operating 10,047 e-buses by 2030 and has established goals for the deployment of charging infrastructure. Jakarta's government is also taking other actions to reduce GHG emissions up to 50% by 2030, such as expanding public transportation and adopting e-buses.[13]

TransJakarta is the public transit bus operator for the integrated transit system in Jakarta's Capital Region. Established in 2004, the Bus Rapid Transit (BRT) system is managed by TransJakarta, along with feeder bus routes and microbuses. The BRT system is connected to the Jakarta Mass Rapid Transit (MRT), Jakarta Light Rail Transit (LRT), and air-conditioned microbuses. Covering 244 km, the BRT system consists of 13 corridors. TransJakarta offers 248 routes, including feeder services, catering to the entire Greater Jakarta area with a population of 30 million and serving 1 million passengers daily.

The TransJakarta fleet consists of 4,415 buses that offer both BRT and non-BRT services. Among the 32 BRT service routes, TransJakarta utilizes articulated, single, and maxi buses, with a total fleet size of 1,461. Additionally, there are 2,129 microbuses dedicated to microtrans (feeder) routes. The services are further supported by 18 third-party operators.

Transjakarta aims to operate a 100% e-bus fleet by 2030 (Figure 5 shows annual targets). The transition began in 2019–2020 with a pretrial phase; it continued with a pilot phase from 2021–2022. By late-2022, 52 e-buses were in operation; 46 additional e-buses were contracted and deployed by late-2023 resulting in total of 100 e-buses. Transjakarta plans to procure another 200 e-buses to fulfil its target to operate 300 e-buses by the end of 2024.

Figure 5. Transjakarta e-bus target, 2022–2030.



Results and success factors

Implementing new technology requires modifications to bus procurement procedures. To facilitate seamless and cost-efficient e-bus procurement, it is imperative for all stakeholders involved in e-bus services, including bus operators, OEMs, financing institutions, and government entities, to create a unified e-bus procurement framework. Leveraging insights from early adopters of e-buses, a set of guidelines can be adapted to assist Indonesian (and potentially other) cities in its transition:

- The transition to e-buses requires a procurement process that includes a detailed preliminary technical and economic analysis before decisions are taken e.g., detailed route-level analysis regarding the most cost-effective routes for immediate electrification, and regarding which routes would require additional preparation and changes to contracts to meet operational and financial targets.
- Clear technical specifications must govern the provision of e-buses. These specifications should encompass energy consumption, driving range, and battery deterioration parameters, all of which must be evaluated under a predetermined testing program. The acquisition of e-buses and the accompanying charging infrastructure should adhere to a unified technical standard.
- Transit operators in cities adopting e-bus technologies are reducing risks by setting up clear warranty requirements for key e-bus components in their procurement contracts.
- To effectively reduce maintenance costs and prevent premature replacement of expensive battery packs, it is highly recommended to include clauses in future e-bus procurement tenders that address the training and monitoring of battery degradation for manufacturing service staff. By clearly defining the roles of the e-bus manufacturer, owner, and operator in the tender documents, potential risks associated with the implementation of new technology can be minimized.
- Land ownership and the modification or expansion of depots for e-bus charging have been identified as significant obstacles by early adopters of e-buses. To tackle this issue, there are various approaches that can be taken. In some instances, the local government takes the initiative by offering the necessary land and depots to support the program. Alternatively, a third party can be invited to provide the charging infrastructure as a service. The integration of a third-party charging provider can also be incorporated into the tendering process. This approach can be implemented in areas that have been pre-determined by the transport authority and/or on land provided by the government.
- The total cost of operating an e-bus is influenced by various factors, with the price of electricity being a significant one. By ensuring that electricity remains affordable, the advantage of low operating costs for e-buses is further emphasized.
- The contract duration for public transit bus operators today in Jakarta is 7 years–too short for recouping the investment in e-buses. Most e-bus operator contracts in cities that have successfully adopted this technology tend to be 14–15 years, compared to 7 years for diesel bus operators. A longer duration is an incentive for operators to bid with e-bus products over diesel buses. A contract duration longer than 8 years also enables operators (TransJakarta or third party) to cover the costs of potential battery replacement, which other cities predict to happen in year 8.

13 Yihao Xie, Francisco Posada, Adhi Triatmojo, Mega Kusumaningkatma, and Ahmad Safrudin, Guidelines for Electric Bus Procurement in Jakarta (International Council on Clean Transportation, 2023), https://theicct.org/wp-content/uploads/2023/01/Guidelines-working-paper-01-A4-v4.pdf; Adhi Triatmojo, Francisco Posada, Lingzhi Jin, Carlos Bueno, and Ahmad Safrudin, Planning the Adoption of Battery Electric Buses in Transjakarta: Route-Level Energy Consumption, Driving Range, and Total Cost of Ownership (International Council on Clean Transportation, 2024), https://theicct.org/wp-content/uploads/2024/01/ID-44-–-Transjakarta-TCO-Working-Paper-A4-50108-PUBLIC-fv-1.pdf.

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