Scaling Electric Bus Adoption in Latin America: A Case Study on the Asset Ownership Model for Public Transportation

SUMIT
SUSTAINABLE URBAN MOBILITY INVESTMENT TASK FORCE

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Executive Summary

On any given morning, Bogotá awakens to the hum of movement. More than 2.5 million people board buses that travel through the city, carrying workers, students, and families to the places that sustain daily life. For decades, that movement came at a pric—an invisible one. Diesel engines filled the air with toxic fumes, earning Bogotá a reputation for some of the worst air quality in Latin America.

Then, in 2020, a quiet revolution began, and the city began replacing the roar of diesel with the near-silence of electric motors. Today, over 1,500 electric buses glide through Bogotá's streets, cutting 1,855 tons of CO_2 every month while providing the same essential mobility that keeps the city's economy moving.

But this wasn't a story of massive public spending or flashy megaprojects. It was a story of imagination—of rethinking who owns, finances, and operates public transport. By reimagining partnerships and financing, Bogotá proved that a city could transform its air, its streets, and its future—one quiet ride at a time, with an unlimited prospective for expansion through strong public – private partnerships.

VGMobility, a Latin American e-mobility asset provider and infrastructure developer, has emerged as the region's partner of choice for public transport electrification, addressing one of Latin America's most pressing urban challenges. The company has deployed over 2,700 electric buses across Colombia, Chile, and Costa Rica, managing assets exceeding $511 million. VGMobility has achieved this scale by implementing an innovative rolling-stock model that separates asset ownership from operational control, thereby removing significant capital barriers that have historically impeded bus fleet electrification in developing markets.

VGM ACHIEVEMENTS

- **11** PROJECTS
- **3** COUNTRIES, **4** CITIES
- **5** CHARGING DEPOTS
- **2,751** BUSES
- USD **550** MM AUM*

Source: VGM. Includes projects under implementation. *Assets under management.

This case study examines VGMobility's business model, operational strategies, and capacity for financial flexibility across diverse regulatory and credit environments. It demonstrates how the rolling-stock asset ownership separated from the operation approach has become a best practice in Latin America, enabling governments and bus operators to transition to sustainable transport without bearing prohibitive upfront costs while maintaining operational continuity and increasing service quality.

INTRODUCTION: THE ROLLING-STOCK MODEL IN CONTEXT

Defining Rolling-Stock Companies (ROSCOs)

The rolling-stock model originated in the 1990s in the United Kingdom's rail sector, where private investors financed and owned train fleets while independent operating companies managed day-to-day service delivery. This separation of asset ownership from operations addresses a fundamental financing challenge: the substantial costs of transportation infrastructure combined with operational risks inherent in-service provision. Rolling-stock companies assume responsibility for fleet acquisition, in some cases maintenance associated with manufacture warranty, and asset lifecycle management, while operating companies focus on route management, preventive maintenance, driver recruitment, and customer service.

This structure yields multiple benefits: operating companies can allocate capital toward service improvements rather than asset purchases, operators avoid exposure to technological obsolescence and asset depreciation risks, and specialized infrastructure financiers with superior capital markets access can structure financing more efficiently.

VGMobility has adapted this proven framework to the electric bus sector in Latin America, recognizing that barriers to e-bus adoption share structural similarities with challenges that historically constrained rail electrification. The company has tailored the model to the rolling stock characteristics of emerging markets—specifically, bus-dependent cities where public transport infrastructure differs fundamentally from rail-centric developed economies.

> While contexts differ vastly, the underlying financing challenge remains the same. By importing this model to an emerging market context, VGMobility has created a template that addresses region-specific constraints while maintaining the fundamental principles of asset-operation separation.

The Latin American Bus Dependency and Electrification Imperative

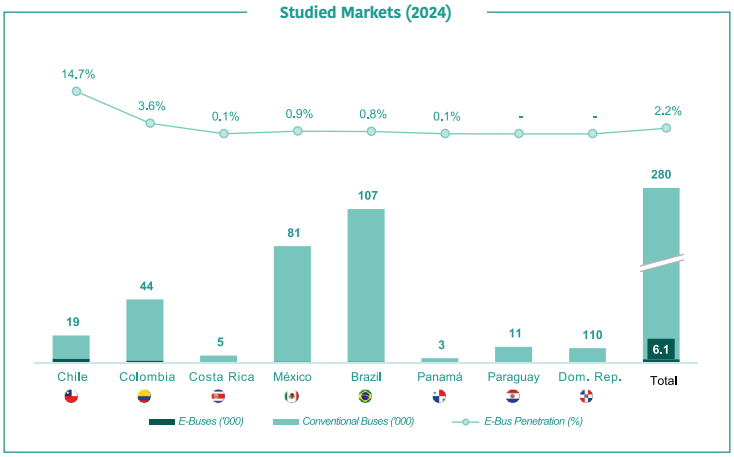
Latin America faces a unique transportation dynamic that distinguishes it from developed markets. Public buses represent the backbone of urban mobility across the region, with an estimated 40 to 50 percent of daily trips undertaken via bus in major metropolitan areas. In cities like Bogotá, Mexico City, and Santiago, buses serve as the primary connectivity mechanism for working-class populations, connecting residents to employment, education, and healthcare services.

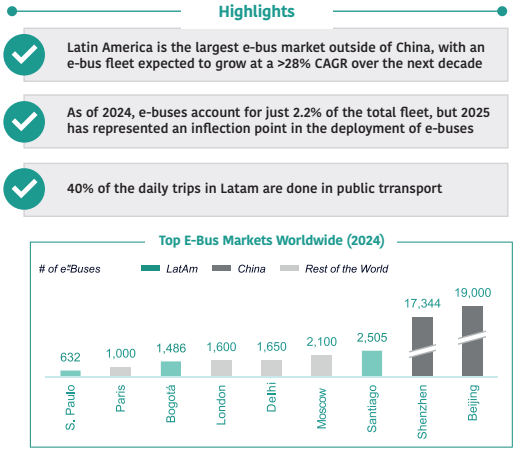
This heavy reliance on public transit coexists with severe environmental challenges. Transport accounts for approximately 43 percent of carbon dioxide emissions in Central and South America—significantly higher than the 36 percent share in North America and 29 percent in Europe. Additionally, major Latin American cities experience particulate matter (PM2.5) concentrations averaging twice the levels recommended by the World Health Organization, predominantly driven by vehicular emissions from diesel-powered transit systems.

The urgency of bus decarbonization is therefore both environmental and public health imperative. Simultaneously, Latin America confronts a critical financing gap: the electrification of public transport requires approximately $70 billion in cumulative investment across the region, yet existing funding mechanisms remain inadequate. Faced with these overlapping constraints, Latin America required a new financing paradigm. This confluence of demand, necessity, and capital constraints created the market conditions into which VGMobility successfully positioned itself.

SIGNIFICANT FINANCIAL NEEDS IN LATAM

The strong demand for e-mobility solutions in Latam, represents a market requirement of 280,000 buses and USD 70 billion investment recruitment (USD 5 billion per year)





Today the electrification of Public transport is the best economical decision for any player in terms of TCO

Notes: (1) Assuming US$ 250,000 investment per bus
Source: Strategy&, Chilean Ministry of Trasnportation

1. "Why Low-Emissions Transport Is Key for Latin America and the Caribbean." Climate Promise, United Nations Development Program, n.d., **https://climatepromise.undp.org/news-and-stories/why-low-emissions-transport-key-latin-america-and-caribbean.**

2. C40 Cities (2024) 'Latin America's e-bus market is booming – new research shows where to invest', C40 Cities Climate Leadership Group, 7 March. Available at: **https://www.c40.org/news/latin-americas-e-bus-market/**

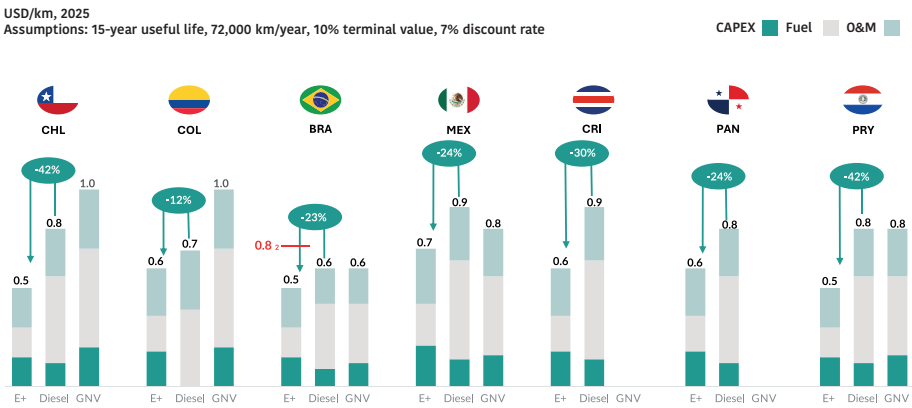
THE CHALLENGE: BARRIERS TO E-BUS ADOPTION IN LATIN AMERICA

Understanding these barriers illuminates why innovative financing models have become essential to regional decarbonization efforts.

Capital Intensity and Operator Financial Constraints

Electric buses offer a lower total cost of ownership over their operational lifetime, primarily due to energy costs that are 60–70% lower than diesel and maintenance expenses that can be reduced by up to 40%, given their simpler mechanical structure with fewer moving parts.[3] [4] However, the transition requires significant upfront capital investment. Beyond the higher unit acquisition cost—typically around $250,000 per bus—electrification also entails substantial investment in supporting infrastructure, including charging depots, advanced electrical connections, and energy management systems.

TOTAL COST OF OPERATION COMPARISON



	CHL	COL	BRA	MEX	CRI	PAN	PRY
E+ (HV)	133 usd/MWh	195 usd/MWh	100 usd/MWh	188 usd/MWh	200 usd/MWh	185 usd/MWh	45 usd/MWh
Diesel	1.07 usd/l	0.66 usd/l	0.86 usd/l	1.23 usd/l 1.14 usd	1.14 usd/l	0.92 usd/l	1.03 usd/l
GNV	1.21 usd/m3	0.73 usd/m3	0.63 usd/m3	0.70 usd/m3	No GNV consumption for transport uses		0.62 usd/m3

Source: Strategy&Analysis

Notes: 1) Fuel figures are assumed as constant through the whole period and calculated as the average between 2021 and 2024, except for Colomba which considers the last reference price. GNV prices are considered as the last available price signal from different data sources; 2) TCO competitiveness in some Brazilian cities benefit from subsidies to cover the difference between e-bus Capex with diesel bus Capex, this results in a lower TCO of 0.5 USD/km vs 0.8 USD/km without subsidy | Source: Company information, Zebra, ICCT, different government bodies by country, GIZ, C40, Inter American Development Bank, World Bank, GlobalPetrol, Sao Paulo Government, Empresa de Pesquisa Energética, ARSEP, Strategy$Analysis.

In the traditional model, bus operating companies (BOCs) owned and operated their fleets, an arrangement that functioned adequately in diesel-dominated markets with lower capitalization requirements. Electrification fundamentally altered this equation.

For BOCs with limited access to capital markets, and regulatory constraints on fare pricing, financing such capital-intensive transitions independently proved essentially impossible.

Additionally, operational risks including technological obsolescence, battery degradation, and complex vehicle maintenance created further disincentives for operators to assume full ownership responsibilities.

3. World Resources Institute (2025) 'Recommended Total Cost of Ownership Parameters for Electric School Buses: Summary of Methods and Data', February 1. Available at: **https://www.wri.org/research/recommended-total-costownership-parameters-electric-school-buses- methods-data**

4. E-GAP. Total Cost of Ownership (TCO): Why Electric Buses Are a Cost-Effective Choice. 14 Apr. 2025, **https://www.e-gap.com/en/total-cost-of-ownership-tco-why-electric-buses-are-a-cost-effective-choice**

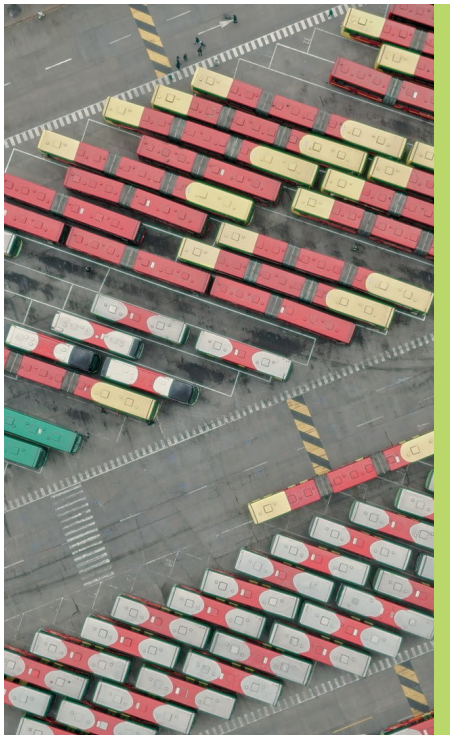
5. UNDP Climate Promise. "Why Low-Emissions Transport Is Key for Latin America and the Caribbean." United Nations Development Program, **https://climatepromise.undp.org/news-and-stories/why-low-emissions-transport-keylatin-america-and-caribbean**

Infrastructure and Institutional Capacity Gaps

Beyond vehicles, e-bus systems require sophisticated supporting infrastructure that transcends the capabilities of traditional operators and many public authorities. Designing, sourcing, and constructing large-scale charging depots demands specialized technical expertise, experience in complex procurement, and deep knowledge of utility-scale electrical distribution systems.

Traditional operators, whose core competency centered on route operation and passenger service, lacked institutional capacity to manage these technical challenges.

Governments and public transport authorities frequently encountered operational integration failures, supply chain issues, and cost overruns that compromised vehicle uptime and energy efficiency.
Critically, many projects discovered too late that local electrical grids lacked sufficient capacity to support charging operations at planned scale, requiring costly project modifications or phased implementation.



GOVERNMENTS AND OPERATORS, CHALLENGES AND SOLUTIONS

	Upfront investment requirements	Complex infrastructure development	Operational and technical considerations
The Challenge	• Significant upfront investment is required to deploy e-bus fleets and suitable infrastructure (charging and depot).	• Governments and operators do not have capabilities to design, source and build large EV depots and charging infrastructure (nor is it aligned to their business model and strategy).	• Governments and operators often face operational integration and supply chain issues resulting in additional costs and low-quality solutions.
The solution	• Creates financial structures to optimize capital for the customer. • Provides access to vehicles, charging systems, and infrastructure without need for upfront investment.	• Handles end-to-end development process. • Leverage existing experience to manage projects more effectively, including negotiating with suppliers and defining warranties.	• Ensures infrastructure is optimized for energy efficiency, vehicle rotation and maintenance. • Supports monitoring of fleet and can provide data to improve optimize vehicle uptime and performance.

The Financing Gap

Traditional project finance approaches for public transport were built on risk allocation assumptions that do not align with the realities of electrification. Governments and public transport authorities often had limited experience structuring complex infrastructure transactions or attracting institutional investment into the sector. This financing gap was compounded by the lack of appropriate instruments through which private investors could support the transition to electromobility while achieving acceptable risk-adjusted returns.

In this context, it is essential to distinguish between two asset classes with different risk and financing profiles: on the one hand, electric bus fleets, and on the other, charging infrastructure. Each requires tailored and specialized financing structures. Within this model, VGMobility acts as an integrated provider across both components, designing differentiated solutions that enable both fleet acquisition and the development of the supporting infrastructure required for operations.

VGMobility developed an innovative solution to bridge this gap by adapting the rolling stock model from European rail systems.

VGMOBILITY'S ROLLING STOCK MODEL: STRUCTURE AND OPERATIONS

Business Model Architecture

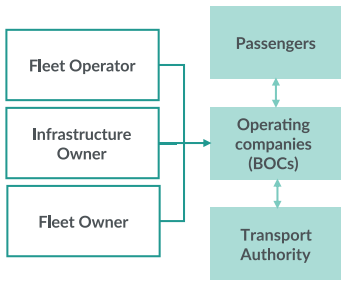
VGMobility operates as an integrated sustainable mobility asset provider and infrastructure developer, separating the ownership and financing of buses and related infrastructure from the operational provision of transport services. In this model, VGMobility invests in, owns, and provides leasing for fleets and charging infrastructure, maintaining fleet quality control; bus operating companies retain responsibility for day-to-day service delivery, including driver recruitment, route operation, e-bus maintenance, and customer service.

This structural separation creates distinct contractual pathways depending on the regulatory environment and procurement preferences of individual markets. VGMobility engages through two primary contracting mechanisms. First, it may contract directly with public transport authorities (PTAs) or municipal governments through concession agreements spanning eight to fifteen years, with the PTA assuming responsibility for payment and VGMobility bearing asset ownership responsibility. Alternatively, VGMobility contracts with private bus operating companies through bilateral commercial agreements. The payment structure is designed with flexibility to accommodate diverse municipal contexts: in markets with public transport subsidies, VGMobility typically negotiates priority payment guarantees within the subsidy cascade; in fare-dependent systems—which characterize most cities— the payment cascade is built directly into fare collection mechanisms, ensuring financial sustainability without relying on government subsidies.

PARADIGM SHIFT

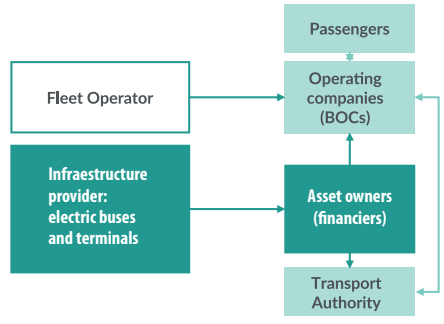
The traditional "centralized" model
BOCs own and operate the assets

The operator retains both ownership of the vehicle and responsibility for operations. This model works in environments dominated by diesel and with low investment requirements (CapEx), but it faces major limitations with electrification.



The "rolling-stock" model
Separates ownership of the assets from operations

Bus operations remain the responsibility of the operator, while the vehicles are owned by the fleet provider and made available to the operator for use.



Across both contracting structures, VGMobility's revenue model centers on a fixed monthly fee per bus, typically indexed to inflation, that compensates for asset provision and management services. Revenue demonstrates minimal variability, as the fee structure incorporates only narrow adjustment ranges contingent on fleet availability, with reductions triggered only by extended service interruptions caused by manufacturing defects or comparable force majeure events.

Turnkey Solution Architecture: The Complete Value Chain

A key strategic advantage that sets **VGMobility** apart from its competitors is its ability to deliver fully integrated, end-to-end solutions across the entire e-bus project lifecycle. Rather than requiring governments or operators to coordinate multiple specialized providers, **VGMobility** takes full responsibility for project development, civil engineering, supply chain management, bus procurement, infrastructure deployment, and ongoing operational support.

This comprehensive scope includes initial project feasibility analysis, incorporating detailed civil works assessment and electrical grid capacity evaluation conducted by contracted specialized firms. VGMobility then proceeds to vehicle procurement, exercising selective decision-making regarding original equipment manufacturers (OEMs) and negotiating warranties that extend to technological risk management. In parallel, VGMobility designs and constructs charging infrastructure optimized for energy efficiency and vehicle rotation patterns, manages the interconnection process with utility companies to ensure adequate power supply, and implements monitoring and management software for fleet optimization and performance analytics.

The turnkey approach yields multiple benefits. It eliminates the requirement for public sector actors to develop internal expertise in specialized domains, accelerates project implementation timelines, and reduces the likelihood of costly integration failures. By leveraging established supply chain relationships and procurement experience, VGMobility negotiates superior terms than individual operators could independently secure. Furthermore, the integration of infrastructure design and vehicle procurement allows optimization across the system, ensuring that charging systems, energy management protocols, and vehicle specifications align to maximize operational efficiency and extend vehicle uptime.

Revenue Model and Financial Structuring

VGMobility's financing approach reflects market-specific conditions and client requirements, with capital structures spanning from traditional 70/30 debt-to-equity ratios to highly leveraged 90/10 configurations in jurisdictions where debt markets and credit conditions are particularly supportive. The revenue mechanisms operate in parallel to the contractual structures. Under direct agreements with public transit authorities (PTA), VGMobility receives monthly payments reflecting an agreed tariff incorporating the fixed cost of fleet and infrastructure investment. Under private agreements with bus operating companies (BOC), VGMobility receives compensation through structured tariff components (such as per-kilometer rates, per-passenger fees, and minimum investment charges) derived from operational revenues or, more commonly, through explicit payment mechanisms prioritized within transport subsidy systems.

VGMobility's revenue structure is designed to operate independently of passenger demand fluctuations through adaptable contractual mechanisms. In markets with established public transport subsidy frameworks, VGMobility's income is insulated from demand volatility through contractual guarantees backed by government commitments. In fare-dependent markets, VGMobility employs alternative risk mitigation structures that may include minimum revenue guarantees, fare adjustment mechanisms, or blended payment models to ensure stable returns regardless of ridership variations. This flexibility in structuring financial protections across diverse regulatory environments allows VGMobility to maintain consistent investment parameters while adapting contract terms to local market conditions.

FINANCIAL FLEXIBILITY: ADAPTATION ACROSS MARKETS

Contextual Market Differentiation

VGMobility has demonstrated adaptability across varied regulatory, fiscal, and financial contexts throughout Latin America. The company's foundational experience in Colombia and Chile leverages mature transport subsidy systems and established procurement processes, while Costa Rica has offered insights into smaller-scale municipal partnerships. Expansion into Brazil and Mexico introduces new opportunities within larger markets characterized by diverse government funding sources, multi-tiered municipal governance structures, and evolving financing mechanisms that benefit from VGMobility's flexible contracting approaches.

Furthermore, credit environments vary across jurisdictions, each presenting distinct opportunities for financial structuring. Colombia and Chile have established track records of sustained public transport investment and maintain sovereign credit ratings that enable access to diverse international capital sources. Mexico and Brazil, while offering larger market opportunities, present more dynamic fiscal and policy environments that require enhanced risk management strategies and adaptive financial instruments. VGMobility's success stems from its ability to design financial structures tailored to each context, leveraging available capital sources and risk mitigation mechanisms to achieve sustainable project returns across diverse geographies.

Financing Model Flexibility

As described in the business model section, VGMobility adapts capital structures to align with local market conditions and available financing sources. The company distinguishes between financing approaches leveraging public sector resources versus those structured directly against operational cash flows, with the latter applicable in markets lacking comprehensive transport subsidies.
VGMobility works with government entities and multilateral development banks to structure concessional and commercial debt, often complemented by public equity contributions. The company's internal investment team focuses on identifying optimal financing combinations for individual projects, incorporating factors including local interest rate environments, available concessional funding windows, currency considerations, and investor appetite for infrastructure assets.

Regulatory Navigation and Policy Adaptation

VGMobility's flexibility extends beyond financial structuring to encompass adaptation to divergent regulatory frameworks and procurement preferences. In Chile and Colombia, governments have demonstrated strong preference for public-private solutions, where VGMobility contracts directly with PTAs through concession agreements. In Mexico, preliminary market engagement suggests receptiveness to both public authority contracting and direct BOC relationships, requiring VGMobility to maintain operational readiness across both models.

Different jurisdictions maintain distinct legal frameworks regarding asset ownership, infrastructure development authority, subsidy mechanisms, and long-term contracting. VGMobility successfully navigates these legal complexities while maintaining financial viability. It engages closely with local regulatory bodies, cultivating deep understanding of public sector decision-making processes, and adapting contractual language and governance structures to local contexts.

VGMOBILITY'S MARKET ENTRY REQUIREMENTS

Based on VGMobility's operational experience across Colombia, Chile, and Costa Rica, the company has identified critical minimum conditions that must be satisfied before committing capital to new urban markets. These prerequisites reflect lessons learned from both successful deployments and projects that encountered significant operational challenges.

1. Legal and Regulatory Framework

- **Legal Stability Guarantees:** Existence of contractual mechanisms or legislative provisionsensuring stability of long-term agreements (8-15 years) across administrative transitions.
- **Contract Continuation Rights:** Legal framework recognizing public transport as essential infrastructure with explicit continuation obligations regardless of political changes.
- **Clear Procurement Authority:** Established regulatory clarity regarding which entity (PTA, municipality, or BOC) holds decision-making authority for fleet procurement and infrastructure development.

2. Financial and Payment Structures

- **Payment Mechanism Definition:** Clear identification of revenue sources (transport subsidies, direct municipal appropriations, or fare-based revenues) with demonstrated sustainability.
- **Priority Payment Guarantees:** Contractual assurance that VGMobility receives payment priority within the cascade of transport system financial obligations
- **Credit Enhancement or Backstop:** For unsubsidized markets, existence of demand guarantees, as municipal credit support, or alternative payment security mechanisms to mitigate demand risk.
- **Minimum Contract Scale:** Fleet size sufficient to justify infrastructure investment (typically minimum 40-100 buses depending on infrastructure requirements).

3. Infrastructure and Technical Feasibility

- **Electrical Grid Capacity Confirmation:** Completed feasibility study confirming adequate electrical distribution capacity or committed utility expansion plans with defined timelines.
- **Energy Supply Commitment:** Formal agreements with electrical utilities guaranteeing power availability before project financial close.
- **Appropriate Electrical Tariff Structure:** Commercial or industrial electrical rates suitable for charging operations (residential tariff structures, as encountered in Costa Rica, create uneconomic operations).
- **Land Availability and Compliance:** Identified depot sites meeting operational requirements (adequate size, access, zoning compliance, environmental clearances).

4. Operational and Demand Prerequisites

- **Demonstrated Service Continuity:** Historical evidence of stable public transport operations with sustained ridership levels.
- **Minimum Demand Density:** Passenger volumes and route frequencies sufficient to justify electrification investment.
- **Existing Transport Framework:** Presence of organized public transport system (formal or in transition to formalization) rather than completely informal, unregulated operations.

5. Stakeholder Alignment and Commitment

- **Municipal/Government Commitment:** Explicit political and administrative support for electrification as policy priority, typically evidenced through climate commitments, air quality mandates, or transport modernization plans.
- **Operator Willingness:** BOC acceptance of separated asset ownership model and commitment to operational responsibilities under new technological framework.
- **Utility Company Engagement:** Proactive participation of electrical distribution companies in project structuring and commitment to infrastructure development coordination.

OPERATIONAL IMPLEMENTATION: CASE STUDIES ACROSS MARKETS

Colombia: Bogotá and Emerging Scale

VGMobility's flagship operation focuses on Bogotá, Colombia's principal metropolitan center, where the company owns **1,600 electric buses** across four separate depots integrated into the Transmilenio system. This deployment represents the company's largest single geographic concentration and demonstrates the operational complexity of scaling e-bus fleets within established, high-volume transport networks. The Bogotá operation encompasses multiple discrete contracts with distinct characteristics.

VGMobility's projects in Bogotá comprise multiple independent contracts, each with distinct characteristics. The initial deployments—Perdomo (195 buses), Fontibón (120 buses), and Suba (91 buses)—encountered early technical challenges related to operational efficiency constraints and limitations in power supply. These experiences generated critical institutional knowledge on infrastructure optimization, which informed more efficient subsequent implementations, including the Sevillana facility (114 buses) and a larger-scale operation managing 1,056 buses with optimized infrastructure configurations.

Bogotá's experience illustrates both VGMobility's operational achievements and the persistent infrastructure challenges endemic to rapid electrification. The system demonstrates that large-scale urban e-bus deployment remains technically and operationally feasible within Latin American cities. Simultaneously, early installations revealed critical gaps in electrical grid planning and depot design practices that required iterative problem-solving and engineering adaptation.

Chile: Diversified Urban Deployment

Chile represents VGMobility's second-largest market, with 935 buses deployed across Santiago's metropolitan area and northern regional operations. In Santiago, the company operates three separate contractual units—comprising 394, 255, and 246 buses respectively—structured through direct partnerships with municipal transport authorities. These agreements exemplify successful government-led projects that have achieved strong operational performance and cost-effective implementation.

Beyond the capital, VGMobility's regional deployments have generated valuable experience in adapting to diverse infrastructure contexts. Peri-urban projects have required tailored solutions to address local constraints related to land availability and power distribution capacity. Similarly, the deployment in Antofagasta—located in Chile's northern mining region—has involved infrastructure adjustments and phased implementation approaches to respond to localized energy supply considerations.

VGMobility's operational footprint in Chile—spanning the Santiago metropolitan system alongside regional deployments in Antofagasta—demonstrates its ability to operate effectively across varied geographic and administrative contexts. The company's capacity to engage with multiple municipal authorities while adapting infrastructure design to regional conditions reflects the level of operational sophistication required for sustainable expansion across Latin America's diverse urban environments.

Costa Rica: Structured Municipal Partnership in an Intermediate Market

San José, Costa Rica marks VGMobility's entry into mid-sized markets, with a projected deployment of 140 electric buses currently pending implementation under a direct contractual arrangement with the local transport authority. This project highlights the adaptability of the model: both operational performance and financial viability can be sustained at significantly smaller scales than those seen in Bogotá and Santiago, confirming that the rolling stock model is equally applicable in intermediate cities.

The Costa Rica project has provided valuable insights into market-specific considerations that differ from VGMobility's more established operations. The El Cafetal depot presented an instructive case regarding electrical tariff structures, where residential-equivalent rates applied to charging operations created suboptimal economics. This experience highlighted the importance of establishing appropriate commercial or industrial electrical rates during project structuring, a consideration now incorporated into VGMobility's market entry assessment framework.

The San José deployment demonstrates that VGMobility's integrated model, combining fleet provision, infrastructure development, and operational support, can be effectively adapted to cities with populations in the 300,000 to 500,000 range.

WHAT WE HAVE LEARNED IN FIVE YEARS

2,791 Buses | 3 Countries | USD 511mm | Many challenges

BUSES	DEPOT	CHALLENGE
195	Perdomo | Bogotá	Land availability in the sector
120	Fontibón | Bogotá	
91	Suba | Bogotá	Part of the 4 first depots, is not efficient operationally
40	Green Energy | Antofagasta	Not enough energy available
1,056	CEX | Bogotá	Not enough energy for all the depots
394	Gran Américas | Santiago	Ok- The government experience works
255	Conecta UF17 | Santiago	Ok- The government experience works
246	Conecta UF18 | Santiago	Ok- The government experience works
114	Sevillana | Bogotá	Building charging infrastructure in existing depots
100	Consorcio II | Bogotá	Building charging infrastructure in existing depots The utility company not helping
140	El Cafetal | San José	The technical tariff is the same as the passenger tariff

RISK ALLOCATION AND CONTRACTUAL FRAMEWORKS

Operational Risk Distribution

VGMobility's contractual structures deliberately allocate distinct risk categories to parties optimally positioned to manage them. Operational risks affecting variable revenue components, specifically passenger volumes and vehicle kilometers, remain the responsibility of transport operators, whose demand forecasting, scheduling, and service quality directly influence these metrics. This allocation reflects economic logic: operators control factors determining service utilization and possess superior information regarding demand dynamics.

Conversely, financing and asset acquisition risks remain predominantly VGMobility's responsibility. VGMobility bears the onus of securing project financing, managing vendor relationships, ensuring asset availability, and addressing technological risks inherent in battery systems and electric vehicle components. This allocation recognizes that VGMobility possesses specialized expertise in capital markets access, procurement, and technology management that individual operators lack.

Policy Continuity and Political Risk Management

VGMobility's contractual approach to governance reflects recognition that multi-year infrastructure commitments expose the company to political discontinuity, fiscal crises, and policy reversals. Changes in municipal or national administrations, electoral cycles, and shifting policy priorities constitute genuine threats to contract continuity and payment reliability.

VGMobility addresses these risks through explicit incorporation of legal stability principles and contract continuation guarantees within concession agreements. Rather than assuming that political commitments will voluntarily persist, VGMobility negotiates contractual provisions creating legal obligations that transcend administrative transitions. These mechanisms typically include: (i) explicit continuation clauses; (ii) arbitration provisions protecting against unilateral termination; and (iii) creditor-of-last-resort provisions that prioritize infrastructure investments within public budget allocations.

Additionally, VGMobility's investment analysis and risk assessment processes prioritize understanding each jurisdiction's foundational commitment to public transport continuity and the institutional mechanisms that support sustained operations even during fiscal stress.

Service Criticality and Structural Resilience

A foundational assumption underlying VGMobility's long-term contract sustainability is the essential nature of public transport as critical urban infrastructure. Public transit systems enable fundamental urban functions: connecting workers to employment opportunities, providing residents access to healthcare and education, and sustaining the mobility networks upon which urban economies depend. This infrastructure criticality creates strong institutional incentives for service continuity even during fiscal constraints.

In Bogotá, approximately 2.5 to 3 million daily passengers depend on public transport for essential mobility. In Mexico City, the equivalent figure reaches approximately 6 million daily passengers. These utilization levels reveal that transport systems maintain priority status even in situations of severe municipal fiscal distress. Governments facing debt crises, revenue shortfalls, or competing spending pressures will pursue cost reduction and efficiency improvements before allowing complete system failure.

The essential nature of public transit as critical infrastructure creates a minimum service obligation that exists beyond contract risk. While policy instability and fiscal turbulence may introduce variability into payment timing, delay risks, or contract terms and modifications, the fact that millions depend on these services daily creates strong incentives for government continuation of payments, albeit possibly with renegotiated terms.

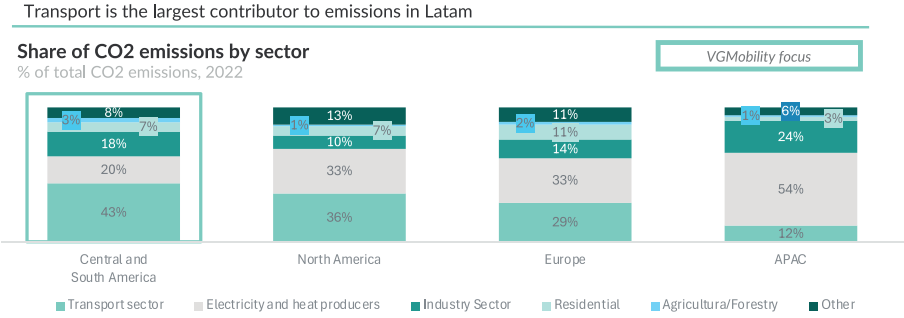
IMPACT ASSESSMENT AND SUSTAINABILITY OUTCOMES

Environmental Achievements

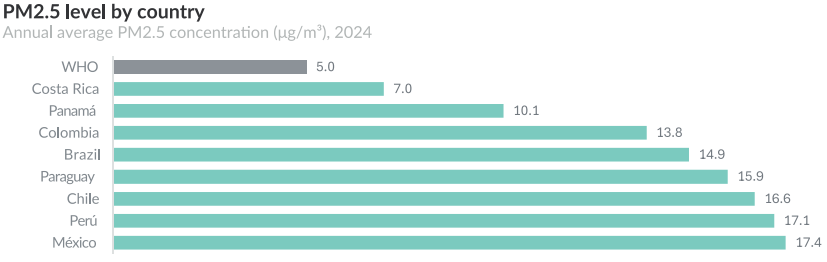
VGMobility's current operations have generated measurable environmental impacts aligned with regional sustainability objectives. The deployed fleet of approximately 2,500 buses avoids approximately 1,855 tons of carbon dioxide monthly and reduces particulate matter emissions by approximately 10 percent within affected urban area. These achievements, while significant in absolute terms, represent early-stage progress within a much larger transition imperative.

DECARBONIZATION CHALLENGE IN LATAM

Transport is the largest contributor to emissions in Latam



Latam countries have on average 2x above who recommended pm2.5 levels



Major and densely populated cities experience significantly higher PM2.5 levels than the national average, largely, due to the higher volume of vehicles, creating a need to accelerate the electrification of urban transport.

Latin America currently operates a conventional bus fleet of approximately 280,000 vehicles across studied markets, with only 2.2 percent (approximately 6,000 units) electrified as of 20246. Independent projections estimate deployment of 25,000 electric buses by 2030 and 55,000 by 2050, requiring sustained investment of approximately $13.2 billion7. Multiple market analyses project compound annual growth rates between 11-15 percent for the region's e-bus market through 2030-20328.

VGMobility's deployment trajectory aligns with these regional growth projections. While comprehensive fleet electrification represents a multi-decade undertaking, the demonstrated technical and economic viability of e-bus systems, combined with strengthening policy frameworks and declining technology costs, suggests that sustained acceleration toward regional decarbonization goals remains achievable through coordinated public and private sector commitment.

Social and Economic Impact

VGMobility's operations drive green job creation across the sustainable mobility value chain—from electric vehicle manufacturing and charging depot construction to specialized technical maintenance and services—catalyzing local economic development while demonstrating how transport electrification delivers inclusive growth alongside environmental decarbonization.

VGMobility's projects have engaged approximately 30 million monthly passenger journeys and conducted approximately 7 million kilometers of revenue service. These utilization figures demonstrate that electrified buses, when properly deployed and maintained, achieve comparable service levels to conventional systems while delivering environmental and quality-of-life benefits through reduced emissions and noise levels.

Transport electrification generates secondary health benefits through improved air quality. VGMobility's operating regions could achieve approximately 5 percent reductions in air pollutionrelated mortality and 40 percent reductions in respiratory-related hospital visits through system-wide electrification, substantial public health outcomes that extend beyond individual project boundaries.

6. Latin America E-Bus Market Monitor (2024). International Council on Clean Transportation (ICCT), May 2025, **https://theicct.org/publication/latinamerica-ebus-market-monitor-2024-may25/**

7. C40 Cities, and ZEBRA Partnership. Pipeline of Electric Bus Projects in Latin America: An Overview of 32 Cities. 2023, **https://www.c40.org/wpcontent/uploads/2023/04/FINAL-Pipeline-of-Electric-Bus-Projects-in-Latin-America-compressed.pdf**

8. Latin America Electric Bus Market Size, Trends, Growth & Forecast. Mordor Intelligence, 2025, https://www.mordorintelligence.com/industryreports/latin-america-electric-bus-market

MARKET POSITION AND OPERATIONAL DIFFERENTIATION

End-to-End Value Chain Integration

Unlike traditional financiers, VGMobility's operational model is characterized by integrated delivery across the complete e-bus value chain, encompassing project development, infrastructure deployment, and operational management. This comprehensive approach facilitates coordination and system optimization that can be difficult to achieve when project components are sourced and managed separately across multiple specialized providers.

This integration creates operational efficiencies and risk reduction that individual operators cannot independently achieve. The ability to optimize charging infrastructure to match vehicle specifications, coordinate electrical grid interconnections with vehicle deployment schedules, and establish integrated monitoring systems that generate actionable fleet performance data creates value propositions substantially exceeding the sum of individual components.

A REPLICABLE MODEL FOR SUSTAINABLE URBAN TRANSPORT IN LATIN AMERICA

VGMobility's experience across Colombia, Chile, and Costa Rica demonstrates that the rolling-stock model—originally developed for European rail systems—can be successfully adapted to address Latin America's unique urban transport challenges. The company's journey from initial deployments in Bogotá and Santiago to diverse operational contexts provides valuable insights into building sustainable, scalable solutions for public transport electrification across the region.

Flexibility as Foundation

The strength of VGMobility's approach lies in its demonstrated flexibility across multiple dimensions. Financially, the company tailors capital structures to match local market conditions—from conservative financing in emerging markets to leveraged structures where credit conditions permit. Contractually, VGMobility operates through both direct public authority partnerships and private operator agreements, responding to each country's regulatory preferences and procurement frameworks. Operationally, the company has delivered projects across a wide spectrum—from 40- bus peri-urban deployments to metropolitan systems exceeding 1,000 buses— demonstrating scalability across city sizes and contexts.

This adaptability reflects VGMobility's core value proposition: rather than imposing a rigid template, the company designs solutions to match each jurisdiction's institutional capacity, financial resources, and policy objectives.

Whether working with mature subsidy systems in Colombia and Chile or navigating infrastructure challenges in Costa Rica, VGMobility's approach centers on collaborative problem-solving that respects local contexts while advancing shared electrification goals.

Learning Through Implementation: Building Regional Expertise

VGMobility's operational portfolio reveals an iterative learning process that strengthens the company's value as a regional partner. As illustrated in the operational case studies, early infrastructure challenges have been systematically incorporated into enhanced project assessment frameworks. The company now conducts comprehensive electrical grid capacity confirmations before financial close, engages utility companies from initial project structuring, and evaluates electrical tariff structures as fundamental feasibility criteria.

These lessons benefit not only VGMobility's future projects but also public sector partners across the region. Governments considering e-bus adoption can leverage VGMobility's accumulated knowledge regarding infrastructure prerequisites, common implementation pitfalls, and effective risk mitigation strategies. This institutional knowledge, spanning technical, financial, regulatory, and operational dimensions, represents a valuable public good that accelerates regional electrification by reducing the learning curve for new adopters.

A Proof of Concept with Regional Implications

VGMobility's operational track record establishes proof of concept that extends beyond individual projects. The company has demonstrated that electric bus systems can achieve technical reliability, operational efficiency, and financial sustainability in Latin American contexts when properly structured. The 2,500+ buses deployed across diverse geographies provide empirical evidence countering skepticism about e-bus viability in emerging markets. This shows that appropriate financing mechanisms and infrastructure planning can overcome traditional adoption barriers.

This template appears increasingly relevant as additional Latin American cities pursue decarbonization objectives. With approximately 6,000 electric buses currently operating across the region and projections of 25,000 by 2030, demand for experienced implementation partners will grow substantially. VGMobility's established presence in Colombia and Chile, emerging operations in Costa Rica, and expansion efforts in Mexico and Brazil position the company to serve as a regional catalyst, transferring successful models across borders while adapting to local specificities. local contexts while advancing shared electrification goals.

Partnership as Prerequisite: Public and Private Roles

VGMobility's experience clarifies the essential role of public sector commitment in successful electrification. While innovative financing mechanisms address capital barriers, they cannot substitute for fundamental infrastructure investments. Electrical grid expansion, appropriate tariff structures, and availability for depot development, and utility company engagement require government leadership and public investment. VGMobility's challenges in projects lacking these prerequisites underscore that private sector innovation and public sector infrastructure development must advance in tandem.

Effective partnerships require mutual commitment: VGMobility brings financing capacity, technical expertise, and operational management; governments must provide regulatory stability, infrastructure coordination, and long-term contractual commitments. The most successful deployments—such as Santiago's three contractual units and Bogotá's established facilities— demonstrate this balanced partnership model where each party contributes complementary capabilities toward shared sustainability objectives.

The Path Forward: Urgency and Opportunity

As Latin American cities face mounting pressure to meet climate commitments while improving urban air quality, the window for decisive action is narrowing. The public health toll—manifested in respiratory disease, cardiovascular impacts, and reduced quality of life—demands urgent response. Yet this challenge also represents unprecedented opportunity. Latin America's conventional bus fleet of approximately 280,000 vehicles, with only 2.2 percent currently electrified, offers enormous potential for emissions reduction, air quality improvement, and public health gains. The economic case strengthens as battery costs decline, operational experience accumulates, and financing models mature. Cities acting now benefit from established best practices, proven technology, and available implementation partners.

A Call to Action for Cities

Latin America's public transport electrification represents a critical pathway toward regional decarbonization, improved urban air quality, and enhanced quality of life for millions of daily transit users. Achieving these objectives requires coordinated action across multiple stakeholders: (i) governments establishing supportive policy frameworks and infrastructure investments; (ii) private sector partners providing financing and technical solutions; (iii) utility companies expanding grid capacity; and (iv) civil society maintaining pressure for environmental progress.

Within this ecosystem, specialized infrastructure providers like VGMobility can accelerate transitions by addressing specific market failures, in this case, the capital intensity and technical complexity that deter traditional operators from electrification. The rolling-stock model, adapted thoughtfully to Latin American contexts, offers a replicable mechanism that other cities and countries can adopt, adjust, and scale according to their circumstances. The question facing municipal leaders is no longer whether electric bus systems can work in their cities—VGMobility and others have demonstrated conclusively that they can.

The relevant questions are operational: Does our city have the electrical grid capacity to support charging? Have we engaged utility companies early enough? Do we have appropriate tariff structures? Have we identified suitable depot sites? Do we have regulatory frameworks that enable long-term contracts? Are we prepared to be reliable partners for private infrastructure investors? Cities that can answer these questions affirmatively are positioned to move quickly. Those that cannot, should prioritize addressing these prerequisites now, recognizing that infrastructure development takes time but delays only compound challenges.

Toward Regional Transformation

The path toward comprehensive fleet electrification remains long, requiring sustained commitment over decades. Yet VGMobility's first five years demonstrate that meaningful progress is achievable when innovative financing, technical expertise, and genuine public-private partnership align. As the company continues expanding its regional footprint and refining its operational model, it contributes not only to individual city decarbonization but to building a regional template for sustainable urban transport.

For the millions who depend on public transport daily, and for the next generation inheriting our urban environments, the imperative is clear: Latin America possesses the tools, models, and expertise needed for rapid electrification. What remains is mobilizing the political will, infrastructure investment, and coordinated action to make transformation a reality. The window for action is open, but it will not remain so indefinitely. The cities that move first will define the future.

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