Agora Verkehrswende

ANALYSIS

Chile's path to electromobility

An assessment of policies, progress and prospects

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Preface

Dear readers,

while the global narrative on transport decarbonisation often focuses on Europe, North America or Asia, Latin America hosts a standout example of successful electromobility adoption: Chile has emerged as the world's second-largest operator of electric buses after China, demonstrating the capacity of the region for transport decarbonisation. Chile's trajectory is particularly instructive in demonstrating how policy can advance the transport transition in an emerging economy. For Europe, and particularly for Germany, understanding this case offers crucial insights into electrification enablers and outlines opportunities for transcontinental cooperation that would accelerate the global shift.

As of August 2025, 3 059 electric buses are running in Santiago, representing 40 percent of the total fleet. Tendering processes for 100 percent zero-emission buses have been in place in the country since 2024, a full decade ahead of its 2035 target. This achievement reflects more than ten years of sustained political commitment, cross-ministerial coordination and pioneering regulatory frameworks. This effort has been consolidated into a state policy, led by the Ministries of Energy, Environment and Transport and Telecommunications across different administrations.

This integrated approach positions Chile as a key reference in the global electromobility field and serves as compelling evidence that emerging economies can indeed lead the charge in transport decarbonisation. Given that transport accounts for approximately 40 percent of emissions in Latin America, it is not merely beneficial but imperative to transform this sector and incorporate it into climate targets.

In this publication we analyse the policy pathway that has enabled the high level of electric bus penetration in Chile. Our assessment identifies the key variables behind this success, examines persistent challenges and outlines the prospective steps needed to achieve comprehensive decarbonisation targets. The resulting insights can serve as valuable inspiration for other countries facing similar challenges.

While this report focuses specifically on transport electrification, we recognise that a comprehensive decarbonisation strategy requires complementary measures. Key elements such as public transport coverage expansion, modal shift incentives (for example, cycling infrastructure or pedestrianisation) and urban planning reforms were beyond the scope of this study, though they remain critical for achieving Chile's broader emission reduction targets.

This report underscores that climate change remains a paramount political priority in an era where the lifespan of internal combustion vehicles is undeniably drawing to a close. We firmly believe that decarbonisation is a global phenomenon, and internal combustion engine vehicles will be progressively disappearing from automotive markets worldwide.

We hope you find this paper both useful and informative.
Best wishes,

Christian Hochfeld
Executive Director of Agora Verkehrswende
On behalf of the Agora Verkehrswende Team
Berlin, August 2025

Key takeaways

1. Long-term climate commitment and policy consistency across political cycles are fundamental for transport decarbonisation. Chile's success stems from a decade of sequenced interventions, including early financial mechanisms like Law No. 20.378 in 2009, pilot deployments between 2016 and 2020, and later-stage mandates such as the 100 percent Zero Emission Vehicle (ZEV) procurement target by 2035. This multi-administration approach ensured sustained private-sector confidence and facilitated the rapid adoption of electric technologies within Santiago's public transport system, demonstrating that a long-term vision is key to accelerating the transition to electromobility.

2. Innovative policy and financing tools are essential in emerging markets for attracting investment and creating certainty. Santiago's public transport business model that separates asset ownership from operations, along with adjustable subsidies (Law No. 20.378), significantly reduced investor uncertainty. Furthermore, energy tariff reforms, which cut operator costs by 18 to 22 percent, and the implementation of fuel economy standards, which impose quotas and penalties, are critical for attracting the necessary capital in volatile economies. That demonstrates how tailored strategies can de-risk investments and accelerate market transformation.

3. Scaling charging infrastructure and fleet renewals with electric vehicles to secondary cities are critical for full transport decarbonisation. While the capital accounts for 95 percent of Chile's operational electric buses and 28 of its 30 charging terminals, 86 percent of EVs and 75 percent of public charging infrastructure, regional cities face significant infrastructure gaps. These disparities threaten equitable progress and underscore the urgent need for a more distributed development strategy to ensure that the benefits of electromobility extend nationwide.

4. Electrification must now expand beyond buses to meet full decarbonisation targets. While Santiago's electric bus fleet leads globally, the slow adoption of electric freight and private vehicles, with a mere 2.5 percent penetration, risks stalling sector-wide progress. Although some policies, like the fuel economy standards, can help reduce the high upfront EV costs (currently just 3 EV models are below 20 000 US dollars), there are some persistent gaps to spur demand. Sparse charging infrastructure, with only one public station per 18 000 residents, remains a critical barrier. These challenges are particularly acute for long-haul trucks and middle-income drivers, who lack access to the fleet-scale subsidies that have propelled bus adoption, highlighting the need for diversified strategies to accelerate broader market penetration.

5. High-visibility electric transport projects create momentum for other countries to transition. Santiago's focus on buses, achieving 40 percent fleet electrification (3 059 vehicles) and 52.8 percent PM2.5 reductions by 2024, built public support and catalysed cross-sector initiatives. This success has inspired similar transport transformations across Latin America, showcasing the ripple effect of targeted public investments.

Contents

1 | Introduction

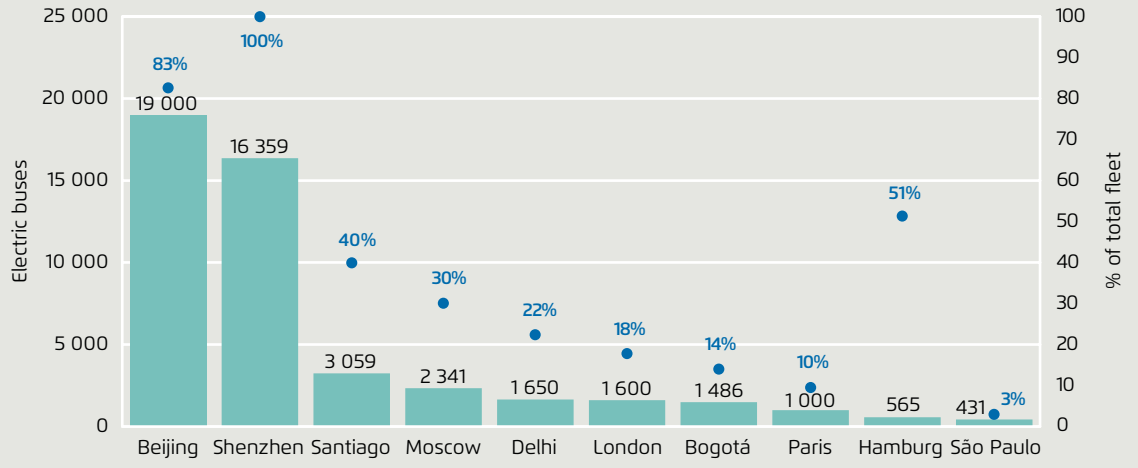
Chile started its race to electrification more than a decade ago. Early foundations were laid through Chile's first Nationally Determined Contribution (NDC) in 2015 and the 2050 Energy Policy in 2016[1], which explicitly incorporated transport transformation into their mandates, including the pioneering *National electromobility strategy (2017)*[2] that set 40 percent EV adoption targets for private vehicles and 100 percent for public transport by 2050. The *Climate change framework law (2020)* then institutionalised these goals, mandating carbon neutrality by 2050 and sectoral emissions caps, while the *Energy efficiency law (2021)*[3] introduced Latin America's first fuel economy standards for imported vehicles, accelerating EV adoption through quotas and penalties. Together with the roadmap *Towards sustainable and inclusive energy for Chile*[4], these measures provided industry certainty and created a binding policy cascade that clearly signalled the country's strategic direction.

With these measures Chile has achieved significant advancements in electromobility, particularly within its urban public transport systems. Santiago, the country's capital, now boasts the third-largest fleet of electric buses globally, a position surpassed only by cities in China, according to the 2025 *Centro de Movilidad Sostenible* (CMS) georeferencing data (see Figure 1).[5] This platform reports over 49 000 electric buses across 49 cities in 18 countries, with Santiago leading Latin America and the Caribbean. For context, Hamburg in Germany ranks ninth globally. Chile's regional leadership has subsequently inspired decarbonisation initiatives across Colombia, Brazil and Mexico.

Santiago demonstrated environmental commitment through early adoption of cleaner technologies, put in place before national mandates. The metropolitan public transport directorate *(Departamento de Transporte Público Metropolitano – DTPM)* prioritised sustainability and climate action by introducing Euro VI buses in 2016, even before such offerings were widely available on the continent, followed by electric bus deployment from 2018 (see Figure 2). By August 2025, electric buses represented 40 percent of Santiago's operational fleet, totalling 3 059 vehicles. Current procurement processes target 68 percent fleet electrification (4 406 vehicles) by the end of 2025, supported by approximately 28 charging terminals.[6]

1 Ministerio de Energía de Chile, 2016.
2 Ministerio de Energía de Chile, 2017.
3 Congreso Nacional de Chile, 2021.
4 Ministerio de Energía de Chile, 2023.
5 Centro de Movilidad Sostenible, 2025.
6 Subsecretaría de Transportes (DTPM) and Ministerio de Transporte y Telecomunicaciones de Chile, 2025.

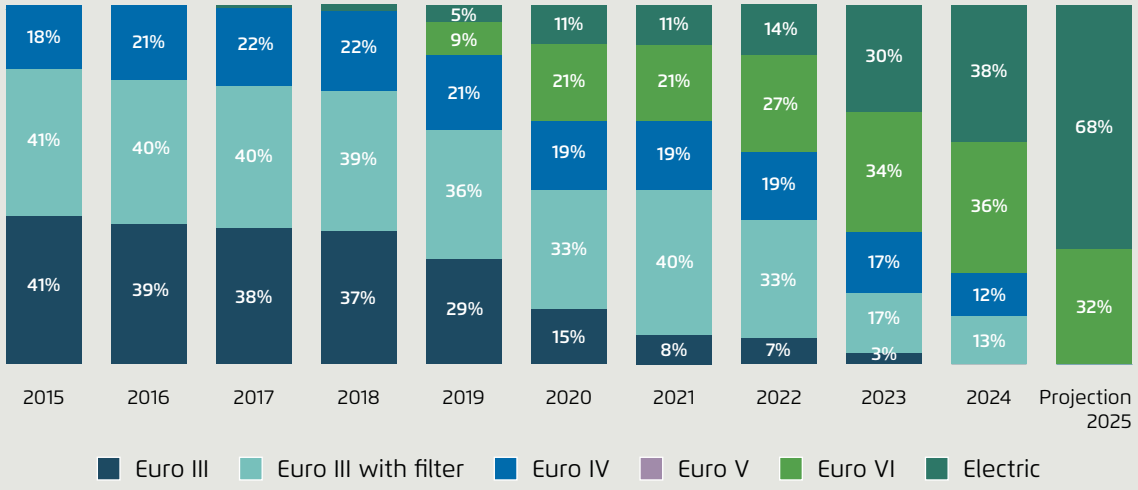
Santiago boasts the third-largest fleet of electric buses globally and the first one in Latin America — Figure 1



Agora Verkehrswende (2025) | Notes: Hamburg data was added to the original source: Vado e Torno Edizioni, 2024.
Source: Own illustration based on Centro de Movilidad Sostenible (2025).

Technological evolution of the *Sistema Red Movilidad* (RED) fleet from 2015 to 2025 shows early commitment to fleet transformation

Figure 2

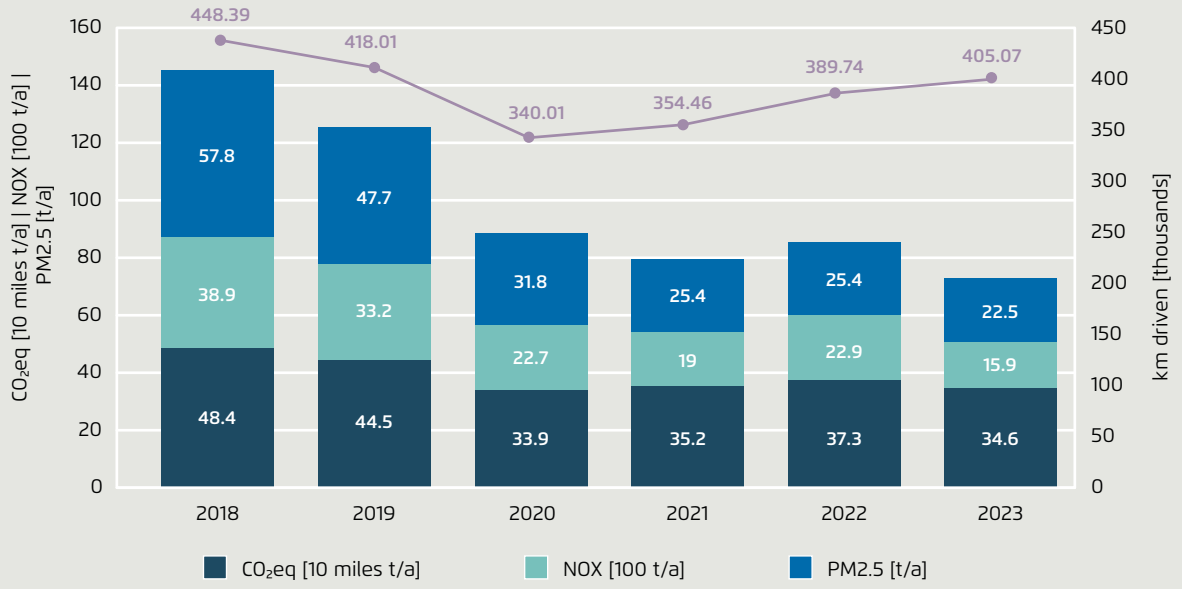


Agora Verkehrswende (2025) | Source: Subsecretaría de Transportes (DTPM) and Ministerio de Transporte y Telecomunicaciones de Chile, 2025.

This transformation delivers measurable environmental benefits. The buses of *Sistema RED Movilidad* (formerly *Transantiago*) contribute only 3.3 percent of Santiago's transport CO_2eq emissions compared with 90 percent from private vehicles, according to SECTRA's 2023 *Annual emissions report*[7]. Critically, CO_2eq intensity decreased significantly between 2018 and 2023 despite increased mileage, demonstrating how sustainable technology adoption advances carbon neutrality goals (see Figure 3).

7 Subsecretaría de Transportes (DTPM) and Ministerio de Transporte y Telecomunicaciones de Chile, 2025.

From 2020 onwards, CO_2eq emissions show a downward trend despite the increase in mileage in *Sistema Red Movilidad* (RED) Figure 3



Agora Verkehrswende (2025) | Source: Centro de Movilidad Sostenible (2025).

In the following chapters, we will explore how Chile has rolled out its electromobility path: how Santiago came to rank third on the list of cities with more e- buses in the world and how Chile is expanding its electromobility from buses to other vehicle segments.

2 | Chile's electromobility path

This chapter presents the policy instruments that have shaped Chile's successful electromobility transition, drawing on key findings from the *First Santiago Electromobility Report*[8] by the DTPM. The report, published in March 2025, provides critical insights into the operational, financial and user perception outcomes of Santiago's electric fleet deployment, reinforcing how strategic policy design has enabled Chile to become the world's second-largest operator of electric buses after China.

2.1 Electromobility policy framework

2.1.1 Early foundations (2015–2020)

Chile's journey began in 2016 with the ***Energy policy 2050***[9], which set clear electrification targets and established a long-term vision for sustainable transport. Unlike the earlier **2015 NDC**, which presented non-binding scenarios for emissions reduction, the 2016 policy introduced concrete commitments, including 100 percent zero-emission public transport in pollution-controlled zones by 2050. While the NDC offered modelled pathways for carbon neutrality, the Energy Policy translated these into actionable mandates, providing the certainty needed for industry investment.

The **2017 *National electromobility strategy***[10] further solidified this direction, introducing measurable targets: 40 percent electric private vehicles and 100 percent electric public transport by 2050. It covered six key areas: regulation, standardisation, research and development, workforce training, knowledge transfer and public transport electrification. This strategy marked a turning point, aligning sector-wide efforts toward a common framework.

2.1.2 Acceleration (2021–2023)

Chile's approach gained global recognition when its ***Long-term low emission development strategies (LT-LEDS)*** (2021) were ranked among the world's best by the World Resources Institute (2023),[11] outperforming even the EU and UK in policy coherence. This document, which includes electromobility as part of the transformation, concludes that transport requires a large investment but also offers the highest return in the energy sector. This represents 50 percent of the carbon neutrality targets in Chile. The other 50 percent of the targets revolve around forestry and land use[12].

Another critical milestone came in **2021 with the *Energy efficiency law***,[13] Latin America's first regulatory framework that includes fuel economy standards for imported vehicles. As a country without domestic auto manufacturing, Chile's dependency on imports made this legislation pivotal. The law introduced a "kilometres per gasoline-litre equivalent" (km/l-eq) metric, enabling uniform efficiency comparisons across gasoline, diesel, electric and hybrid vehicles. Importers must meet annual corporate average standards that vary by vehicle weight class, with light vehicles required to achieve 18.8 km/l-eq (2024–2026), progressing to 28.9 km/l-eq by 2030, while medium vehicles face phased targets beginning in 2026.

The system rewards cleaner technologies through a weighted calculation that favours electric and hybrid vehicles over internal combustion engines. Non-compliant importers face substantial penalties. While currently applied only to light and medium vehicles, this framework lays the foundation for future heavy-duty regulations. This approach achieved 61.2 percent importer compliance within two years, and EV sales surged from 0.2 percent in 2021 to 2.5 percent in 2024.[14]

Other laws and policies have incentivised the adoption of electric vehicles with fiscal mechanisms, as is the case with **Law No. 21.505 of 2022**[15] which promotes the storage of electric energy and electromobility. This law provides benefits for the purchase of an electric vehicle, temporarily reducing the cost of circulation permits for eight years. The same law lays the foundations for electric vehicle batteries to be considered as energy storage systems, allowing them to participate in the electricity market – a key point in the adoption of new solutions such as bi-directional charging.

8 Subsecretaría de Transportes (DTPM) and Ministerio de Transporte y Telecomunicaciones de Chile, 2025.
9 Ministerio de Energía de Chile, 2016.
10 Ministerio de Energía de Chile, 2017.
11 Climate Action Tracker, 2023.
12 Programa De Las Naciones Unidas Para El Desarrollo (PNUD), 2024.
13 Congreso Nacional de Chile, 2021.
14 Ministerio de Energía de Chile, 2025a.
15 Congreso Nacional de Chile, 2022b.

More recently, the **2023 *Electromobility roadmap***[16] then set concrete 2026 targets for different regions of the country. It moves beyond aspirational goals to outline specific, actionable steps across regulation, market creation, infrastructure deployment, and workforce development, underpinned by principles of sustainability and equity, aiming to make electric mobility the norm in Chile within defined timeframes.

2.1.3 Scaling ambition (2024 onwards)

Over time, Chile's policies have evolved through iterative updates, setting higher targets with each one. The **2020 NDC revision** introduced an absolute emissions cap (1 100 $MtCO_2eq$ by 2030), while the **2021 *Electromobility strategy update*** accelerated deadlines, requiring that 100 percent of vehicle acquisitions be zero-emission by 2035 (private and public) and the entire public transport fleet by 2040, a full decade ahead of the original target.

This trajectory continues with recent and upcoming measures. The 2025 ***Master plan for public charging infrastructure*** establishes a roadmap to address geographic disparities and density gaps, aligning with the ***+Carga Rápida*** programme's rollout. Meanwhile, Chile's upcoming NDC update (expected 2025–26) is anticipated to further tighten sectoral targets, reflecting falling renewable energy costs and growing EV adoption. While the outcomes of these new policies remain to be fully realised, their iterative design underscores Chile's dynamic governance approach: targets are calibrated to technological feasibility, climate urgency, and real-world performance data.

2.1.4 From policy to results

The systematic policy approach delivered transformative outcomes. Santiago's electric fleet grew exponentially from just 2 buses in 2017 to 2 505 buses by 2024 (about 38 percent of the total fleet). The rollout was supported by 28 charging terminals strategically deployed across the city, ensuring 100 percent operational reliability. By the end of 2025, Santiago expects to reach 4 406 electric buses (68 percent of the fleet).

The environmental benefits are clear and have been quantified. The shift eliminated 90 percent of particulate emissions from Santiago's public transport system, while the RED's buses now contribute only 3.3 percent of the city's transport-related CO_2eq emissions, down from 12 percent in 2018.

Sistema RED's user acceptance reached 87 percent approval in 2025 surveys. Citing reduced noise and improved air quality. These metrics collectively validate Chile's policy framework as a replicable model for emerging economies.

Private sector engagement has surged, and it has been key to the transformation. In 2014, 166 companies had joined the Public-Private Electromobility Agreement. Innovative pilots like Latin America's first double-decker electric buses (2022) and heavy-duty electric trucks (2024) have demonstrated technological leadership.

Although still incipient, there has been some progress in electric vehicle infrastructure. The *ElectroRuta* Enel X Way network, spanning 5 000 km with 300+ chargers, enables cross-country EV travel. The *+Carga Rápida* programme, funded by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH under the IKI initiative, expanded fast-charging infrastructure beyond urban centres. In its first phase, the programme deployed 16 fast chargers across 14 cities and 12 regions, ensuring at least one publicly accessible fast charger per region.

16 Ministerio de Energía de Chile, 2023.

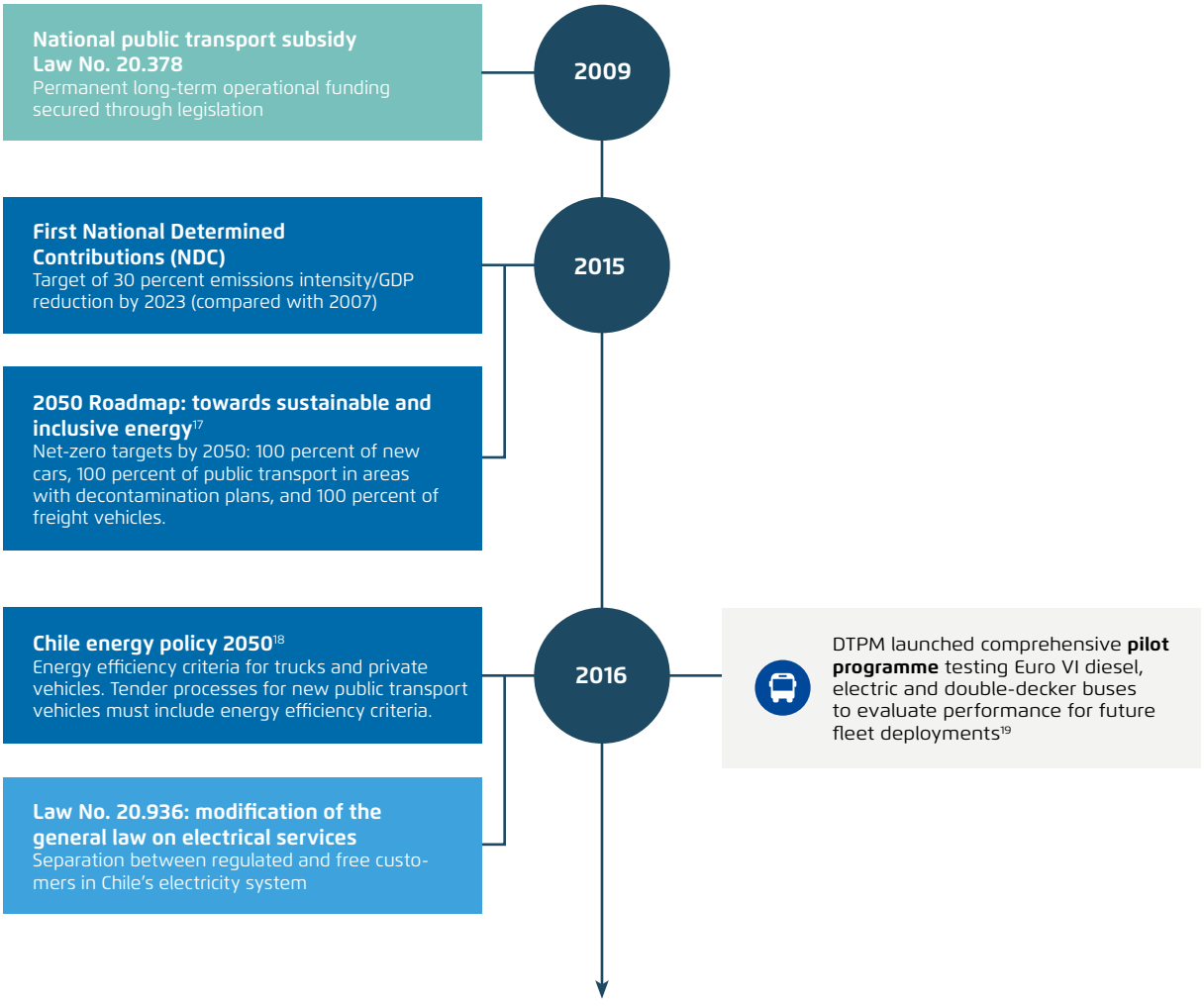
2.2 Policy evolution and tangible outcomes: a chronological view

Complementing the previous analysis, this section presents Chile's electromobility policy timeline, distinguishing between policy implementation periods and their subsequent outcomes. The analysis recognizes that results often materialise years after policy enactment, with varying lead times across different transport segments. The next figure categorises at the left the **policy mechanisms** as:

- strategic
- regulatory
- partnerships
- financial

and differentiates at the right the **outcomes or advancements** in electromobility by vehicle segment:

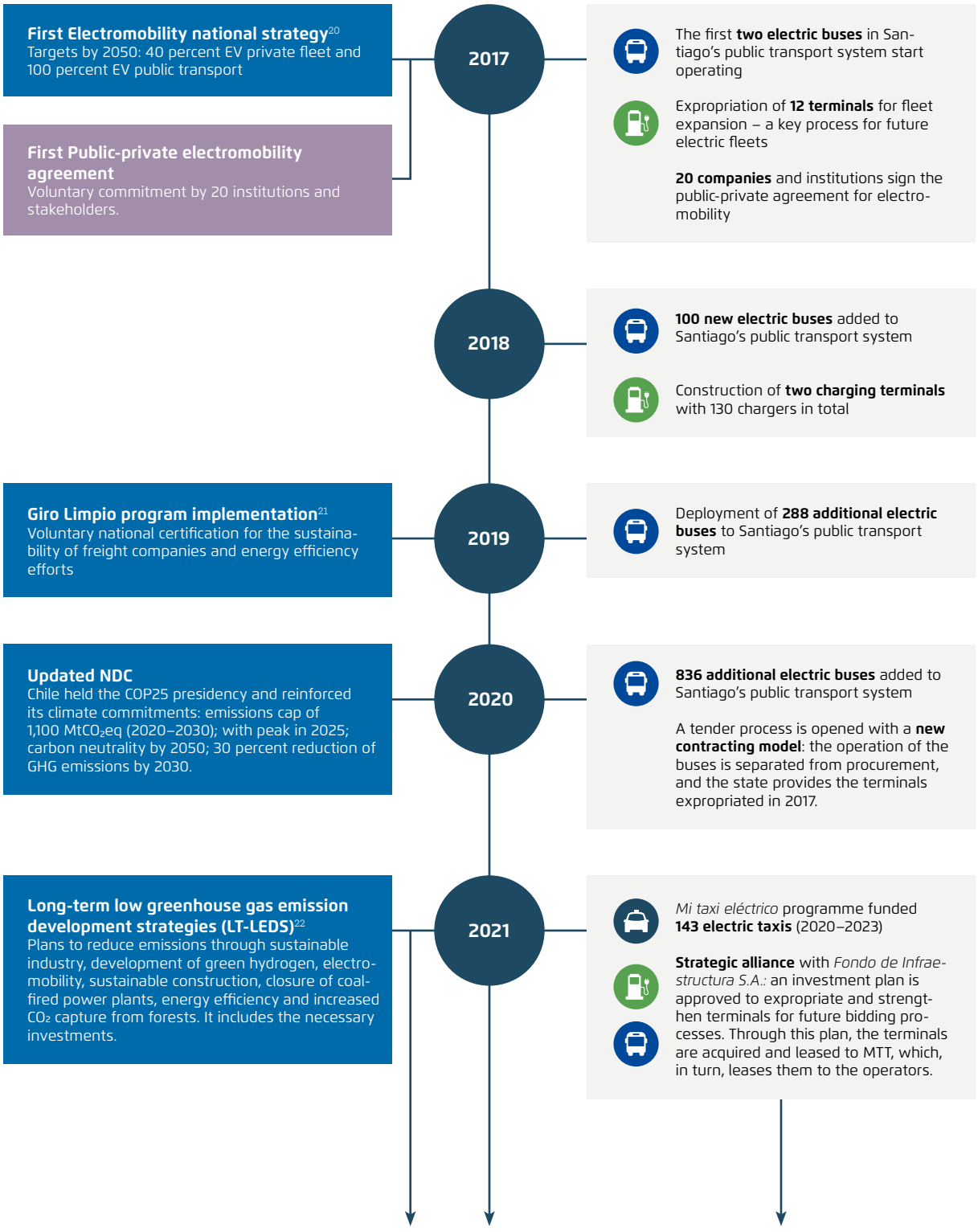
- public transport
- private vehicles
- freight
- taxis
- charging infrastructure



17 Programa De Las Naciones Unidas Para El Desarollo (PNUD), 2024.

18 Ministerio de Energía de Chile, 2016.

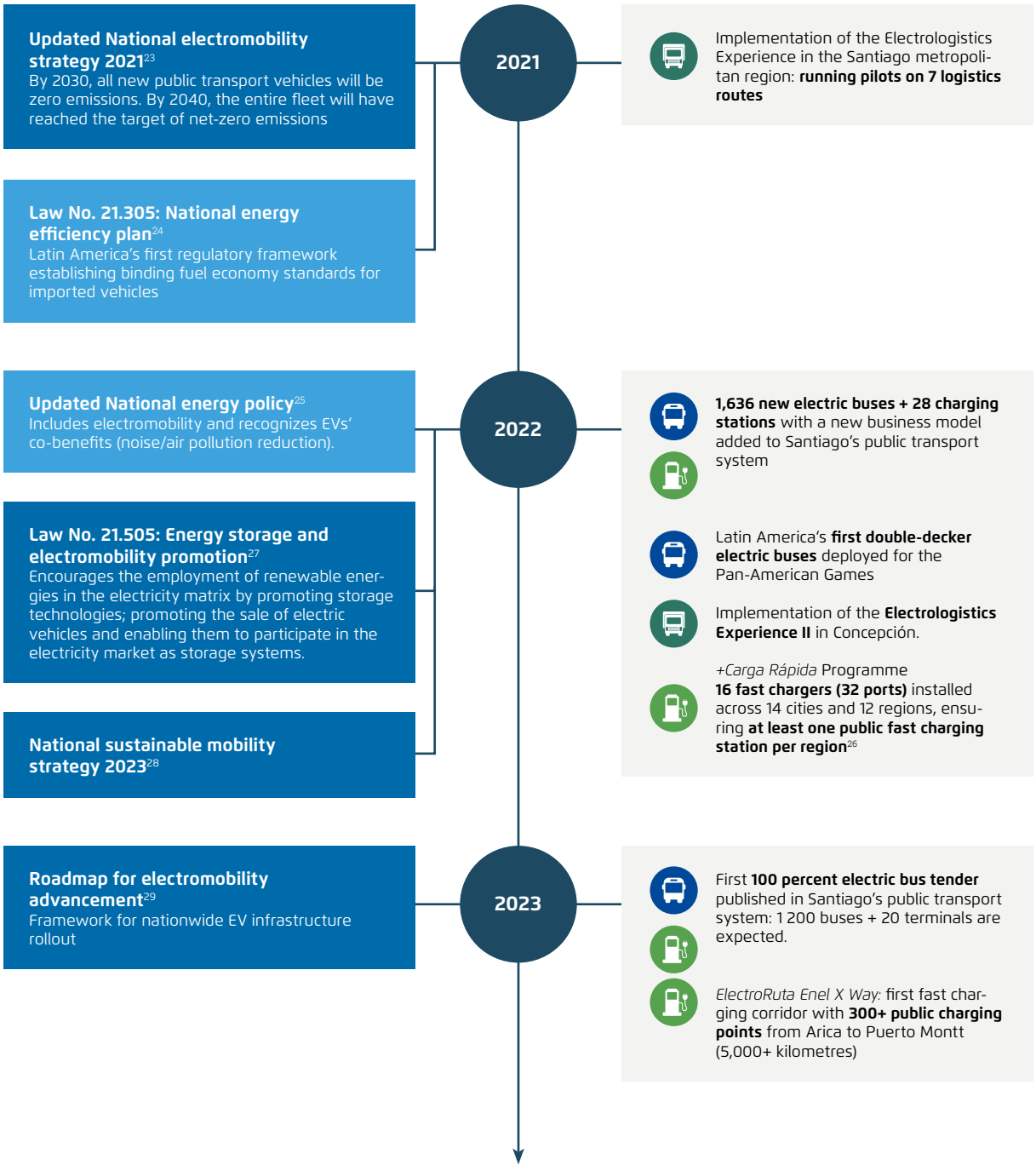
19 Subsecretaría de Transportes (DTPM) and Ministerio de Transporte y Telecomunicaciones de Chile, 2025.



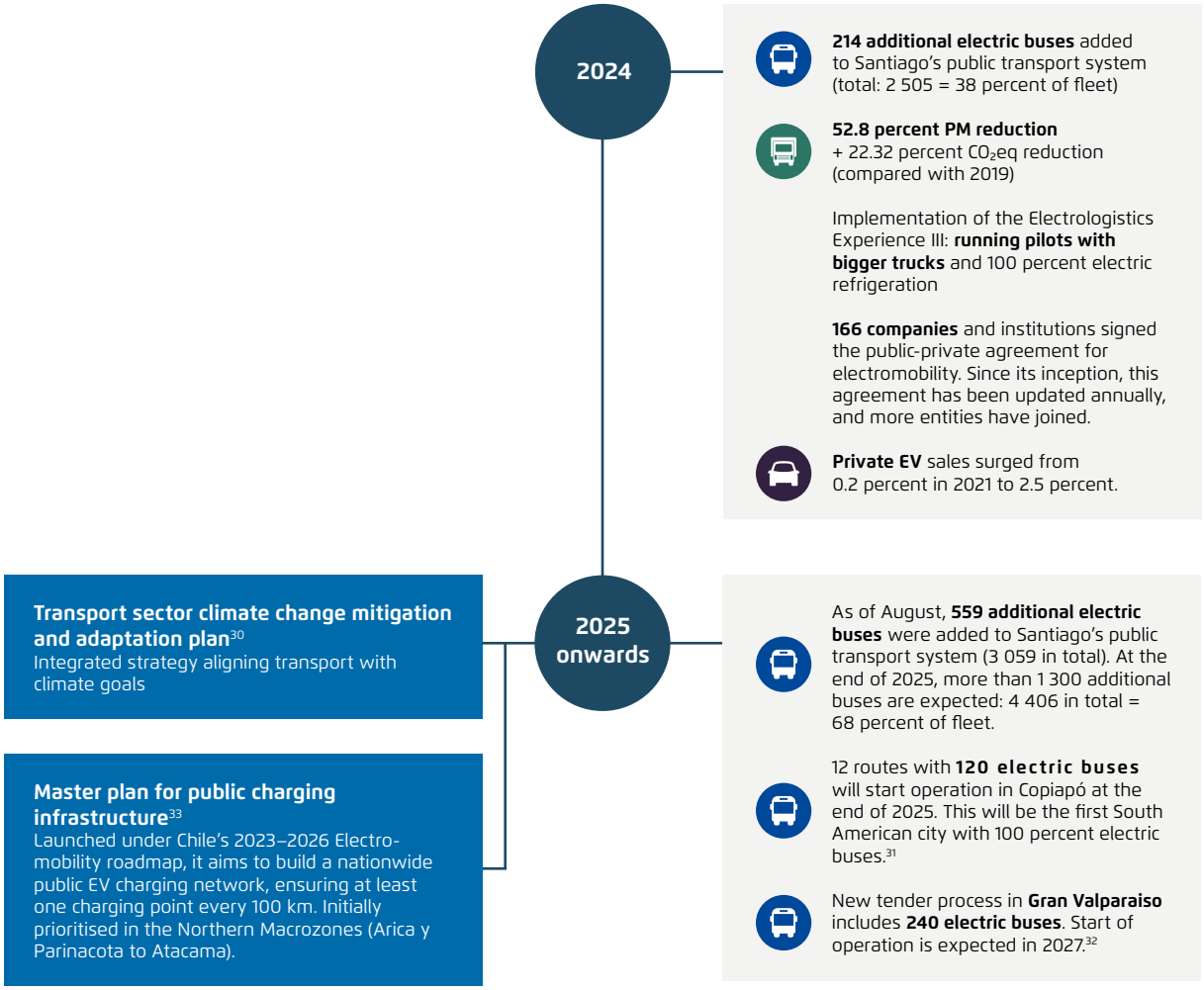
20 Ministerio de Energía de Chile, 2017.

21 Giro Limpio, 2025.

22 Gobierno de Chile, 2021.



23 Gobierno de Chile, 2022.
24 Congreso Nacional de Chile, 2021.
25 Congreso Nacional de Chile, 2022a.
26 Agencia de Sostenibilidad Energética, 2023.
27 Congreso Nacional de Chile, 2022b.
28 Ministerio de Transportes y Telecomunicaciones de Chile, 2022.
29 Ministerio de Energía de Chile, 2023.



The chronological analysis demonstrates that Chile's layered policy approach, which combines a long-term strategy with financial mechanisms such as differential electricity tariffs and subsidies, together with regulatory certainty provided by efficiency standards and binding targets, has driven measurable progress, particularly in public transport electrification. While other vehicle segments remain in earlier development phases, their foundational policies suggest similar growth trajectories with sustained commitment.

30 Ministerio de Transportes y Telecomunicaciones de Chile, 2025b.
31 Gobierno de Chile, 2024.
32 Ministerio de Transportes y Telecomunicaciones de Chile, 2025a.
33 Ministerio de Energía de Chile, 2025b.

3 | The successful case of Santiago

Santiago's Sistema RED established itself as a regional pioneer in fleet decarbonisation, consistently exceeding national regulations through stricter fuel standards and early adoption of clean technologies. Currently, for the 40 percent of the fleet that is electric (3 059 buses), there are 28 dedicated charging terminals supporting daily operations. RED plans to reach 4 406 electric buses (68 percent of the fleet) by the end of 2025 through ongoing tenders.

The electric bus integration process combined technological upgrades, business model innovation, personnel training and service quality improvements. A landmark achievement was the implementation of comprehensive stakeholder engagement, including public awareness campaigns and Latin America's first formal market consultation with bus manufacturers. This collaborative approach ensured fleet specifications matched operational realities while building industry confidence in Chile's transition.[34]

3.1 The business model that enabled the transformation

Santiago's successful shift to electric buses was made possible by a complete restructuring of its public transport business model. The key innovation involved separating two critical components: the operational management of bus services (granted through road use concessions) from the ownership of physical assets like buses and charging terminals. This separation proved vital in reducing systemic risks while maintaining essential coordination between service providers and fleet operators.

The new concession system introduced flexible contract terms designed to incentivise electrification. Standard contracts ran for five years, renewable for another five if performance targets were met. However, operators committing to predominantly electric fleets (over 50 percent) received more favourable seven-year terms, potentially extendable to fourteen years. The model also diversified the operator base into smaller units, creating a more resilient system less vulnerable to individual operator failures.

34 Subsecretaría de Transportes (DTPM) and Ministerio de Transporte y Telecomunicaciones de Chile, 2025.

This framework successfully stimulated market participation, attracting both Chilean and international investors through transparent, competitive bidding processes. By legally classifying buses and terminals as concession-specific assets, the city ensured these resources would remain dedicated to public transport throughout their operational life.

The initial 2019 tender process, however, revealed some financial burdens. The decision to conduct separate tenders for fleet procurement and operations represented a significant increase in costs. With occasional twelve-month gaps between procurement and operational tenders, suppliers faced extended periods where they had to maintain costly price guarantees. This separation also created coordination difficulties between vehicle manufacturers and service operators, particularly during contract transitions.

Learning from these experiences and increasing the sustainability commitment, the redesigned 2023 tender process implemented crucial improvements:

- it combined fleet provision and operation into unified tenders while keeping financial flows during operation separate;
- it mandated 100 percent electric vehicles for all new contracts;
- it extended base concession terms to a decade, with performance-based adjustments;
- it introduced standardised battery performance guarantees;
- and it stablished minimum contract requirements between operators and suppliers.

These refinements significantly reduced financial guarantee costs while maintaining the advantages of unbundling operation and ownership remuneration. The streamlined approach has proven more efficient, more thoroughly aligned with the interests of all stakeholders in Santiago's continuing electromobility transition.

3.2 Foundational enabling conditions

The successful transition to electromobility in Santiago's transport system relied on three fundamental pillars that created favourable conditions for change. First and foremost, **the national subsidy established under Law**

No. 20.378, in force since 2009, provided crucial financial support, reducing operational and financial risks for all participants in the system. This adaptable funding mechanism, administered by the Transantiago Financial Administrator (AFT), created a stable economic foundation for the transition.

A second critical factor was the energy sector reform initiated through **Law No. 20.936 in 2016**. This legislation redefined the **electricity market structure for public transport**, separating regulated and non-regulated customers. The change empowered transport operators to negotiate directly with power generators and retailers, resulting in customised electricity tariffs that reduced operational costs by 18 to 22 percent.[35] It is worth noting that all of those energy contracts are 100 percent renewables. This flexibility proved essential for managing the energy demands of the growing electric fleet.

Perhaps the most vital yet often overlooked component was **the human capital behind the transformation**. The transition engaged 18 141 drivers (including 2 025 women) and 2 628 maintenance specialists who formed the backbone of the system's operations. Their successful adaptation to new technologies through comprehensive training programmes ensured not only continuity of service but also maintained the high safety standards the passengers expect. The 98 percent workforce retention rate during this technological transition speaks volumes about the effectiveness of these capacity-building initiatives.[36]

The three elements: stable financing, favourable energy market conditions and skilled personnel, together with the regulatory and strategic base that the country had already adopted, created an ecosystem in which electromobility was possible in Santiago.

35 (Subsecretaría de Transportes (DTPM) and Ministerio de Transporte y Telecomunicaciones de Chile, 2025).

36 Subsecretaría de Transportes (DTPM) and Ministerio de Transporte y Telecomunicaciones de Chile, 2025.

3.3 Cross-sector adaptation to electromobility

The adoption of electromobility in Santiago's public transport system has created ripple effects across multiple sectors of Chilean society, demonstrating the broader impacts of this technological transition.

The education sector has responded to the growing demand for specialised knowledge to support the electromobility transition by offering training programmes at different levels:[37]

- Technical training: specialised programmes in electric vehicle maintenance and repair, offered by institutions like INACAP and DUOC UC, focusing on hands-on skills for the job market.
- Professional education: universities such as the University of Chile and Pontifical Catholic University (PUC) provide engineering degrees and specialisations in electromobility system design and charging infrastructure.
- Further education: short courses and training for industry professionals, covering topics like charging station operation and electric fleet management, ensuring up-to-date knowledge in an evolving market.

The private sector has also shown remarkable adaptability to these changes. Maintenance facilities across Santiago have developed specialised training protocols for electric bus technicians, while new business models have emerged around battery refurbishment and energy storage applications. This industry-wide adaptation has created new employment opportunities and positioned Chile as a regional leader in sustainable transport solutions.

Perhaps most significantly, the success of **Santiago's transition has influenced transportation policies in other Chilean cities and inspired similar initiatives across Latin America**. The comprehensive approach, combining technological innovation, workforce development and supportive policies, has become a model for urban transportation transformation in emerging economies.

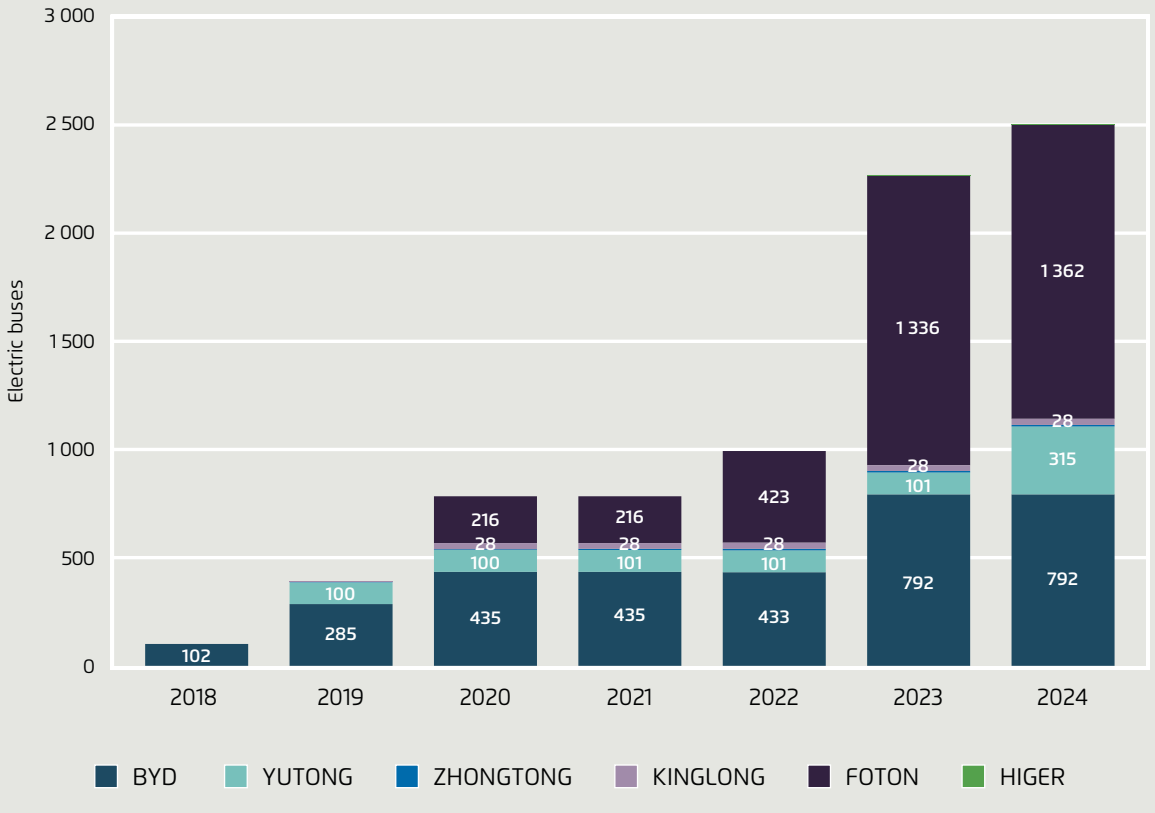
37 Ministerio de Energía de Chile, 2025c.

3.4 The industrial dimension of Santiago's e-bus transition

While Chile's policy design created the enabling framework for large-scale bus electrification, the readiness of manufacturers to supply was also a key factor. In Santiago, the composition of the e-bus fleet reveals that Chinese manufacturers were ready and have been the exclusive suppliers in the RED system, as shown in Figure 4. The data shows that BYD and Foton emerged as the dominant players, with Foton experiencing higher growth from 2020 onwards. Notably, no European, North American or Latin American manufacturers are represented in Santiago's electric fleet, despite the scale of opportunity created by Chile's ambitious procurement framework.

The reason for the dominance of Chinese manufacturers is the fact that they were able to respond quickly with reliable supply chains, competitive pricing, and integrated financing and service packages, when Chile opened its tenders for electric buses. In contrast, non-Chinese bus manufacturers played no role, missing the window to establish an early presence in what has become Latin America's flagship market for electric buses.
For international investors and industry stakeholders, this experience offers a crucial lesson: market opportunities in emerging economies can materialise rapidly when backed by strong policy signals, and suppliers who respond early are well positioned to secure a long-term market share. As other Latin American countries begin to scale their own electromobility programmes, the Santiago case demonstrates both the risks of late engagement and the potential rewards of proactive market entry.

Chinese manufacturers have exclusively supplied Santiago's electric bus fleet for RED from 2017 to 2024 — Figure 4



Agora Verkehrswende (2025) | Source: Centro de Movilidad Sostenible (2025).

The case of Santiago demonstrates that large-scale public transport electrification is possible when policy ambition, innovative business models, and supplier readiness converge. A pioneering business model reduced systemic risks and mobilised private investment, while foundational conditions such as stable subsidies, renewable electricity contracts, and workforce training ensured a resilient transition. The ripple effects across education and industry further anchored electromobility within Chile's economy and society, transforming Santiago into a regional reference point. At the same time, the industrial composition of the fleet underscores a critical global lesson: Chinese manufacturers were uniquely prepared to capture the opportunity, while others, for the most part, stood aside. In a nutshell, Santiago demonstrates both the potential of integrated state policy to accelerate decarbonisation and the importance of international stakeholders responding swiftly when such opportunities arise.

4 | Electromobility in other vehicle segments

4.1 Freight transport and logistics

Chile's electric freight transport remains primarily in a pilot phase focused on data collection, with around 281 electric trucks on the roads today.[38] Some remarkable initiatives have provided crucial performance metrics, including operational costs and efficiency gains that enable logistics companies to make informed decisions about transitioning their fleets.

This is the case of the *Giro Limpio* programme, administered by the Energy Sustainability Agency and funded by the Ministry of Energy.[39] Its most notable component, the "electrologistics experience", has progressed through three iterations since its 2021 debut in Santiago's metropolitan area.

Pilot results from Santiago and Concepción demonstrate compelling advantages:[40]

- 70 percent average reduction in operating costs compared to diesel trucks;
- 6.2 tonnes of CO_2 emissions avoided during testing phases;
- performance data collected from 15 electric vehicles to inform broader adoption.

These findings provide concrete evidence supporting the business case for electric freight vehicles, particularly in urban logistics operations.

4.2 Private vehicles and taxis

The electrification of Chile's light vehicle segment lags behind other American, European and Asian counterparts, with low numbers of registered vehicles both in absolute terms and per million inhabitants. This slow adoption mirrors regional trends across Latin America, where electric vehicle penetration remains minimal. For instance, Brazil leads the region with a total of 237 200 registered EVs, while Uruguay has the highest adoption rate per million inhabitants (5 382 vehicles). However, these figures pale in comparison to global leaders like China (34 million vehicles), the United States (6.3 million vehicles) or Germany (3.1 million vehicles), underscoring LATAM's marginal role in the global EV market (see Figure 5).

Despite regional delays, Chile's electric vehicle (EV) market has shown positive progress, with exponential growth in cumulative sales fuelled by recent public policies like the fuel economy standards. As of May 2025, EV sales surged from just 63 units in 2015 to over 14 308 in 2024, reflecting a remarkable annual growth rate. Battery electric vehicles (BEVs) dominate the market, accounting for 75 percent of total sales, outpacing plug-in hybrids (PHEVs). This leap – particularly accelerated between 2021 (1 825 units) and 2024 (14 308) – highlights the impact of fiscal incentives, stricter quotas and an expanding model lineup (see Figure 6). These trends align with the decarbonisation strategies outlined in the previous chapter.

Other government initiatives have targeted specific niches to stimulate growth. The programme ***Mi Taxi Eléctrico*** funded 143 electric taxis from 2020 to 2023 across six regions, and the programme ***Renueva tu Taxi*** offered subsidies ranging from 2 200 to 6 100 US dollars (USD) for hybrid vehicles and USD 9 600 for fully electric models.[41]

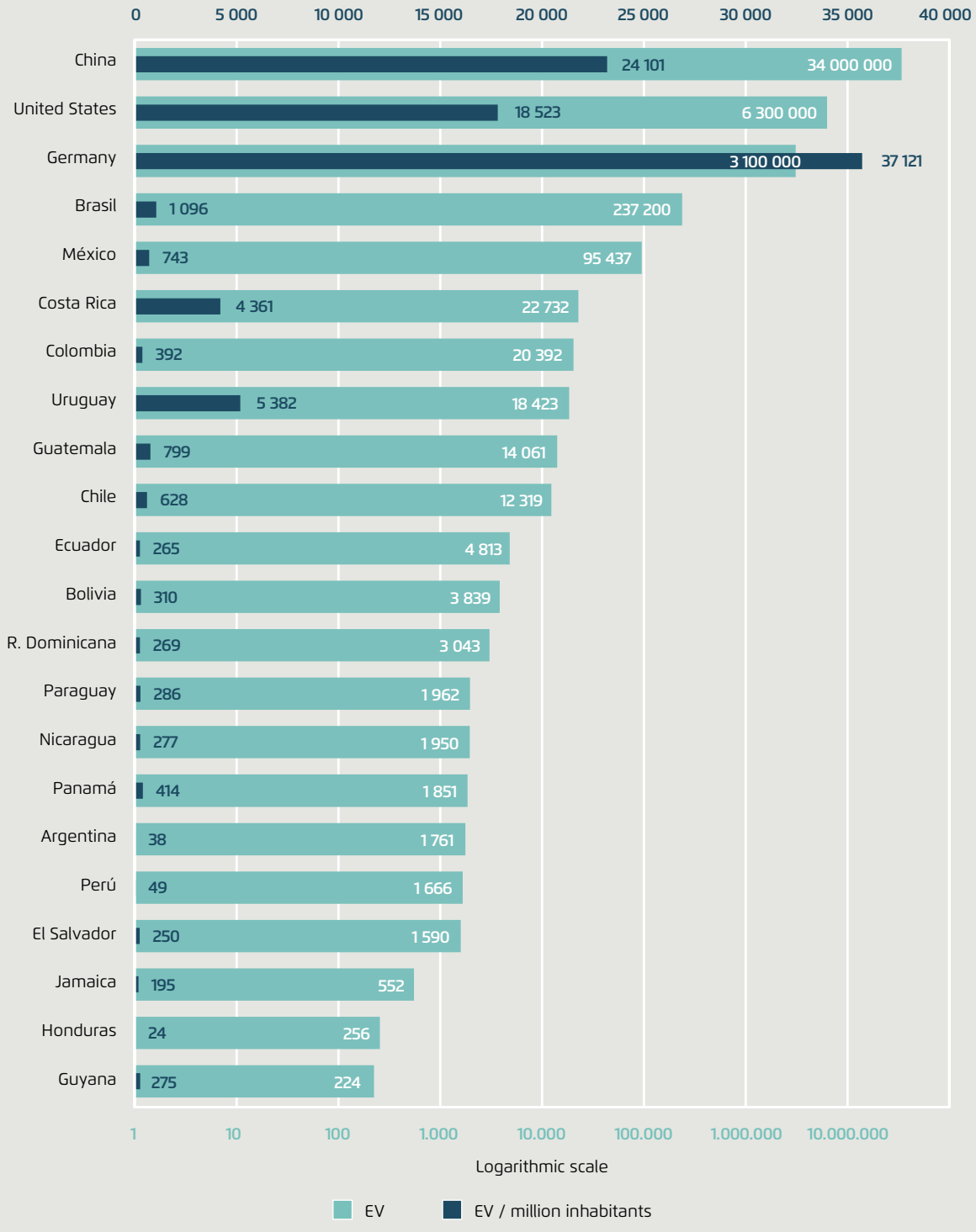
However, significant challenges continue to hinder widespread adoption of private electric vehicles in Chile, with two primary obstacles standing out.[42] First, **cost prohibitions** present a major barrier, as only three EV models are currently priced below USD 20 000 in the Chilean market – a threshold that remains unaffordable for most consumers in a region where per capita GDP ranges between USD 3 000 and USD 18 000. This affordability challenge is clearly reflected in the market penetration figures, with plug-in electric vehicles (BEV and PHEV) accounting for just 2.5 percent of total light vehicle sales as of May 2025, despite gradual increases in recent years (see Figure 7).[43]

Second, **infrastructure limitations** create substantial practical barriers to EV ownership. Chile's charging network remains underdeveloped with just one charger for every 18 000 inhabitants, while the total number of

38 Agencia de Sostenibilidad Energética, 2025a.
39 Giro Limpio, 2025.
40 Conecta Logística, 2025.
41 Agencia de Sostenibilidad Energética, 2025b.
42 Programa De Las Naciones Unidas Para El Desarrollo (PNUD), 2024.
43 Asociación Nacional Automotriz de Chile, 2025.

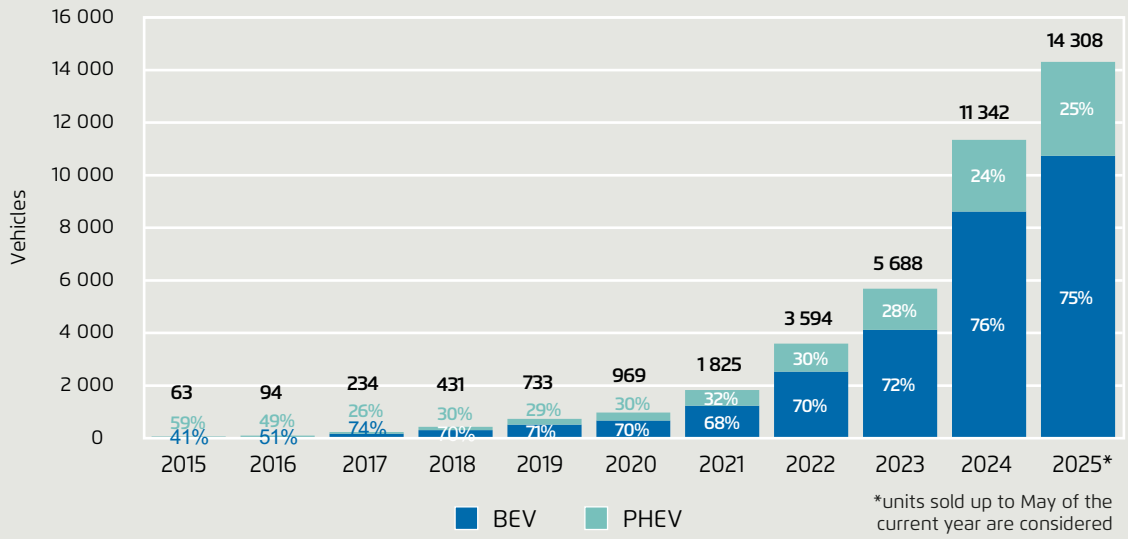
In the ranking of countries with the highest number of electric vehicles, Latin America lags behind compared to the major powers, whilst Brazil is the lead player in the region

Figure 5



Agora Verkehrswende (2025) | Note: China, US and Germany source: (IEA, 2025). Source: Organización Latinoamericana de Energía, 2025.

Cumulative sales show exponential growth in plug-in electric vehicles in the country Figure 6



Agora Verkehrswende (2025) | Source: Agencia de Sostenibilidad Energética, 2025a based on Asociación Nacional Automotriz de Chile, 2025.

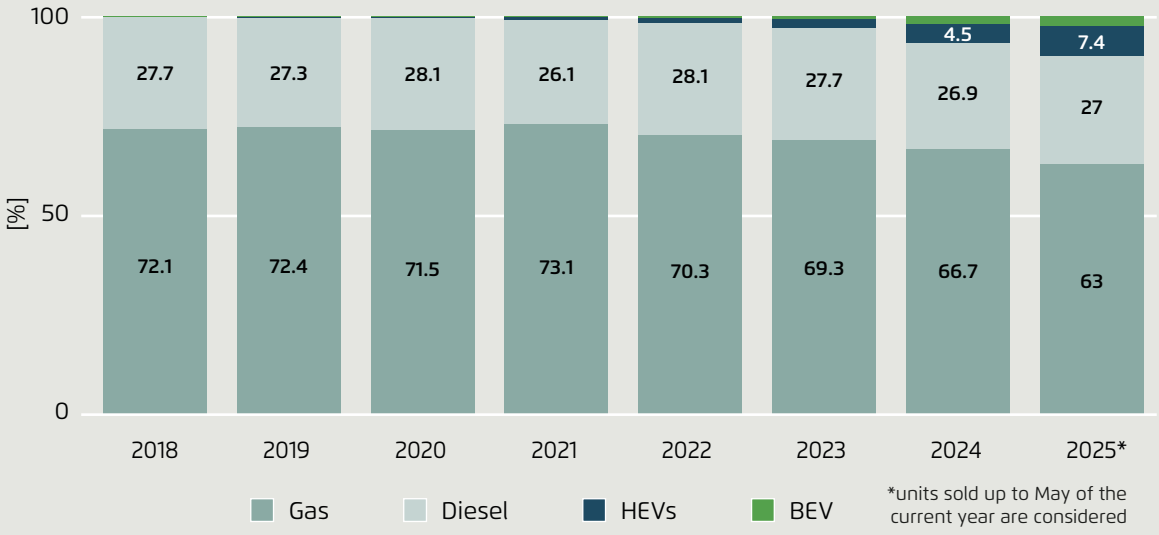
installed connectors reached only 1 719 by May 2025. Of these, just 30.7 percent are fast-charging stations.[44] Furthermore, the distribution of this infrastructure is heavily concentrated in the metropolitan region, which accounts for 75.4 percent of all charging stations,[45] creating significant challenges for EV adoption in other regions of the country.

To address this imbalance, the National Energy Sustainability Agency *(Agencia Nacional de Sostenibilidad Energética)* launched the *+Carga Rápida* initiative, leveraging international funding to expand fast-charging infrastructure beyond urban centres. In its first phase, the initiative deployed 16 fast chargers (equivalent to 32 charging points) across 14 cities and 12 regions, ensuring at least one publicly accessible fast charger per region. While this marks progress, the initiative's first report identified critical barriers to scaling infrastructure, including low short-term profitability, electrical grid constraints, scarce local expertise and logistical bottlenecks in equipment procurement and site retrofits.[46]

The geographic disparity in charging access exacerbates the practical difficulties of owning an electric vehicle outside major urban centres, reinforcing the urgency of addressing these barriers to achieve broader market transformation.

44 Asociación Nacional Automotriz de Chile, 2025.
45 Agencia de Sostenibilidad Energética, 2025a.
46 Agencia de Sostenibilidad Energética, 2023.

Sales share of light electric vehicles is increasing but remains low Figure 7



Agora Verkehrswende (2025) | Source: Asociación Nacional Automotriz de Chile, 2025.

Beyond public transport, Chile's broader vehicle electrification journey shows both progress and persistent constraints. In freight and logistics, pilot programmes such as *Giro Limpio* have produced valuable operational data and demonstrated significant cost and emissions reductions, laying the groundwork for future scaling. Furthermore, the private vehicle segment has expanded rapidly in recent years, driven by targeted incentives and growing model availability but still faces critical challenges of affordability as well as charging infrastructure, which keeps market penetration low. These experiences underscore a central lesson: while supportive policies can generate momentum, achieving mass adoption beyond buses requires addressing systemic barriers that affect household budgets, regional equity and private-sector investment incentives.

5 | Prospects for e-mobility advancement

Chile has established itself as a regional leader in public transport electrification, but sustained progress requires targeted actions to expand achievements beyond Santiago and into lagging sectors. Based on the policy analysis and outcomes documented in this report, the following recommendations become apparent:

1. **Accelerating regional electrification:** The stark regional imbalance in deployment demands urgent attention. While Santiago accounts for 95 percent of Chile's electric buses, secondary cities lag behind: Valparaíso operates just 44 units, Coquimbo 42 and Antofagasta 40. This pattern is also reflected in other vehicle segments: the metropolitan area concentrates 86 percent of EVs and 75 percent of public charging infrastructure. Recent announcements suggest a path for moving forward:
   - Copiapó will become South America's first city with a 100 percent electric public transport system by 2025, deploying 110 buses and setting a replicable model for mid-sized cities.[47]
   - Valparaíso's 2024 tender for 200 electric buses targets full electrification by 2030, backed by 12 billion CLP in charging infrastructure.[48]

   To sustain this momentum and close the gap between regions, Chile should adopt tailored solutions, including subsidised leasing programmes for regional operators, strategically placed fast-charging corridors and run pilots for cold-weather regions like Magallanes to test battery performance below freezing. Without such interventions, Chile risks creating a two-tier transport system where only the capital reaps decarbonisation benefits.

2. **Closing the affordability gap in private and freight transport:** private EV penetration languishes at 2.5 percent, while the freight sector, despite demonstrating 70 percent operational cost savings, remains in pilot phases. The following targeted measures could break this stagnation: tax incentives for EV imports, battery leasing programmes to reduce upfront costs and guaranteed offtake agreements for electric trucks.

3. **Increasing charging infrastructure expansion,** particularly given Chile's current ratio of only one public charging station per 18 000 residents. Strategic placement of 150kW+ fast charging stations along major highways, combined with urban mandates for new developments to include charging stations, could alleviate range anxiety and stimulate demand.

4. **Incorporating binding transport-sector targets in future NDCs:** Chile should transition transport-sector measures from theoretical modelling scenarios to enforceable targets in its next NDC update. Unlike the current non-binding projections, future commitments should mandate specific milestones to strengthen international credibility and accountability. This shift would mirror the rigour applied to energy-sector targets while addressing the share of 36 percent of national CO_2 emissions by the transport sector.

5. **Creating an open-access platform with standardised metrics:** building on Santiago's success with electric buses, the next phase requires the sharing of systematic data to guide regional adoption. By creating an open-access platform with standardised metrics, such as energy consumption (kilowatt-hour/kilometre), maintenance costs and battery performance in varied climates, Chile can provide Latin American and other regional partners with actionable insights.

6. **Shifting the energy matrix towards renewable energies:** even ambitious electrification targets will fall short unless Chile addresses its energy matrix. While Chile now generates around 70 percent of its electricity from renewables (2024),[49] fossil fuels still dominate its total energy mix (65.5 percent in 2023),[50] particularly in transportation. Electrifying the vehicle fleet will only achieve its climate potential if paired with (a) a 100 percent renewable grid, (b) phaseouts of coal and oil in industrial/thermal sectors and (c) policies preventing EV charging demand from being met with fossil-based generation.

47 Gobierno de Chile, 2024.

48 Ministerio de Transportes y Telecomunicaciones de Chile, 2025a.

49 Coordinador Eléctrico Nacional (CEN), 20252025.

50 IEA, 2025a.

Final remarks

Chile's electromobility path began with foundational policies, such as the Energy Policy 2050 and the National Electromobility Strategy, which set clear electrification targets and created a regulatory environment that encouraged investment and innovation. Subsequent measures, such as fuel economy standards, fiscal incentives and targeted infrastructure programmes, accelerated the adoption of electric vehicles and enabled Santiago to develop the third-largest electric bus fleet in the world.

Public transport electrification, particularly in Santiago, has delivered measurable environmental and social benefits, including significant reductions in particulate emissions, lower operational costs and high user acceptance. Beyond the capital, electrification in other vehicle segments (freight transport, private vehicles and taxis) remains at an early stage, though pilot programmes demonstrate strong potential in efficiency, emissions reduction and operational savings. Regional disparities in vehicle deployment and charging infrastructure remain a key challenge in the country.

Looking ahead, Chile's prospects for advancing e-mobility rely on targeted actions: accelerating regional electrification, closing the affordability gap for private and freight EVs, expanding fast-charging networks, incorporating binding transport-sector targets in future climate commitments, sharing standardised performance data and aligning vehicle electrification with a renewable-based energy matrix. These measures are critical for ensuring equitable access, maximising environmental impact and sustaining the momentum achieved to date.

Overall, Chile's experience illustrates that a strategic, iterative and data-driven approach can enable rapid transformation toward sustainable transport, offering a replicable model for emerging economies in Latin America and beyond.

List of abbreviations

AFT	Transantiago Financial Administrator *(Administrador Financiero de Transantiago)*
BEV	Battery Electric Vehicles
CASE	Centre for Sustainable Electromobility Acceleration *(Centro de Aceleración Sostenible de Electromovilidad)*
CMS	Centro de Movilidad Sostenible
CO_2eq	Carbon Dioxide equivalent
DTPM	Metropolitan Public Transport Department *(Departamento de Transporte Público Metropolitano)*
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IKI	International Climate Initiative
LT-LEDS	Long-Term Low Emission Development Strategies
NDC	Nationally Determined Contribution
RED	Sistema RED Movilidad (formerly Transantiago)
ZEV	Zero Emission Vehicle

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