



GGGI Technical Report No. 26

A Review of GGGI Members' E-Mobility Policy Measures



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Acronyms

CaPex	Capital expenditure
CO ₂	Carbon dioxide
COP26	26th UN Climate Change Conference of the Parties
EU	European Union
EV	Electric vehicle
GGGI	Global Green Growth Institute
GHG	Greenhouse gas
GM	General Motors
HOV	High-occupancy vehicle
ICE	Internal combustion engine
IEA	International Energy Agency
NDC	Nationally Determined Contribution
OEM	Original equipment manufacturer
R&D	Research and development
TCO	Total cost of ownership
UAE	United Arab Emirates
UK	United Kingdom
US	United States
ZEV	Zero-emission vehicle

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Executive Summary

GGGI Members' Nationally Determined Contributions (NDCs) and official strategies and plans¹ are at the first analytical level for understanding the policy efforts for electric vehicle (EV) adoption and the transformation of the transportation grid. On a level of domestic implementation, governments have employed policy incentives to translate their electrification aspirations in domestic markets. Thirty-one GGGI Members (58%) have at least one EV adoption policy in place—in the form of direct policy, infrastructure policy, or indirect policy—for the electrification of the transportation sector.

¹ This report analyzed 43 Members: Angola, Australia, Bahrain, Burkina Faso, Cambodia, Colombia, Costa Rica, Cote D'Ivoire, Denmark, Ecuador, Ethiopia, Fiji, Guyana, Hungary, Indonesia, Jordan, Kiribati, the Kyrgyz Republic, Lao PDR, Mexico, Mongolia, Nicaragua, Norway, Pakistan, Papua New Guinea, Paraguay, Peru, the Philippines, Qatar, the Republic of Korea, Rwanda, Senegal, Sri Lanka, Thailand, Tonga, Turkmenistan, the UAE, Uganda, the UK, Uzbekistan, Vanuatu, Vietnam, and the Organisation of Eastern Caribbean States (OECS).

These policies can be categorized according to their effects on **direct policies** that tackle the direct financial cost of EV purchase and ownership and make EVs more competitive in local markets,² **charging infrastructure policies** that promote the advancement of a suitable environment to sustain the electrification of the transportation system,³ and **indirect policies** that bolster the capacities of local markets and society's acceptance to support further expansion.⁴

Among the GGGI Members with EV domestic policies in place, 27 have adopted a direct EV policy, 16 have a charging infrastructure policy, and 15 have an indirect policy for EV adoption—corresponding to 50.9%, 30.2%, and 28.3% of the Members, respectively. Members that have adopted charging infrastructure and indirect incentives represent a smaller portion than Members with direct EV incentives.

The detailed analysis of the employed direct incentives helps to describe the existing EV frameworks of each Member. A comparison of the existing incentives with the macro policies promoted by the countries indicates how their agendas are translated into policymaking, and the direct policies

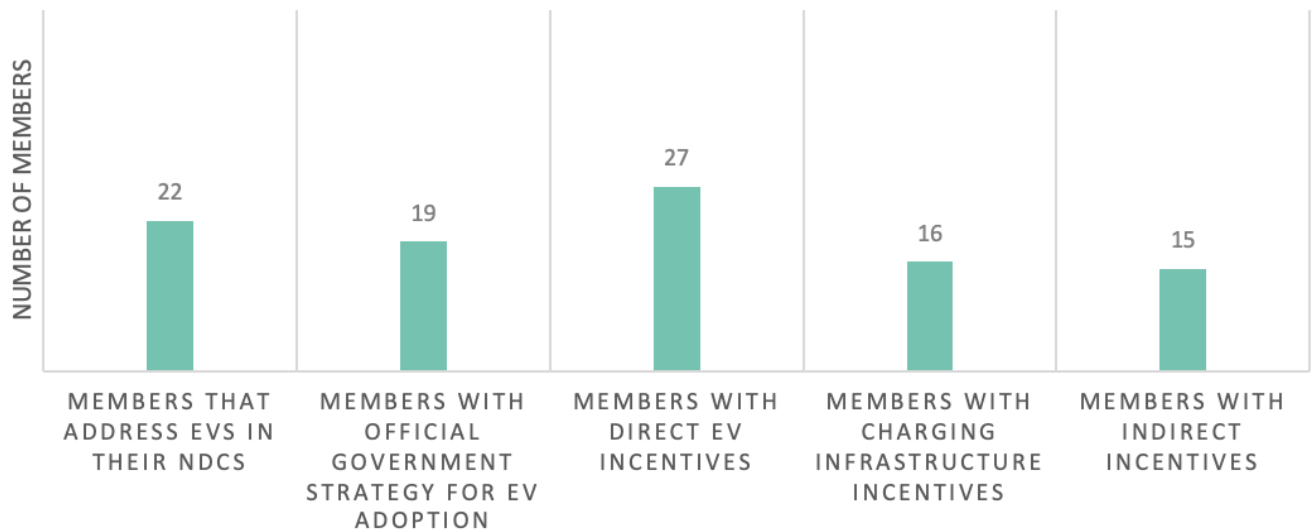
² Lévy et al., "The effect of fiscal incentives on market penetration of electric vehicles: A pairwise comparison of total cost of ownership."

³ Coffman et al., "Electric vehicles revisited: A review of factors that affect adoption."

⁴ IEA, "Promoting vehicle efficiency and electrification through stimulus packages."

Table 1. Key policy measures for EVs

EV Policies	Descriptions
Direct financial policies	<ul style="list-style-type: none"> Financial measures designed to directly influence the rate of EV adoption in the transportation system. The two types of direct financial policies are reoccurring (e.g., deductions or exemptions for ownership fees and income taxes) and one-time incentives (e.g., the provision of subsidies for EV purchase or deductions or exemptions for registration or consumption taxes and fees). Direct financial policies present positive results in the initial stages, but their effects tend to diminish with time.
Charging infrastructure policies	<ul style="list-style-type: none"> Measures and policies targeted at the promotion of charging points and infrastructure, which are not only available for public use but also account for private charging incentives. The diverse measures include deductions or reductions for charging fees, direct subsidies for home chargers and public charging stations, and regulations for charging stations. Direct incentives for charging infrastructure are more commonly observed in countries or regions that have already had their first boost of EV adoption and are seeking to promote it sustainably to public and private consumers.
Indirect policies	<ul style="list-style-type: none"> Nonfinancial measures designed to promote EV adoption and electrification of the transportation system indirectly. Indirect policies adopted in countries include R&D investments, provision of preferential lanes, awareness campaigns, and exemptions of road tolls and parking fees. These policies are more effective in either consolidated EV markets or where automobile industries have significant influence and consequently benefit from government support to EV technological development.

Figure 1. Members' EV macro and domestic policies

illustrate the first step to electrification for many Members. Although direct fiscal and monetary incentives are directly related to promoting private EV sales, some Members were able to innovate and incorporate other indirect strategies according to their goals and realities, promoting a set of policies that supports the comprehensive electrification of the transportation grid.

At first glance, the charging incentives seem to focus on creating the physical infrastructure for public charging. A preference for regulations and subsidies encouraging the construction, adaptation, or installation of readily available charging facilities, in comparison to fiscal incentives for the adoption of home chargers, for instance, might indicate how these Members seek a better adaptation of their transportation system for further expansion of electromobility. However, the promotion of private charging infrastructure, as well as further exploration of fiscal incentives to stabilize the electricity grid and meet EV charging demands,⁵ is necessary for a comprehensive transition to an electrified transportation system.

Although EV literature does not have an official category for indirect incentives, many studies have proposed analyzing the individual effects of these policies on EV adoption. Some authors have demonstrated how important EV visibility is to change social norms and promote the growing acceptance and normalization of EVs,⁶ while others illustrated the connection between EV deployment and the adoption of

R&D incentives.⁷ Although it is not possible to affirm the universal effectiveness of indirect incentives, policies that affect the physical infrastructure—such as special transit lanes, parking incentives, and exemptions or deductions for road tolls—have often been positively evaluated in the regions where they are in place.⁸ Indirect incentives are the most effective when they are implemented in conjunction with other financial incentives for EV adoption.⁹

5 Von Bonin et al., "Impact of Dynamic Electricity Tariff and Home PV System Incentives on Electric Vehicle Charging Behavior: Study on Potential Grid Implications and Economic Effects for Households."

6 Coffman et al., "Electric vehicles revisited: A review of factors that affect adoption."

7 Cansino et al., "Policy instruments to promote electro-mobility in the EU28: A comprehensive review."

8 Hardman, "Reoccurring and indirect incentives for plug-in electric vehicles – A review of the evidence."

9 Hardman.



1. INTRODUCTION

1.1. BACKGROUND

With escalating global temperatures and subsequent damage to human systems and ecosystems,¹⁰ the Paris Agreement requests its signatory parties to submit their Nationally Determined Contributions (NDCs) every five years, from 2020 onward, with action plans and strategies to reduce climate change. Since the transportation sector accounts for a considerable proportion of greenhouse gas (GHG) emissions—an average of 14% of global GHG emissions between 2010 and 2020¹¹—the promotion of clean energy and electric alternatives for private and public transportation is recommended as a main strategy for countries to both reduce GHG emissions and incentivize economic and industrial growth.¹²

In 2020, global mobility restrictions and lockdowns due to COVID-19 reduced GHG emissions from the transportation sector, dropping over 10% compared to the previous year.¹³

Road transportation, in particular—corresponding to three quarters of the transportation sector's emissions—saw a considerable fall in oil demand during the period, registering half of the level of 2019.¹⁴ Despite these numbers being only temporary, with the sector expected to recover its pre-COVID GHG emission levels by the end of 2021,¹⁵ they highlighted the key role that road transportation plays in the efforts against climate change and the urgency for further supporting the adoption of zero-emission vehicles (ZEVs) globally.¹⁶

1.2. GLOBAL E-MOBILITY TRENDS

Electric vehicle (EV) adoption has significantly increased in the last few years, with the global stock reaching 16.5 million vehicles in 2021.¹⁷ Despite the overall economic recession during the COVID-19 pandemic, the EV sector continued to rise during the period, hitting a record high in sales in 2021.¹⁸ China and the European Union (EU) led the market share of EV sales, accounting for 85% of the sector,

¹⁰ IPCC, Climate Change 2022: Impacts, adaptation and vulnerability – summary for policymakers.

¹¹ UNEP, Emissions Gap Report 2020, 7.

¹² UNEP, Emissions Gap Report 2021, 5.

¹³ IEA, Tracking Transport (2021).

¹⁴ IEA, Tracking Transport.

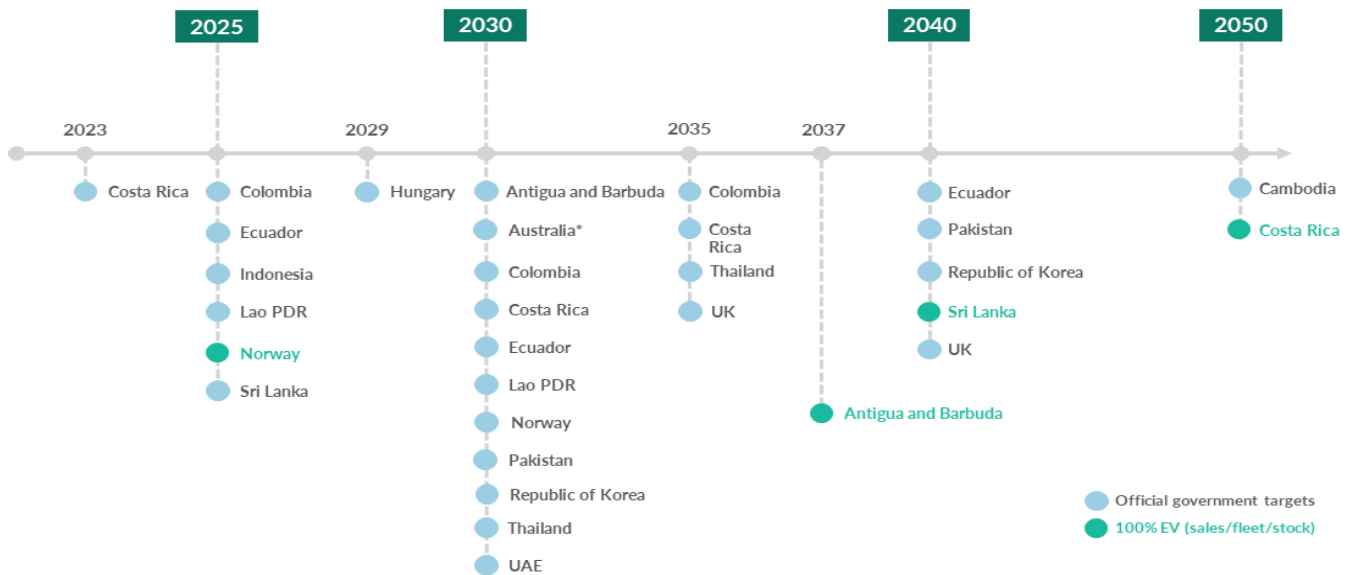
¹⁵ IEA, Global Energy Review 2021.

¹⁶ IEA, Tracking Transport.

¹⁷ Liu et al., "The impacts of COVID-19 pandemic on public transit demand in the United States."

¹⁸ IEA, Global EV Outlook 2022, 1.

Figure 2. GGGI Members' EV targets



with the United States following with 10%.¹⁹ While other regions still represent a small percentage of global sales, they also contribute to the EV market's steady growth, and the industry's expansion, combined with governments' support for electrification of the transportation sector, give optimistic forecasts for the future of EV markets.

The continuous growth in EV sales worldwide allows for the creation of new EV models in the industry, with 2021 having more than twice the number of models available three years before.²¹ A diversification of EV models is critical for its expansion in emerging markets, as most models are still classified as high-end or luxury vehicles, thus limiting mass-market consumption.²² Low-cost EV models are expected to enter the market in the coming years, with an increase in driving ranges and a fall in manufacturing prices.

International commitments to diminish climate change, national policy incentives for the expansion of electrification in transportation systems, and an increasing demand from the consumer market for EV alternatives have led to a burgeoning interest from manufacturers in this industry sector. Several major automakers have announced targets to either increase EV sales in following years (e.g., BMW, Ford, Hyundai, Kia, and Toyota), expand their EV portfolio (e.g., GM), or even fully electrify their automobile production (e.g., BYD, Dongfeng, Mercedes, and Volvo).²³

The private market also made commitments with governments to expand EV sales, most notably by the end

of the 26th UN Climate Change Conference of the Parties (COP26) in 2021, with ambitious electrification targets in various regions rendering positive perspectives for the global EV market.²⁴

Manufacturers' EV commitments reflect the growing interest in sustainable mobility within national and subnational strategies worldwide. The beginning of the 2020s, marked by international governance efforts to fight climate change, saw growth in official targets for EV adoption—with many countries supporting it through their NDCs, budget allocations, or other macro strategies for sustainable development and climate change mitigation.²⁵ More than 20 countries announced official targets for electrification of the transportation system in 2021,²⁶ and by 2022, 17 of those countries were GGGI Members.

Coordination between the private and public sectors has been essential for growing interest in electrification worldwide. Although macro policies—such as the EU carbon dioxide (CO₂) emissions standards—play an important role, policy and financial incentives promoted by governments are key instruments in creating favorable conditions for long-term EV adoption and transformation of the transportation infrastructure.²⁷ The effects of government incentives can be seen in the two largest markets, China and the United States, but with the opposite perspective: both countries have experienced either little growth or a decline in EV sales because of the reduction or withdrawal of policy incentives.²⁸

19 Paoli, Gül, "Electric cars fend off supply challenges to more than double global sales," IEA.

20 IEA, Global EV Outlook 2022, 1.

21 IEA, Global EV Outlook 2022, 1.

22 IEA, Global EV Outlook 2022, 1.

23 IEA, Global EV Outlook 2022, 1.

24 IEA, Global EV Outlook 2022, 3.

25 IEA, Global EV Outlook 2021.

26 IEA, Global EV Outlook 2021.

27 IEA, Global EV Outlook 2021.

28 IEA, Global EV Outlook 2021.

Policy incentives are important to make EVs more competitive in the automotive market and to support the long-term infrastructure and cultural changes necessary to enable a green transition and sustainable electrification of the transportation sector. When properly designed and implemented, market incentives and financial subsidies can increase EV sales by reducing the cost and targeting market failures.²⁹ In contrast, broader policies that target the infrastructure and technological landscapes are key features to stimulate intensive EV adoption.³⁰ When elaborating their electromobility strategies, countries must analyze their market, economic, social, and political conditions to formulate measures that will effectively target their setbacks and develop EV adoption.

Chapter 4 summarizes the findings of the report as well as the policy recommendations according to the different country scenarios that best promote electrification of the transportation system for GGGI Members.

1.3. PURPOSE & SCOPE

With experience and expertise in promoting sustainable transportation among a diverse set of Members, GGGI is able to provide public policy analyses of Members' EV policy measures, as well as the macro perspective necessary, not only for the achievement of electrification targets but also for the formulation and implementation of Members' EV strategies.

This report explores the possibilities of policy measures for EV promotion among GGGI Members. Through the identification of existing barriers and incentives for EV adoption, this report intends to provide the expertise necessary for countries to develop policy measures that sustainably transform their transportation systems, expand their EV markets, and identify their strengths and vulnerabilities to achieving electrification objectives.

GGGI Technical Report No.26 acts as an initial step for the GGGI team and Members to negotiate sustainable mobility projects to fit their specific needs and purposes. The report is divided into four chapters as follows:

Chapter 1 presents an overview of electromobility, global trends within the private and public spheres for EV expansion and adoption, and the structure to be followed in the consecutive chapters.

Chapter 2 introduces the current obstacles to EV adoption to contextualize the adopted division of EV policy incentives, providing concise explanations and examples for the contextualization of the analysis.

Chapter 3 provides an in-depth exposition of the existing policy incentives of GGGI Members, which is divided into the three main categories identified in the previous chapter.

²⁹ IEA, Global EV Outlook 2021, 2.

³⁰ Cansino et al., "Policy instruments to promote electro-mobility in EU28: A comprehensive review."



2. EV ADOPTION BARRIERS AND POLICY MEASURES

Over the past decade, a diverse set of countries has developed a wide framework of policy measures to directly or indirectly stimulate EV market growth and widespread adoption. While scholars have proposed different parameters for the classification of these policies, often depending on specific market or regional analyses, the lack of consensus on a categorization method has curbed the development of a more dynamic dialogue on the policies' prioritization and effectiveness. This report proposes a new set of EV policy incentives, categorized according to the EV adoption barrier they propose to tackle. Identifying the obstacles contextualizes the classification of policy incentives, aiming to demonstrate the connections between a given stage of electrification and the recommendation of specific policy sets for accelerating EV adoption.

2.1. BARRIERS TO EV ADOPTION

Widespread EV adoption in global markets is hindered by a distinct obstacles that must be identified and addressed. While there are important considerations to be made in a case-by-case analysis, academic studies³¹ and private sector examinations³² identify the most significant current barriers for EV adoption and state-level deployment. A brief review of the literature ensues, divided into three sets of aspects that hinder e-mobility: **economics**, **convenience**, and **reliability**.

Economics seem to be at the forefront of themes impeding widespread EV adoption, with diverse studies identifying high upfront costs as the most common or well-known factor.³³ The average cost of EVs remains higher than that of internal combustion engine (ICE) vehicles, with many consumers repelled by the high manufacturing costs driven by advanced EV production technology.³⁴ Providing incentives to reduce the upfront costs is an important asset since the largest barrier to EV adoption is the market price difference between EVs and ICE vehicles.³⁵

31 Krishna, G., "Understanding and identifying barriers to electric vehicle adoption through thematic analysis."

32 IEA, Global EV Outlook 2021, 2.

33 IEA, Global EV Outlook 2021, 2.

34 Adhikari et al., "Identification and analysis of barriers against electric vehicle use."

35 Krishna, G.

The high purchase price of new EV models presents a clear demand for secondhand EV markets. There is, however, still a considerable scarcity of used EV models, and their prices are not reduced enough to be competitive compared to used ICE vehicles.³⁶ Regardless of the demand in secondhand EV markets, potential EV buyers have also relayed hesitancy toward the low value and uncertainty of the resale value in secondhand markets.³⁷ The longevity of an EV and the potential of the used car market are intrinsically connected with the vehicle's battery life—requiring frequent replacements that affect the total cost of ownership (TCO) of EVs.³⁸

Convenience is explored as the last category of EV adoption criteria, positing a more critical look at the infrastructure to support electromobility. Since EVs are highly dependent on charging infrastructure availability, the lack of charging points directly affects consumers' openness to purchasing an EV.³⁹ Long charging times also negatively affect the charging reliability, as many potential buyers express concerns about the waiting time and the lack of fast-charging stations available for public use.⁴⁰

Convenience is also affected by the number of repair centers that can work with EV technology. Similar to the concern about EV models and battery safety, the new technology and consequential less know-how in service centers poses challenges for EV adoption.⁴¹ This is a concern connected not only to potential EV buyers but also current EV users, who have expressed frustration about the difficulties of gaining expert assistance when faced with technical problems.⁴²

Reliability affects not only the economic aspects of EV sales and ownership but also the overall consumer perception of EVs. As it is still a new technology in many countries and not a common vehicle choice among some populations, there is a lack of knowledge and experience regarding EV safety and performance. Consumers continue to express fear over EVs, reporting their apprehension of explosions during extreme situations or of other possible effects of the exclusive components of EV batteries.⁴³ Concerns regarding the performance of EVs are also frequent, with the driving range being one of the main perceived nonfinancial limitations of EV adoption.⁴⁴ The relative lack of

available EV models and designs also represents a barrier to adoption. With a limited number of models in the market, as well as only some original equipment manufacturer (OEM) companies investing in electromobility, consumers are often constrained by the models and functionalities available, not having as much freedom for diversification as with ICE vehicles.⁴⁵ However, recent developments in EV pledges from major automakers shed a positive perception on the market expansion of EV models to meet the growing demand for zero-emission vehicles (ZEVs) in the near future.⁴⁶

When categorizing barriers to EV adoption, it is possible to classify policy incentives according to the barriers they intend to tackle. These can be divided into **direct incentives**, **charging infrastructure incentives**, and **indirect incentives**.

2.2. DIRECT INCENTIVES FOR EVs

The first set of measures are **direct financial policies** designed specifically to support the initial uptake of EVs in the local market. Scholars have attributed considerable importance to fiscal incentives to reduce the consumption costs and increase the price competitiveness of EVs in markets dominated by ICE vehicles.⁴⁷ These measures can either be reoccurring, such as deductions or exemptions for ownership fees and income taxes, or a one-time incentive, such as EV purchase subsidies or deductions or exemptions for registration or consumption taxes and fees.

Subsidies—a one-time direct incentive and one of the most prominent incentives for market promotion in EV literature—are classified in this report as direct official monetary concessions for EV purchases.⁴⁸ While all the direct financial incentives considered aim to reduce the TCO of EVs and make them more competitive with ICE vehicles in the automobile market, subsidies directly influence the upfront cost of EVs. They can take the form of direct grants for the purchase, official rebates on the selling price, or exclusive financing and credit options to buyers.

Most financial incentives come in the form of reductions or exemptions for EV taxes and fees, with **import taxes** being no different. Countries apply import incentives through different taxes and fees: import duties, customs taxes, excise taxes, and other existing tariffs in international trade the country might have. These incentives are particularly

36 Krishna, G.

37 Adhikari et al.

38 Adhikari et al.

39 Biresselioglu et al., "Electric mobility in Europe: A comprehensive review of motivators and barriers in decision making processes."

40 Coffman et al., "Electric vehicles revisited: A review of factors that affect adoption."

41 Adhikari et al.

42 Adhikari et al., "Identification and analysis of barriers against electric vehicle use."

43 Krishna, G., "Understanding and identifying barriers to electric vehicle adoption through thematic analysis."

44 Coffman et al., "Electric vehicles revisited: A review of factors that affect adoption."

45 Biresselioglu et al., "Electric mobility in Europe: A comprehensive review of motivators and barriers in decision making processes."

46 IEA, Global EV Outlook 2022.

47 Lévy et al., "The effects of fiscal incentives on market penetration of electric vehicles: A pairwise comparison of total cost of ownership."

48 Hardman et al., "The effectiveness of financial purchase incentives for battery electric vehicles – A review of the evidence."

important to countries that do not yet have strong EV industries in their national territories, as the reduction of import barriers directly affects the selling price and helps raise the competitiveness of these models in the national market.⁴⁹

A similar dynamic can be observed with **consumption tax incentives**. While each country's policy will differ according to their legislation on consumption fees and taxes—most commonly, deductions or exemptions for VAT, stamp duty, and excise taxes—these incentives have a direct effect on the upfront cost of EVs. The last incentive considered within one-time direct incentives is reductions or exemptions for **registration taxes and fees**. While the previous incentives have a direct effect on the upfront cost of EVs, policies targeted at EV registration are rather linked to the TCO of EVs—being granted solely during the official registration of the vehicle.

In contrast to the one-time incentives, **reoccurring** incentives are directed to the EV ownership period. **Ownership tax incentives**, most commonly in the form of deductions or exemptions, are the most common example. They can apply to different tariffs associated with the private possession of EVs, usually in the form of traditional ownership taxes or road and circulation taxes. Furthermore, while ownership taxes are assigned to the private possession of EVs, **company taxes** refer to the professional purchase and ownership of EVs. Company taxes can vary, including exemptions or deductions for income taxes, tax holidays, or other tariffs that are directly applied to EVs.

Although direct financial policies can have a positive effect on EV adoption rates, many considerations must be made in a case-by-case analysis. Factors such as the EV adoption stage in the specific market, the geographical and infrastructure landscapes, and the base-consumer profile directly affect the positive effects of financial incentives. In general, however, direct fiscal incentives have been found to present positive results in the initial stages, but their impact reduces over time.⁵⁰

Cases of direct incentives for EVs in Costa Rica

An initial strategy that employs different direct incentives to boost EV implementation has had positive results worldwide. Costa Rica's case serves as an example: with the implementation of the Incentives and EV Promotion Law (Ley de Incentivos y Promoción para el Transporte Eléctrico), the light-duty EV fleet more than doubled in the year following its inception, from 2018 to 2019, and continued growing, reaching the mark of over 3,000 vehicles in 2022 (Costa Rica, n.d.).

The law—which includes exemptions and deductions for import and consumer taxes, as well as the facilitation of EV tax credits—has been an important instrument for the National Plan of Electric Transportation (Plan Nacional de Transporte Eléctrico – PNTE) as well as an active part of the country's National Decarbonization Plan and the achievement of the targets set forward by its NDC (Méndez, 2022). The successful results of the direct incentives, aligned with the country's macro strategies for decarbonization and the upgrading of its transportation system, led to an extension of its application, recently officialized by the adoption of the Incentives to Green Transportation Law (Ley de Incentivos al Transporte Verde), in May 2022 (ibid.).

2.3. CHARGING INFRASTRUCTURE INCENTIVES FOR EVs

After direct measures open the market for EV adoption, the second set of policies to support the electrification of transport is **direct incentives for charging infrastructure**. While financial incentives present a strong initial effect, they tend to stagnate in importance over time. Having reliable and abundant EV charging facilities becomes increasingly significant for EV adoption, with its effects adding up over the years.⁵¹ The number of available charging facilities can directly affect consumers' range anxiety about the limitations of EV battery life, explaining the significance of a high charging density to promote EV adoption rates in a specific region.⁵²

While direct EV promotion incentives are usually targeted at consumers, direct charging infrastructure incentives are primarily targeted at commercial and public facilities, although policies that support private purchase and installation of EV charging equipment exist and have been considered in this report. Measures such as subsidies and regulations stimulate infrastructure changes and better connection of the electricity grid and, consequently, affect the long-term EV landscape.⁵³ These incentives, therefore, are more commonly observed in countries or regions that have already had their first boost of EV adoption and seek to promote it sustainably to public and private consumers.

Charging infrastructure incentives are most commonly financial. Policies that target **charging fees**, for instance, are found within this category. They seek to promote EV uptake by granting charging benefits, either through reductions or exemptions for charging fees at public charging stations or incentives in electricity tariffs for private EV owners or for companies that invest in charging facilities.

49 Vargas et al., "The new neighbor across the street: An outlook for battery electric vehicles adoption in Brazil."

50 Rietmann, Lieven, "How policy measures succeeded to promote electric mobility: Worldwide review and outlook."

51 Rietmann, Lieven.

52 Wang et al., "Assessments of incentives on electric vehicle promotion in China."

53 Egnér & Trosvik, "Electric vehicle adoption in Sweden and the impact of local policy instruments."

Incentives focused on **home chargers** seek to facilitate the installation of personal EV chargers, targeting installation costs. Although this policy is still classified as a financial incentive—as it works through financial benefits—it directly affects the development of a larger and more sustainable charging infrastructure for the transition to an electrified transportation network. A similar dynamic is observed in **financial incentives for public charging stations**, which consist of direct grants or tax benefits for the purchase and installation of public charging infrastructure as well as the construction and installation of public charging stations. While these incentives can assume different forms, the classification is based on the financial incentive for developing public charging facilities, whether it be installing charging points in public buildings or constructing charging stations in strategic locations.

Aside from financial incentives, governments may also offer incentives for public charging stations through **regulations**. While these incentives are not monetary, they consist of creating official legislation for the establishment of charging infrastructure, often related to a country's EV or sustainable mobility strategy. Unlike the previous incentives, it focuses on policy and legislation, rather than on the market, and allows countries to expand their strategies to different levels.

Cases of charging incentives in Guyana

EV adoption has not been equalized throughout different regions of the world: while over two thirds of the international EV market is dominated by China, the European Union, and the United States, other regions fall behind—with the Latin America and Caribbean EV market representing just over 50,000 EVs of the total global sales in 2021 (IEA, 2022). Despite not reaching the levels of the main markets, Latin America and the Caribbean has shown increasing growth, reaching record sales in 2021 (ibid.). These figures have been supported by official commitments to decarbonization and the development of sustainable transportation strategies in many countries, opening space for electrification of the transportation grid—a comprehensive transition of the transportation system can only be achieved by active support of the infrastructure's transformation.

Guyana, an oil producing country, has committed to a 70% GHG emissions reduction by 2030 (OilNow, 2022a) and views the EV industry as an important route to reduce the country's carbon footprint (Guyana High Commission in Pretoria, 2022b). While still in its initial stage—with the official pledge for electrification announced in early 2022 (Braithwaite, 2022)—the Guyanese government's strategy has focused not only on the establishment of purchase incentives but also on the promotion of charging stations to support long-term EV adoption (ibid.). With

the commitment to install fast-charging stations in three regions of the country in February 2022 (ibid.), the government officialized its pledge in June 2022, when it opened procurements for companies to supply EV charging stations (OilNow, 2022b).

2.4. INDIRECT INCENTIVES FOR EVs

The last set of policies is **indirect incentives for EV adoption**. They comprise various nonmonetary measures that do not directly stimulate an increase in EV sales but support the solidification of secondary factors necessary for the electrification of the transportation sector. Often referred to as “nonfinancial incentives” in literature,⁵⁴ these incentives include measures such as R&D investments, the provision of preferential lanes, awareness campaigns, and exemptions or deductions for road tolls and parking fees. They are more effective in consolidated EV markets or where automobile industries have significant influence and consequently benefit from government support for EV technological development.⁵⁵

Parking fee benefits are commonly adopted as indirect incentives for EV promotion. They consist of deductions and exemptions for EV parking, either at public paid parking spaces or charging stations. Together with **road toll incentives**, which grant EV drivers deductions or exemptions for tollgate fees, these indirect incentives are financial in nature but do not directly affect the upfront price and are not necessarily related to the TCO of EVs. Access to **preferential lanes** are also popular indirect incentives for EV users. By granting EVs access to special lanes—most often, bus lanes—this measure promotes EV adoption by creating nonfinancial advantages for its ownership and use and promoting EV visibility among the public as well as not being costly to the public budget.

Awareness campaigns are valuable incentives for EV adoption. Through marketing campaigns to promote the benefits of EV ownership or the existing policy incentives for its purchase, as well as through the transformation of vehicular fleets in public administration to raise visibility, these measures are important to lever the popularity of EV adoption in the population. Additionally, they serve as leverage to heighten the effectiveness of direct financial incentives⁵⁶ and, consequently, support the widespread transition of the transportation sector.

Another important policy for strengthening the electrification infrastructure is supporting **R&D projects**. With the rapid development of innovative EV technology in

54 Hardman, “Understanding the impact of reoccurring and non-financial incentives on plug-in electric vehicle adoption – A review.”

55 Cansino et al., “Policy instruments to promote electro-mobility in the EU28: A comprehensive review.”

56 Springer & Gopal, “Effectiveness of electric vehicle incentives in the United States.”

the past years, compared to the beginning of the 2010s,⁵⁷ the promotion of R&D in high-performing industries allows for continuous advancements in EV technology, which will aid in lowering EV prices as well as boosting EVs' perceived reliability among consumers.⁵⁸

Other indirect incentives may exist within countries that seek to promote EV adoption according to their markets and their population's particular needs. Popular indirect policies among GGGI Members include exemptions from driving restrictions (commonly in carbon-free zones) and alternating schemes based on vehicle license plates. Emission standards (e.g., minimum emission standards, bonus-malus systems, and vehicle scrapping schemes) are also a common example, especially in countries and regions with high levels of GHG emissions.

Cases of indirect incentives in the Republic of Korea

The South Korean automobile industry is slowly adapting its business strategies to fit green mobility and decarbonization, working with the government to boost its national commitments and targets (Lee, Mah, 2020). The country's green growth efforts are visible in its EV market, ranking seventh in global EV sales in 2021—a 96% growth from the previous year (Korea Herald, 2021). The South Korean government has employed diverse incentives to strengthen the EV market throughout the years (Manthey, 2021).

Investment in EVs align with the country's long-term goals and the automobile industry's capital capabilities, which led to official earmarked investments of over USD 10 billion in 2022 (ibid.). Despite the focus being on production, the Korean government's strategy Cases of indirect incentives in the Republic of Korea using on the electrification of the transport sector and has invested in areas such as the availability of materials, capacity building for EV technicians, and the expansion of domestic EV sales (Kim, 2022).

⁵⁷ EA, Global EV Outlook 2022.

⁵⁸ Lee & Mah, "Industrial policy and the development of the electric vehicles industry: The case of Korea."



3. GGGI MEMBERS' POLICY PROFILE

In the previous chapter, a collective overview of the main policies for EV adoption and the transformation of the transportation network to sustain long-term electrification of the system was described through a review of academic and organizational scholarship. In this chapter, these measures will be identified among GGGI Members and placed within the framework to enable further analysis in the following chapter.

3.1. GGGI MEMBERS' DIRECT INCENTIVES FOR EV

Direct incentives, in the form of either subsidies or deductions/exemptions for taxes and fees for vehicle acquisition and ownership, are often seen as important instruments for initial EV uptake.⁵⁹ Direct incentives are the policies most adopted by GGGI countries, which are divided into one-time incentives (e.g., subsidies and import,

consumption, and registration tax deductions/exemptions) and reoccurring incentives (e.g., ownership and company tax deductions/exemptions).

Twenty-seven Members—Australia, Cambodia, Colombia, Costa Rica, Denmark, Fiji, Guyana, Hungary, Jordan, the Republic of Korea, the Kyrgyz Republic, Lao PDR, Mexico, Mongolia, Montserrat, Nicaragua, Norway, Pakistan, Paraguay, Peru, the Philippines, Rwanda, Sri Lanka, Thailand, Turkmenistan, the UAE, and the UK—have at least one form of a direct incentive in their national territory.

Evaluations of policies for the electrification of the transportation sector commonly explore the role of direct incentives in consumer behaviors. In the EU, the leading region in terms of EV penetration, direct tax incentives have been identified as critical policies to stimulate the adoption of different electrification strategies.⁶⁰ Norway is an important example, with over 65% of new car registrations in 2021 being EVs⁶¹ due to comprehensive electrification strategies and the effective adoption of several direct incentives.⁶² When efficiently employed, direct incentives can reduce the initial EV cost and consequently raise the cost competitiveness of EVs, compared to ICE vehicles, in local automobile markets.⁶³

⁶⁰ Cansino et al., "Policy instruments to promote electro-mobility in the EU28: A comprehensive review."

⁶¹ Ferris, Nick, "Weekly data: Why Norway leads the world for electric vehicles."

⁶² Government.no, "Norway is electric."

⁶³ Lévy et al., "The effect of fiscal incentives on market penetration of electric vehicles: A pairwise comparison of total cost of ownership."

Figure 3. Direct EV incentives among GGGI Members

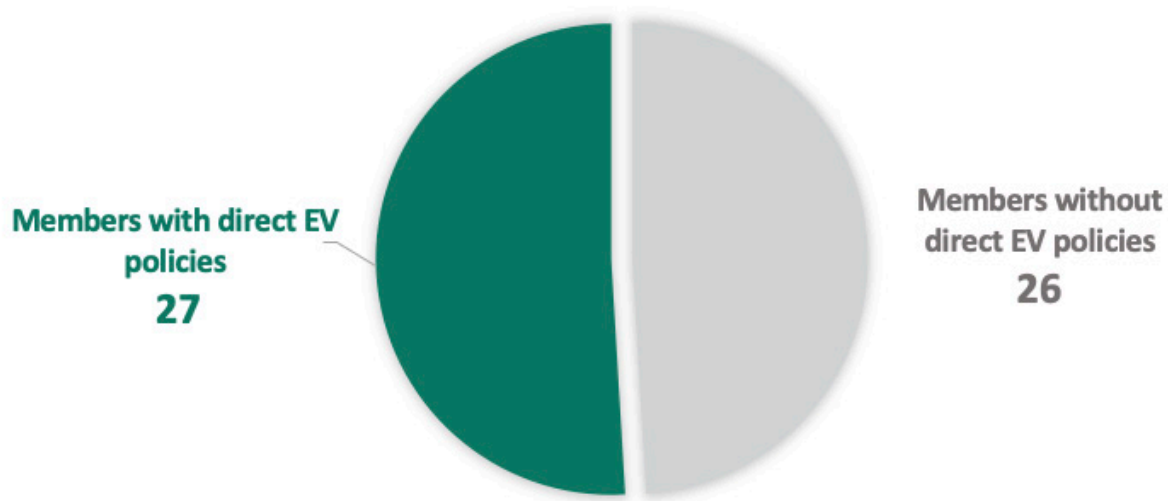


Table 2. Summary of GGGI Members' direct EV policy incentives

[illegible]

Sri Lanka	●	●	●	●	●	●	●	●	●	●
Thailand	●	●	●	●	●	●	●	●	●	●
Turkmenistan	●	●	●	●	●	●	●	●	●	●
UAE	●	●	●	●	●	●	●	●	●	●
UK	●	●	●	●	●	●	●	●	●	●
● Applicable to the country						● Not applicable to the country				

A detailed look at the different types of EV direct incentives adopted by GGGI Members allows for a better understanding of their strategies. One of the most popular direct incentives is import tax deductions or exemptions. Seventeen Members—Cambodia, Colombia, Costa Rica, Fiji, Guyana, Jordan, the Kyrgyz Republic, Lao PDR, Nicaragua, Norway, Pakistan, Paraguay, the Philippines, Rwanda, Sri Lanka, Thailand, and Turkmenistan—have adopted at least one type of import incentive for EV adoption. Among these countries, only three—Cambodia, Lao PDR, and Turkmenistan—have not adopted other direct incentives in their EV strategies.

The other most popular direct incentive is consumption tax deductions or exemptions, adopted by Australia, Colombia, Costa Rica, Guyana, Jordan, the Kyrgyz Republic, Mongolia, Montserrat, Nicaragua, Norway, Pakistan, Paraguay, Peru, the Philippines, the Republic of Korea, Rwanda, and Thailand. Mongolia and Montserrat have adopted solely a consumption incentive as a direct policy for EV adoption, while other Members have combined it with additional direct incentives.

Incentives for EV registration were identified among twelve Members—Australia, Colombia, Denmark, Hungary, Jordan, Mexico, Norway, Pakistan, the Republic of Korea, Sri Lanka, the UAE, and the UK—while ownership tax incentives were

identified among nine Members—Colombia, Denmark, Hungary, Mexico, Norway, Pakistan, the Republic of Korea, Thailand, and the UK. Members appear to prefer to adopt tax exemptions rather than deductions, with this modality being the most common in all direct tax incentives analyzed.

Finally, five Members provide subsidies to EV buyers—Australia, Costa Rica, Hungary, the Republic of Korea, and the UK—and six have a company tax incentive—Fiji, Hungary, Norway, Rwanda, Thailand, and the UK. The subsidies were either direct grants, an official loan for purchasing EVs, or rebates for EV purchases, while the company taxes were policies directly related to EV purchase and ownership by private companies.

The direct subsidies considered were direct grants, rebates, or exclusive financing and loans for the private purchase of EVs. Hungary, the Republic of Korea, and the UK grant direct subsidies for EV purchases, while Costa Rica grants private credit opportunities through the national bank. Australia's incentives operate at a state level, with some states offering rebates for EV purchases (New South Wales, Queensland, and South Australia), while others provide direct subsidies (Victoria) and private loans (Australia Capital Territory).

Members grant import incentives to EV buyers through exemptions or deductions for taxes and fees. Some countries

Figure 4. Number of Members per direct incentive policy type



differentiate their one-time incentives between EVs and other low-emission vehicles, more commonly between EVs and hybrids. Turkmenistan, for example, offers full exemption from customs duties for EVs, but only a deduction for other hybrids, while Korea offers greater consumption tax exemptions for EVs than for hybrid vehicles. Sri Lanka goes a step further, taxing the registration of hybrid vehicles (20% of the total value) while exempting EVs. These policy choices promote not only the adoption of low-emission vehicles in general but also a preference for EVs over other alternatives that contribute to reducing GHG emissions.

While some countries use direct one-time incentives to increase the number of EVs in the market, others also use it as a tool to give incentives to their national EV industry. For instance, Thailand offers import incentives for EVs but also applies an excise tax deduction for locally produced vehicles. The Kyrgyz Republic gives incentives for the import of EVs, their spare parts, and charging equipment while also promoting consumption tax deductions for locally produced vehicles, whereas Pakistan's direct incentives package includes not only different incentives for the import of EVs according to their motor capacity but also other tax deductions only for locally produced hybrids and EVs.

Stronger participation can be perceived from European countries in reoccurring direct policies—Denmark has an ownership tax incentive, while Hungary, Norway, and the UK have both ownership and company tax incentives. Most of these countries are leaders in EV sales globally—with Norway at the top and the UK and Denmark following closely behind.⁶⁴ In contrast, Rwanda uses its reoccurring incentives to promote the local EV market, granting tax

exemptions and deductions to private companies that import and assemble the vehicles. Although direct EV policies are generally considered a tool to overcome the first barrier to EV adoption, reoccurring incentives might promote continued interest in EV ownership.

The detailed analysis of the direct incentives employed by Members helps paint a more nuanced picture of the existing EV frameworks. Comparing the existing incentives with the macro policies promoted by the countries indicates how their agendas are translated into policymaking, and the direct policies illustrate the first step to the electrification of many Members. Although direct fiscal and monetary incentives are directly related to promoting private EV purchases, some Members were able to innovate and incorporate other indirect strategies according to their goals and realities, promoting a set of policies that support the comprehensive electrification of the transportation grid.

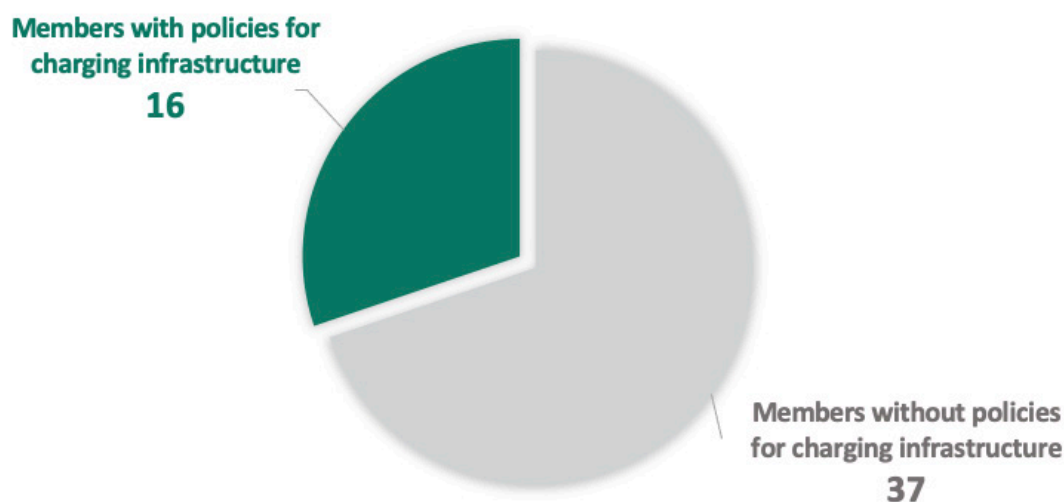
3.2. GGGI MEMBERS' CHARGING INFRASTRUCTURE INCENTIVES

The second category of policy incentives analyzed was **charging infrastructure incentives**. While direct policies target the cost of EV acquisition and ownership, charging infrastructure policies target the environmental conditions that enable the transportation system to sustainably transition to electromobility.⁶⁵ These policies are accompanied by subsidies—which correspond to financial incentives for charging fees, purchase and installation of home chargers, and construction of public charging

⁶⁴ Olano, "Chart: These countries have the most electric vehicles per capita."

⁶⁵ Egner & Trosvik, "Electric vehicle adoption in Sweden and the impact of local policy instruments."

Figure 5. GGGI Members with charging infrastructure incentives



stations—and regulations that establish goals and rules for charging stations.

Sixteen Members—Australia, Denmark, Fiji, Guadeloupe, Guyana, Hungary, Montserrat, Norway, Pakistan, Paraguay, Qatar, the Republic of Korea, Rwanda, Thailand, the UAE, and the UK—have policy incentives for charging infrastructure.

Investment in charging infrastructure seems directly linked to the EV adoption rates in a specific location.⁶⁶ Although geographical considerations are important for infrastructure installation planning, the density of available public chargers is often a good predictor for the acceptance of EVs in that local market.⁶⁷ This can be justified by the barrier to electromobility each incentive tackles: while financial incentives help with market penetration, charging infrastructure relieves EV car owners' range anxiety and promotes wider normalization and acceptance of electrification within the community.⁶⁸

The majority of Members with charging infrastructure incentives—Australia, Guadeloupe, Guyana, Montserrat, Norway, Pakistan, Paraguay, the Philippines, Qatar, the Republic of Korea, and Rwanda—have implemented regulations to increase the quantity of publicly available charging facilities for EV drivers. The same sought outcome is observed in the second highest incentive: subsidies for public charging stations. Six countries—Fiji, Hungary, Pakistan, Rwanda, Thailand, and the UK—offer a financial incentive for the establishment of public charging stations, while only four countries—Denmark, Norway, Rwanda, and the UAE—offer a charging fee incentive and three other countries—Australia, the Republic of Korea, and the UK—offer subsidies for the installation of home chargers.

At first glance, the charging incentives seem to focus on creating the physical infrastructure for public charging. A preference for regulations and subsidies encouraging the construction, adaptation, or installation of readily available charging facilities, in comparison to fiscal incentives for the

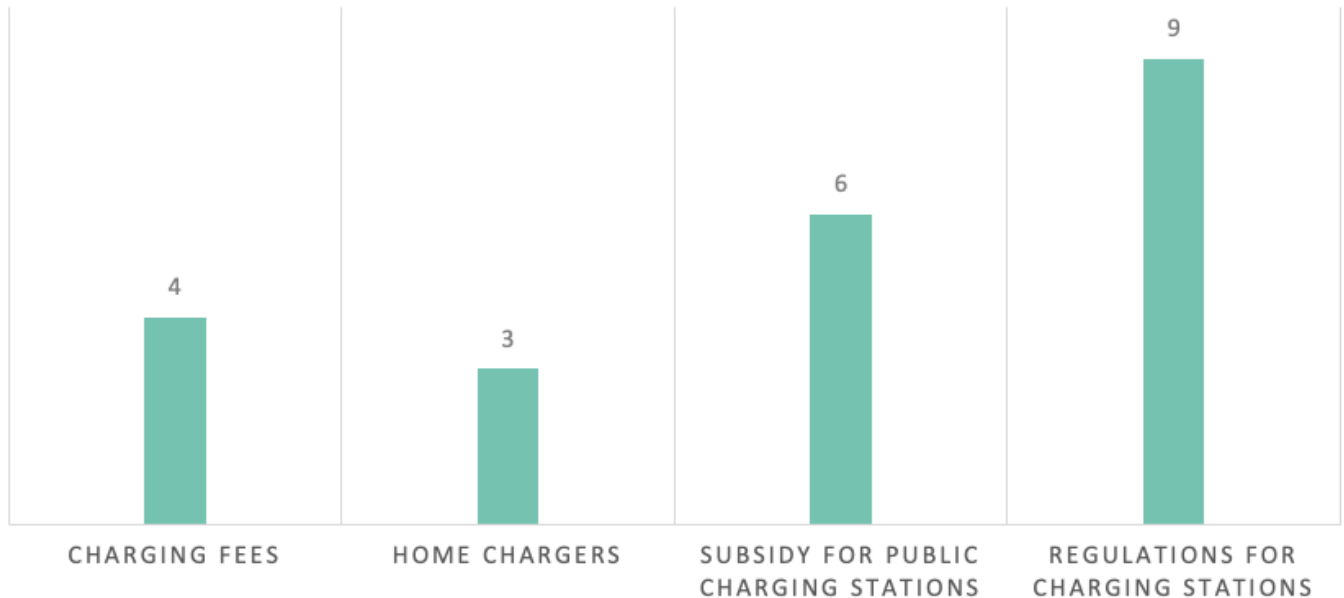
Table 3. Summary of GGGI Members' charging infrastructure policy incentives

Members	Charging infrastructure policy			
	Subsidy			Regulation
	Charging fee	Home chargers	Public charging stations	Charging stations
Australia	●	●	●	●
Denmark	●	●	●	●
Fiji	●	●	●	●
Guadeloupe	●	●	●	●
Guyana	●	●	●	●
Hungary	●	●	●	●
Republic of Korea	●	●	●	●
Montserrat	●	●	●	●
Norway	●	●	●	●
Pakistan	●	●	●	●
Paraguay	●	●	●	●
Qatar	●	●	●	●
Rwanda	●	●	●	●
Thailand	●	●	●	●
UAE	●	●	●	●
UK	●	●	●	●
● Applicable to the country			● Not applicable to the country	

⁶⁶ Mersky et al., "Effectiveness of incentives on electric vehicle adoption in Norway."

⁶⁷ Wang et al., "A global comparison and assessment of incentive policy on electric vehicle promotion."

⁶⁸ Egnér & Trosvik, "Electric vehicle adoption in Sweden and the impact of local policy instruments"; Wang et al., "Assessment of the incentives on electric vehicle promotion in China."

Figure 6. Total Members per charging infrastructure incentive policy type

adoption of home chargers, for instance, might indicate how these Members seek a better adaptation of their transportation system for further electromobility expansion. However, the promotion of private charging infrastructure for stabilizing the electricity grid and meeting EV charging demands⁶⁹ is necessary for a comprehensive transition to an electrified transportation system.

A more in-depth look at each Member's policies offers a better perception of their pathway to promoting an EV charging infrastructure. Charging infrastructure incentives can be divided into four groups: exemptions or deductions of fees, home charger subsidies, direct grants or tax benefits, and regulations.

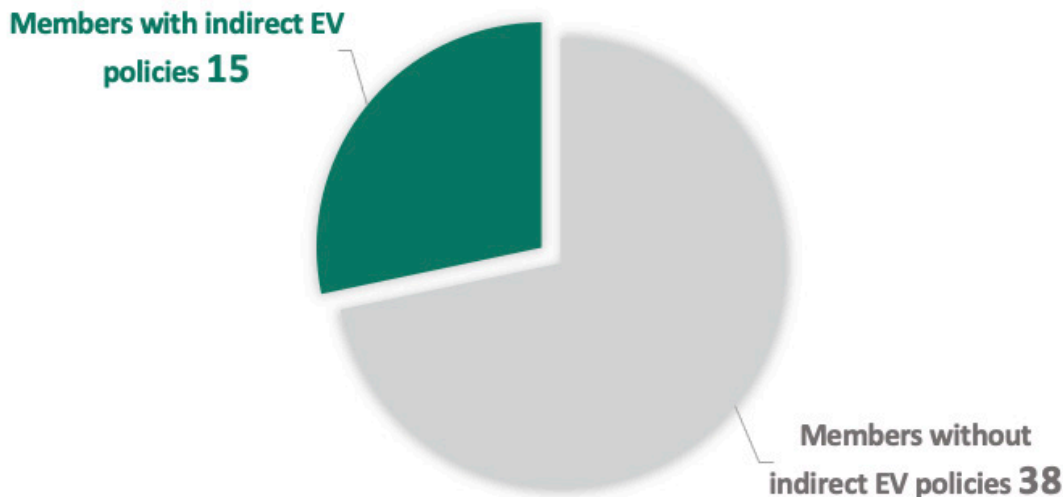
Countries that give incentives for charging infrastructure through the exemption or deduction of fees adopt different strategies according to their needs. Denmark's tariff regulations, for example, are directed to commercial and public charging and not to private charging. Norway and the UAE grant special rates to EV users that are members of associations and initiatives, attempting to boost new subscriptions. Rwanda, on the other hand, grants charging tariff reductions at off-peak times, seeking to better regulate

the electricity usage and not overwhelm the country's electricity grid during peak usage times.

Fewer countries were identified for granting incentives for home chargers. Australia, the Republic of Korea, and the UK have policies that offer direct subsidies for the installation of charging points in households, although there can be limitations, such as Australia's South Australia legislation, which limits the number of households that can receive the grant.

The subsidies considered were either direct grants or tax benefits for the purchase, installation, and operation of public charging stations. Three countries give tariff incentives, with Hungary allowing companies to apply for pretax profit reductions for the installation of charging stations, Pakistan granting a deduction for charging stations, and Thailand offering a corporate income tax exemption for companies that build more than 40 chargers if a quarter of them are fast chargers. Fiji and Rwanda combine direct grants with tax benefits, with the first providing tax holidays and subsidies to develop charging stations and the latter granting rent-free land and tax deductions for charging stations. Only the UK operates solely with direct grants, with the Workplace ChargePoint Grant program providing

⁶⁹ Von Bonin et al., "Impact of Dynamic Electricity Tariff and Home PV System Incentives on Electric Vehicle Charging Behavior: Study on Potential Grid Implications and Economic Effects for Households."

Figure 7. Indirect incentives in GGGI Members

support for the upfront cost of purchasing and installing EV charging stations.

Lastly, regulations were identified as either pledges or legislation for investment in public charging or for the purchase and installation of charging stations. Six of the nine Members who adopted regulations for charging stations officially pledged to install public charging stations, with two pledging to install them to support tourism—Paraguay and Qatar—and two explicitly focusing on areas of larger populational density and on highways—Pakistan and the Republic of Korea. Australia's New South Wales pledged to invest in the installation of charging stations, prioritizing parking lots and touristic locations. Montserrat and Rwanda have created specific regulations or legislation to incentivize the purchase and implementation of charging stations, with Montserrat exempting the import and consumption taxes of charging stations and Rwanda incorporating an EV charging station provision in its building code and city planning rules.

3.3. GGGI MEMBERS' INDIRECT INCENTIVES

The final policy category, **indirect incentives**, corresponds to incentives that promote the transformation of the transportation system and EV long-term adoption. Through an indirect and nonmonetary strategy, these policies can target the physical infrastructure (e.g., the adoption of EV preferential lanes or deductions/exemptions for parking fees and road tolls), the visibility and acceptability of EVs to the population (e.g., through awareness campaigns,

R&D investments, or promotion of government and public vehicular fleets), or other key aspects for EV adoption (e.g., the creation of special green zones or driving restriction policies).

Fifteen of the GGGI Members have implemented an indirect incentive for EV promotion: Australia, Colombia, Costa Rica, Denmark, Ecuador, Hungary, Mongolia, Norway, Pakistan, Qatar, the Republic of Korea, Rwanda, Thailand, the UAE, and the UK.

Although literature on EVs does not have an official category for indirect incentives, many studies have analyzed the individual effects that these policies have in EV adoption. Some authors have demonstrated how important EV visibility is to change social norms and promote the growing acceptance and normalization of EVs,⁷⁰ while others illustrated the connection between EV deployment and the adoption of R&D incentives.⁷¹ Although it is not possible to affirm a universal effectiveness of indirect incentives, policies that affect the physical infrastructure—such as special transit lanes, parking incentives, and road toll exemptions or deductions—have often been positively evaluated in the regions they are in place.⁷² Indirect incentives are the most effective when implemented in conjunction with other financial incentives for EV adoption.⁷³

70 Coffman et al., "Electric vehicles revisited: A review of factors that affect adoption."

71 Cansino et al., "Policy instruments to promote electro-mobility in the EU28: A comprehensive review."

72 Hardman, "Reoccurring and indirect incentives for plug-in electric vehicles – A review of the evidence."

73 Hardman.

Table 4. Summary of GGGI Members' indirect incentives

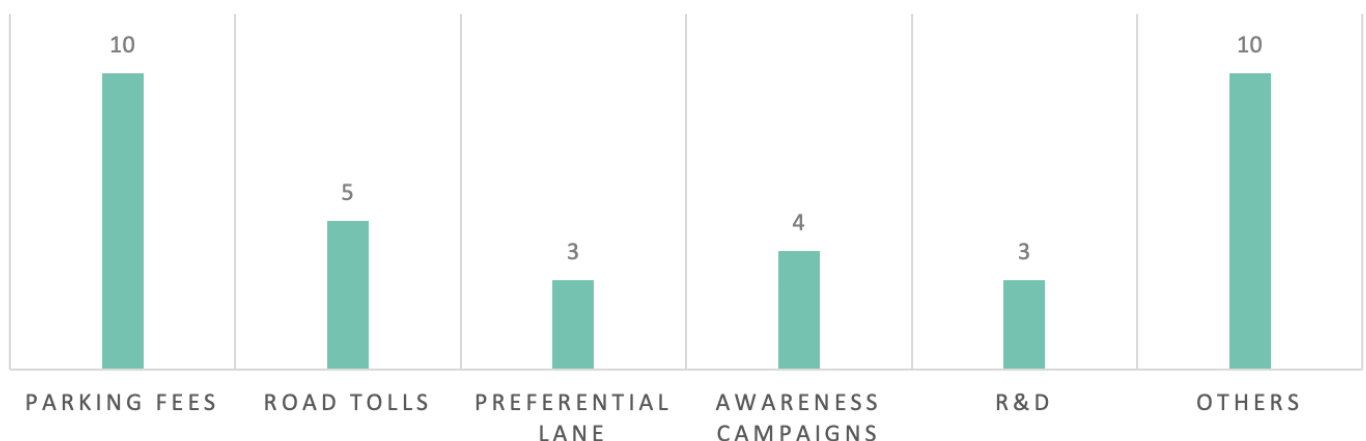
	Nonmonetary Incentive					
	Parking fee	Road toll	Preferential lanes	Awareness campaigns	R&D	Others
Australia	●	●	●	●	●	●
Colombia	●	●	●	●	●	●
Costa Rica	●	●	●	●	●	●
Denmark	●	●	●	●	●	●
Ecuador	●	●	●	●	●	●
Hungary	●	●	●	●	●	●
Korea (Republic of)	●	●	●	●	●	●
Mongolia	●	●	●	●	●	●
Norway	●	●	●	●	●	●
Pakistan	●	●	●	●	●	●
Qatar	●	●	●	●	●	●
Rwanda	●	●	●	●	●	●
Thailand	●	●	●	●	●	●
UAE	●	●	●	●	●	●
UK	●	●	●	●	●	●
● Applicable to the country			● Not applicable to the country			

Incentives for parking fees are the most popular indirect incentive among GGGI Members, being implemented by ten countries: Colombia, Costa Rica, Denmark, Ecuador, Hungary, Norway, the Republic of Korea, Rwanda, the UAE, and the UK. The second most adopted indirect incentive, exemptions or deductions for road tolls, is implemented only by five countries: Australia, Mongolia, Norway, the Republic of Korea, and the UAE. Three Members seem to have preferential lanes for EVs (Australia, Qatar, and Rwanda), four have awareness campaigns (Australia, Costa Rica, Qatar, and Thailand), and three promote R&D on EV and charging infrastructures (Australia, the Republic of Korea, and the UK). Other indirect incentives were identified

among ten members—Australia, Colombia, Costa Rica, Ecuador, Hungary, Mongolia, Norway, Pakistan, Rwanda, and the UK—although they were not individually separated.

Most of the identified countries implement more than one indirect incentive, with only Denmark, Pakistan, and Thailand going against the norm. Costa Rica, Norway, Qatar, the Republic of Korea, and Rwanda implement three types of indirect EV policies each, indicating a comprehensive approach to promoting electromobility incentives. Although Australia is the Member presenting the most indirect incentives (five of the six categories taken into consideration), these are not valid in the entire country, as Australia's EV strategies are dictated at the state level.

Figure 8. Number of Members per indirect incentive policy type



Road toll incentives were identified as either exemptions or deductions for tariffs for road use. Australia, Mongolia, and the UAE grant exemptions for the fees, while Australia's incentive is valid in New South Wales and the UAE's is only identified at Dubai toll gates. Norway and the Republic of Korea grant deductions for road use tariffs, with Norway also giving EVs free access to ferries between roads.

Among the three countries identified with preferential lane incentives, two allow EVs to access high-occupancy vehicle (HOV) lanes indeterminately—Qatar and Rwanda—while Australia's New South Wales allows the incentive only for a limited time.

Although awareness campaigns can take different forms, the ones identified in Australia, Costa Rica, Qatar, and Thailand were either the promotion of official electric transportation fleets or local tourism. Australia's New South Wales not only pledged to expand the number of electric buses in the Sydney area but also sponsored tourist drives through routes and regions with charging infrastructure available to support the project—a similar strategy to Costa Rica's **Monteverde Ruta Verde** project, which also implemented charging infrastructure in different restaurants, hotels, shopping points, and tourist spots along the route. Qatar's EV awareness strategy is closely related to other projects for the 2022 World Cup and the country's expansion of the electric bus fleet to accommodate the event, while Thailand not only assigned 20% of government office budgets for the purchase of EVs but also pledged that the Bangkok Mass Transit Authority would purchase 200 EVs.

R&D promotion is an important incentive to support the expansion of EV market shares and the creation and adaptation of jobs in the EV industry.⁷⁴ Industrial innovation R&D strategies were identified, with investments to develop Korea's EV battery technology and investments for general technological innovations in the UK's EV industry. R&D investment in Australia's New South Wales is more focused on the labor force, promoting specialized training for the introduction of electric buses in the public transportation system.

Members have also adopted other types of indirect incentives according to their country's needs and realities. Out of the ten countries identified, six (Colombia, Costa Rica, Ecuador, Hungary, Mongolia, and the UK) have implemented a type of exemption for driving restrictions for EVs. Colombia and Ecuador exempt EVs from the **Pico y Placa** scheme, a policy that restricts access to preestablished

urban areas according to a vehicle's license plate number, which is similarly observed in Mongolia. Australia's New South Wales has pledged to invest in job and skill training in key industrial areas, including EV infrastructure sectors, while Pakistan's and Rwanda's policies seek to create EV-specific zones. Lastly, Norway has implemented regulations allocating a minimum of 6% of all parking spaces exclusively to EVs in parking lots and areas of new buildings.

⁷⁴ IEA, "Promoting vehicle efficiency and electrification through stimulus packages."



4. CONCLUSION AND RECOMMENDATIONS

4.1. CONCLUSION

All sets of policy measures identified in this report are important to stimulate the long-term adoption of EVs and the transformation of the transportation sector. The economic, social, and infrastructural obstacles for the electrification of transportation systems can only be effectively tackled by a comprehensive and well-designed policy framework, fiscal incentives, and regulations capable of connecting the short- and medium-term climate and market objectives with long-term carbon-neutral agendas and strategies.⁷⁵

The development of new technologies and the expansion of EV markets are not sufficient drivers to generate a comprehensive adoption of e-mobility globally.⁷⁶ While these are essential for the electrification of the transportation

sector, they must be connected to supporting stimulus policies that not only tackle the current obstacles for EV adoption but also develop prominent markets and infrastructure for long-term and sustainable e-mobility.

This report's main objective was to explore the possibilities of policy measures for EV promotion among GGGI Members. Through a brief identification of the obstacles and classification of the existing policy incentives, this report categorized the diverse sets of policy experiences that GGGI Members have in electromobility, providing concrete examples of incentives that national governments can endorse in their path to the sustainable transformation of their transportation systems.

In addition to its main objective, this report also observed superficial connections between countries' long-term carbon neutrality objectives and policy framework strategies, adding to the debate on the macro strategies for GHG emission reductions in different sectors. While further investigation is necessary to better understand these trends, their identification within the analysis of existing policy measures for e-mobility prepares the ground for future connections between different areas of green growth and development programs and strategies.

⁷⁵ Haddadian et al., "Accelerating the global adoption of Electric Vehicles: Barriers and drivers."

⁷⁶ Haddadian et al.

There are limitations to the analysis of the policies identified in the report. For an effective, long-term, and sustainable adoption of policy measures for EV promotion, each country's market, economy, and society must be properly analyzed and monitored. This report did not intend to provide all the contextual information that led to the adoption of the policy measures identified, but rather to categorize the diverse set of strategies that are in use and connect them to the current obstacles to global EV adoption.

In conclusion, this report provides a first-level analytical structure of policy measures that can overcome each adoption barrier and be a useful tool for policymakers that work on the electrification of the transportation industry. Direct, indirect, and charging incentives have been identified as widely adopted policy measures for EV promotion, and while further contextual studies and analyses are necessary for their effective implementation, this report provides an efficient preliminary understanding of the conditions and circumstances that enable their full potential.

4.2. RECOMMENDATIONS

Through a case-by-case analysis of the Members' policy frameworks, this report identifies the main barriers to and policy measures for EV adoption and presents the following recommendations for facilitating the electrification of transportation systems among GGGI Members and partners, according to their level of EV adoption:

RECOMMENDATION 1: Establish ambitious targets, timelines, and strategies

The market alone will not reshape its automotive industry from polluting ICE vehicles to the electrification of transportation without a combination of government policies, business leadership, and people-powered coalitions. That is why it is essential to send a strong signal to the industry, consumers, and the world about the direction of road transport through the establishment of ambitious EV transition goals.

This initial goal is often comprised of official targets, timelines, and scheduled strategies for long-term EV adoption or ICE restrictions. These strategies for long-term EV adoption or ICE restrictions can efficiently function while being connected to other decarbonization or developmental targets. Although various countries have established short-term 100% EV targets within electrification frameworks already in operation, most have not yet adopted goals for complete electrification. It is recommended that countries divide their 100% electrification goals into different stages until the full transition. Many countries in recent years have established EV deployment targets, accompanied by more practical instruments and incentives. Targets, timelines, and

strategies provide market players with a long-term appraisal of the future market and infrastructure strategies that will be adopted by governments, allowing for more transparent negotiations and planning.

RECOMMENDATION 2: Introduce direct incentives to reduce the burden of high upfront costs

The second set of recommendations is the **direct finance incentives for supporting initial EV uptake**. These direct incentives can efficiently address the barriers to market penetration, such as the high cost of EVs, low levels of EV adoption, and the lack of a profitable market for EV charging. These policies provide relatively fast and low-cost incentives for governments to promote EV uptake at the initial stages of EV adoption.

There are direct finance incentives, including direct subsidies for EV purchases as well as import, consumption, and registration tax exemptions or deductions. Most GGGI Members with electrification incentives have presented some type of short-term direct incentive for EV uptake with a clear preference for import and consumption tax exemptions or reductions, which efficiently improves the price competitiveness in national automobile markets. To provide an instantaneous effect, it is essential to introduce well-designed direct incentives with possible finance resources from the public sector (e.g., government grants) and from the private sector (e.g., private credit concession opportunities). Governments can also provide direct subsidies for public charging infrastructure and home chargers to expand charging points across commercial and residential areas.

RECOMMENDATION 3: Adopt long-term incentives for continued interest in EV ownership

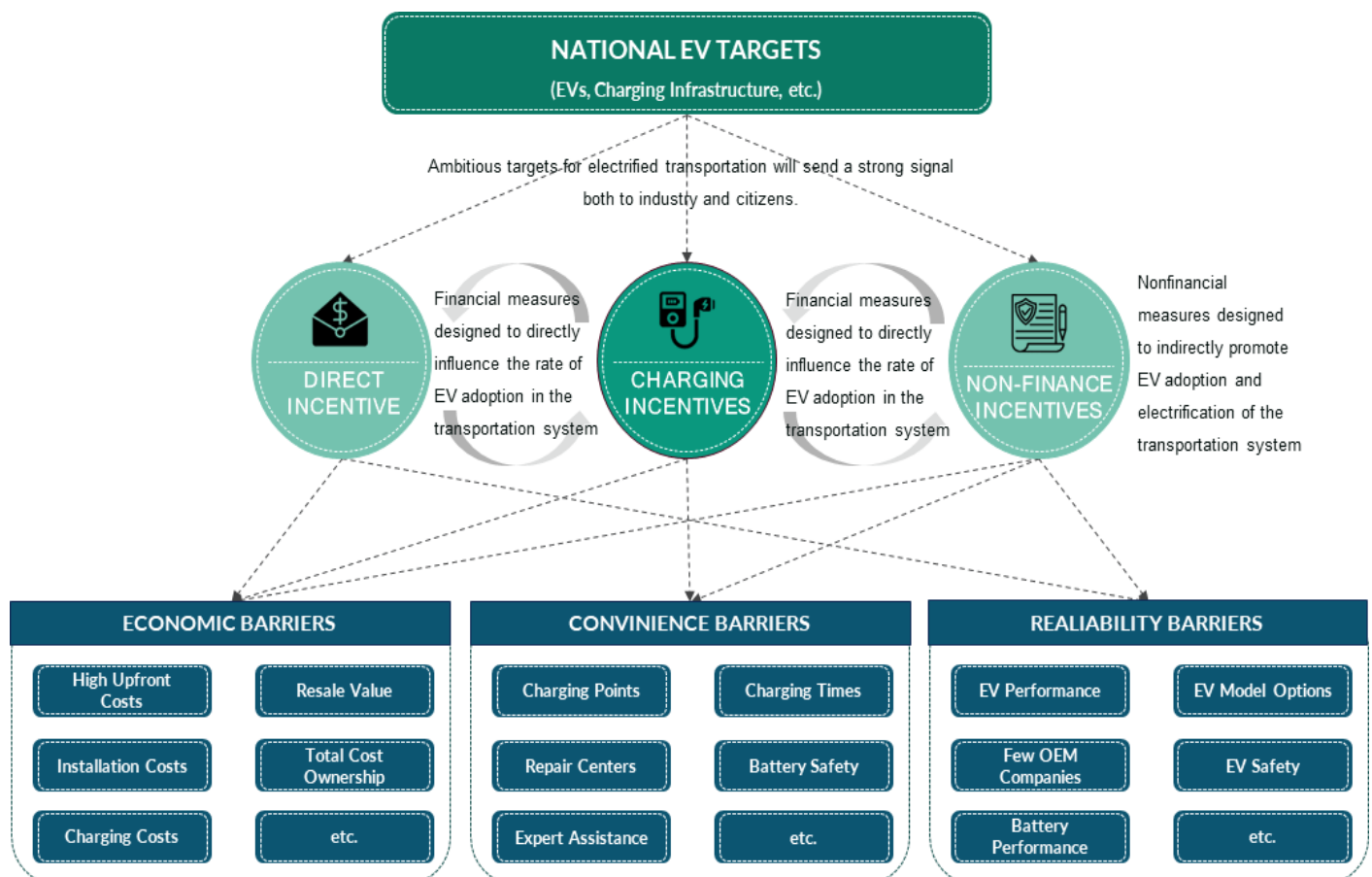
The last set of recommendations is **long-term incentives for continued interest in EV ownership**. These incentives must be adopted after the application of short-term incentives, when the artificial interest in EVs starts diminishing. Incentives targeting high TCO and a lack of reliability or convenience for EV owners can promote the full electrification of the transportation system, the normalization of EV ownership, and the full infrastructure transformation for long-term EV promotion.

Reoccurring direct incentives—such as ownership and company tax deductions or exemptions—can create a favorable fiscal framework for EV retention. Deductions or exemptions for charging fees work as important tools for long-term charging infrastructure incentives. Countries that give incentives for charging infrastructure through exemptions or deductions for fees adopt different strategies according to their needs. For example, some countries choose to give incentives for public and commercial charging

or provide incentives to either private users or specific EV associations. There is also a higher focus on indirect incentives, as they are best for tackling reliability barriers that still interrupt full EV transition.

These indirect incentives—such as preferential lanes, awareness campaigns, R&D, the creation of special circulation zones, and deductions or exemptions for parking fees and road tolls—can boost people's perceptions of long-term EV promotion and EV reliability. Awareness campaigns, preferential lanes, and exemptions for driving restrictions or special circulation zones can increase the visibility and popularity of EVs. Top automotive producing countries should also adopt R&D policies to promote new and innovative developments in the field that make EVs cheaper and more accessible. Moreover, the inclusion of indirect incentives can enhance the perception of EVs being reliable, with preferential parking spots and reductions or exemptions for parking fees utilized among indirect incentive measures.

Figure 9. Policy recommendations to address the main barriers to EV uptake



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APPENDIX 1: GGGI MEMBERS' EV DIRECT INCENTIVE POLICIES

A detailed look into each member's EV direct incentive policies provides insights on their strategies for electrification of the transportation grid. Divided between one-time and reoccurring incentives, the identified policies are as follows:

Direct Subsidy	
Australia*	<p>Varies between states/territories:</p> <ul style="list-style-type: none"> NSW: The NSW government provides rebates of AUD \$3000 for the first 25,000 EVs sold for under AUD \$68,750 VIC: The VIC Government offers a ZEV Subsidy of AUD \$3,000 on new zero emissions vehicles with a Vehicle Subtotal (dutiable value) of less than AUD \$68,740, limited to 4,000 registrations in the State Queensland: \$3,000 rebate for new BEVs that cost up to \$58,000 SA: A \$3,000 rebate for new BEVs and FCEVs that cost up to \$68,750 — limited to the first 7,000 cars to claim the rebate ACT: A zero-interest loan of up to \$15,000 for eligible households to buy a BEV — limited to cars under the luxury car tax threshold (currently \$77,565)
Costa Rica	The National Bank offers a private credit for the acquisition of sustainable vehicles (either hybrid or electric) for personal or professional use
Hungary	Purchase incentives of €7,350 for new electric cars with gross price of up to €32,000; €1,500 if price between €32,000€ and €44,000 (other subsidies for the acquisition of electric vehicles may apply - e-bikes, scooters, as well as special regulations for companies)
Republic of Korea	<ul style="list-style-type: none"> Subsidy granted for BEV acquisition of maximum 6.700 USD Subsidy granted for PHEVs acquisition of maximum 18.800 USD
UK	Government grants (through dealers) for zero-emission cars up to £3,000 if price is below £50,000, and vans, taxis, and trucks
Importation Duty	
Cambodia	Import duty: deduction on import duties for EVs (50% of the value of ICEs)
Colombia	Import duty: exemption on import duty for a select number of EVs by 2027
Costa Rica	Import duty: exemption on import duty for EVs
Fiji	<ul style="list-style-type: none"> Excise Tax: exemption on Excise Tax on importation for EVs Import fiscal duty: exemption on importation fiscal duty on importation for EVs <p>VAT: deduction on VAT on importation for EVs</p>
Guyana	<ul style="list-style-type: none"> Excise tax: exemption on Excise Tax on importation of EVs Custom Duty: exemption on Custom Duty on importation of EVs
Jordan	Custom Tax: deduction on Custom Tax for certain EVs (10% for EVs which have less than 250 KW in power)
Kyrgyz Rep.	Importation Tax: tax preferences for EVs, electric charging stations and their spare parts (components)
Lao PDR	Excise Tax: deduction on Excise Tax on importation for electric motorcycles

Nicaragua	<ul style="list-style-type: none"> Import Tariff: exemption on Import Tariff for hybrid cars and EVs
Norway	<ul style="list-style-type: none"> Import Tax: exemption on Import Tariff for EVs
Pakistan	<ul style="list-style-type: none"> Custom Duty: exemption on Custom Duty for EVs below 1800cc, deduction to 15% for EVs above 1800cc
Paraguay	<ul style="list-style-type: none"> Import Tax: exemption on Import Tariff for EVs
Philippines	<ul style="list-style-type: none"> Most Favoured Nation (MFN) Tax: exemption on MFN for hybrids and EVs Common Effective Preferential Tariff (CEPT): exemption on CEPT for hybrids and EVs
Rwanda	<ul style="list-style-type: none"> Custom Duty: exemption on Custom Duty on importation of EVs
Sri Lanka	<ul style="list-style-type: none"> Importation Tax: deduction on Importation Tax of EVs
Thailand	<ul style="list-style-type: none"> Custom Duty: deduction on Custom Duty (40%) for EVs whose value is below 2,000,000 THB
Turkmeni- stan	<ul style="list-style-type: none"> Custom Duty: exemption on Custom Duty for EVs, deduction on Custom Duty for hybrid vehicles (40%)
Consumption Tax	
Australia	<p>Varies between states/territories:</p> <ul style="list-style-type: none"> NSW: The NSW Government removed stamp duty from EVs under AUD \$78,000 purchased from 1 September 2021 and will remove from all other EVs and plug-in hybrids from 1 July 2027 or when EVs make up at least 30% of new car sales, at which time a road user charge will also be introduced ACT: ZEVs that are purchased for the first time are eligible for a full stamp duty exemption Queensland: deduction on stamp duty Tasmania: exemption of stamp duty Northern Territories: deduction on stamp duty (AUD \$1,500)
Colombia	VAT: deduction on VATs for EVs (1% of the vehicle's value)
Costa Rica	VAT: exemption on VAT for EVs until 2034
Guyana	VAT: exemption on VAT on importation of EVs
Jordan	Consumption Tax: deduction on Consumption Tax for EVs (15% of the vehicle's price)
Republic of Korea	Excise Tax: exemption of the Special Excise tax not exceeding KRW 1 000 000 (hybrid) and KRW 2 000 000 (EVs)
Kyrgyz Rep.	VAT: exemption on VAT on EVs produced locally
Laos PDR	Excise Tax: deduction on Excise Tax on importation for electric motorcycles
Mongolia	Excise tax: deduction on excise duty on hybrid vehicles in 50% of the normal excise duty on imported cars
Montserrat	Consumption Tax: deduction on Consumption Tax (15%) for 100% EVs
Nicaragua	Excise Tax: exemption on Excise Tax for EVs
Norway	VAT: deduction on VAT in 25% for EVs
Pakistan	<ul style="list-style-type: none"> GST: deduction on Goods and Service Tax (GST) to less than 1% of the vehicle's value for all EVs manufactured in Pakistan until 2026 <p>Sales Tax: deduction on Sales Tax to 8.5% for hybrid manufacturing, to 1% for locally manufactured EVs</p>

Paraguay	<ul style="list-style-type: none"> VAT: exemption on VAT for EVs
Peru	<ul style="list-style-type: none"> Selective Consumption Tax (ISC): exemption on ISC for EVs
Philippines	<ul style="list-style-type: none"> Excise Tax: exemption on Excise Tax for EVs
Rwanda	<ul style="list-style-type: none"> VAT: exemption on VAT on importation of EVs Excise tax: exemption on Excise Tax on importation of EVs
Thailand	<ul style="list-style-type: none"> Excise Tax: deduction on Excise Tax from 10 - 30% to 2 - 10% for domestically produced EVs
Registration Tax	
Australia	<p>Varies between states/territories:</p> <ul style="list-style-type: none"> ACT: Newly purchased zero-emission vehicles will receive two years of free registration until 30 June 2024 Victoria: AUD \$100 discount on registration fee SA: 3 years of exemption of Registration Fee <p>Northern Territory: exemption of Registration Fee</p>
Colombia	Deduction on registration fees for EVs
Denmark	Plug-in hybrids (PHEV) and battery electric vehicles (BEV) are granted a reduction in the calculated registration tax of up to DKK 40,000 in 2020. The registration tax cannot, however, be negative and the minimum tax can only be eliminated completely for BEVs.
Hungary	Cars with green plates (environmentally friendly cars) are exempt from paying registration tax
Jordan	Deduction on registration fees for EVs (between JD 8000 – 9000)
Republic of Korea	Deduction on registration fees for EVs (maximum amount 2.000.000 WON)
Mexico	Exemption on the New Vehicles Tax for hybrid electricity powered vehicles
Norway	Exemption on Registration Tax for EVs
Pakistan	Exemption of Registration Tax to EVs manufactured in the country (imported EVs will receive the same benefit up to 2024)
Sri Lanka	Hybrids are to be heavily taxed (20%) while electric cars are exempted
UAE	Exemption on Registration Tax for EVs
UK	Exemption on Registration Tax for EVs valued £40,000 or less
Ownership Tax	
Colombia	Deduction on Ownership Tax for EVs (1% of the vehicle's value)
Denmark	Circulation taxes are differentiated based on fuel consumption and weight. BEVs pay the minimum amount and PHEVs pay less than an equivalent ICE car
Hungary	Cars with green plates (environmentally friendly cars) are exempt from paying ownership tax
Republic of Korea	Exemption of Ownership Tax to EVs
Mexico	States exempt ownership tax from hybrid and electric vehicles used for public passenger transport; Some states provide exemptions for private uses
Norway	<ul style="list-style-type: none"> Ownership Tax: deduction on Ownership Tax for EVs (249 euros) Road Tax: deduction on Road Tax for EVs (NOK 455)

Pakistan	<ul style="list-style-type: none"> Exemption of Ownership Tax to EVs manufactured in the country (imported EVs will receive the same benefit up to 2024)
Thailand	<ul style="list-style-type: none"> Tax deduction to 10% to EVs
UK	<ul style="list-style-type: none"> Exemption on the Annual Circulation Tax for EVs valued £40,000 or less
Company Tax	
Fiji	<ul style="list-style-type: none"> Tax deduction of 55% for any business investing in electric buses The income of any business setting up Electric Vehicle Charging Stations shall: (i) Be granted 7 years tax holiday; (ii) Be granted a subsidy up to a maximum of 5% of the total capital outlay incurred in the development of electric vehicle charging stations provided that the capital expenditures is not less than \$100,000; (iii) Be allowed to carry loss forward to 8 years
Hungary	<ul style="list-style-type: none"> Cars with green plates (environmentally friendly cars) are exempt from the scope of the law for company car tax
Norway	<ul style="list-style-type: none"> Deduction on Company Tax in 20% for EVs
Rwanda	<ul style="list-style-type: none"> Corporate Income Tax (CIT): deduction in 15% of CIT for companies that are importing and assembling EVs Tax Holidays: granted to companies that are importing and assembling EVs Registration: exemption on registration fees for commercial EVs
Thailand	<ul style="list-style-type: none"> Corporate Income Tax (CIT): exemption from CIT (for up to 8 years) for BEVs (for 8 years), PHEVs (3 years), electric bikes (3 to 11 years), and 3 wheelers (3 to 10 years)
UK	<ul style="list-style-type: none"> Benefit-in-Kind (BiK): Deduction on BiK tax for zero emission vehicles (between 1 to 4%) Excise Tax: exemption of Vehicle Excise Duty (VED) for EVs

APPENDIX 2: GGGI MEMBERS' CHARGING INCENTIVES POLICIES

A more in depth look at each members' policies offers a better perception of their pathway to the promotion of EV charging infrastructure. Charging infrastructure incentives can be divided in four groups, as seen below:

Charging Fee	
Denmark	Tax exemption for commercial charging; buses enjoy special tariffs on their charging fee until 2024
Norway	The Norwegian Electric Car Association (Elbilforeningens) gives users access to charging units all over the country at a reduced price.
Rwanda	EVs to benefit from a reduced tariff during the off-peak time
UAE	For private use, electric car charging at a public station cost around 29 Fils per kW. For those who sign up for the EV Green Charger initiative, charging at public stations is free
Home Chargers	
Australia	Varies between states/territories: SA: The state offers a subsidy of up to \$2,000 to install EV smart chargers at home – limited to 7,500 households
Republic of Korea	Seoul City Government offers subsidies for EV owners who wish to install chargers at their home
UK	Electric Vehicle Home Charge Scheme in place in which citizens who bought an EV can get a Grant for installing a charging point at home
Subsidies for Public Charging Stations	
Fiji	The income of any business setting up Electric Vehicle Charging Stations shall: (i) Be granted seven years tax holiday; (ii) Be granted a subsidy up to a maximum of 5% of the total capital outlay incurred in the development of electric vehicle charging stations provided that the capital expenditure is not less than \$100,000; (iii) Be allowed to carry loss forward to 8 years
Hungary	Companies can apply for pre-tax profit reduction for the installation of electric charging stations. The reduction amount is the fair value of the charging station, but not more than the difference between the fair value of the electric charging station and the positive operating result of the electric charging station achieved during the 3-year period after the end of the tax year. This means the higher the profit expected from the use of the charging station, the lower the discount.
Pakistan	Lower electricity tariffs for EV charging stations
Rwanda	Rent free land for charging stations (for land owned by Government) Electricity tariff for charging stations be capped at the industrial tariff level (large industry category)
Thailand	<ul style="list-style-type: none"> Exemption of corporate income tax for 5 years for companies building more than 40 charges (with at least 25% are fast chargers)
UK	Workplace ChargePoint Grant which is a voucher-based scheme provides support towards the upfront costs of the purchase and installation of EV charging stations. The contribution is limited to the 75% of purchase and installation costs, up to a maximum of £500 for each socket, up to a maximum of 20 across all sites for each applicant
Charging Stations Regulations	
Australia	Varies between states/territories: <ul style="list-style-type: none"> NSW: The NSW Government will invest AUD \$171 million until 2025 on charging platforms, being: (i) AUD \$131 million is for ultra-fast charging infrastructure in areas with limited off-street parking, as well as to build EV Commuter Corridors and Super Highways across the State; (ii) AUD \$20 million is for destination charging infrastructure in or near commuter carparks and other popular Transport for NSW sites; (iii) AUD \$20 million is for destination charging infrastructure at regional tourist locations.

Guadeloupe	All Energy-Plus Territories for Green Growth (<i>Territoires à Energie Positive pour la Croissance Verte</i> , TEPCV) in Guadeloupe have included in their charter deployment of solar-powered charging stations to meet the needs of electric vehicles.
Guyana	The installation of fast-charging stations for electric vehicles will be piloted in 2022 in Regions Three, Four and Six.
Montserrat	Importation of charging stations are exempted of both custom duties (20%) and consumption tax (15%)
Pakistan	The National Electric Vehicle policy (2019) pledged to install charging infrastructure in all major cities initially and to expand to all secondary cities, with at least one of the charging stations in 3x3 km area being of a DC fast charger. The policy also pledged to install DC fast chargers throughout major motorways and highways in rest areas every 15 to 30km.
Paraguay	Implementation of the “ <i>Ruta Verde</i> ” project which installs charging stations along the PY02 route
Qatar	<ul style="list-style-type: none"> In preparation for the 2022 World Cup, Qatar is implementing solar-powered and electric-powered charging stations in the Lusail Bus Depot. The charging stations will be used by the public transportation system after the World Cup <p>Qatar General Electricity and Water Corporation [KAHRAMAA] is planning to set up between 200 to 500 charging points for electric cars in Qatar in 2022. They will be located at strategic locations, including malls, residential areas, stadiums, parks and government offices.</p>
Republic of Korea	<ul style="list-style-type: none"> South Korea will increase the number of electric vehicle chargers at highway service areas nationwide to over 1,000 by the end of 2022
Rwanda	<ul style="list-style-type: none"> Provisions of electric vehicle charging stations in the building code and City planning rules

APPENDIX 3: GGGI MEMBERS' INDIRECT INCENTIVE POLICIES

A more in depth look at each members' policies allows for a more detailed understanding of their indirect EV incentives' strategy.

Parking Fee	
Colombia	EVs will have access to preferential parking spots, some even with charging stations. Reduction in parking fees.
Costa Rica	Free parking for EVs and some buildings will have designated EV parking areas
Denmark	The Danish government issued a rule exempting electric cars from parking fees for up to DKK 5 000 (EUR 670) per year
Ecuador	Free parking in public paid parking spaces inside the jurisdiction of " <i>Gobiernos Autónomos Descentralizados</i> ", public and commercial establishments will destine 2% of the parking spots exclusively to EVs
Hungary	Parking benefits and free parking while charging
Norway	Exemption on parking fees depending on local authorities
Republic of Korea	Free or reduced parking fees at public parking lots
Rwanda	Green license plate to allow EVs getting preferential treatment in parking
UAE*	Free designated green parking in Dubai; 14 locations across emirate with free parking (EV sticker is mandatory to avail this facility)
UK	Local incentives such as free parking are decided at local level
Road Toll	
Australia	Varies between states/territories: NSW: No road user charge for EVs until mid-2027, or when EVs account for 30 per cent of sales
Mongolia	EVs are exempted from road user charges
Norway	Since 2019, electric vehicles get a deduction on the use of regional toll roads and are granted free access on most ferries that connect parts of the national road network
Republic of Korea	50% reduction of tollgate fees
UAE	Free Salik tag (pass for Dubai toll gates)
Preferential Lanes	
Australia	Varies between states/territories: NSW: The NSW Government will update policies and legislation to allow EV drivers to use T2 and T3 transit lanes for a limited time
Qatar	EVs are allowed access to bus lanes
Rwanda	Access to High Occupancy Vehicle lanes (Dedicated Bus Lanes)
Awareness Campaigns	
Australia	Varies between states/territories: The NSW Government will roll out 'EV Tourist Drives' across the State, promoting scenic regional driving routes that have the charging infrastructure needed to support an EV road trip. The federal government is backing a program to deploy 40 new electric buses in Sydney and retrofitting the bus depot in NSW. The program's ambition is to transition the entire bus fleet to Zero Emission technology by 2030

Costa Rica	Establishment of the “ <i>Monteverde Ruta Verde</i> ”, with charging infrastructure available for free in different restaurants, hotels, shopping points, and touristic spots around the route
Qatar	The country is aiming to provide safe, reliable, and accessible transportation facilities during the FIFA World Cup 2022, with electric buses to be used as the main services during the tournament
Thailand	Government offices shall devote 20% of their budget to buy EVs and the Bangkok Mass Transit Authority must buy 200 BEVs
R&D Promotion	
Australia	Varies between states/territories: The NSW Government has announced specialised training to support the introduction of electric buses.
Republic of Korea	South Korean government is investing in R&D to develop next-generation EV battery technology
UK	The UK government unveiled a 200 million pounds (around 250 million USD) fund to support EV technology innovations
Others	
Australia	Varies between states/territories: NSW: The NSW Government is investing AUD \$318 million in skills in partnership with the Commonwealth and its JobTrainer program to support 670 jobs, in particular jobs in the renewable electricity, minerals and the EV infrastructure sectors.
Colombia	EVs are exempted from “ <i>pico y placa</i> ” and “days with no cars” (driving restriction policies)
Costa Rica	EVs are exempted from the driving restriction system
Ecuador	EVs are exempted from “ <i>pico y placa</i> ” and other vehicular traffic restriction measures
Hungary	EVs have traffic allowance during smog alert
Mongolia	EVs are exempted from driving restrictions (even–odd license plate system) in Ulaanbaatar
Norway	For parking lots and parking areas of new buildings, a minimum amount of 6% must be allocated to electric cars
Pakistan	Registration number plates of EVs will have a distinct color/design to create EV specific zones in high density areas and to introduce distinct incentives for EVs
Rwanda	<ul style="list-style-type: none"> Enforcement of existing emission standards to discourage the purchase of polluting vehicles Establish restricted zones for green transport
UK	<ul style="list-style-type: none"> EVs are exempted from London congestion zone charge



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