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Financing charging infrastructure

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Table of contents

Executive summary

The Breakthrough Agenda, a new report by the International Energy Agency assessing the global progress on reducing emissions, sets an ambitious pathway toward net zero for the road transport sector.[1] It calls for strong international collaboration to reduce the six gigatons of carbon dioxide that road transport emits each year and a shift in investments to speed up the uptake of new technologies and their cost reduction. Timely, sustainable and equitable charging infrastructure is a key challenge for the scaled deployment of zero-emission vehicles (ZEV) in all regions.

Business as usual is insufficient to finance the necessary transition. The complexity of addressing local market conditions and use cases requires a use-case/risk-level approach to financing and business modeling. Private and public sector collaboration is essential to create scale and de-risk investments globally.

This paper, developed in collaboration with members of the WBCSD's Transport and Mobility Decarbonization project, outlines existing and emerging infrastructure business models and financing mechanisms available to companies and policymakers investing in charging infrastructure. It also provides recommendations for improving financing mechanisms to accelerate global ZEV and infrastructure deployment.

New charging infrastructure business models can help bridge the initial infrastructure investment gap, and innovative financing mechanisms can help de-risk investments, especially in emerging electric vehicle (EV) markets. A use-case approach at a regional level can help harmonize risks and drive standardization in procurement and technologies to facilitate investments. The following table provides an overview of business models and financing mechanisms most suitable to accelerate ZEV infrastructure deployment across different global regions.

Region	Business model of most value	Financing mechanisms of high value
Latin America	**Auto OEM** **Government run** **Utility model**	Financing mechanisms with intrinsic government support will be required to kick-start the EV infrastructure movement across Latin America as the rollout of vehicles hasn't matured enough to create a self-sustaining business model.
North America	**Standalone** **Retail host** **Auto OEM**	Financing mechanisms that sufficiently de-risk private investment and allow for long-term debt repayments are required to assist in the deployment of EV infrastructure in areas where demand is steadily increasing.
ASEAN	**Standalone** **Retail host** **Auto OEM**	Government support is still required for the majority of nations across ASEAN, as many are still currently in the early stages of EV adoption. This support will smooth initial private capital outlays for EV infrastructure and de-risk investments in areas with low expected utilization rates until EV demand builds.
Europe	**Standalone** **Retail host** **Auto OEM**	A mixture of financing mechanisms to de-risk private investment sufficiently and public sector financing mechanisms will be required to continue the deployment of

		chargers in more developed regions and kick-start activities in regions with slow uptakes.
Africa	**Auto OEM** **Government run** **Utility model**	Due to the nascency of the market and insufficient supporting infrastructure preventing private sector investment, government and public financing mechanisms will be required to kick-start the EV market.

At the same time, infrastructure, finance and mobilization efforts require a step change in public-private collaboration to scope, design and implement scaled investment packages across the mobility, buildings and energy sectors to achieve deployment targets for ZEV technologies by 2030.

Businesses can address some of these challenges by:

1. Collaborating along the value chain and with governments to align on ZEV roadmaps to shift investments and accelerate cost reductions;
2. Sharing emerging best practices on business models and tailored financing mechanisms and promoting effective policies to mobilize investments in charging infrastructure;
3. Creating global and local partnerships with businesses and governments to create collaborative project agreements and mobilize large-scale investments for transport decarbonization.

Governments can support efforts by:

1. Strengthening international collaboration to help all countries adopt an end-date for sales of internal combustion engines in line with net zero on all segments, with a particular focus on developing economies.
2. Collaborating to create a scaling framework for public-private collaboration internationally to change innovative pilots into transformative projects and mobilize large-scale investments to decarbonize transport.
3. Introducing policies that promote the efficient integration of ZEV in the grid and built environments, including access to space, the grid, renewable energy and vehicle participation in the energy flexibility market, and through data sharing.

Together with our members of the Transport and Mobility Decarbonization project, we call for a framework for international collaboration to scale global infrastructure investments. This framework should include coordinated efforts among businesses, governments and institutional investors to create favorable market conditions for innovative charging infrastructure business models that can mobilize investments in low(er) risk ZEV technologies.

What's at stake?

It is not possible to stop climate change without decarbonizing transport. The road transport sector accounts for around six gigatons of carbon dioxide equivalent (GtCO2e) – or 10% of total emissions – each year. This number needs to fall by nearly a third to meet 2030 targets.[2] Zero-emission vehicles, which mainly refer to battery electric vehicles (BEV), accounted for around 9% of global car sales in 2021; this should reach about 60% by 2030.[3]

According to the International Energy Agency (IEA) *Global EV Outlook 2022*, the electric vehicle (EV) market is growing exponentially, with the automotive sector and those along the EV value chain undergoing a profound system transformation. A growing number of countries have pledged to phase out internal combustion engines or have ambitious vehicle electrification targets for the coming decades. Many carmakers have plans to electrify their fleets that go further than policy targets. They have introduced 350 EV models in the last five years, and many have announced dates when they will end internal combustion engine sales.[4.]

Yet, EV sales are still lagging in many emerging and developing economies, where the few models available remain unaffordable for mass-market consumers.[5] The Breakthrough Agenda for road transport identifies transport decarbonization goals where further coordinated international action is urgently needed to accelerate progress. It also recognizes the need to galvanize public and private sector action behind these specific priorities internationally in order to make these transitions quicker, cheaper and easier for all.[6]

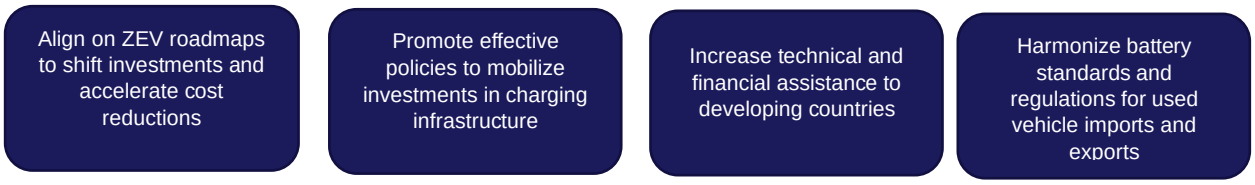

Figure 1: Prioritized road transport Breakthrough Agenda recommendations

In the road transport sector, public and private actors need to align target dates for all new vehicles to release zero emissions to shift investments more quickly toward new technologies and accelerate cost reductions. Making transport decarbonization possible for emerging and developing economies (EMDE) will require technical and financial assistance to address the wide gap between countries. This transition must also ensure sustainability in battery supply chains and regulatory coordination for used vehicles between importing and exporting countries to take the most inefficient vehicles out of international trade. This would save costs and cut emissions.

Furthermore, a fast phasing out of internal combustion engines cannot happen without the equally fast deployment of sustainable and equitable charging infrastructure, efficient grid integration, and access to renewable energy sources. The IEA estimates that to align with the goals set by the Paris Agreement, charging infrastructure needs to grow from 16.5 million private and public chargers in 2021 to more than 200 million by 2030[7] to accommodate the stock of 250 million EVs (excluding two- and three-wheelers) by 2030 it foresees in its announced pledges scenario. This number grows to 350 million EVs under its net-zero scenario.[8] In particular, it is necessary to mobilize investments in charging infrastructure to narrow

the wide gap between frontrunners and everyone else.[9] While EV technologies and the related infrastructure have already attracted significant private sector investments in developed countries, de-risking and scaling up investments is needed to lower the cost of technology that will allow for a global transition.

Accelerating global infrastructure investments

The world faces a USD $15 trillion gap between projected investments and the amount needed to provide adequate, sustainable global infrastructure by 2040, according to the G20 Global Infrastructure Hub.[10] The infrastructure, finance and mobilization efforts required to achieve sustainable urban built environments and zero-carbon mobility require a step change in public-private collaboration to scope, design and implement scaled investment packages in multiple locations and across key value chains.

This implies favorable market conditions and a surge in bankable projects for global investments in ZEV technologies, such as vehicle fleets, infrastructure, digital technologies and related energy production and distribution. Additionally, these efforts should be accompanied by market and policy designs that foster profitable business models and more systematic knowledge sharing to prioritize and inform investment strategies.

Facilitating business investment strategies

Our members joined forces to address global ZEV deployment challenges to provide the knowledge and tools needed to inform profitable business models and investment strategies.

Our *Value framework for sustainable charging infrastructure*,[11] published in 2021, identifies nine business and policy recommendations to improve the business case for charging infrastructure deployment, supporting a clean, timely and equitable transition to EV fleets. The framework advocates for successful transport electrification based on adapted regulatory and financing mechanisms that address the needs of EV fleets, incentivize energy flexibility and engage systematic strategic planning that enables the sharing of space and leveraging of digital technologies.

In 2022, our members have addressed global technology deployment by helping inform and reduce the complexity of global investment decisions, providing clarity on global market readiness and opportunities for investments, and identifying financing mechanisms that can support the global transition at scale.

To tackle the challenge of market complexity, we worked with Arcadis to develop the *Global Charging Infrastructure Market Report* to compare market conditions across 22 countries and states, including the UK and Ireland, continental Europe, North America, Latin America and the Asia-Pacific region.[12] The analysis of the market readiness for investments used five parameters to examine challenges and opportunities in selected countries: government leadership and incentives, EV market maturity, charging infrastructure, return potential and ease of doing business with the country.

To further delve into market specificities, our members, led by KPMG and with the support of the United Nations Environment Programme (UNEP) organized a series of regional dialogues to identify opportunities to accelerate ZEV and infrastructure deployment globally. These dialogues highlighted that mobilizing the amount of capital needed for a truly global transition will have to go beyond what any company-driven project, national government or city initiative can achieve alone.

Framework to scale global investments

The finance and mobilization effort required for zero-carbon mobility demands a step change in public-private collaboration to scope, design and low-risk scaled investment packages in multiple locations and across key value chains.

The scale of the sustainable infrastructure finance challenge requires leveraging public and private sector finance to achieve transformation. Additionally, institutional investors will play a key role in de-risking and attracting private capital to the transition, demanding trilateral collaboration between businesses, governments and financing institutions

The size of the effort and urgency of moving from pilot projects to scale within the timeframe of the net-zero transition requires establishing a public-private collaborative framework that can create a series of unique, sector-based transactions to enable scaling up mobility infrastructure investment and sustainable grid electrification in alignment with the 2030 Net-zero roadmap.

Accordingly, we call for further collaboration between businesses, governments and financial institutions to establish a collaborative framework that can help governments at national and city levels and for international institutions to identify and structure investments to deliver on their sustainability transformation.

Infrastructure financing models

When investing in charging infrastructure, companies need to assess a variety of markets and charging use cases, such as workplace charging, destination charging, fast charging. Deciding on a suitable business model and identifying appropriate financing options require a use-case approach. Our members have come together in a series of dialogues to create recommendations for emerging financing mechanisms that businesses, governments and financiers can use to unlock capital for infrastructure installations.

Infrastructure business models

The number of charging sites and their geographical position influence the utilization levels of the charging point. With the current number of EVs on the road, many sites do not provide an immediate return on commercial investment. At the same time, budgeting capital expenditure often requires long-term planning. Companies can leverage new business models and partnerships to reduce the initial capital outlays and de-risk investments for deploying EV charging infrastructure. Addressing the initial infrastructure utilization gap for various infrastructure use cases requires a mix of private and government-run business models.

Existing business models

Business model	Description
Standalone	Consumers pay infrastructure and service costs directly by charging rates
Retail host	Real estate owners, such as retail businesses, provide space to other entities to install and operate EV charging stations; in exchange for space provided, they monetize the investment on the increased foot traffic
Auto OEM	OEMs in the automotive sector help finance infrastructure investments and recover costs through EV car sales prices or aftermarket services
Utility model	Electricity distribution companies – distribution network operators (DNOs) and distribution system operators (DSOs) – finance and own the charging infrastructure independently; the recovery of the initial capital investment and operating and maintenance costs come through electricity tariffs provided by the government to the operators
Government run	Governments or local authorities subsidize investments for use cases that are underused or to speed up deployment; governments or local authorities support the deployment of charging

Financing mechanisms

There are several potential financing mechanisms for charging infrastructure deployment. This analysis covers currently emerging mechanisms, including those emerging in other sectors that could be relevant to the EV infrastructure market. The explored mechanisms propose various stakeholders for the roles

within the deployment of EV infrastructure. However, it is essential to note that the functions of stakeholders might differ considering the difference among geographies and charging use cases,.

Existing financial mechanisms

Financial mechanism	Description
Operating leases	The operator leases the infrastructure from the owner (e.g., manufacturers, private investors, energy providers, etc.) and pays rent, taxes and insurance. Maintenance usually depends on the provisions agreed in the lease agreement. The owner can provide it as part of the contract or a separate contract with a third-party maintenance provider.
Finance leases	Similar to an operating lease, the operator pays a regular lease payment to the infrastructure owner. The difference is the expectation of (or opportunity for) the operator to purchase the asset at the end of the lease term (which is also usually longer, spanning the asset's useful economic life). However, in the case of charging infrastructure, the operator would want the owner to purchase the asset at the end of the contract to avoid reinstatement costs after the charging-as-a-service (CaaS) contract runs out.
Concessional loans	The operator obtains a loan from a finance institution with slightly more favorable lending conditions (compared to commercial loans), such as lower interest rates and/or longer repayment schedules. These loans can also be part of: 1) blended financing (e.g., co-funded with private investments or public grants); and 2) lessor financing, whereby manufacturers take out loans to acquire infrastructure components they lease to operators.
Sale-and-leaseback (refinancing)	As an increasing number of investors are looking to deploy capital in clean and sustainable energy solutions, the sale and leaseback model is particularly interesting. Using the traditional form of this model, the operator sells an asset to a buyer to free up capital and then leases the asset from the buyer.
Public model	Government and public authorities set out plans and newly vamped funding offers that private companies can use to recover, at a minimum, a portion of the investment costs of constructing and operating charging stations in areas of low population density or with perceived low use rates. This can incentivize investment and provide first-mover benefits.

Emerging financial mechanisms

Financial mechanism	Description
Component leases	The operator purchases the EV infrastructure but leases the most expensive component of the infrastructure, for example, EV chargers.
Green bonds	The government, financiers or large businesses issue bonds to the public to raise funding to support more traditional forms of financing, such as loan arrangements for EV infrastructure. This is an ever-more prominent financial mechanism with the emergence "green investment banks", financers with environmental, social and governance (ESG)-focused portfolios and businesses issuing green bonds or bonds linked to sustainability goals.
Integrated end-to-end financing (charging-as-a-service)	An integrated financing package or solution providing all the necessary assets to the operator via a service model where the operator only pays a fee for the availability and use of the asset(s) on a kW/h basis. The integration provider "bundles" the infrastructure into one package, and the operators pay a regular fee for use and access.
Private and public sector partnerships	These come in concession-type arrangements whereby private operators maintain and expand the authority's EV charging infrastructure and accept revenue risk on its use. Other models could include a landlord/tenant type relationship between the public authority and private operator, joint venture arrangements or revenue-based support models. Some countries also define concession frameworks at the national level for which different municipalities can call for concessions.

Innovative financial mechanisms

Financial mechanism	Description
Residual value guarantee	The government uses grants to guarantee a percentage or portion of the residual value of assets after the initial contract period.
Revolving fund	The government typically uses them to compel energy and utility companies to invest in energy-efficiency projects through a special purpose vehicle (SPV). As the ultimate beneficiaries of the projects, energy and utility companies repay the costs of the project through the additional margin enabled by the efficiency measures or additional infrastructure provided by the government. Governments could leverage this financing mechanism to deploy EV infrastructure as the additional demand for electricity will increase revenues for energy companies, which the government could recoup through tariffs charged to energy companies when customers use funded infrastructure.

Mezzanine loan	A financier provides a debt arrangement for the asset owner (e.g., operator, technology provider, etc.). Should the asset owner default on loan repayments, the debt becomes equity.
Partial risk guarantee (PRG)	A government offers a PRG where some form of financial support is in place should there be any changes to the original (policy- or project-based) commitments. An example is a risk revenue sharing model, like for the case of Scotland, with the government stepping in to guarantee 80% of revenue and splitting profits above 120% of usage.
Transport Infrastructure Facility (Green Finance Institute)	Deployment of public capital via mechanisms such as guarantees or first loss taking, to crowd in private capital rather than simply being given out as grants.
Utilization Linked Loans (Green Finance Institute)	Loans provided where repayments are based on forecast utilization. If the utilization level doesn't reach the levels expected payments are deferred or potentially underwritten by public capital.
Demand aggregation	The government aggregates demand across infrastructure operators and positions this to financiers (once demand has met a minimum threshold), potentially with a cap on the maximum price operators are prepared to pay and the deals they would want. The guaranteed demand could then incentivize financiers to offer attractive solutions. This is extendable into a "reverse auction," where financiers provide the most attractive solutions to operators registering interest for them to decide which deal to proceed with.

Regional insights for financing the global transition to ZEV

Local market conditions and strategies for financing the global ZEV transition affect the speed and scale of ZEV technology deployment. To better understand the financing challenges and opportunities, we ran a series of regional dialogues in Europe, Asia-Pacific, North America, Latin America and Africa. The key overarching observations and recommendations that emerged include the following:

- Timely, sustainable and equitable charging infrastructure is a key challenge for scaled ZEV deployment in all regions.
- The complexity of addressing local market conditions and use cases requires a use-case/risk-level approach to financing and business modeling.
- Business and financing mechanisms focusing on integrated and service-based solutions along the ZEV value chain help address the initial investment gap and use challenge while allowing for efficient energy transport integration.
- Business as usual is insufficient to achieve the objectives. To create scale and de-risk investments globally, private and public sector collaboration requires radical trilateral collaboration across businesses, governments and institutional financiers.

Businesses can support the Breakthrough Agenda[13] for road transport and address some of these challenges by:

- Collaborating along the value chain and with governments to align on ZEV roadmaps to shift investments and accelerate cost reductions;
- Sharing emerging best practices on business models and tailored financing mechanisms and promoting effective policies to mobilize investments in charging infrastructure;
- Creating global and local partnerships with businesses and governments to create collaborative project agreements and mobilize large-scale investments for transport decarbonization.

Governments can support the Breakthrough Agenda by:

- Strengthening international collaboration to help all countries adopt an end-date for sales of internal combustion engines in line with net-zero targets on all segments, as per the recent announcements of the European Union and California, with a particular focus on developing economies.
- Collaborating to create a scaling framework for public-private collaboration internationally to change innovative pilots into transformative projects and mobilize large-scale investments to decarbonize transport.
- Introducing policies that promote the efficient integration of ZEV in the grid and built environments, including access to space, the grid, renewable energy and vehicle participation in the energy flexibility market, and through data sharing.

Regions/ use cases	Market characteristics	Biggest barrier to EV infrastructure deployment	Recommendations to improve the investment case
Latin America	The Latin American market shows low investments in electromobility. The lack of charging infrastructure and the necessary supporting infrastructure is a continuing barrier in the transition to EV fleets.	• Low charger use and the lack of return on investments limit EV infrastructure uptake. • A lack of energy billing in countries such as Brazil has stifled investment. • A consistent set of standards to ensure the reliability of chargers is needed.	• Create public and blended financing mechanisms • Improve payment mechanisms for public charging infrastructure • Promote energy management services, such as smart charging and local energy optimization • Leverage additional revenue streams through vehicle-to-grid (V2G) options, data-sharing agreements, branding and advertising.
North America	There are currently 117,000 public charging points in the US, with only 23,000 direct current fast charge (DCFC) ports. With over 2 million plug-in electric vehicles nationally, the supply of public infrastructure has left vehicle owners relying on home charging.	• Unequal distribution of EVs across regions and socio-demographics has led to the unequal distribution of public EV infrastructure. • Fast chargers encounter high costs and complexity for their deployment. • A divided regulatory environment with 50 different state utility commissions with differing objectives and challenges creates challenges.	• Create new partnership models with collaboration between the public and private sectors across the entire value chain • Create new business models, such as charging-as-a-service, to add value for customers, and shift financial outlays from a capital to an operating cost • Use off-takers to de-risk investments and secure future cash flow • Set regulatory standards for charging infrastructure
ASEAN	The majority of ASEAN nations have lofty ambitions to rapidly expand their charging networks but lack the ready capital or demand to facilitate this transition. However, with demand estimated that one in three consumers in ASEAN are looking to purchase an EV as their next vehicle[14] and ASEAN having a larger emphasis on the 2-wheeler and 3-wheeler vehicle market, leading to lower energy requirements, this transition may come sooner than other developing regions.	• Insufficient grid connections to buildings to supply chargers require upgrading switch rooms to support the transition. • There needs to be regulatory collaboration on standards across companies and governments in the region. • There is a lack of awareness of EVs across the region, culminating in a lack of demand for the infrastructure.	• Government incentives tailored to the development stage of a nation's EV adoption • Undertake upgrades to national grids to support the implementation of EV infrastructure • Develop EV charging standards tailored to markets to reduce installation costs • Mitigate demand risk via open platform collaborations with OEMs and infrastructure supply partners • Offer fully integrated services for the EV charging experience to expand revenue generation opportunities • Leverage aid from development and national bank financing schemes

Europe	Europe is a fast-growing EV market that has facilitated the deployment of more than 330,000 public charge points. However, the uneven dispersion of the network means traveling across the entire region still requires private charging, with over half of all chargers concentrated in two countries – the Netherlands (90,000) and Germany (60,000).	• Low use of chargers and the lack of return on investments have created a regional focus on EV infrastructure in more developed economies. • There is a lack of regulatory and policy support in the region to incentivize EV infrastructure and fleet rollout. • There is a need to bolster supply chains to create parity with internal combustion engine vehicles in lower GDP per capita areas.	• Promote public and blended financing mechanisms to improve lending conditions, improve rates of return, and de-risk investments • Outline opportunities and case studies on V2G, data-sharing agreements and advertising to educate providers on additional revenue streams • Use energy management services such as smart charging, local energy optimization and battery storage functions to reduce the strain on the grid • Shift EU government policy to mandate the rollout of EV infrastructure by moving from directives to regulations
Africa	The nascent EV market in Africa is beginning to prepare for the EV revolution but still lags behind the rest of the world. South Africa is the most advanced e-mobility market on the continent, with 1,000 electric vehicles out of 12 million on the road,[15] with the first public ultra-fast chargers going live in 2022.[16] As the market for EVs expands across the continent, EV infrastructure will follow; however, uptake is expected to be slower than in the rest of the world and highly region specific.	• There is a lack of energy supply infrastructure to facilitate charger deployment in masse. • The low use rate for chargers and the lack of return on investments have led to low EV infrastructure deployment. • There is a lack of regulatory/policy support to incentivize EV infrastructure and fleet rollout.	• Governmental and international support to kick-start EV adoption and infrastructure deployment • Adopt products with energy management services (i.e., smart charging, local energy optimization) to help manage the grid • Use match funding mechanisms for public and consumer funds • Employ shared operating models where private operators share infrastructure, de-risk initial investments and increase use rates

Financing support to scale infrastructure projects

Trilateral collaboration between businesses, governments and financial institutions will enable technology deployment at scale. This section provides an overview of financial support and financing institutions available in different regions.

Latin America

Financial support	Description	Examples
Green funds	**Green funds are offered for financing lines** for energy-efficiency projects, renewable energy projects and electric vehicles.	In Costa Rica, Banco Proamericana offers green funds to finance renewable energy projects and EVs.[17]
Development banks	Regional and global development banks provide **Green loans** to help finance countrywide EV charging networks.	In Peru, the Inter-American Development Bank (IDB) approved concessional resources to support private sector investment in sustainable electromobility solutions with a USD $20 million loan.[18]
Loan financing programs	**Governments and electromobility companies have forged alliances** to provide funding stimulus and promote the use of electric vehicles and their infrastructure.	In Mexico, the Program for the Promotion of Electric Mobility has electromobility, innovative financing and fiscal stimulus schemes at its heart, contributing to new business models.[19]
Tax incentives	Beyond sources of financing, other tax incentives include **tax deductibility**, **exemptions for investment** in green cars and purchases of electric vehicles, **100% deductions** of investments in equipment for energy generation from renewable sources and incentives for investment in electric vehicle charging stations.	In Colombia, energy provided for the charging of electric vehicles in public stations and transportation systems is exempt from energy contribution payments.[xvii]
Private funding opportunities	Private sector financiers provide loans and financing options.	In Colombia, Banco Davivienda offers specific loans to aid in the adoption of electric vehicles for private ownership, including the installation of EV charging points.[20]

North America (US)

Financial support	Description	Examples
Discretionary grant funding programs	For discretionary grant programs, an agency solicits applications and **competitively selects projects** based on eligibility, evaluation criteria, and departmental or program priorities.	The US Department of Transportation has USD $7.5 billion in discretionary grant funds under the Infrastructure Investment and Jobs Act.[21]
Formula grant funding programs	Formula grant programs **apportion funding based on formulas in a statute**. The recipients of these funds can be states, federally recognized tribal recipients, cities and counties, or transit agencies.	The Federal Highway Administration is responsible for administering grant programs across road networks to ensure technology is up to date.[22]
Loan financing programs	Credit assistance programs **leverage federal funds to accelerate project delivery** when direct funding programs are not readily available or applicable. Public credit assistance programs may also attract private and other non-federal co-investment for projects. This can take the form of secured (direct) loans, loan guarantees and lines of credit.	The Build America Bureau provides credit assistance and loans to states, municipalities and other project sponsors.[23]
Tax incentives (e.g., credits, exemptions, deductions)	**Tax codes contain potential funding sources** for organizations in the form of tax incentives, specifically exemptions, exclusions and deductions on taxable income, credits, preferential tax rates and deferrals to decrease tax liability.	The Internal Revenue Service administers these incentives in the US.[24]
Private funding opportunities	Private sector financiers provide loans and financing options.	Fengate Asset Management has launched its fourth infrastructure fund focused on the energy transition.

ASEAN

Financial support	Description	Examples
Development banks	Regional and global development banks have provided green loans to help finance countrywide EV charging networks.	Thailand received a green loan of USD $48 million from the Asian Development Bank to roll out new charging infrastructure.[25]
Government grants and loans	Governments have been looking to collaborate with the private sector to achieve charging station and charge point installation targets.	The Malaysian Government is collaborating with GreenTech Malaysia to install 310 charging stations.[26]

Central government support	To encourage the spread of EVs within territories, central governments provide subsidies to local governments that reach their annual promotion targets. Local governments are required to use the financial support to construct and operate the charging infrastructure.	The Chinese Government has employed this incentive mechanism to promote EVs.[27]
Preferential rates	Electricity companies provide beneficial treatment to commercial charging station operators where they need only pay electricity fees based on their actual usage. The electricity companies forego the "basic charge" that other large-scale industrial electricity users must pay.	The State Grid of China and the China Southern Power Grid have offered this beneficial treatment to commercial charging station operators.[28]
Private funding opportunities	Private sector financiers provide loans and financing options.	

Europe

Financial support	Description	Examples
Development banks	Regional development banks have provided green grants and loans to help finance countrywide EV charging networks.	The European Investment Bank has invested EUR €73 million to support low-carbon innovation programs since 2020.[29]
Government grants and loans	Governments provide funding and financing to support the deployment of private charging infrastructure.	The ADVENIR program in France provides financing for private charging infrastructure in company parking lots and apartment buildings.[30]
Tax incentives	**Tax codes contain potential funding sources** for organizations in the form of tax incentives, specifically exemptions, exclusions and deductions on taxable income, credits, preferential tax rates and deferrals to decrease tax liability.	In Italy, companies could get tax back on up to EUR €3,000 for the purchase and installation costs of charging stations in 2021.[31]
Private funding opportunities	Private sector financiers provide loans and financing options.	

Africa

Financial support	Description	Examples
Government grants and loans	Governments provide funding and financing to support the deployment of private charging infrastructure.	In Morocco, a public-private partnership project is facilitating the construction of a 37-station charging network in the service areas of an 800-km long motorway.[32]
Tax incentives	Governments are offering incentives to improve EV and infrastructure cost competitiveness through waived or reduced taxes and duties on imports.	Kenya, Seychelles, Mauritius, Rwanda and Zambia have waived or reduced various taxes or duties for EVs.
International aid	International funds provided by international aid organizations aid the deployment of charging infrastructure projects.	Cape Verde has installed private and commercial charging stations under the internationally funded 5-year Nationally Appropriate Mitigation Action (NAMA) Facility support project to facilitate EV deployment and infrastructure development.[33]
Private funding opportunities	Private sector financiers provide loans and financing options.	TotalEnergies is investing in charging infrastructure, such as in Ghana, where it has commissioned the country's first electric vehicle charging unit "as part of efforts to boost the increasing demand and usage of electric vehicles in Ghana".[34]

Conclusion

Despite many countries pledging ambitious vehicle electrification targets and carmakers planning to electrify their fleets, EV sales still lag in emerging and developing economies. In Brazil, India and Indonesia, fewer than 0.5% of car sales are electric.[35]

To achieve global equitable and sustainable EV infrastructure, our *Value framework for sustainable charging infrastructure* calls for significant investments in the supportive grid, power capacity and digital technologies for efficient sector integration.[36] Achieving an equitable and timely transition requires tools to de-risk and scale up investments in developing markets.

Infrastructure investment strategies should consider new business models to bridge the initial financial and infrastructure use gap and better adapt to the complexity of markets and use cases. A use-case approach that aligns and aggregates market segments is necessary to standardize assessment tools, business models and financing mechanisms to reduce overall risk levels.

In line with the global Breakthrough Agenda,[37] our members call for a step change in public-private collaboration through a global mechanism to scale global infrastructure investments. Governments and institutional investors must collaborate with businesses to change innovative pilots into transformative projects and mobilize large-scale investments to decarbonize the transportation sector and achieve deployment targets for zero-emission vehicle technologies by 2030.

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Participating organizations

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About WBCSD

WBCSD is a global, CEO-led organization of over 200 leading businesses working together to accelerate the transition to a sustainable world. We help make our member companies more successful and sustainable by focusing on the maximum positive impact for shareholders, the environment and societies. Our member companies come from all business sectors and all major economies, representing a combined revenue of more than USD $8.5 trillion and 19 million employees. Our Global Network of almost 70 national business councils gives our members unparalleled reach across the globe. WBCSD is uniquely positioned to work with member companies along and across value chains to deliver impactful business solutions to the most challenging sustainability issues. Together, we are the leading voice of business for sustainability: united by our vision of a world where more than nine billion people are all living well and within the boundaries of our planet, by 2050. www.wbcsd.org

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