



WILLIAM DAVIDSON INSTITUTE
AT THE UNIVERSITY OF MICHIGAN



ASIAN DEVELOPMENT BANK

Driving a Just Transition to E-mobility in the Philippines

Blueprint for
an EV Center
of Excellence



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About this Report

This report has been developed by the William Davidson Institute at the University of Michigan (WDI) for the Asian Development Bank in the context of their partnership with the Apl.de.Ap Foundation International. The report offers a comprehensive assessment of the current state of the transition to electric mobility (e-mobility) in the Philippines, analyzing the country's policy framework, market trends, and workforce needs to support a shift to e-mobility. While focused on the Philippines, the report also takes a global and regional view to contextualize findings based on the most recent trends. In addition, the report highlights key socio-economic implications associated with this transition in the Philippines context and proposes pathways to ensure just and equitable outcomes for all involved. While every country and region is different, it is our hope that the findings and insights included in this report may be valuable for decision makers working to advance e-mobility in other countries and geographies.

About WDI

WDI is a solutions-driven non-profit affiliated with the University of Michigan that operates at the intersection of education, entrepreneurship, and impact across emerging markets. We are dedicated to unlocking the power of business to tackle critical global challenges and drive inclusive economic growth. We mobilize entrepreneurs, investors, governments, and academia to drive pioneering solutions across sectors, with a special focus on health, climate-health, and energy. In energy, we are driving just transitions to clean tech, electric mobility, and sustainable energy solutions.

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Executive Summary

The Philippines stands at a crossroads in its journey toward sustainable transportation, with electric mobility (e-mobility) emerging as a critical solution for reducing emissions, improving air quality, and creating economic opportunity. The shift is not merely about adopting new technology; it represents a comprehensive transformation with far-reaching implications for the environment, the economy, and society at large. This report, prepared for the Asian Development Bank in the context of their partnership with the Apl.de.Ap Foundation International, offers a thorough assessment of the current state of e-mobility in the Philippines while keeping in mind just transition principles and strategies to leave no one behind. Through this assessment, the report highlights the challenges and opportunities ahead, and proposes a blueprint for the establishment of an Electric Vehicle Center of Excellence (EVCE) to help accelerate this transition.

Globally, the transport sector is a significant contributor to greenhouse gas emissions, and Southeast Asia, including the Philippines, faces acute challenges because of urban air pollution, along with limited energy security due to its reliance on energy imports. The rapid worldwide adoption of EVs demonstrates both the urgency and the potential of e-mobility. In the Philippines, the shift is underway, especially in two- and three-wheeled vehicles, which are vital for affordable and sustainable transport in cities and rural areas alike.

The government has taken important steps to support this transition. Landmark legislation, such as the Electric Vehicle Industry Development Act (EVIDA) and its accompanying roadmap (CREVI), has set ambitious targets for EV adoption, local manufacturing, and charging infrastructure. Incentive schemes have been introduced, and other supporting laws aim to create a favorable environment for green jobs and renewable energy. These are all crucial building blocks to position the country for sustained growth. However, policy implementation is hampered to an extent by overlapping mandates across agencies, limited coordination, and the absence of direct purchase subsidies and clear incentives for charging infrastructure—steps that have proven effective in neighboring countries.

On the ground, the market for EVs is growing but remains nascent. The Philippines boasts a number of local EV assemblers and is rich in nickel, a key battery material, yet much of the EV value chain—including batteries and advanced components—remains underdeveloped domestically and dependent on imports. The adoption of EVs, especially among public utility vehicles like jeepneys and three-wheelers, is picking up, but high upfront costs, limited financing, expensive electricity, and a lack of charging stations continue to pose significant barriers. The fragmented nature of the public transport sector offers a wide range of entry points for e-mobility, but it also poses challenges to more systematic efforts to accelerate EV uptake. Reliable market data related to EV usage across a variety of vehicle segments is needed to address adoption barriers more effectively – and tap into the most immediate opportunities.

A critical piece of the puzzle is workforce development. The transition to e-mobility requires new skills and training, from manufacturing and maintenance to battery management and charging infrastructure. While the Technical Education and Skills Development Authority (TESDA) has begun to develop relevant training standards, uptake from training providers has been slow due to limited trainers, low and uneven demand, and resource constraints. On the flip side, there is substantial and urgent interest from local companies, government units, and other stakeholders in developing the EV talent pipeline, and a wide range of topics to explore for different audiences, including incumbent workers and new talent.

Across all aspects of the shift to e-mobility—policy, market, and workforce—there is a need for a just transition, ensuring that the shift to a low-carbon economy is fair and inclusive. This is particularly important for workers in the informal sector as well as women, who are underrepresented in transport. The concept of a just transition is embedded in several Philippine laws, emphasizing fair distribution of opportunities and support for those affected by the shift to green technologies. However, most efforts have focused on the energy sector, with less attention to the unique needs of transport workers and communities. As e-mobility gains momentum, it will be essential to develop more robust support mechanisms, such as retraining programs, social protection measures, and inclusive stakeholder engagement processes, to ensure that the benefits of this transition are widely shared and that vulnerable groups are not left behind.

Despite these challenges, the opportunities for EVs in the Philippines are significant. The proposed EVCE can help bridge gaps between policy and practice, foster collaboration across the public and private sectors, and accelerate the development of a skilled, inclusive workforce. By partnering with existing players, tapping into valuable regional and global connections, and offering solutions tailored to local realities, the EVCE can help catalyze further EV growth across the Philippines. Importantly, embedding just transition principles into the EVCE mission and operations will help ensure that the benefits of e-mobility are widely shared and build further support for this transition.

In conclusion, the Philippines has laid important groundwork for the transition to e-mobility, but realizing its full potential will require coordinated, inclusive action across government, industry, academia, and civil society. By focusing on strategic policy enhancements and stronger implementation, market development, workforce training, and a strong commitment to just transition, the country can reap the benefits of sustainable and equitable transport while creating opportunities for all.

Abbreviations

2W	Two-wheeler, e.g., motorcycle (e2W is electric 2W)
3W	Three-wheeler, e.g., tricycle (e3W is electric 3W)
AC	Alternating Current
ACT	Accelerating Coal Transition
ADB	Asian Development Bank
AI	Artificial Intelligence
APLFI	Apl.de.Ap Foundation International
ASEAN	Association of Southeast Asian Nations
BAU	Business As Usual
BEV	Battery Electric Vehicle
CAA	Clean Air Asia
CAGR	Compound Annual Growth Rate
CES	Clean Energy Scenario
CFME	Council on Future Mobility and Electrification
CREVI	Comprehensive Roadmap for the Electric Vehicle Industry
DC	Direct Current
DMC	Developing Member Country
DTI	Department of Trade and Industry
ESG	Environmental, Social, and Governance
ETO	Economic Transition Office
EV	Electric Vehicle
EVAP	Electric Vehicle Association of the Philippines
EVCE	EV Center of Excellence
EVIDA	Electric Vehicle Industry Development Act
EVIS	Electric Vehicle Incentive Scheme
GHG	Greenhouse Gas
HEV	Hybrid Electric Vehicle
ICE	Internal Combustion Engine
IEA	International Energy Agency
JTP	Just Transition Programme
LGU	Local Government Unit
LTO	Land Transportation Office
MOU	Memorandum of Understanding
NAP	National Adaptation Plans
NDC	Nationally Determined Contribution
NGJHRD	National Green Jobs Human Resource Development
OFME	Office of Future Mobility and Electrification
PHEV	Plug-in Hybrid Electric Vehicle

PPP	Public-Private Partnerships
PUV	Public Utility Vehicle
PUVMP	Public Utility Vehicle Modernization Program
SME	Small- and Medium-Sized Enterprise
SUV	Sport Utility Vehicle
TCO	Total Cost of Ownership
TESDA	Technical Education and Skills Development Authority
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
UV	Utility Vehicle
WDI	William Davidson Institute at the University of Michigan

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SECTION 1

Introduction

The Asian Development Bank (ADB) is supporting transport investments across its developing member countries (DMCs) to reduce energy consumption and promote the shift to zero emission transport systems. In the Philippines, ADB seeks to develop a first-of-its-kind EV Center of Excellence (EVCE¹) under its Memorandum of Understanding (MOU) with Apl.de.Ap Foundation International (APLFI). Such a center could play different roles to strengthen the electric mobility (e-mobility) ecosystem in the Philippines, from catalyzing innovation, to offering training, engaging in advocacy, supporting both established businesses and startups seeking to tap into the EV opportunity, or serving as a convening platform to help orchestrate and support existing e-mobility players. Such models exist in other markets, and there are plenty of opportunities for new players to add value in the growing Philippines ecosystem. The research included in this report is designed to provide a blueprint to help inform decision making around the role, goals, and potential services that this center could pursue to add the most value considering progress made to date, current players, and what still remains to be done to make the Philippines a leader in e-mobility.

Because the potential role of the EVCE must consider both the current and likely future conditions of the Philippine ecosystem, as well as quickly evolving global trends that will inevitably impact those conditions, we have taken a broad view in our research. As a result, in this report, we examine and present, first, an overview of where the e-mobility transition is today to set the context, followed by key global trends that serve as indicators of progress and hurdles that remain before delving into the state of play of e-mobility in the Philippines. To understand the current e-mobility landscape, we examine the policy framework, EV market dynamics, and workforce considerations. To provide points of comparison that can be helpful to contextualize the task ahead for the Philippines, along the way we spotlight the experiences and strategies of different markets from around the world, including Michigan in the United States (US) and emerging markets in Africa and Asia. Finally, we highlight socio-economic implications of the transition to e-mobility throughout the report, as we examine every dimension of this shift through the lens of the “Just Transition” principles that ADB and stakeholders in the Philippines have placed at the forefront of the global shift from a high-carbon to a low-carbon economy. Taken together, these findings inform the blueprint for the EVCE that we present later in the report, including key building blocks and possible pathways that decision makers could consider for the role that this center could play in the Philippines, along with ideas to maximize its impact.

1 Since TESDA is developing several EV Centers of Excellence a new name should be considered to avoid confusion. For the purposes of this report, we will continue using EVCE.

SECTION 2

E-mobility transition

Transport represents almost 25% of global energy-related CO₂ emissions.² Many developing countries are experiencing rapid urbanization and population growth, leading to increased demand for mobility – with associated environmental concerns such as acute air pollution, economic impacts, and energy security considerations for oil importing countries. Air pollution in particular remains an urgent public health issue, with 4.5 million premature deaths per year attributed to ambient air pollution worldwide.³ 89% of the total premature deaths occur in low- and medium-income countries, with Southeast Asia contributing the greatest number compared to other regions. Indeed, 37 out of the 40 most polluted cities in the world are located in Southeast Asia.⁴

E-mobility, the use of vehicles – across a range of modes – that are powered by electricity instead of traditional fossil fuels, is a key lever for decarbonizing transport and reducing emissions from the transport sector. Full battery electric vehicles, which we will refer to as EVs in this report, have zero tailpipe emissions, a key contributor to air pollution, are more efficient than internal combustion engine (ICE) vehicles, and when powered with electricity from clean energy sources, offer the cleanest transportation option for vehicles and systems around the world. Still, EVs by themselves are not a panacea for the climate emergency, and neither are they a solution to complex mobility challenges such as congestion, prioritization of road transport over pedestrian and bicycles, and underdeveloped or low-quality public transportation options, which are all present in both developed and developing countries. As one tool in the Avoid-Shift-Improve framework widely used by practitioners working towards sustainable mobility, through reductions in greenhouse gas emissions (GHGs) and in oil consumption, EVs are ultimately key to achieving global climate goals.⁵

E-mobility drivers include climate-related considerations and the associated policy goals and environmental regulations; economic opportunity given their potential for job creation; and energy and cost efficiencies relative to ICE vehicles, since EVs require less maintenance, and are cheaper to run when we consider the vehicle's total cost of ownership (TCO). When powered with electricity produced with renewable energy, EVs are fully optimized and have a greater emissions reduction potential, though research shows that even when that is not the

² IPCC. 2022. *Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. [Chapter 10: Transport](#).

³ World Meteorological Organization (WMO). 2024. [Air Quality and Climate Bulletin No. 4](#).

⁴ World Resources Institute (WRI). 2023. [Southeast Asian Cities Have Some of the Most Polluted Air in the World. El Niño Is Making it Worse](#).

⁵ Sustainable Urban Transport Project (SUPT). [Sustainable Urban Transport: Avoid-Shift-Improve](#).

case, on a life cycle basis, EVs produce 64% lower cradle-to-grave life cycle emissions than ICEs.⁶

While e-mobility drivers are clear, considerable hurdles remain for EVs to reach mass adoption and replace ICE vehicles at scale, which will lead to greater environmental gains. Among the challenges, upfront cost competitiveness with ICE vehicles and overall affordability is a key barrier, though recent developments show that cost parity with ICE has already been achieved in some markets.⁷ Limited charging infrastructure is another commonly cited barrier, even though home charging remains the most popular way to charge for many EV owners. It is clear, however, that more public chargers are needed to support mass adoption of EVs, particularly among segments of the population without access to home chargers and for vehicle segments that wouldn't be charged at home.

The dynamics and progress of the e-mobility transition differ across transport modes, regions, and countries, though some of the higher-level constraints are similar – from supply chain issues to cost, lack of specialized EV talent and concerns around safety, in addition to challenges with battery technologies and necessary charging infrastructure to enable their growth. From electric passenger cars in North America to e-buses in South America, e-motorbikes in East Africa or electric two- and three-wheelers (2W and 3W) across Asia, e-mobility is expanding on the roads – and beyond, via electric ferries in the Philippines' waterways or even electric planes. Across all transport modes and use cases, from agricultural and mining applications to commercial taxi services, delivery fleets, and tourism vehicles, EVs continue to gain ground as a proven technology that can help decarbonize transport in many markets.

Making e-mobility work necessitates much more than swapping out a vehicle. Shifting from ICE to EV technology is a major step that requires a different ecosystem of players spanning the energy, transport, urban development, labor, industry, and other sectors. Both the public and private sectors have major roles to play in making this shift successful, and close coordination and collaboration – even more than competition – are crucial ingredients that can make or break early efforts behind EV production and adoption. This is the case because the buildup for e-mobility requires new infrastructure, including grids with increased capacity and reliability to produce the electricity needed to power these vehicles; critical minerals to make batteries that can store the power; charging stations to deploy the power; and a transport and energy system to underpin all of these components and make them work together.

In addition, the transition to e-mobility requires a workforce with different skills and knowledge of EV technology. It also opens up opportunities for developing new talent to

⁶ The role of pickup truck electrification in the decarbonization of light-duty vehicles. Maxwell Woody et al 2022 Environ. Res. Lett. 17 034031 <https://iopscience.iop.org/article/10.1088/1748-9326/ac5142>.

⁷ In particular, in China. International Energy Agency. *Global EV Outlook 2025*.

manufacture EVs, batteries and chargers; to operate and service vehicles and charging stations and manage EV fleets; to sell these vehicles and provide aftermarket services; to prepare for battery reuse and recycling; and much more. And equally as important, because the goal is to replace the current fossil fuel-powered vehicles and system, this transition also poses challenges for the people, businesses, and communities that depend on the economic gains and livelihoods that making, selling, operating, servicing, and disposing of ICE vehicles have offered since the invention of this technology. Such socio-economic considerations are at the forefront of this transition in both developed and developing countries, and they necessitate thoughtful consideration and proactive action so that benefits of this shift can be maximized and risks can be mitigated and managed.

In the context of a transition from a high-carbon to a low-carbon economy, a just transition refers to a set of principles, processes, and practices that aim to ensure that no people, workers, places, sectors, countries, or regions are left behind as we make this shift.⁸ In recent years, concerns around ensuring a just transition have been growing in many countries around the world, with stakeholders across the public and private sectors committing to incorporating these considerations into policies, plans, and actions. Applying a just transition lens to the e-mobility transition means placing people at the center of this transformation and considering positive and negative implications of this shift for people as workers, users of transport systems, and community members – i.e. people as participants in the making of these new technologies, as users and beneficiaries of them, and as members of communities positively or negatively impacted by their production and/or adoption. A useful way of considering these implications is to focus on four key principles: 1) Leave no one behind, 2) Do no harm, 3) Do it better, and 4) Ensure fair distribution of benefits and costs (Figure 1).

Figure 1: Just transition principles⁹



⁸ UNFCCC. *Just Transition of the Workforce, and the Creation of Decent Work and Quality Jobs*.

⁹ Unless otherwise cited, figures and tables are created by WDI.

Figure 2: Global headwinds and tailwinds



These principles will remain front and center as we examine the state of play for e-mobility in the Philippines, and they will also inform the inputs we present for a blueprint for the EVCE, so that its role and mission can be anchored on an inclusive and just e-mobility transition for all.

Before exploring e-mobility progress in the Philippines, however, it is important to review key global and regional trends that are contributing to the landscape of both opportunities and challenges, which have implications for countries around the world and make the need for action all the more urgent.

SECTION 3

Global market trends on e-mobility

Given the proliferation of global goals related to decarbonization and other climate commitments, including those outlined in the Paris Agreement, the next five years will be crucial to advance the transition to e-mobility, which is driving action by different players seeking to shape future outcomes. Indeed, the International Energy Agency (IEA) anticipates that, considering current policy conditions, the fleet of EVs across all modes except 2W and 3W will reach 250 million by 2030 – four times as many EVs as there were at the end of 2024.¹⁰ The trend towards e-mobility is poised to continue, though its pace and progress differ across countries and regions.

At a global level, EV car sales (including BEV and PHEV) topped 17 million worldwide in 2024, and they were up 35% year-on-year in the first three months of 2025, with record first-quarter sales in all major markets.¹¹ Growth in 2025 comes against the backdrop of mixed policy signals, a backslide on climate related commitments in key markets, and uncertainty related to trade tensions between the U.S. and China, which are creating headwinds for the EV transition more broadly. Conversely, worsening climate change effects, technological breakthroughs, and the recognition of the opportunities associated with EV technology are all tailwinds accelerating EV adoption (Figure 2).

Because the ripple effects of recent policy changes will continue to be felt across the markets given the interconnectedness of global supply chains, more time is needed to ascertain the effects that this quickly evolving landscape will have on EV adoption globally, and what knock-on effects will be felt in different regions. Despite the uncertainty, recent projections by the IEA point to continued growth for EV sales in key markets.

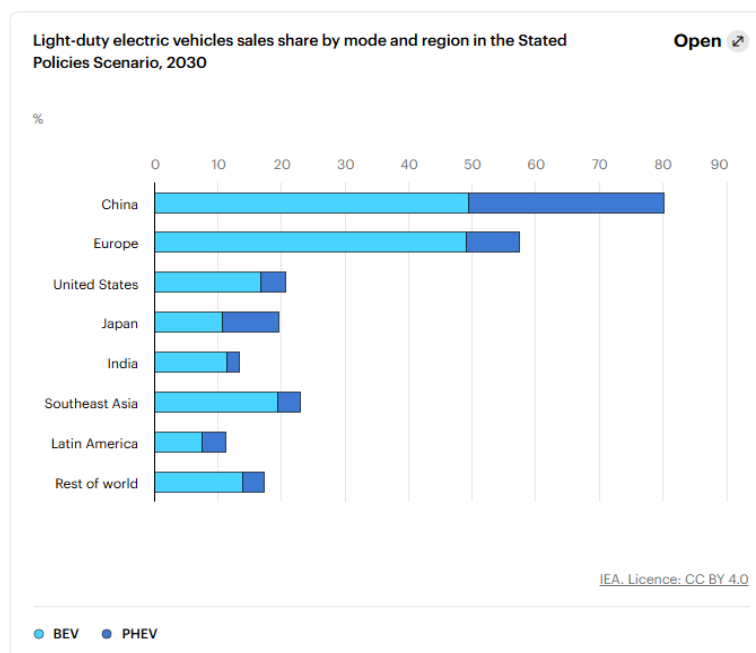
In China, the leading Asian market for EVs, electric car share surpassed 50% in late 2024 and is expected to reach around 80% of total sales in 2030, backed by continuing policy support and progress on affordability. In the European Union, as EVs have moved from niche to more mainstream, several countries have reduced or phased out subsidies for EV adoption, which led to market stagnation in 2024. Also, according to the IEA, EV sales across all vehicle types (excluding 2W and 3W) in Europe are projected to exceed 55% by 2030 based on current policy conditions. In the U.S., while electric car sales continued growing in 2024 and the first quarter of 2025, the rollbacks of EV incentives at the federal level has led some companies to scale back their EV ambitions, leading to a revised outlook for growth in this market.

¹⁰ International Energy Agency. [Global EV Outlook 2025](#).

¹¹ International Energy Agency. [Global EV Outlook 2025](#).

Beyond these three leading markets, in emerging and developing economies in Asia, Latin America, and Africa, electric car sales increased by over 60% year-on-year in 2024, and the sales share almost doubled from 2.5% to 4%. Southeast Asia stands out as one of the regions driving both production and adoption of EVs. Electric car sales grew by nearly 50% to represent 9% of all car sales in the region, with notably higher sales shares in Thailand and Viet Nam.¹² While the percentage of sales is still low relative to the overall vehicle market, the trend is clear. Overall, across all vehicle segments, the EV sales share in Southeast Asia is projected to approach 30% in 2030 based on current policy conditions (Figure 3).¹³

Figure 3: Light-duty electric vehicles sales by mode and region



Source: [International Energy Agency](#)

Beyond cars, 2W and 3W stand out as one of the most affordable entry points for e-mobility in emerging markets and a primary mode of private passenger transport in several countries across the region. 2W and 3W were the most electrified road transport segment in 2024, surpassing a 30% sales share in Southeast Asia.¹⁴ The emergence of cheaper models in several markets and the existence of supportive policies and electrification targets in numerous countries points to a continued growth trajectory in this segment. By 2030, almost 1 in 3 such vehicles sold are expected to be electric.¹⁵

While progress is not linear and the pace of change varies across countries and segments based on several factors, the trend towards increased EV uptake is clear. And while there are several strategies to transition to e-mobility, the common denominator is that each country has to make important decisions and changes to support their goals. These include developing

¹² International Energy Agency. [Global EV Outlook 2025](#).

¹³ International Energy Agency. [Global EV Outlook 2025](#).

¹⁴ International Energy Agency. [Global EV Outlook 2025](#).

¹⁵ International Energy Agency. [Global EV Outlook 2025](#).

conducive policies for the development of a domestic supply chain when EV production opportunities or ambitions exist; deploying incentives to promote adoption; making infrastructure investments for EV deployment; spurring innovation in e-mobility locally; developing a strategy to ensure they have the workforce needed for EVs, and working across sectors to build the overall ecosystem needed to accelerate this transition. Next, we examine how actions related to e-mobility are being deployed and playing out in the Philippines.

SECTION 4

E-mobility in the Philippines

Like other countries around the world, the Philippines is taking action to electrify its transportation system to reduce reliance on imported fuel, cut carbon emissions and improve air quality, and create new economic opportunities. While uptake is low compared to other countries in Southeast Asia, policy and market developments point to increasing momentum behind e-mobility across the country, and there is a growing ecosystem of players across e-mobility in the Philippines.¹⁶

While the transition is still relatively nascent, there are several important building blocks in place to promote both adoption and production of EVs, including notable national efforts across policy and infrastructure development, as well as high-profile programs designed to promote greater EV uptake. The private sector is pursuing EV opportunities in the Philippines within these frameworks. Still, many questions remain about the future trajectory of EVs in the country and how to maximize benefits for all stakeholders – i.e., what additional policies may be needed and how they should be implemented; what education and training programs are needed; what are the areas for quick wins vs. longer term opportunities in the market; and how can such a major transition be executed in a just way.

In the Philippines, the e-mobility story is largely about public transport – from electric jeepneys or minibuses to e3W used for public transport and commercial applications. The highly-fragmented public transport system has historically been dependent on outdated and highly polluting road-based vehicles. Public Utility Vehicles (PUVs) are among the most popular transportation modes and a key lever for decarbonization and air pollution reduction in the country, and as such many policies and programs target the electrification of these segments as entry points. Still, private vehicles are also electrifying, albeit slowly. Since the number of vehicles for private use per capita in the Philippines is expected to grow significantly, this is also a segment where electrification could help mitigate an increase in emissions.

PUVs

PUVs encompass a diverse range of vehicles designed to provide public transport services. The most common PUVs are jeepneys, the most frequently used public transport mode in urban areas of the Philippines. They are responsible for approximately 40% of all motorized land transport modes or about 40 million person-trips per day, which make them one of the biggest contributors of GHG emissions in the transport sector.¹⁷ It is estimated that approximately

¹⁶ PwC. Automotive ASEAN Centre of Excellence. 2025. [Overview of the ASEAN-6 Automotive Market](#).

¹⁷ Changing Transport. 2018. [Modernising Public Transport in the Philippines](#).

200,000 are on the roads in the Philippines, with almost 55,000 in Metro Manila alone.¹⁸ Even with increasing car ownership, the jeepney sector still maintains its high ridership levels.

2W and 3W

Small vehicles, particularly motorcycles and tricycles, are experiencing rapid growth in popularity in the Philippines. Their share of the total vehicle stock is projected to grow at 15% compound annual growth rate (CAGR) over the next five years.¹⁹ Tricycles are widely used for short-distance trips within towns and villages. E-rickshaws and e-trikes are especially popular for intra-city transport and are being promoted as sustainable alternatives to conventional tricycles.

Just transition in the Philippines

As in other countries, the importance of ensuring a just transition in the shift to a low-carbon economy is paramount in the Philippines, which has integrated this concept into major laws, national plans, and climate strategies since 2016, with increasing detail and stakeholder participation in recent years. The Green Jobs Act and the National Green Jobs Human Resource Development Plan (NGJ HRD) are the primary frameworks, with more recent plans pertaining to the energy sector operationalizing just transition through funding, workforce support, and social protection. Ongoing efforts include the development of a National Just Transition Programme (JTP) and integration into the next Nationally Determined Contribution (NDC), with strong emphasis on equity, social dialogue, and local implementation. Table 1 includes a list of official documents and plans where just transition is explicitly included.

Table 1: Just transition in the Philippines

Document / plan	Year	How just transition is included or mentioned
Philippine Green Jobs Act	2016	Integrates the just transition framework, placing decent work and human capital development at the center of a climate-resilient, sustainable pathway. Directs 21 agencies to prepare the workforce for the green economy. Calls for tripartite dialogue and foundational training on green jobs and just transition. ²⁰
Philippine Development Plan 2018–2022	2017	Integrates green jobs and just transition in national policies and frameworks. Provides updates to the National Climate Change Action

¹⁸ Office of the President of the Philippines. 2024. [LTFRB reports 76 percent consolidation rate of PUJ, UV Express.](#)

¹⁹ T. Seminiano. Kadence International. [Driving the EV Revolution in the Philippines.](#)

²⁰ W. Fortaleza. The Center for Empowerment, Innovation, and Training on Renewable Energy (CENTRE). 2019. [Is the Philippines Getting Green and Just?](#)

		Plan and establishes tripartite consultations for defining and measuring green jobs and just transition. ²¹
National Green Jobs Human Resource Development Plan (NGJ HRD Plan)	2020–2030	Embeds just transition as a core principle, outlining strategies for skills development, decent work, social protection, and inclusive participation in the shift to a green economy. Emphasizes protecting workers at risk of marginalization and supporting affected sectors through reskilling and social dialogue. ²²
Nationally Determined Contribution (NDC) Implementation Plan	Ongoing	Recognizes the interlinkages between just transition and climate strategies. Commits to identifying social impacts of mitigation projects, maximizing social benefits, and engaging stakeholders in participatory planning for the energy transition. ²³
Philippine Energy Transition Strategies / Philippine Energy Plan 2023–2050	2023	While not always using the term just transition, the plan includes commitments to decarbonize energy, support affected workers, and ensure inclusive participation in the energy transition, especially in the coal sector. ²⁴
Accelerating Coal Transition (ACT) Investment Plan for the Philippines	2024	Allocates \$500 million for a just transition from coal to renewables, targeting early coal plant retirements and ensuring 80% of affected employees gain access to sustainable income. Emphasizes social protection and community benefits as part of the transition. ²⁵
Philippines Statement at United Nations Framework Convention on Climate Change (UNFCCC) High-level Ministerial Round Table on Just Transition	2024	Explicitly frames just transition as a mechanism for greening the economy, job creation, poverty eradication, and social justice. Calls for integrating social equity and stakeholder engagement in climate strategies, NDCs, and NAPs. ²⁶

²¹ W. Fortaleza. The Center for Empowerment, Innovation, and Training on Renewable Energy (CENTRE). 2019. [*Is the Philippines Getting Green and Just?*](#)

²² Institute for Labor Studies. [*National Green Jobs Human Resource Development Plan 2020-2030: Pathways for Building a Sustainable Workforce.*](#)

²³ [*Submission of the Republic of the Philippines as delivered by H.E. Ambassador Leila Lora-Santos Deputy Head of Delegation.*](#)

²⁴ International Trade Administration. 2024. [*Philippines Energy Transition Strategies.*](#)

²⁵ Climate Investment Funds (CIF). 2024. [*Accelerating Coal Transition \(ACT\) Investment Plan for the Philippines.*](#)

²⁶ [*Submission of the Republic of the Philippines as delivered by H.E. Ambassador Leila Lora-Santos Deputy Head of Delegation.*](#)

National Just Transition Programme (JTP) – in development	2024–2025	Launched in October 2024, the JTP aims to define national just transition goals, programs, and projects through broad stakeholder consultation. This will inform the next NDC and ensure local-level mechanisms for integrating just transition into community and local government plans. It includes a strong focus on reskilling and upskilling the workforce in the transport sector as part of the shift to a low-carbon economy, recognizing that these workers are heavily reliant on conventional energy and are vulnerable to displacement in the transition. ²⁷
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While some of these documents explicitly include transport sector workers, most focus on green jobs more broadly or the implications of just transition in the energy sector, particularly as it relates to coal plant closures. Because the shift to e-mobility also involves crucial implications for workers, systems, and current structures, just transition plans specifically focused on the transition to EVs have been developed in other places where this shift has major consequences for the local economy. This is the case in the state of Michigan in the U.S., where a dedicated office has been established and a strategy developed to address the negative effects of this transition for automotive workers (Figure 4).

Figure 4: Michigan's Economic Transition Office

Michigan's Economic Transition Office

In Michigan, while many players are working to address just transition across the state, a recently created office is dedicated to elevating this issue and support workers and communities in transition. The Community and Worker Economic Transition Office (ETO), established in 2023, sits within the Department of Labor and Economic Opportunity and is charged with coordinating efforts so communities, workers and businesses can avoid or mitigate the economic harm caused by shifts in the changing energy landscape, focusing on long-term economic transition in both the utility and automotive sectors. By the end of 2025, ETO will develop a statewide transition strategy informed by data and deep engagement with impacted communities, workers and businesses, and led by an Advisory Committee that includes 75 members reflecting the diversity in background, expertise and regions across the state.

Source: [State of Michigan. Community and Worker Economic Transition Office](#)

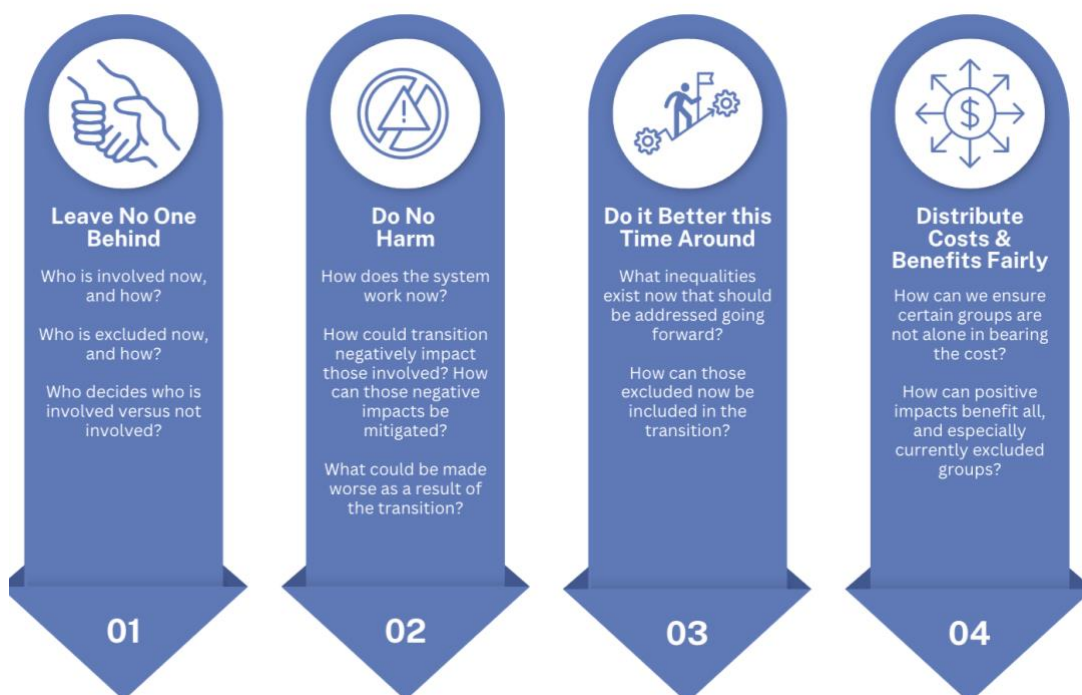
²⁷ Aksyon Klima Pilipinas (AKP). 2024. [On inputs for the report on just transition and human rights, in the context of the climate crisis.](#)

Current e-mobility landscape

To better understand the Philippines e-mobility ecosystem, we need to examine three dimensions: policy framework, market dynamics, and workforce. Each of these dimensions can make or break the transition to e-mobility; they work both independently and collectively to enable, accelerate, or hinder progress towards e-mobility goals.

As we review these dimensions, we will consider the four just transition principles introduced earlier in this report: 1) Leave no one behind, 2) Do no harm, 3) Do it better, and 4) Ensure fair distribution of benefits and costs (Figure 5). We will highlight how they come into play as we examine e-mobility in the Philippines. This exercise is not intended to assess if and to what extent existing policies align with a just transition. Instead, we will illuminate key questions under each of the four principles as we review the Philippines current policy framework, the state of the market, and the implications for the workforce in the following sections. The insights derived from this exercise are designed to provide more concrete guidance that can help ensure that just transition goals are integrated into future actions and strategies in the Philippines.

Figure 5: Understanding key principles for a just transition



A. Policy

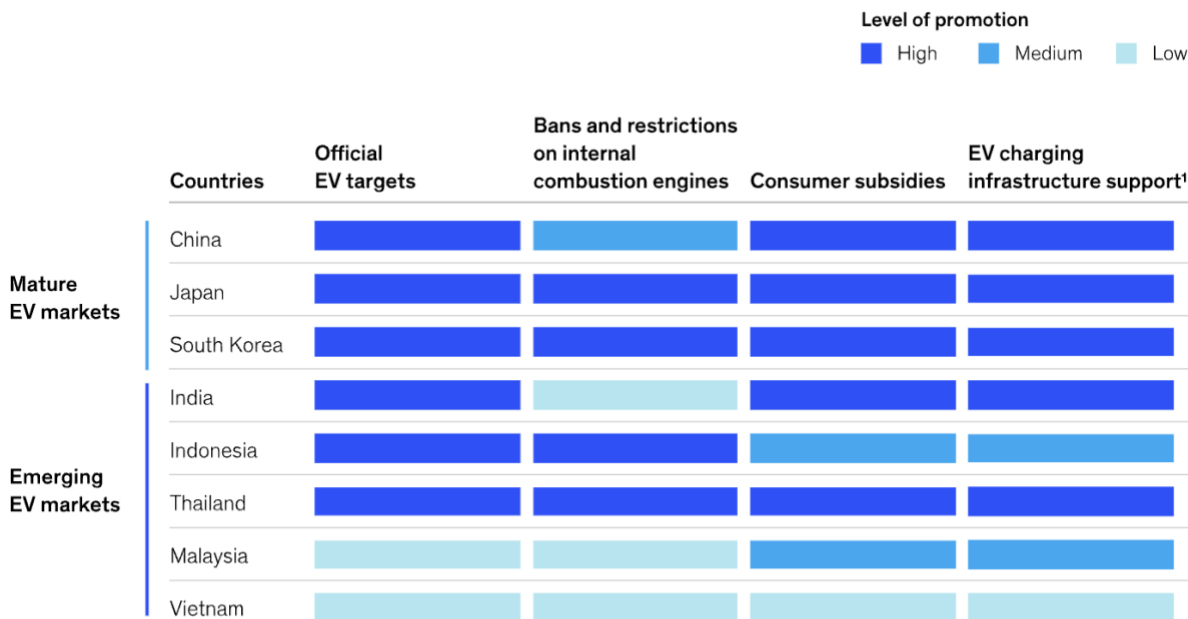
Having policies in place provides structure and guidance for decision makers and can shape market outcomes. This is especially important in sectors that are set to experience major transitions with accompanying uncertainty, such as electrification of mobility. The e-mobility transition involves many actors, shifting dynamics, and changes to the status quo. Policies can support and ease the transition, especially in the early stages, for example by creating a vision to work toward, incentivizing desired behavior to achieve that vision (or conversely penalizing undesired behavior), and de-risking investments by private sector players while the market is nascent. Countries around the world are taking different approaches to e-mobility policies: some leading with proactive, comprehensive, and clear policies; some reacting to market conditions with targeted policies; some letting the market dynamics play out without implementing policies specific to e-mobility; and other approaches in between. While there is no exact right mix of e-mobility policy measures, as every country has unique conditions, we can draw some conclusions about what type of policy mix can be most effective in driving an e-mobility transition.

Various analyses point to the importance of having policies that address multiple aspects of e-mobility simultaneously, especially in early stages of the transition, to respond to the many interrelated drivers and barriers. Such an approach is likely to lead to more successful and rapid transition to e-mobility. A recent McKinsey analysis highlights the importance of having 1) official EV targets, 2) bans and restrictions on internal combustion engines, 3) consumer subsidies, and 4) EV charging infrastructure support.²⁸ Figure 6 highlights these areas and the relative levels of investment in promoting transport electrification among mature and emerging EV markets in Asia. We can see that the mature EV markets tend to have higher levels of government promotion across more of these policy areas than the emerging EV markets. This helps to illustrate that it is a combination of policies, as much as the specific policies themselves, that can help to drive this transition. And within these four broad categories, there are many ways to craft detailed policies to align with local conditions, regulatory frameworks, and market dynamics.

²⁸ McKinsey & Company. 2022. [*Capturing growth in Asia's emerging EV ecosystem.*](#)

Figure 6: Electrification policy levels in the transport sector by country in Asia

Asia's governments vary in their degree of promoting transport electrification.



¹Includes subsidies and funding for establishing EV charging network or targeted number of charging stations nationwide.
Source: Government websites as of May 2022; McKinsey analysis

McKinsey
& Company

Source: [McKinsey & Company](#)

In the Philippines, e-mobility is an explicit priority of many key decision makers, including policymakers. In recent years, the Philippines government has set targets, put e-mobility policies in place, and worked to build the foundations to facilitate implementation and enforcement of new goals and regulations. In the next section we take stock of where things currently stand, and later explore how the Philippines compares to other markets in the region, illuminating the challenges that remain.

i. EV policy in the Philippines

In recent years, there has been a big policy-making push across different aspects of the e-mobility transition in the Philippines. The key e-mobility policy developments at the national level, in summary, include:

Figure 7: CREVI targets

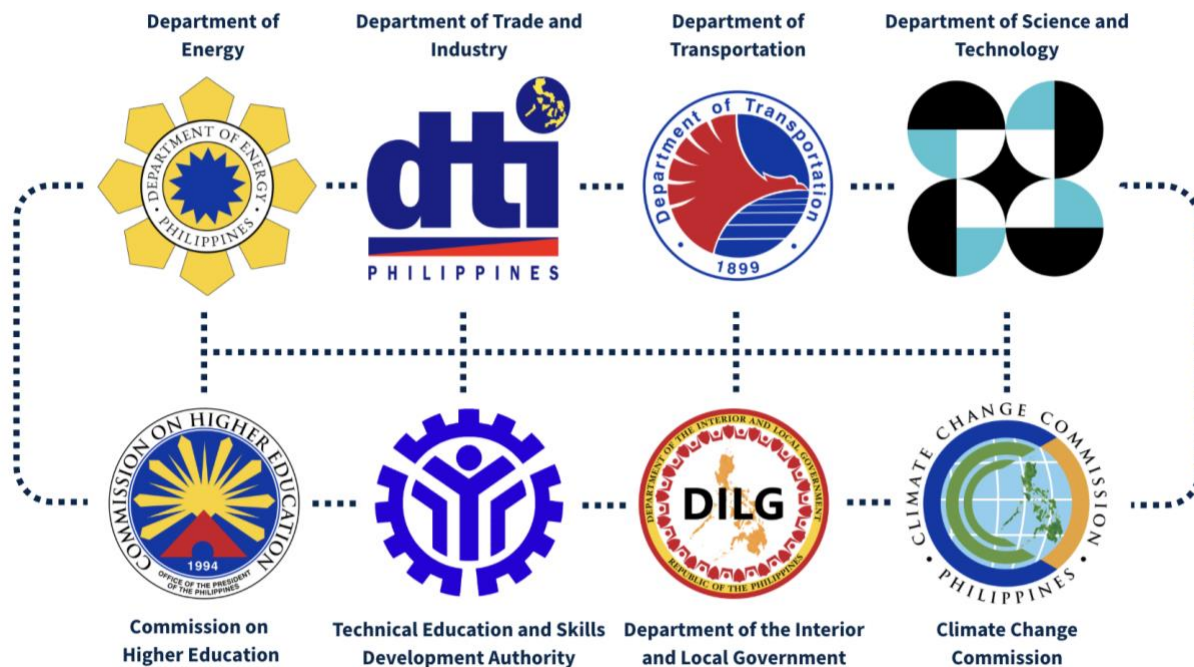


- **Electric Vehicle Industry Development Act (EVIDA)** of 2022: This establishes a framework for promoting the EV industry and its adoption, stipulating three major items: EV industry roadmap development (see CREVI, below), demand creation and industry development, and incentives (see EVIS, below). An important aspect of demand creation is mandating a 10% EV share in the vehicle fleets of government and corporate entities by 2040. EVIDA also designates specific powers and functions to local government units (LGUs) throughout the country to drive EV adoption, namely incorporating EVs into public transportation, regulating charging infrastructure, and managing traffic in their local jurisdictions.
- **Comprehensive Roadmap for the Electric Vehicle Industry (CREVI)**: CREVI focuses on four areas: 1) EV and charging station promotion, 2) manufacturing, 3) R&D, and 4) human resource development. With the first iteration published in 2023, CREVI is intended to be updated each year, but a new update has not yet been released. Importantly, CREVI includes targets for EV market penetration, local production, charging infrastructure development, and short/medium/long term strategies to meet targets. These are organized under two scenarios: Clean Energy Scenario (CES) and Business-as-Usual Scenario (BAU) as shown in Figure 7.²⁹
- **Electric Vehicle Incentive Scheme (EVIS)**: Established by EVIDA, EVIS aims to promote the adoption and production of EVs through various fiscal and non-fiscal incentives, described in more detail, later, in Figure 9.

Several government agencies and other entities play a role in designing and implementing the various aspects of these policies, at national and local levels. Figure 8 includes the players that have specific roles and responsibilities designated under EVIDA, and even more come into play for the related policies mentioned below. Each actor brings its own resources, perspectives, and also agenda and competing priorities to its involvement in e-mobility policies. Clear governance, communication, and ongoing coordination is crucial for effective implementation of these policies. Not included in the visual are LGUs across the country, which have a role to play in the transition by providing local incentives, setting local regulations, and designing and implementing programs to promote transportation electrification.

²⁹ P. Aquino. Energy Utilization Management Bureau Department of Energy. [Opportunities under The Philippines CREVI](#).

Figure 8: Responsible agencies under EVIDA implementation



As noted earlier, there are many areas of overlap between e-mobility and the areas of energy, planning, education, environment, labor, and others; as such it is important to consider the policies and plans in these related areas that are of consequence to the e-mobility transition in the Philippines. These include:³⁰

- **The Renewable Energy Act of 2008:** Focused on promoting the use of renewable energy sources to achieve energy security. Among other details, there are provisions for EV charging stations to source their energy from renewable energy developers.
- **Philippine Green Jobs Act of 2016:** Discussed more throughout the report, this promotes the development of the EV industry in the Philippines with a focus on human resource development and training programs.
- **National Transport Policy of 2017:** Aims to create a sustainable, reliable, and safe transportation system that is accessible to all.
 - The Public Utility Vehicle Modernization Program (PUVMP) falls under this. PUVMP has ten components: 1) regulatory reform, 2) local public transport route planning by the local government, 3) route rationalization study, 4) fleet modernization, 5) industry consolidation, 6) financing PUV modernization, 7) vehicle useful life program, 8) pilot implementation, 9) stakeholder support mechanism, and 10) communication. There has been much analysis of the implementation and implications of the PUVMP, much beyond the program's

³⁰ Republic of The Philippines Department of Energy. [Comprehensive Roadmap for the Electric Vehicle Industry](#).

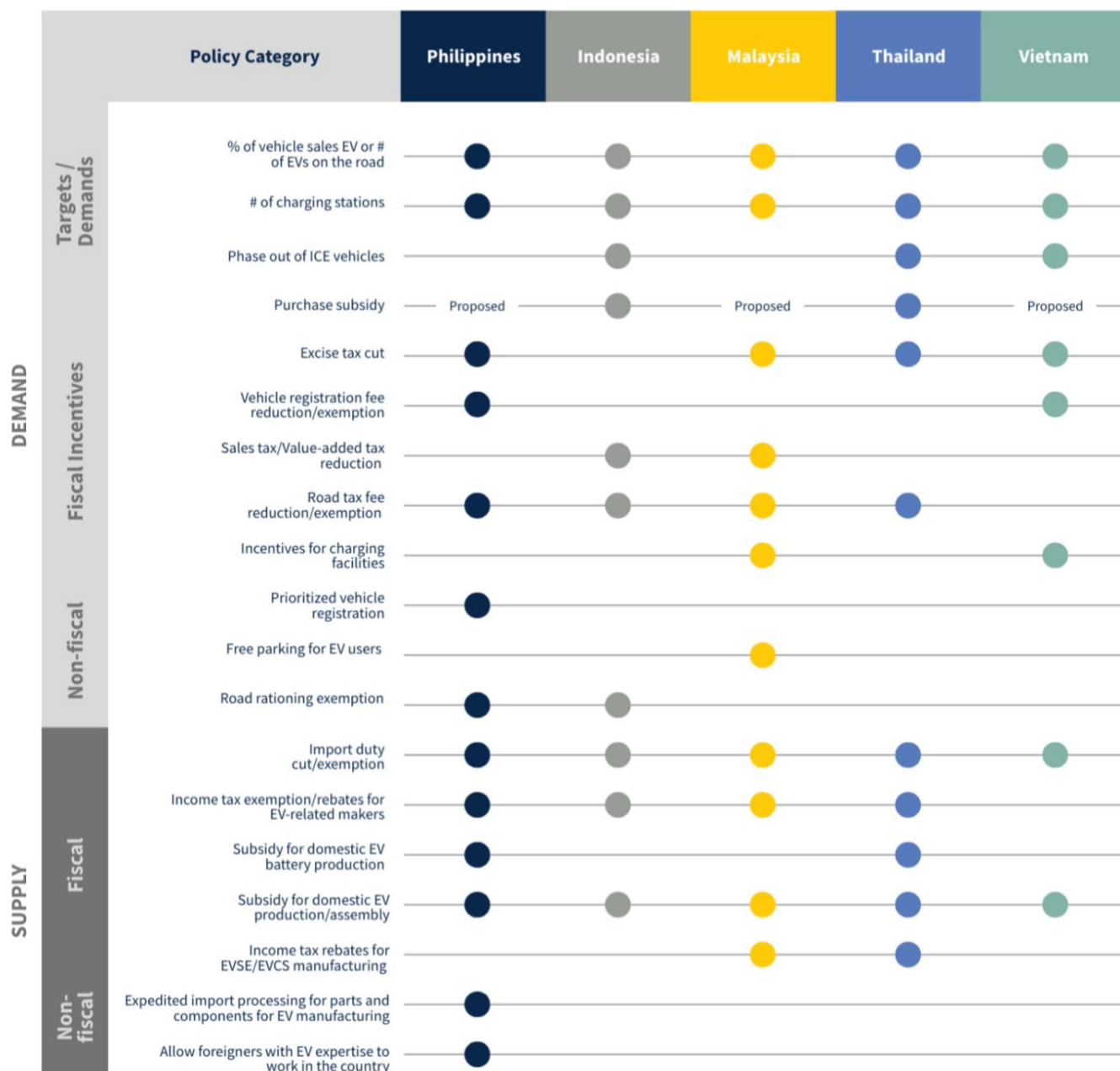
relevance to electrification, so we will not repeat that here. However, as one aspect of the program is modernizing the public transport system, and includes an element of fleet electrification that is a key component of the e-mobility transition in the Philippines, we will reference the PUVMP throughout this report.

- **Energy Efficiency and Conservation Act of 2019:** This provides a framework and incentives for renewable energy and energy efficiency programs, including for projects related to EVs.
- **CREATE Act (Corporate Recovery and Tax Incentives for Enterprises) of 2021:** This act includes incentives for EV manufacturing and charging stations, and aims to promote inclusive growth throughout the country by encouraging the transfer of activities to less developed areas.
- **Philippine Development Plan 2023-2028:** Among other areas, the plan aims to promote better connectivity and economic opportunities and utilize EVs to enhance the transportation system.
- **Philippine Energy Plan 2023-2050:** Outlines the country's energy goals and strategies, policies, and programs to achieve them, including using more clean energy to ensure energy security by reducing the country's dependence on imported fossil fuels. The plan targets a 35% renewable energy share in the country's total energy mix by 2030.

Within this policy landscape, there are more detailed measures in place to advance both demand (which we use interchangeably with adoption) and supply of EVs, which are helpful indicators of some of the country's priorities and strategies to advance e-mobility. We examine these measures along with similar ones in other countries in Southeast Asia to contextualize policy development to date. Specifically, we consider Indonesia, Malaysia, Thailand, and Vietnam, all of which also have robust EV policies and plans (Figure 9).

This figure considers both the demand and supply sides, including targets, mandates, fiscal, and non-fiscal incentives, as all are important. While this does not cover all details of every e-mobility policy in each country, we highlight key aspects that are present in these markets. Of note, there is some nuance in terms of which vehicle segments are covered in different policy instruments in different countries, but we do not distinguish by vehicle segment here.

Figure 9: Southeast Asia EV policy comparison



Sources: [GMSH Law](#), [BYD](#), [NTRC Tax Research Journal](#), [Carmudi](#), [Business World](#), [IEA](#), [ICCT](#), [Kungsri](#), [Independent Observer](#), [IISD](#), [ARMA Law](#), [Now Jakarta](#), [CORE Indonesia](#), [Permitindo](#), [MIDA](#), [Paultan.org](#), [ASEAN Briefing](#), [EY](#), [Thailand Board of Investment](#), [Just Auto](#), [Socialist Republic of Viet Nam Government News](#)

Overall, each country has approved various measures on both the supply and demand sides, and the Philippines is leading in some ways – in terms of the number of fiscal and non-fiscal incentives, for example. However, important drivers that are missing in the Philippines, which

are in place in several of the other countries, include mandates to phase out ICE vehicles, purchase subsidies, and incentives for charging stations. Purchase subsidies are used in many countries and can help address real and perceived financial barriers to switching from ICE vehicles to EVs. While they are in discussions in the Philippines for different segments, they have not yet been approved. And while targets for EV registrations and charging stations are important, mandates to move away from ICE vehicles and financial incentives to spur investment in charging infrastructure can be very effective complements to achieve the targets.

The Philippines also has a number of fiscal and non-fiscal incentives on the supply side – more so than in most other countries examined – indicating the importance to the government of building and growing a local EV manufacturing industry. However, based on our field research, companies perceive this area of policy as a key weakness, indicating a difference between the government vision and the reality for companies. A common thread across these countries is that they are all offering subsidies for domestic EV production/assembly and an import duty cut/exemption. Together these seem to indicate that each country has an interest in building its own domestic EV industry, but also recognize that, in the short term at least, there will be a reliance on importing vehicles and parts from countries with more developed EV supply chains to grow their own local EV ecosystems.

Within EV targets, the Philippines is somewhat unique among this set of countries in its mandate that a percentage of government and company fleets transition to EVs. Other countries have introduced similar measures, but they are not as firm: for example, Indonesia directs government actors to prepare to transition to EVs without specific targets, and Thailand approaches the issue with an incentive (active through 2025) for companies to electrify their fleets. Involving the government and companies in electrification targets is a strategic way to build market demand for vehicles and charging infrastructure early on. As we will explore later in the report, however, the implementation of such mandates also poses challenges for some of the stakeholders involved.

This analysis illustrates that the current policy instruments for e-mobility in the Philippines cover many bases. However, EV uptake is still nascent. There are many factors that contribute to this, and one aspect to consider is timing. As Figure 10 shows, EV-related policymaking in Southeast Asia has taken off in recent years: most policies have been passed in the past 2-3 years. Each country has a different policy mix and has followed a slightly different sequencing, depending on their priorities. In such a new and dynamic area, a few years can make a big difference in terms of market uptake, and aside from one rather targeted policy in 2017, the Philippines has been slightly slower to pass broader policies related to EVs than some of its neighbors.

Figure 10: Timeline of e-mobility policies in Southeast Asia



Source: [IEA Global EV Policy Explorer](#)

Additionally, once the policies are passed, implementation must follow. Because e-mobility policies typically require coordination among multiple government entities and with other stakeholders, there can be an adjustment period, unanticipated hurdles, and unintended effects. At this point, policies are getting tested in the market – market constraints and behavioral responses will influence how effective these policies are. As implementation continues, it will be important to incorporate market feedback into policy revisions to ensure that they deliver the expected results. And as changes are made to existing policies and new policies are developed, keeping just transition considerations in mind will contribute to stakeholder buy-in, easier implementation and long-term sustainability of these efforts.

ii. Just transition considerations

In the Philippines, there is recognition of the need to ensure a just transition as part of the shift to e-mobility and transport modernization efforts, and there are many stakeholders working to highlight these considerations. While implications for just transition are also relevant when considering market dynamics and implications for the workforce, the foundations for a just transition are built in the policy realm. Given the outsized impact of policies on just transition outcomes, it is crucial to understand how to integrate these considerations during policy design and implementation, when policies are evaluated or changed in response to changing dynamics or to address unintended effects, and when policies come to an end.

Considering the four principles of 1) Leave no one behind, 2) Do no harm, 3) Do it better, and 4) Ensure fair distribution of costs and benefits as part of policy making goals can help ensure that policy outcomes will be aligned with a just transition. Table 2 includes a non-exhaustive list of policy making goals related to these principles, along with questions that can be helpful to examine in the context of the design and implementation of policies for the e-mobility transition.

Table 2: Incorporating just transition principles into policy making

Principle	Policy making goals	Questions to examine in the context of e-mobility policy design and implementation
Leave no one behind	- There is representation of all groups in the policymaking process, particularly those that may be affected by new policies, via early, regular and meaningful participation; i.e., their voices are heard and have weight in decisions made - The process includes robust social dialogue and a systems	- Which groups are involved in decision-making? - Who is representing these groups? - Are there mechanisms for co-design, co-ownership, and shared decision-making authority over transition plans, resources, and investments?

	lens to ensure inclusion	
Do no harm	• There is recognition of potential negative impacts that new policies could have vis-a-vis the status quo, and in particular unintended effects, both direct and indirect, on vulnerable cohorts • Policies ensure that there are safeguards and social protection systems for workers and communities that could be negatively impacted as a result of new policies (e.g., dislocated workers, loss of revenue for specific communities, etc.) to avoid harm	• Will the new policies lead to displaced workers? • Will they disproportionately affect specific groups? • If there is a gap in employment, are there safeguards in place? • As trainings to upskill or reskill workers are rolled out, will they be available and easily accessible to displaced workers? • Will these trainings lead to new jobs with similar (or better) conditions and protections?
Do it better	• Policies address existing inequalities, for example, limited women's participation in the transport system • Policies consider power dynamics into policy making processes	• Are policies designed with inclusion in mind, particularly of groups that have been excluded in the past? • Are there diverse stakeholder groups involved, not only players that already have voice and influence?
Ensure fair distribution of costs and benefits	• Policies contemplate measures to minimize outsized negative impacts on specific groups • Policies and incentives ensure that the benefits of the transition to e-mobility – e.g., economic opportunities, training, job placements, clean air – extend to all and not just certain groups, areas, or communities	• Will EV policies raise costs or restrict access to current modes on which certain low-income or vulnerable communities depend? • Are there mechanisms for drivers/operators to afford the switch to EVs when mandated by policies? • Will new policies create disproportionate burdens or barriers for small businesses?

iii. Policy challenges

Policy making and implementation are complex processes. The global momentum behind e-mobility in recent years has led to many players moving fast to capture benefits from this transition and not lose out on opportunities, leading to some common challenges across markets. In the Philippines, the challenges related to policy identified through our research are multifaceted, and include the following:

Multiple policies and insufficient coordination

The Philippines has multiple policy instruments and plans that establish the regulatory framework, set incentives and requirements, and clarify goals and obligations of different stakeholders. While comprehensive, these pose a governance challenge in terms of overall coordination of the various agencies and players, at multiple levels. There is also no single point of contact or lead agency for all interrelated EV policies, which can lead to diffusion of responsibility and confusion among stakeholders, both within the government and for companies and other players trying to interface with the government. Michigan's approach to coordination could be a useful example for addressing this challenge (Figure 11).

Figure 11: Michigan's approach to e-mobility coordination

Michigan's approach to e-mobility coordination

In 2020, Michigan created a dedicated mobility entity that serves as primary orchestrator to help rally stakeholders around key mobility initiatives and make progress more quickly. The **Office of Future Mobility and Electrification (OFME)** leads the coordination of all automotive and mobility-related initiatives across state government to ensure Michigan's status as a global leader in future mobility. Led by a Chief Mobility Officer, OFME sits between four key state agencies that are critical for mobility: transportation, energy, labor and economic development. OFME serves as a central hub and strategic planner of related initiatives, leveraging resources from various sectors and connecting players to create more value and ensure greater coordination.

Related, the Michigan **Council on Future Mobility and Electrification (CFME)**, composed of industry and government representatives, serves in an advisory capacity and reviews evolving trends impacting the industry, recommending changes to state policies to ensure they are responsive to and aligned with industry trends.

Sources: [Michigan Economic Development Corporation](#), [Office of Future Mobility and Electrification](#)

Clarity and consistency in policy

EV mandates and incentives in the Philippines are sometimes perceived as contradictory or unclear—for example, requirements for a percentage of fleets to be electric coexist with allowances for modern ICE or hybrid vehicles, diluting the impact of EV targets. In other cases,

stakeholders outside of the government are unclear on how an overarching policy will be implemented and therefore how they can comply.

Insufficient stakeholder consultation

Several groups pointed to inadequate stakeholder consultation and participation in the policy design process.

LGU capacity

LGUs need substantial support, both technical and financial, to fulfill their roles in supporting e-mobility goals. They lack clear, consistent national guidelines and technical support to effectively integrate EVs into their transportation planning.³¹

Transitioning government and company fleets to EVs is a critical early point of entry but remains a persistent challenge

While multiple types of incentives exist to support this move, accessing financing and navigating bureaucratic processes—such as customs clearance for imported vehicles or components—can be slow and impractical for many operators and businesses. This is especially true for small and medium enterprises (SMEs) and cooperatives, which often lack the financial and technical capacity to comply with new requirements or secure loans for fleet electrification. An example of a model being explored in Nigeria could provide an idea for addressing this challenge (Figure 12).

Figure 12: EV bulk procurement scheme

EV Bulk Procurement

Bulk procurement of EVs is an approach that can address the challenge of scaling both EV adoption and demand, when both are at a nascent stage and highly dependent on one another. A bulk procurement scheme involves several large purchasers of vehicles coming together to purchase vehicles in a higher volume and with orders over a longer period of time than they would have done individually. These purchasers can be government agencies or companies that manage fleets, companies that lease vehicles, or others. Creating this high volume of orders can allow manufacturing to scale, driving down the cost of production. The lower costs can have the follow-on effect of lowering prices and increasing adoption of EVs among individuals and organizations outside of the bulk procurement scheme, thereby creating positive feedback loops in the production and adoption cycles. Bulk procurement is an approach being considered in Nigeria, where interest in EVs is high because of a recent removal of a fuel subsidy, but EVs are not available that fit with local needs.

Source: [RMI](#)

³¹ Clean Air Asia. 2023. [Advancing Electric Vehicle Adoption in the Philippines through Policy Integration.](#)

Linking policy to market reality

Policy outcomes are contingent on alignment with underlying market structures and dynamics. Anchoring the policies in the realities of the local market can help bridge the gap between envisioned goals and real outcomes. The fragmented ecosystem of players that make up the primary EV market (LGUs, transport operators, cooperatives) and the structure of the public transport system make it difficult to test actual market conditions. While there are e-mobility pilots, there is limited evidence of actual market tests, resulting in a lack of market intelligence and insights that can help address some of the identified bottlenecks.

Finally, while policies are an important enabler for an e-mobility transition, they are but one tool in a larger toolkit, and they cannot be successful without support and alignment in other areas, including market conditions and workforce. Without market demand for emerging technologies and ready workers, policy efforts to transform current systems cannot succeed. Examining current market conditions will allow us to understand what players are involved and how, to understand the most important trends and the hurdles to greater e-mobility progress.

B. Market

Ultimately, the policies, technology maturity, and product fit of EVs are tested in the market – and, if optimal, will lead to EV adoption. Market opportunities related to e-mobility include those that enable production of vehicles all along the supply chain, and those that facilitate their adoption, operation, and end of life. Across these dimensions, EVs also provide a platform for business innovation and economic growth, since they are still in early stages of adoption and present challenges that need to be solved, with opportunities for innovation, entrepreneurship, cross-sector partnerships, and bold ambition. Considering both EV adoption and production in the Philippines will provide a more complete picture of the state of play for e-mobility in the country and help highlight the opportunities ahead.

i. State of market: production

The Electric Vehicle Association of the Philippines (EVAP) – the first EV industry association in Southeast Asia and a key player in providing information and expertise, convening players, and promoting e-mobility in the country – compiles statistics on the EV manufacturing industry in the Philippines. According to EVAP, in 2024, there were 15 local EV assemblers/manufacturers, with 600 employees and an installed production capacity of 200,000 units per year.³² In the past ten years, there was an average annual growth of 7.7% in EV production while ICE vehicle production has been projected to decrease over the period due to the implementation of CREVI.³³ ³⁴ According to market research firm Frost & Sullivan, this growth makes the

³² E. Araga. [Electric Vehicle Association of the Philippines.](#)

³³ E. Araga. [Electric Vehicle Association of the Philippines.](#)

³⁴ MarkLines. 2022. [Philippines' 100% EVs by 2040 aim to be pushed by CREVI, says Department of Energy.](#)

Philippines the second fastest-growing automotive production market in ASEAN.³⁵ The EV industry has over PHP 1 billion in total investment.³⁶

Local EV companies include some producing and assembling e3W and some producing e-jeeptions, both key segments for e-mobility in the country. New players and expansions have been announced recently, including a new entrant in 2024 for the production of e-motorcycles and li-ion battery packs, Cirtex Advanced Technologies and Solutions Inc. Also, in early 2025, LCS Electric Mobility ON Commercial Corp., a new EV plant for e-jeeptions, was established in the country, with a production capacity of 500 e-jeeption units per month.³⁷

Relevant to the development of a domestic EV supply chain, the Philippines has significant nickel deposits, and is the second largest producer globally.³⁸ There are two nickel processing plants and one additional mineral processing demo plant, although they do not produce battery-grade nickel for EV battery manufacturing. There is also one giga factory (StB), which produces li-ion phosphate battery packs for use in small vehicles and DC (direct current) EV charging stations – though currently for export only to ASEAN countries, Australia, India, and the U.S rather than for domestic use.³⁹ There is additional battery manufacturing and assembly capacity in the country, but it is currently limited to lead-acid batteries used in e3W and e-jeeptions, or batteries for small consumer electronics.

The EV industry is part of the broader automotive industry, which included 256 companies in 2023.⁴⁰ This includes many auto parts suppliers, with key parts produced in the Philippines including transmissions, radiators, stamped parts, chassis, wire harnesses, and electronics components, according to the Philippines Department of Trade and Industry (DTI). These will each have different levels of relevance to the e-mobility transition, and many will need to undergo changes to align with the different technical specifications of EVs as compared to ICE vehicles. This will present different opportunities and challenges for companies that hope to pivot into the EV space.

Based on results from an online survey conducted with companies in the Philippines in May 2025 as part of our research, there are a number of companies already engaged in the EV value chain and planning to move into new areas of the EV value chain (Figure 13). Twenty-one companies responded to the survey, indicating that they are currently doing business related to EVs. There is engagement all along the value chain, with the exception of raw materials. Most of the respondents are involved in charging, and approximately half are involved in parts and components and sales and distribution of EVs. Most companies are engaging in multiple parts

³⁵ Frost & Sullivan. [*What Are the Key Growth Drivers for Automotive Production?*](#)

³⁶ E. Araga. [*Electric Vehicle Association of the Philippines.*](#)

³⁷ A. Urquiola. MNLToday.ph. 2025. [*Manong Chavit's affordable E-Jeeption production gets rolling.*](#)

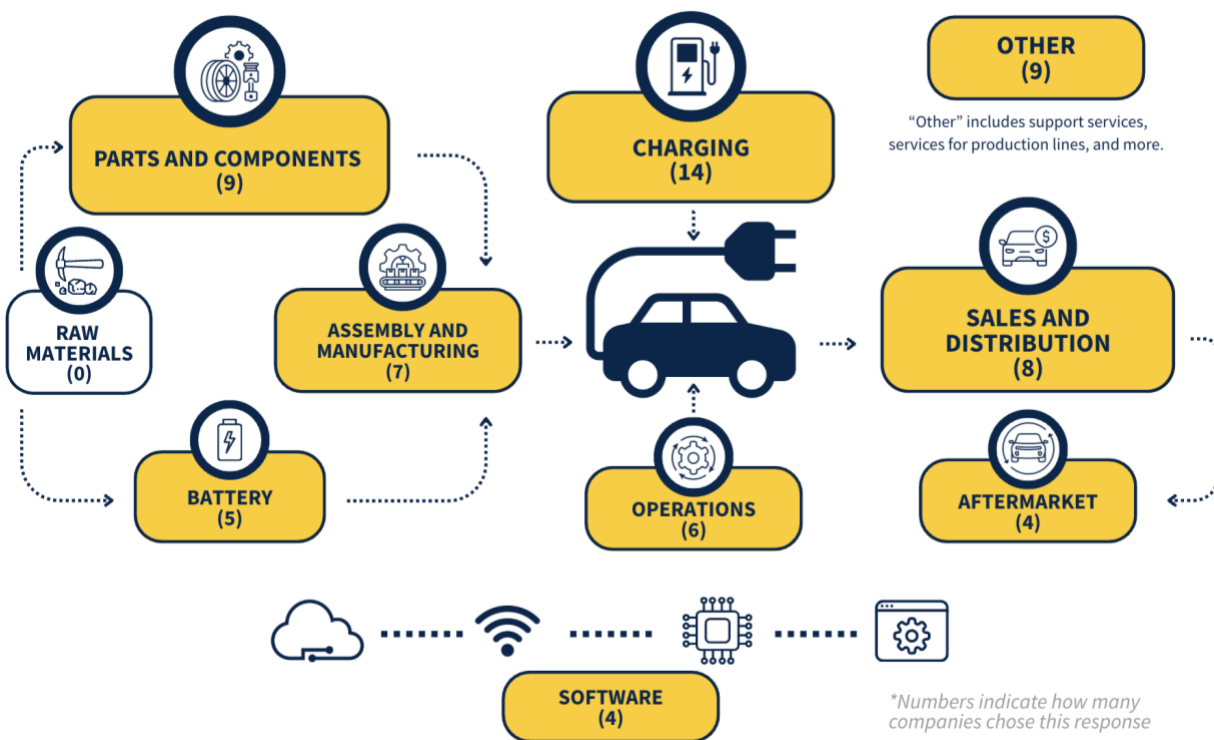
³⁸ Statista. [*Distribution of mine production of nickel worldwide in 2022, by country.*](#)

³⁹ E. Araga. [*Electric Vehicle Association of the Philippines.*](#)

⁴⁰ Republic of the Philippines Department of Energy. [*Comprehensive Roadmap for the Electric Vehicle Industry.*](#)

of the EV value chain, indicating diversified business models and a certain amount of experimentation and need to do more in-house, which is consistent with a less developed market that is not yet crowded with highly specialized actors.

Figure 13: Current company involvement in the EV value chain



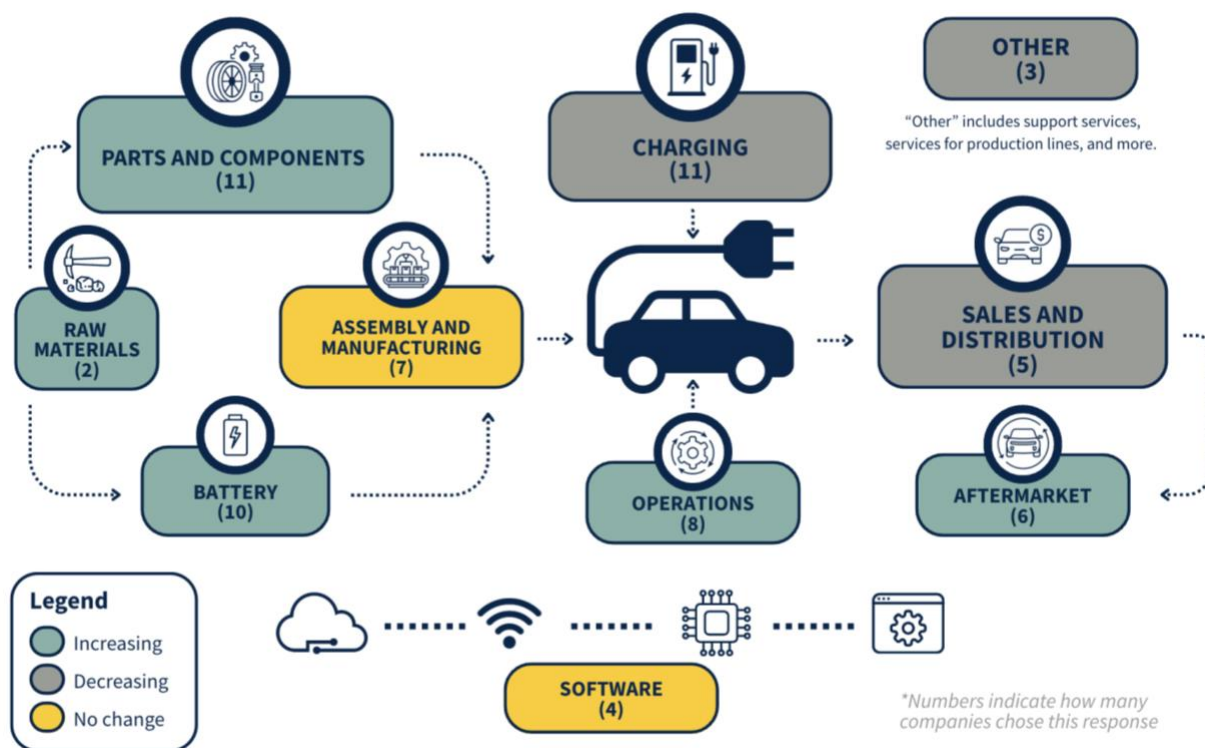
Nearly all companies (20) in our sample plan to transition to new areas of the EV value chain, approximately one-third within the next year and another third of the companies in the next 2-4 years (Figure 14). This underscores the rapid pace of change in this space and the need for policies and the workforce to keep pace with this anticipated growth.

Figure 14: Timing of companies entering new areas of the EV value chain



Looking ahead, companies are planning to engage in several areas in the future (Figure 15). More companies are moving into parts and components, raw materials, battery, operations, and aftermarket. While the sample is small, this could indicate that companies view these as key areas of opportunity for strategic expansion. The same number of companies plan to stay engaged in assembly and manufacturing and software as are currently involved. Fewer companies plan to be involved in charging, sales and distribution, and some other areas. Again, though the sample is small, this could indicate that these are challenging areas for companies.

Figure 15: Future plans for companies' involvement in the EV value chain



In terms of innovation, while the startup ecosystem relative to e-mobility in the Philippines is small and early stage, some players are making significant strides in the commercialization of EV technologies, coming from university labs and company R&D. This includes innovation in power electronics, e-trikes, charging stations, e-ferries, and even e-fishing and tourist boats. This points to the potential for e-mobility beyond road transport and the role that innovation can play in helping to advance the transition.

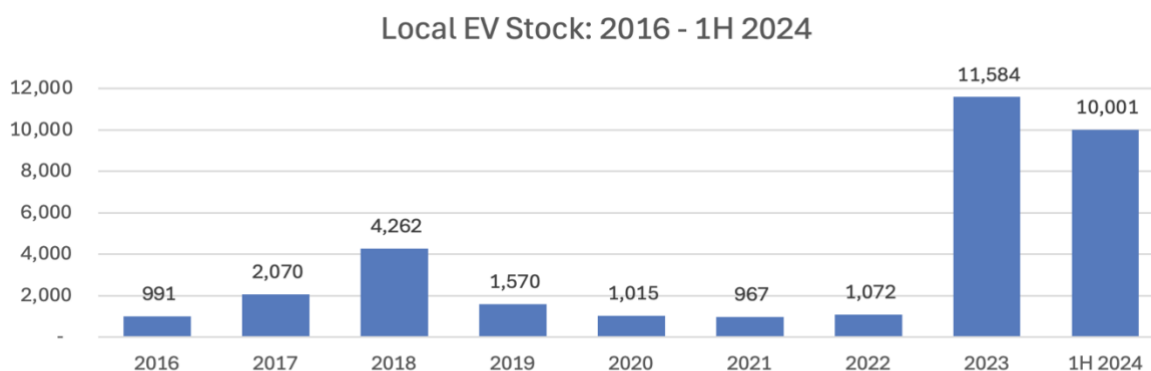
ii. State of market: adoption

As discussed previously, EV uptake in the Philippines is still relatively nascent, though momentum is building and there are indications of more growth ahead. Reaching the goals envisioned in stated policies and articulated through CREVI – whether in the clean energy scenario (CES) or the business-as-usual (BAU) scenario – will depend on the actions taken by

key stakeholders, as well as how they influence market conditions and trends. Therefore, while this section includes mentions of projections made by industry analysts to understand the expected trajectory for e-mobility in the Philippines, it is more crucial to emphasize insights that can inform decision making by various stakeholders to create the desired future of EVs in the country, rather than focusing only on predictions about the future that may or may not materialize.

Statistics compiled by EVAP paint a picture of a small local market with a growth rate that is picking up. Between 2010 and 2021, 13,934 EVs (including hybrid electric vehicles (HEVs) and plug-in hybrid electric vehicles (PHEVs)) were registered in the country.⁴¹ More recent data shows a positive trend: nearly as many EVs were registered during 2023 and the first half of 2024 as in the past seven years combined, as depicted in Figure 16.⁴² Because the Philippine Land Transportation Office (LTO), which registers vehicles, classifies EVs broadly to include battery electric vehicles BEVs, HEVs and PHEVs, it is not possible to ascertain the increase in registrations for BEVs specifically, but overall this is a positive development.

Figure 16: Local EV stock, EVAP



EVs registrations in the last 18 months are comparable to 80% of all EVs registered from 2016-2022

Source: LTO, BOI, industry reports

Data compiled by EVAP and visualized in Figure 17 provides a more granular picture of EV adoption by vehicle segment type between 2010 and 2021, which is the latest available data by segment from LTO.⁴³ The availability of up-to-date data is a challenge in the Philippine context and would help provide a more accurate picture of progress. Vehicle segments registered in the Philippines include trikes, motorcycles, UVs, cars, SUVs, trucks, and buses. By far the most EVs registered in the country from 2010-2021 are e-trikes and e-motorcycles, which are all BEVs. Considering the overall vehicle parc, a very small percentage of total vehicles are currently electric, indicating a lot of room for growth across all segments.

⁴¹ E. Araga. [Electric Vehicle Association of the Philippines.](#)

⁴² E. Araga. [Electric Vehicle Association of the Philippines.](#)

⁴³ NTRC Tax Research Journal. 2023. [Profile of the Electric Vehicle Industry in the Philippines.](#)

There are two important caveats regarding these EV numbers. One is that registration data is known to lag significantly behind sales data, so the number of EVs on the road could be higher than what has been published by the LTO. Additionally, the registration of e2W and e3W (e-bikes, e-motorcycles, and e-tricycles) has not yet been fully implemented by LTO, so the actual numbers of e2W and e3W are also likely much higher than in official reports.⁴⁴ Indeed, the recently published 2025 IEA EV Outlook indicates that there were more than 25,000 e2W sold in the Philippines in 2024 alone, which is much higher than the number of registered e2W during the above-mentioned period.⁴⁵ Examining different key segments more closely can help derive some additional insights about EV adoption across the country.

Figure 17: EV registrations by segment, EVAP

Number of Registered EVs, by Type, CY 2010 to 2021

Type of EV	No. of EVs registered with the LTO
e-Trikes	7,220
e-Motorcycles	5,520
e-Utility vehicles	815
e-Cars	311
e-Sports utility vehicles	43
e-Trucks	12
e-Bus	10
Total	13,934

Note. Data gathered from EVAP.

Electric 2W and 3W

While the number of e2W is growing at an estimated CAGR of 7%, it is still a small fraction of the overall 2W market.⁴⁶ The overall 2W segment is large and growing fast: counting both registered and unregistered ICE motorcycles, there are an estimated 18.8 million on the road in the Philippines, and this number is expected to increase by more than 22% CAGR, which is faster than the estimated growth rate of e2W and the highest growth rate for 2W in Southeast Asia.⁴⁷ Electrifying 2Ws would go a long way in helping achieve emissions reductions, reduce noise pollution and air quality in the Philippines.

3W also represent another important segment in the Philippines. The number of e3W in the market is currently estimated in the few thousands but the CAGR of 10.8% through 2030 is higher than for e2W.^{48 49} This is a key segment for the Philippines, and is poised to play a major role in the transition if challenges are addressed. According to the Department of Energy, the upfront cost of an e3W is three times higher than a conventional 3W, but the cost to charge (PHP 100-150) is significantly lower than the cost for fuel (PHP 600), so there can be cost savings

⁴⁴ J. Enano. Rest of World. 2024. [Filipinos are embracing electric three-wheelers faster than officials can regulate them.](#)

⁴⁵ International Energy Agency. [Global EV Outlook 2025.](#)

⁴⁶ VynZ Research. 2024. [Philippines Electric Two-Wheeler Market.](#)

⁴⁷ J. Loyola. Manila Bulletin. 2024. [Cirtek to produce electric motorcycles in Laguna.](#)

⁴⁸ International Climate Initiative. 2023. [Integrating Electric 2&3 Wheelers into Existing Urban Transport Modes in Developing and Transitional Countries.](#)

⁴⁹ VynZ Research. 2024. [Philippines Electric Two-Wheeler Market.](#)

over time.⁵⁰ Significant barriers remain, however: the quality of the e3W currently in the market is seen as low and not-fit-for purpose (i.e., range is too low, vehicle is too small for typical number of passengers, etc.). This segment is regulated by LGUs so they will continue to be a major player and driver of e3W adoption, provided that identified challenges are overcome, ideally by building local capacity to design, manufacture, and service these vehicles.

e-PUVs

PUVs are another key driver for e-mobility growth, and as of February 2023, through the PUVMP, 6,814 PUVs had been modernized.⁵¹ As of 2024, according to the Department of Transportation, the subset of modernized PUVs that were electric numbered 364, covering 32 routes throughout the country.⁵² While this is a start, electrified PUVs represent approximately 0.2% of the total PUV fleet, which illustrates the challenge at hand. As mentioned before, the PUVMP includes but also goes beyond vehicle electrification and barriers remain to increasing EV adoption among PUVs.

Private use EVs

Finally, sales of EVs for private use have been increasing, and new players are entering the market, which underscores the recognition of this segment as one with high potential for growth. Chinese EV brands Omoda and Jaecoo officially launched in the Philippines and plan to open 24 dealerships in the country by the end of 2025, while Vinfast Auto has announced plans to enter the market as well, in addition to many other brands available in the country⁵³. Foreign OEMs selling BEVs or HEVs in the Philippines also include: Toyota, Hyundai, Honda, Huaihai, BEMAC Electric Transportation, EGV, PVPL, Changan, Chery, Foton, Guangzhou. For all private use vehicles, Japanese OEMs continue to dominate, but for EVs, many new Chinese companies have entered or are entering the market, with affordable models that could shift this market share over time.

BEV model availability

One of the factors known to affect EV adoption is consumer choice, or the number and variety of EV options available. The latest list of recognized BEV models released by the Department of Energy in the Philippines includes 373 models across different vehicle segments that are eligible for import and sales and to seek EVIDA incentives.⁵⁴ As shown in Figure 18, approximately one-third of these are 2W, approximately one-third of these are smaller 4W, and the rest are a mix of 3W, light and heavy commercial vehicles, and others. In addition to this, there are also many HEV models recognized, not included here.

⁵⁰ Virtual interview conducted with DOE Director Patrick Aquino, May 8, 2025.

⁵¹ S. Untalan. 2023. [DOTr asks LTRB to relax the requirements in PUV modernization](#).

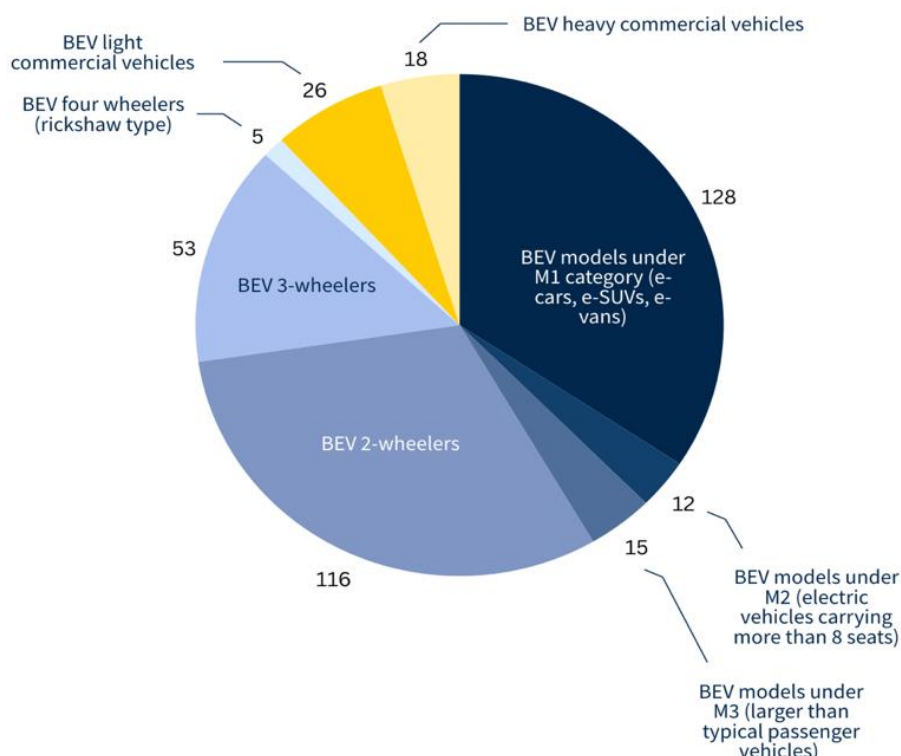
⁵² E. Araga. [Electric Vehicle Association of the Philippines](#).

⁵³ PwC. Automotive ASEAN Centre of Excellence. 2025. [Overview of the ASEAN-6 Automotive Market](#).

⁵⁴ Republic of the Philippines Department of Energy. [Electric Vehicle Advisory: Updated List of DOE-Recognized EVs](#).

While having this high number of BEVs recognized does not necessarily mean they are available for sale in large quantities, it is promising to have such a large selection available. The presence of many models reflects a strategy by automakers to test the market, gauge consumer preferences, and establish brand presence ahead of anticipated growth. A recent Frost & Sullivan survey showed that 45% of Filipino car drivers are considering an EV as their next vehicle purchase.⁵⁵ This is

Figure 18: Recognized BEV models by vehicle segment



Source: [Department of Energy Philippines](#)

encouraging, but as mentioned previously, private car ownership in the country is low, so this segment will not have a substantial impact on the overall transition in the short to medium term. It is also important to ensure that there are a variety of options for different customer segments and use cases (e.g., commercial, public transport, private use) to ensure that choice and fit for use case is not a limiting factor for adoption, especially for priority segments such as PUVs and 2W and 3W.

Cost competitiveness of BEVs

Another important factor for adoption is cost. Upfront cost remains a key sticking point for adoption, as EVs tend to have higher upfront cost than similar ICE vehicles across segments. This is the case in most markets, but costs are expected to continue to decrease and reach parity with ICE vehicles in the next few years, in part driven by the influx of affordable Chinese models. TCO is another way of looking at the cost, and one that many analyses present as a compelling counterpoint to the higher upfront costs of EVs because in many cases TCO of an EV is lower than TCO of an ICE vehicle. This tends to be especially true for certain use cases such as commercial and government fleets, where usage is high so lower operating expenses of EVs balance out the higher upfront costs. However, lower TCO of BEVs is not guaranteed

⁵⁵ E. Koons. Energy Tracker Asia. 2024. [Accelerating Electric Cars in the Philippines in 2025](#).

across all markets and segments, as it depends on several factors. Given the high cost of electricity in the Philippines, charging costs are high. For example, the cost of charging in the Philippines is more than double that in Thailand (0.51 USD/kWh vs. 0.21 USD/kWh respectively, for public AC charging).⁵⁶ There are different findings related to TCO of BEV compared to ICE vehicles in the Philippines, but there are certainly multiple factors contributing to high costs of BEVs.

Charging infrastructure

Charging infrastructure is also a crucial part of the EV adoption equation. Chargers need to be available for the right vehicle types in the right locations at the right time and price to support adoption of EVs. Public charging infrastructure is especially important in a country like the Philippines where much of the electrification potential is in public transport vehicles and other segments such as 2W and 3W fleets where much of the charging infrastructure will likely need to be shared and non-residential.

As of spring 2025, the Philippines had 962 public EV charging stations nationwide (including 421 AC charging stations, 59 DC charging stations, and 482 battery swapping stations) according to the Department of Energy.⁵⁷ There are 132 accredited EV charging station providers, some of which include Ayala Corporation / AC Mobility, Philipinas Shell-Sun Mobility, Soundon New Energy, CHRG Inv., Manila Electric Company (Meralco), QEV Philippines, and UniOi.^{58 59} As outlined in CREVI, the Department of Energy's goal is to increase this number to 7,000 charging stations by 2028. Part of the strategy to achieve this ambitious goal for public charging infrastructure is through partnerships with the private sector. Of note is the recent Ayala Electric Mobility Ecosystem project, which is a loan from ADB to Ayala Corporation / AC Mobility for 1) procurement and installation of an EV charging network of up to 1,700 EV charging stations (fixed and mobile units, AC and DC charging, for passenger and commercial use vehicles); and 2) procurement of EVs for distribution operations in the Philippines. In addition to deploying this infrastructure and vehicles, the project includes metrics for enhancing gender equality in AC mobility operations, an example of incorporating just transition considerations in these types of e-mobility investment.⁶⁰

All countries that are serious about promoting the EV transition are creating targets and strategies for charging infrastructure. Table 3 lays out targets from countries in the region to put the targets from the Philippines in context, in terms of both charging stations and battery swapping stations.

⁵⁶ Exclusive. 2024. [Compare popular EV charging station providers in Thailand.](#)

⁵⁷ Virtual interview conducted with DOE Director Patrick Aquino May 8, 2025.

⁵⁸ Virtual interview conducted with DOE Director Patrick Aquino May 8, 2025.

⁵⁹ Frost & Sullivan. [What Are the Key Growth Drivers for Automotive Production?](#)

⁶⁰ [Ayala Electric Mobility Ecosystem Project.](#)

Table 3: Comparison of charging infrastructure targets by country

COUNTRY	CHARGING STATIONS TARGETS	SWAPPING STATIONS TARGETS
Philippines	2,000 by 2030	No target
Indonesia	7,146 by 2030	67,000 by 2030
Malaysia	125,000 by 2030	No target
Thailand	12,000 by 2030	1,450 by 2030
Vietnam	150,000 in coming years (no date specified)	No national target, but Ho Chi Minh aims for 1,000 swapping stations from 2023-2027

Sources: [ICCT](#), [IEA](#), [Selex](#)

As is evident, charging stations are seen as the predominant form of charging infrastructure as it is relevant to all vehicle types. Battery swapping is more suited for e2W or e3W and can make these vehicles more affordable to low-income customers. With technological advancements and new business models, battery swapping may also become more viable and relevant for other vehicle segments.

Looking ahead: anticipated growth

Many factors influence projections of growth for EVs in a certain context including many of the aspects covered in this report so far, such as adoption trends, production capacity, policy framework, global industry trends, and more. There are different potential scenarios for the future number of EVs in the Philippines depending on the methodology selected, but all research seems to indicate that the market in the country is poised to grow across all vehicle segments. CREVI and EVAP have both published targets and projections, respectively, for EV adoption across different key segment types. Rather than providing an additional set of projections, here we provide additional analysis of the existing projections and targets and ground them in other findings about the market to comment on what it will take to reach these goals.

In 2023 CREVI published targeted EV adoption numbers of units registered through different date ranges. For this analysis, we focus on the medium range projections going through 2034 in the CES. Looking at three key segments of focus in this report, these are as follows (Table 4):

Table 4: CREVI clean energy scenario targets

	e2W	e3W	E-sedan, SUV, UV
2034 registration target	947,000	262,000	327,000

Examining e2W first, based on the number of vehicles registered by LTO in 2021 (5,520), a CAGR of 48.5% would need to be achieved to reach the CREVI target of 947,000 e2W by 2034.⁶¹ This is out of step with external CAGR estimates of close to 7% for this segment. However, if we consider that registration data may be lagging significantly behind sales data, it is possible that the Philippines is already making faster progress toward this goal than 2021 registration data would indicate.

For e3W, noting that 7,220 units were registered by LTO in 2021, a CAGR of 31.8% will be needed to reach the CREVI target of 262,000 e3W in another nine years⁶². This is still a high rate but perhaps more achievable if current challenges for electrification of this segment are addressed.

For e-sedans, SUVs and UVs, we see that a CAGR of 54.2% is needed to achieve a target of 327,000 EVs registered by 2034 based on a starting point of 1,169 registered in 2021.⁶³ This target is remarkably high considering current sales, infrastructure, and market maturity. Even China and India, with much stronger EV ecosystems, have not sustained such high CAGRs for four-wheelers over a decade.^{64 65} Very substantial support and deployment of adequate infrastructure will be needed to reach these projections.

Considering recent developments and trends across the EV market in the Philippines, there are many indications of significant growth potential ahead. Even if the stated targets are not reached in the timeline specified in government plans, the sector is poised to continue growing. Preparing for this growth is crucial, and will depend on multiple players and how they can work together to achieve these goals.

iii. Just transition considerations

In the shift from ICE to EV production, and also as EVs are adopted in large numbers, several considerations related to just transition emerge. On the production side, emerging local manufacturing facilities in the Philippines – such as the StB GigaFactory for batteries and new EV assembly plants like LCS Emon Commercial Corporation – offer opportunities to create green jobs and stimulate inclusive economic growth. However, realizing a just transition depends on ensuring these investments prioritize local hiring, workforce training, and the development of domestic supply chains to maximize benefits for workers and communities. This also involves anticipating which businesses and job functions will be disrupted or transformed as a result of the shift to producing, operating and maintaining EVs, which we examine in more depth in the workforce section.

⁶¹ Based on WDI calculations

⁶² Based on WDI calculations

⁶³ Based on WDI calculations

⁶⁴ Mordor Intelligence. [*China EV market size & share analysis—growth trends & forecasts \(2025-2030\)*](#).

⁶⁵ Grand View Research. [*India Electric Vehicle Market Size, Share & Trends Analysis Report By Product \(Battery Electric Vehicle, Plug-In Hybrid Electric Vehicle\), By Vehicle \(Passenger Cars, Commercial Vehicles\), And Segment Forecasts, 2025 – 2030*](#).

On the adoption side, persistent barriers – including limited charging infrastructure, high upfront EV costs, low public awareness, and unclear integration guidelines for certain EVs – risk exacerbating existing social and economic disparities if left unaddressed. Questions around affordability, accessibility of financing, and equitable infrastructure deployment are central to ensuring fair distribution of benefits from the EV transition. For example, small businesses and marginalized groups often face higher hurdles to engage in the EV value chain due to resource constraints and bureaucratic burdens, while the environmental and social impacts of new manufacturing facilities must be carefully managed to avoid harming at-risk communities. Addressing these and other considerations can help foster a more inclusive, fair, and sustainable transition to e-mobility. Integrating a just transition lens as the market develops means proactively addressing these challenges and opportunities to ensure that the shift to EVs delivers broad-based economic, social, and environmental benefits for all.

iv. Market challenges

Many of the challenges to higher and faster uptake have been alluded to in earlier sections and have been documented in other research. Here we draw on interviews, focus group discussions and synthesis of other reports to recap some of the key challenges related to both production and adoption, as both are crucial to drive market growth.

Cost and financing

Lack of attractive financing options in the Philippines has been highlighted by many as a key barrier to EV adoption. More and different types of financing mechanisms are needed, particularly for companies or government entities who will need to comply with the fleet electrification mandate but are not able to cover the high initial capital outlay needed to acquire new, expensive vehicles. Based on our research, this seems to be one of the key barriers for the many players that are already interested in electrifying their fleets but lack the financial means to do so. High electricity costs can also discourage local EV production, as many of the aspects of the EV value chain – especially manufacturing, assembly, and charging infrastructure – have high electricity requirements. This has been described as a key factor in the higher manufacturing costs in the Philippines compared to Thailand and Indonesia, hurting the competitiveness of the Philippines.

Charging infrastructure

Public charging infrastructure in the Philippines is limited at present. There are many signs of positive momentum, but also key challenges that must be addressed to bring this infrastructure to the kind of scale that can support greater EV adoption. While there is significant private sector interest and involvement in this area already, these players face different types of hurdles to achieve scale and profitability. In some ways charging infrastructure needs to precede adoption, which requires charging companies to place bets on the type of infrastructure to invest in, where to place it, and how much to deploy. These bets are additionally risky with limited or outdated market data, lacking or unclear policy and

regulations such as charging standards / registration of charging stations / requirements for placing charging stations at gas stations / etc., as well as limited financing options. Placement of charging stations is additionally tricky for PUVs and other use cases which necessitate working with different types of property developers outside of the typical transportation ecosystem to convince them to host charging stations. Additionally, the ratio of available public charging stations to EVs typically needs to be higher in early stages of electrification (and can reduce later as systems are optimized), increasing pressure to scale charging infrastructure quickly.

Awareness and perception

There is growing awareness of and interest in EVs in the Philippines, but various knowledge gaps among different types of potential customers remain, from private users to companies and government agencies. There is a need for robust consumer education campaigns to grow familiarity with EV technology among potential customers. Some of these campaigns should address negative perceptions of EVs. There have also been high profile policies and programs related – at least in part – to EVs, which have been largely unpopular. These include the e-trike program and PUVMP. Perception of EVs can be colored negatively by broader opinion of these more complex and nuanced programs. Specific to jeepneys, the electric versions are major departures from the traditional vehicles in terms of not only price, but also design. With a lot of cultural pride and cache connected to the traditional vehicles, many potential customers are not drawn to the e-jeepneys for various reasons. This may change, however, as new models enter the market, such as the EMON e-jeepney, which is designed to resemble the traditional version. Finally, specific to 2W and 3W, there are many issues with product quality, safety, and fit-for-purpose goals. Regulations for these vehicles are lagging behind the market, so some of the e2W and e3W on the road are not road worthy, and negative experiences with these vehicles are spilling over to perceptions of EVs more generally.

Local industry capacity and supply chain

Gaps in the local industry and supply chain are fairly well understood, as they are a major focus of CREVI. Summarized from CREVI's assessment, challenges with the local EV industry stem from a lack of local demand, a weak parts and components supply chain, low cost-competitiveness, and overall low manufacturing and assembly capacity.⁶⁶ There are much more established EV players and supply chains in the region, and it is difficult to localize the EV value chain at scale, though a concerted effort is being made through policies.

In summary, while the e-mobility market in the Philippines is still in its early stages, a wide variety of players are engaging in different parts of the value chain and there is interest on the part of many companies in engaging more deeply and in new areas. Demand creation strategies are needed to grow the EV market across priority segments. In addition, there is an

⁶⁶ Republic of the Philippines Department of Energy. [Comprehensive Roadmap for the Electric Vehicle Industry](#).

untapped innovation opportunity, since there is a lot of room for innovation but limited support for e-mobility startups and companies.

Going forward, powering growth in the EV market in the Philippines will require the availability of workers with the skills needed to enable e-mobility. Such growth will have implications for current and future talent, as well as people currently involved in the ICE-based industries and adjacent services.

C. Workforce

As the overview provided in the previous sections shows, there are many opportunities for the private sector to produce, promote, and adopt EVs in the Philippines. Public sector players such as regulators, government agencies, LGUs, and other organizations also have a major role to play in EV uptake, given the broad ecosystem involved in e-mobility in the country, and the breadth and depth of its e-mobility policy goals. To capture these opportunities, skilled talent will be needed for designing, manufacturing, operating and servicing EVs; installing, operating and maintaining charging infrastructure; managing EV fleets; and understanding battery technology, end of life, reuse and recycling. The transition to e-mobility cannot succeed without this talent pipeline.

At the same time, as the Philippines continues to make progress on e-mobility, the current systems that have been designed and based around ICE technology and related structures are coming under pressure to change and adapt to the new paradigm that EVs represent. This will involve substantive changes that can have negative effects on specific groups and communities. Understanding these effects and proactively addressing their implications is crucial to ensure a just transition.

i. Ensuring a just transition

Transitioning to EV technology means that production and adoption patterns for vehicles and their systems will change over time, with imminent implications for companies. For example, those producing ICE-specific parts and components for vehicles are likely to see diminished demand for their products; those managing fleets of ICE vehicles that will eventually be replaced with EVs will have to adapt to the new vehicles; and those that produce ICE vehicles will need to retool their operations and processes, with the related effects for associated jobs and functions.

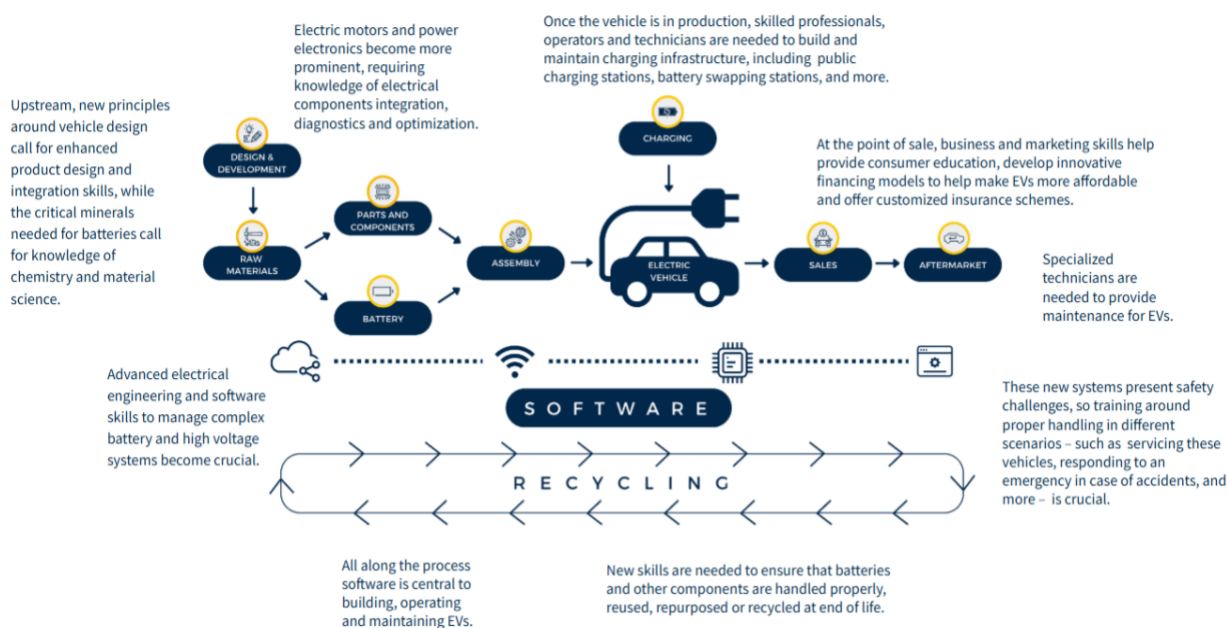
If not proactively managed, this shift can create disruption that will be especially felt by the people, businesses, and communities that depend on the economic gains, services and livelihoods associated with making, selling, operating, using, and servicing ICE vehicles. To make the transition to e-mobility fair and just, these socio-economic considerations must be front and center, and should be considered early on in every aspect of this transition.

To understand the implications and needs to power e-mobility growth in the Philippines, in this section, we will first examine the immediate opportunities to develop a new EV talent pipeline in the country, and will then consider the negative effects that this transition can bring for certain groups that are at-risk of being left behind or excluded, if not proactively integrated into the opportunity that the e-mobility transition represents.

ii. Developing the new EV talent

Developing new talent is a crucial component of a successful transition to e-mobility. Given the differences between ICE and EVs and the cross-sectoral aspects that need to be considered to enable e-mobility, a workforce with different skills and knowledge is required (Figure 19). To do so, existing programs must be updated to align better with rapidly evolving industry needs, and new programs need to be designed and delivered in thoughtful ways. In this context, universities, technical schools, mobility innovation hubs, government entities, businesses and other types of training organizations all have a role to play in equipping individuals with the knowledge and skills needed all along the new EV value chain.

Figure 19: New skills for EVs



Existing EV training programs

While there are engineering programs that provide students with general knowledge in this discipline and some relevant offerings in the pipeline, educational institutions generally do not offer up-to-date training or curricula aligned with current EV technology needs, resulting in a workforce that is often self-taught or lacking formal qualifications in this area. Since the EV transition is still in its early stages, developing new educational offerings that align with the

needs of their local industry and ecosystem is an imperative in the Philippines, as it is in other markets. This effort necessitates substantial collaboration with industry, as well as an understanding of the policy landscape and how it will shape market outcomes.

Related to preparing EV technicians, electricians, and mechanics, a dedicated EV training academy or entity does not exist yet, although there are a few promising emerging initiatives in this area, which we mention in the later Blueprint section. Our research also points to the absence of clear licensing standards and specialized certification for EV and charging infrastructure roles, which were highlighted by companies as some of their growing areas of need. There is no central agency or institution overseeing e-mobility development as a whole, which makes coordination more challenging and efforts more fragmented. Overall, access to qualified talent for EV manufacturing and development remains scarce, with few local experts.

However, significant progress has been made in developing competency standards and national certification programs for EV-related skills. The Philippines Technical Education and Skills Development Authority (TESDA) plays a central role in developing the Philippines' workforce for the EV sector, aligning with national goals for a green economy and sustainable transport. In recent years, TESDA has created standards for Battery Electric Vehicle Servicing (PUV) Level II, Hybrid Electric Vehicles High-Voltage System Servicing, and Pure Battery Propelled Electric Vehicle Servicing Level II.⁶⁷ These standards cover essential skills for maintaining, repairing, and servicing EVs, with a focus on public utility vehicles, e-jeeptneys, and a range of electric mobility solutions.

TESDA collaborates closely with industry stakeholders such as EVAP, as well as with other partners, to benchmark and update its training curricula against global best practices. TESDA-accredited institutions, including technical schools and universities, can offer these programs, and TESDA itself provides facilities and certification assessments. However, despite these developments, uptake has been slow – no institution or enterprise has yet registered these EV competency standards for training implementation, largely due to a shortage of qualified trainers, limited industry demand, and the time and resources required to develop and roll out new curricula.⁶⁸

The limited industry demand for training could be attributed to a few different factors: a disconnect between the training standards developed and the real or immediate industry needs; an overestimation of real needs on the part of the industry themselves; or limited financial resources available for trainings in the context of an industry with limited resources and thin profit margins. Additionally, we heard there is a need for more specific training programs to address granular knowledge gaps, particularly considering the highly fragmented market; there are different needs based on stakeholder type (public vs. private), vehicle segment type, and organization size. While our research findings will shed light on a few of these issues, the hypotheses presented should be examined in more depth to zero-in on the

⁶⁷ TESDA. [Competency Standards Development](#).

⁶⁸ TESDA. [EV Skills Mapping Report](#).

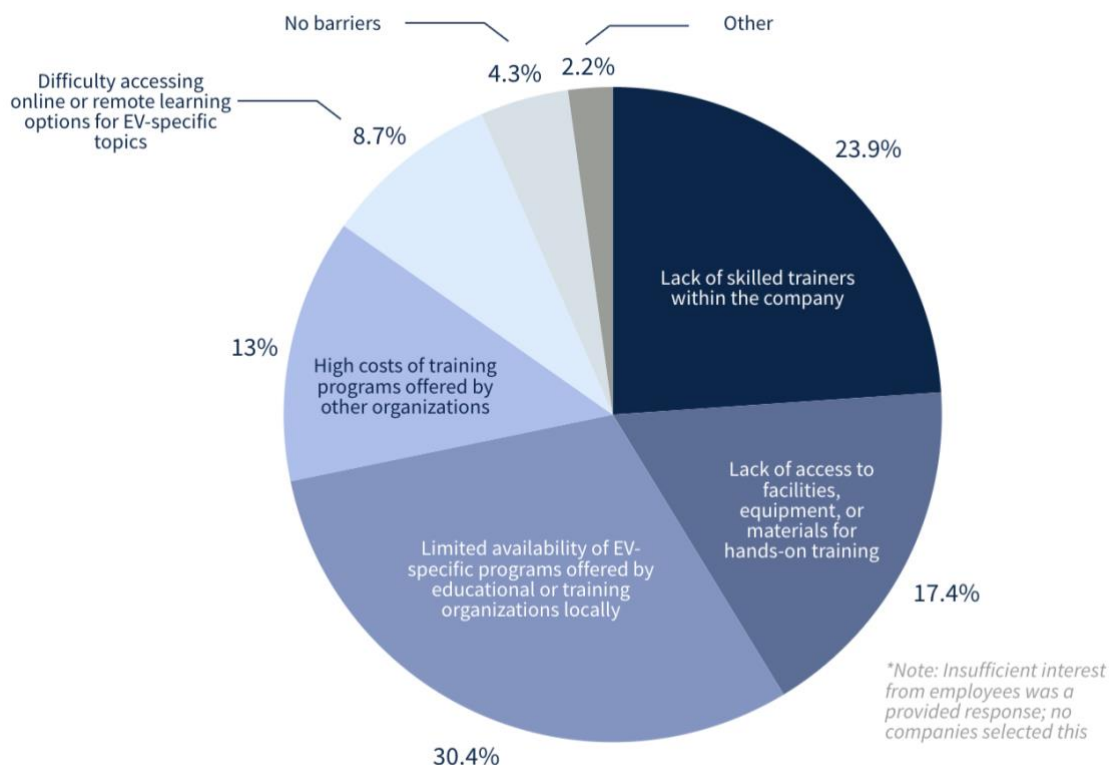
key barriers and address them as new offerings are designed and introduced. This is another instance where it is crucial to link new offerings to the needs and demand in the market, and the best way to understand what those needs are is by engaging with those who need this new talent: the companies.

EV training needs: company perspectives

In the Philippines, as in other countries, the market has grown faster than the availability of training programs focused on developing this talent pipeline. Our research reveals a sector on the cusp of rapid expansion, with most companies planning to move into new areas of the EV value chain such as battery production, charging infrastructure, and advanced component manufacturing within the next few years. However, this growth is challenged by acute talent shortages – particularly in battery technology, EV charger installation and maintenance, and advanced diagnostics – as well as by a lack of standardized, locally available training programs.

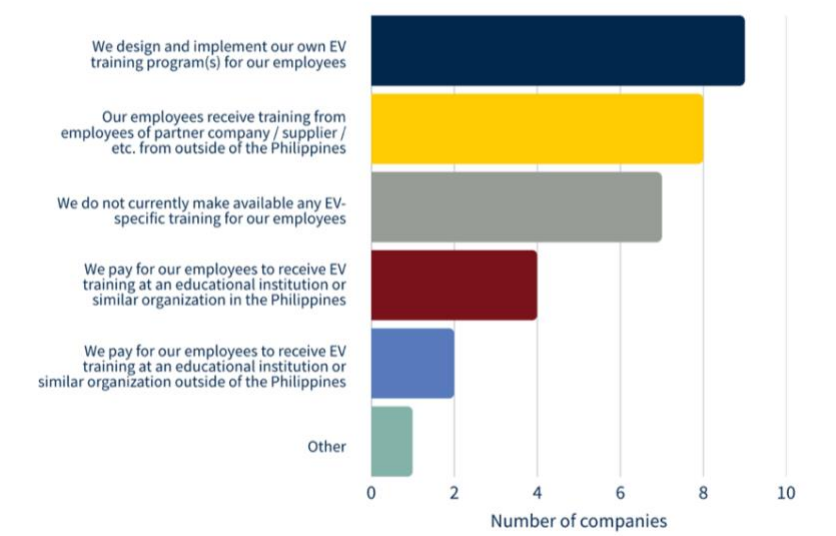
Data collected from the previously-mentioned survey provides company perspectives on current and future needs for EV training, barriers, and other aspects. While this is a small sample and as such should not be considered representative of the entire industry, these findings provide some insights that can be helpful for training providers. In general, companies face barriers such as high costs, limited access to training equipment, and a shortage of skilled trainers (Figure 20).

Figure 20: EV training barriers



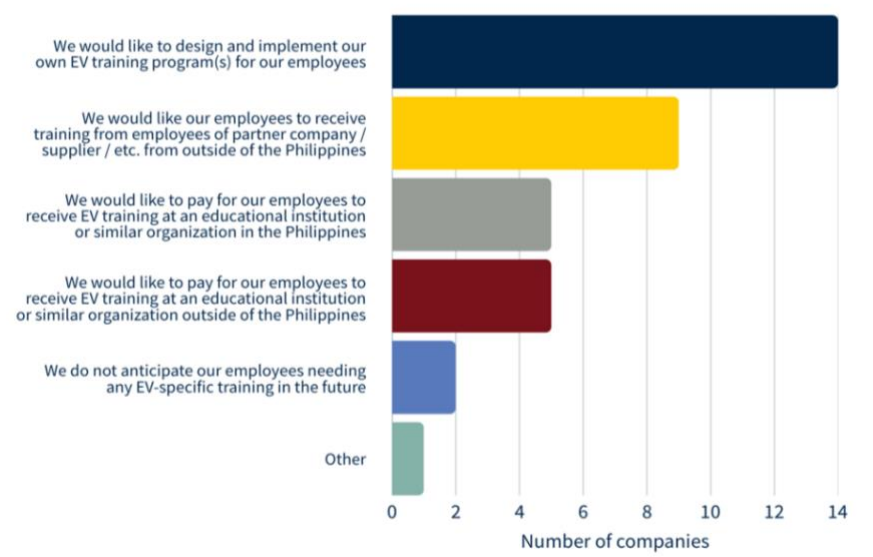
More survey data from companies indicates that most companies currently rely on in-house or overseas training, which can be costly (Figure 21).

Figure 21: Current training strategy



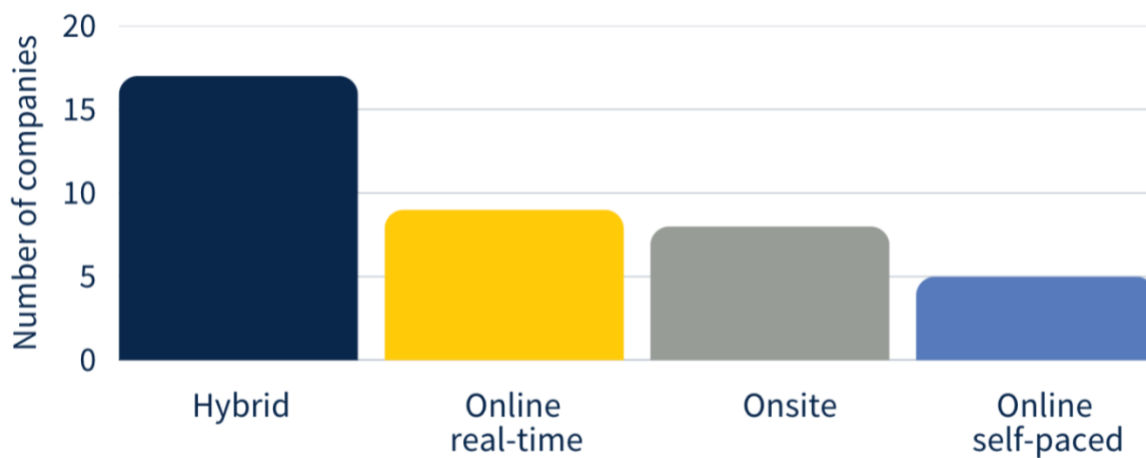
This remains the companies' ideal future strategy for EV training, likely because they already have those systems in place. However, several companies noted that they would pay for their employees to receive training at an organization in the Philippines (Figure 22). A larger sample size may illuminate different training preferences and needs, and as such this merits further exploration.

Figure 22: Ideal training strategy



Company survey data also reveals the areas where they need training currently, which include EV technician and battery technician skills; maintenance, diagnostics, and troubleshooting; power electronics and battery management systems; technical fundamentals, safety, and regulatory compliance; and new technology trends and after sales support. Looking ahead, companies expressed the growing need for a variety of new topics, such as advanced battery maintenance, battery chemistry, and recycling; high-voltage safety and cybersecurity; software, AI-driven diagnostics, and grid integration; and life cycle assessment, ESG reporting, and circular economy practices.

Figure 23: Preferred training formats



In terms of preferred training formats, most companies expressed interest in hybrid offerings, which would allow flexibility while also including a practical component, which is critical for EV trainings, especially those focused on new technologies (Figure 23).

Figure 24: Availability of EV training designed for women



Survey responses also shows that women are not a special consideration in current EV training programs in the Philippines, with most companies not offering women-specific training. Out of 18 companies, only one offers EV training programs

specifically for women, highlighting a significant opportunity for more inclusive workforce

development (Figure 24). This illustrates some of the gender challenges in this sector, discussed in more detail below.

All of these considerations can help inform the development of new programs focused on training the EV talent pipeline. In addition to these considerations, integrating a just transition lens in program design and implementation is also crucial. The questions included in Table 5 can help stakeholders explore aspects related to inclusion, access, and affordability to ensure that future programming keeps just transition goals in mind and “does it better” than it has been done in the past. Doing it better will help create a broader talent pool that includes diverse and underrepresented groups – and in particular those that might be negatively affected by the transition itself – so they can build the skills needed to fully participate in these new opportunities and set the overall transition up for success.

Table 5: Just transition in program design and implementation

Integrating a just transition lens: EV program design and implementation	
Inclusion	• Are the programs designed with the needs of different groups in mind? For example, do they account for potential barriers experienced by women? • Do the programs have explicit targets to train women and other marginalized groups? • Are measuring strategies set up to promote gender inclusion, e.g., is data disaggregated by gender to facilitate tracking and inform strategies?
Access	• Is the format of the programs only accessible to certain groups? • Are programs only marketed to certain groups? • Are there different types of offerings to cater to different levels of experience or qualifications? • Have efforts been made to remove financial or logistical barriers to participation?
Affordability	• Is the cost of the programs only accessible to certain groups? • Are there scholarships or stipends to support participation of low-income communities? • Have partnerships with government or industry been established to provide subsidies or other incentives for broader participation?

iii. At-risk groups and strategies for inclusion

The magnitude of the shift that is needed to replace the current fossil fuel-powered vehicles and the surrounding systems with clean technologies cannot be understated. This transition represents a major paradigm change, and as such brings a host of effects and repercussions for the people, businesses, and communities that depend on the economic gains and livelihoods associated with ICE vehicles. Acknowledging and accounting for these effects early and fully into transition planning is recognized as best practice in both developed and developing

countries, even when local contexts and implications vary greatly across geographies. This is because, despite these differences, the impacts on people are similar – jobs and livelihoods are and will be at-risk as ICE-related activity starts to decrease and EV deployment continues to grow.

Taking a broad view, some of the features of the transport sector in the Philippines make it more challenging to address just transition considerations. A high degree of informality means that workers do not have adequate benefits and protections in the event of job losses. Drivers and transport workers earn low wages, experience challenging working conditions, and are particularly vulnerable to climate-related effects such as heat waves.

From a transport user perspective, informal transport services often represent the sole mobility option for many low-income and rural populations given their affordability, which means that changes to these systems have the potential to improve access, affordability or convenience, but also could have detrimental effects or create new barriers for these populations if these factors are not considered. All of these implications need to be taken into account as part of the transition to e-mobility if the goal is to make this a just, inclusive and sustainable transformation.

When considering the transition to e-mobility in the Philippines, some of the groups that require particular attention are transport jeepney operators, workers associated with the ICE industry, and women.

Transport operators

Jeepneys are essential for urban mobility and employment in the Philippines, in addition to being cultural icons. At the same time, they are highly polluting vehicles and also pose safety risks that have been well-documented. For these and other reasons jeepneys are a key segment for electrification in the country. Transport operators that manage jeepney fleets, in particular small-scale informal ones, face challenges as part of their efforts to transition these fleets to EVs. Key challenges include affordability of new e-jeepneys, limited financing and credit for informal and small operators to replace their fleets, reduced employment opportunities as a result of consolidation and formalization of previously informal services; and limited capacity to comply with new requirements that are perceived to favor larger companies over independent operators. There is clear recognition of the need to address the displacement of workers affected by these efforts, and a need to include them in reskilling programs and opportunities to create alternative livelihoods that can lead to equitable outcomes for all.

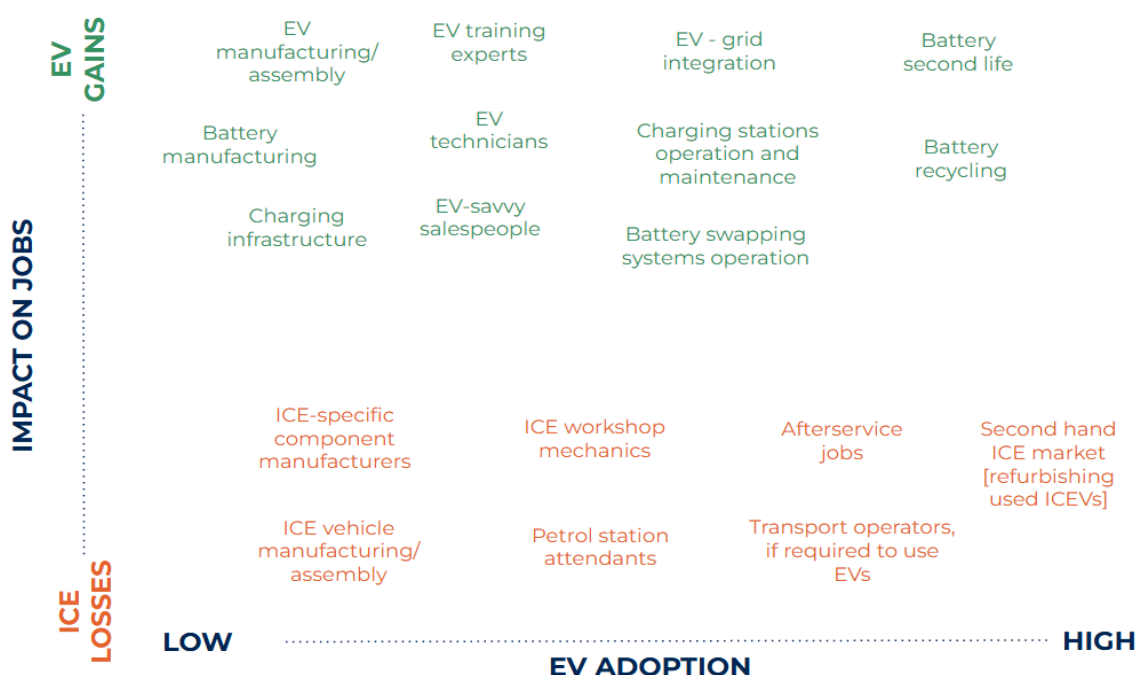
ICE industry workers

Workers involved in ICE vehicle manufacturing, operations, sales, and servicing will face significant risks from the transition to EVs as ICE fleets are replaced. When considering direct impacts of this change, from upstream to downstream, jobs change, with new competencies and functions needed. As adoption progresses, many opportunities for employment in new

areas open up along the value chain (and beyond, i.e., in the electricity sector) while others will phase out over time (Figure 25).

Figure 25: Evolution of jobs in the transition from ICE to EV

ICE to EV shift: Evolution of jobs and related impacts



Estimates suggest that 138,000 Filipinos are employed in direct and indirect automotive-related jobs, which may be impacted by this shift, with job losses and associated economic consequences if not proactively managed.⁶⁹ There are also indirect impacts that should be anticipated: a decrease in indirect jobs in the supply chain, induced jobs (for example, local retail near ICE vehicle plants that eventually close), and ripple effects for communities with high concentration of businesses related to the ICE industry. Low-skilled and semi-skilled workers, such as workshop mechanics, are particularly vulnerable since EV production and maintenance is less focused on mechanical parts and more specialized in electrical components. This highlights the need for these workers to be included in upskilling, reskilling and placement in EV related employment opportunities as these become available. Such opportunities are significant and encompass EV manufacturing jobs, sales, training, charging station installation, operation and maintenance, EV servicing, and a host of opportunities related to EV battery systems. Additionally, employment opportunities related to the energy

⁶⁹ O. Campos. Manila Standard. 2025. [PH automotive sector sees 2025 sales growth of 8% to 512,000.](#)

sector are also anticipated in the Philippines, given the opportunity to pair solar PV installations with EV charging stations, for example.

Women

In 2022, there were 3.75 million employees in the transport sector in the Philippines, of which 296,400 employees were female, making up only 8% of the total transport employment.⁷⁰ Further, women often face worse working conditions because they tend to occupy the lowest-paid jobs such as vendors, cleaners, dispatchers, ticket sellers, and conductors.⁷¹ Transitioning to electrification perpetuate existing inequality and underrepresentation if women are not proactively included in the development of the new talent pipeline. Women's participation as workers, users, entrepreneurs, and decision-makers is essential for shaping transport systems that meet diverse needs, but barriers persist and limit their economic and social participation. As new supply chains for EVs are developed, there are multiple entry points to incorporate women so that they can fully participate in these opportunities and contribute to more responsive and equitable transport for all users.

Successfully transitioning at-risk workers and groups into new opportunities resulting from e-mobility is an important challenge in many countries, especially those with an established, sizable ICE-focused workforce, as is the case in Michigan (Figure 26). While strategies to address this challenge vary, it is important to first understand the implications for these workers and then design initiatives that can be tested and iterated upon to ensure desired outcomes. Including a wide range of stakeholders as these strategies are developed, and creating mechanisms to incorporate the private sector are also important considerations in these contexts.

⁷⁰ Asian Transport Observatory. [Gender in Transport](#).

⁷¹ International Transport Workers' Federation (ITF). 2021. [The Power of Informal Transport Workers](#).

Figure 26: Workers transition strategies in Michigan

Workers transition in the automotive industry in the state of Michigan, United States

Maintaining Michigan's position as an automotive industry leader is a core priority for stakeholders across the state. This involves ensuring that automotive and more broadly mobility talent can be retained, retrained and developed to support industry needs. Over the past decade, the transition to EVs has highlighted the need to bolster support for workers as companies shift their operations to enable EV production. Numerous initiatives and programs have been launched to ensure that the automotive workforce is able to respond to evolving talent needs from both legacy companies and new mobility startups across Michigan.

Michigan's initiatives to support worker transitions focus on two groups: incumbent workers (those currently employed and who need to be upskilled or reskilled) and new-to-the-industry talent. Various organizations are in charge of promoting careers in the mobility industry, designing training programs in collaboration with employers, ensuring job placement, and offering wrap-around services to address the barriers that typically prevent workers from completing training programs and obtaining the credentials they need for in-demand jobs.

For incumbent workers, the [EV Jobs Academy](#), which operated between 2022 and 2024 and has since become part of [Michigan's EV Workforce Hub](#), was a statewide, employer-led collaborative comprised of over 100 stakeholder partners to identify the electrified vehicle and mobility-related occupational skill needs while developing and scaling postsecondary credentialing programs utilizing an online learning platform for 32 colleges and universities across the state. Further, the Talent Transformation Initiative offers business-facing services including assessment and consulting to better understand skill needs, connection to available supports, and innovative hiring strategies. The initiative offers job-seekers training dollars, success support, and inclusion strategies for historically excluded populations. Automotive companies themselves also offer a wide range of training for their workforce, often in partnership with the auto workers' union.

For new-to-the-industry talent development, recent programs include the [MI Mobility Fellows](#) program, designed for recent college graduates, and which assigns fellows to work alongside mobility innovators, founders, transit agencies and economic development organizations throughout the state. Additionally, the [Michiganders Scholars](#) program, which provides qualifying tech and engineering undergraduate and graduate students with access to industry knowledge, career opportunities, and scholarships, was expanded to include internship opportunities at mobility startups, further developing Michigan's talent pipeline and fostering innovation. Other programs are focused on growing awareness of the opportunities in the mobility industry to attract new, young talent to this field.

Sources: [EV Jobs Academy](#), [Michigan's EV Workforce Hub](#), [MI Mobility Fellows](#), [Michiganders Scholars](#)

Workforce challenges

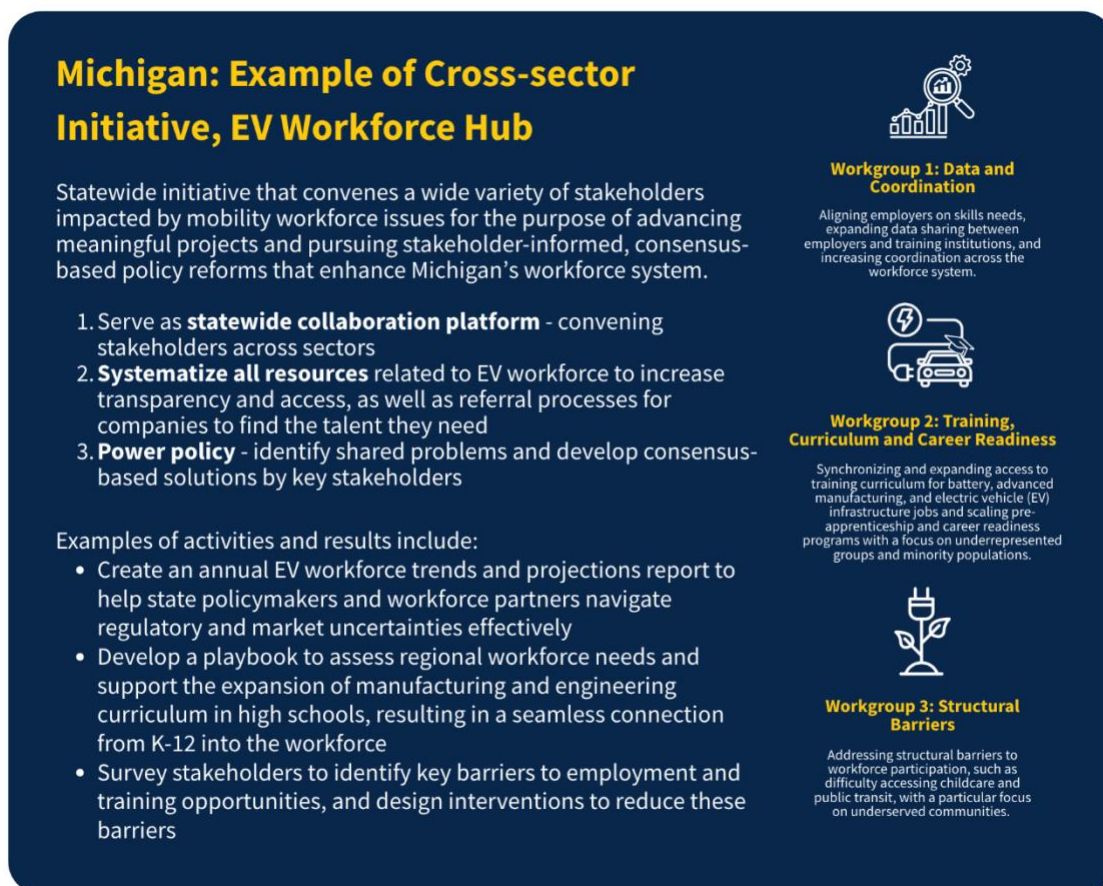
As the market grows in the Philippines, the talent needs will evolve and grow as well. The current talent needs largely reflect those of very early markets – foundational technical skills such as basic EV maintenance, battery handling and safety protocols, in addition to charger installation. These skills are needed to build initial capacity, reskill current workers from the ICE sector, and establish training systems for technicians, electricians, and basic service roles. In later stages, more advanced and specialized training will be needed, in sync with market maturity. While initial progress has been made to develop frameworks and standards for EV training, many challenges remain. There are opportunities for players to develop training content, infrastructure and resources, ensure alignment with industry needs and pace, and contribute to demand creation for EV skills development. Research findings from the survey, focus group discussions, and interviews as part of this research provide more detailed perspectives from various stakeholders on workforce development challenges in the Philippines, as outlined below.

Overall EV workforce development strategy

- Lack of a coordinated response to EV workforce challenge
- Missing a government-supported EV training academy or similar entity with dedicated mentors and budget
- Wide variety of ecosystem players with different drivers, pain points and potential for electrification make for a fragmented landscape, which means that different offerings are needed for different players; this increases costs and barriers of entry
- Limited engagement with private sector; more is needed to develop this strategy

One of the strategies employed in Michigan for building collaboration among stakeholders around EV training could be a helpful example (Figure 27).

Figure 27: Michigan EV Workforce Hub



Source: [Michigan's EV Workforce Hub](#)

Training content and standards

- Lack of comprehensive training in electrical and fire safety, charger maintenance, and battery thermal protection for EV fires
- Currently no standardized certification systems for skills and training providers
- EV-specific certificates do not exist and there are limited university programs offering power electronics and EV-related courses
- Brand-specific standards are difficult to capture due to limited expert availability

Training infrastructure and resources

- Scarcity of training facilities, such as EV labs and workbenches, to provide practical hands-on experience
- Fragmented training landscape with few accredited and standardized programs
- Rapidly evolving EV technology makes it difficult to develop and maintain training resources and curricula

- High investment requirements to develop and deliver quality training programs
- Shortage of qualified trainers and experts, especially those with higher-level qualifications

Alignment with industry needs

- Finding the right format, content and model for trainings that match industry needs and preferences has been elusive
- Small market size leads to low to medium demand for EV training programs
- Mismatch between new EV jobs and existing workforce skills; new roles may require different skill sets
- Lack of gender-disaggregated data which limits the ability to design effective programs for women's inclusion
- Mismatch between specialist level of EV technicians and actual labor wages which are aligned with general mechanics

Access, affordability, and demand creation

- High costs and logistical barriers to upskilling, particularly for SMEs
- Current level of demand for EV careers and training limits ability to scale programs
- Missing financing for just transition activities that can support training programs, which is critical to make training scalable and sustainable
- Limited public awareness and understanding of EV opportunities and career pathways

Coordination and policy support

- Necessity of a whole-of-government and whole-of-nation approach to support EV workforce development
- Strong public-private partnerships (PPP) are needed to coordinate training delivery and industry needs
- Recognition of training, certification, and workforce development as a shared responsibility between manufacturers and government

SECTION 5

Looking ahead

Our research shows very fertile ground for e-mobility in the Philippines, and a clear growth trajectory that can help bolster the country's position in this sector going forward. Recent moves by government stakeholders, investments by private sector players, and interest from educational institutions and training providers all point to improving conditions and real potential for those ready to make bold bets on e-mobility. The window of opportunity may be short, however, underscoring the need for rapid action, effective collaboration, and strategies focused on evidence-based results.

Taken together, the picture presented in this report in terms of policy development, market dynamics, and workforce considerations shows that the Philippines is at an inflection point with regards to its e-mobility growth trajectory. While challenges remain across each of the dimensions examined, there are efforts underway to address them, and real pathways to turn these challenges into opportunities, and the stated vision into reality.

As highlighted throughout the report, actions taken by key stakeholders have immediate implications and effects on e-mobility progress, with policy levers exerting an outsized impact on the trajectory of EV transition in any market. More work and collaboration across the ecosystem will be needed to catalyze substantial progress in EV uptake in the country. In this context, a new player that could serve as a hub for e-mobility could add value in several different ways and support various players and their goals – helping orchestrate efforts and maximize impact to increase the chances of success.

ADB and APLFI envision the creation of an EV Center of Excellence (EVCE) that could contribute to the vision of moving e-mobility forward in the Philippines. EV centers or hubs have been established in other markets as a way to accelerate e-mobility innovation, training, and collaboration. While their missions, structures, and goals differ and respond to their local contexts, early lessons derived from WDI research show that prioritizing value addition and partnerships – particularly with the private sector – securing resources that align with longer time horizons, and committing to long term goals that create benefit for multiple players across the ecosystem are effective strategies to increase the chances of success.⁷²

⁷² WDI. 2024. [*Mobility Innovation Hubs Align Industry, Government, Academia.*](#)

SECTION 6

Blueprint for an EV Center of Excellence

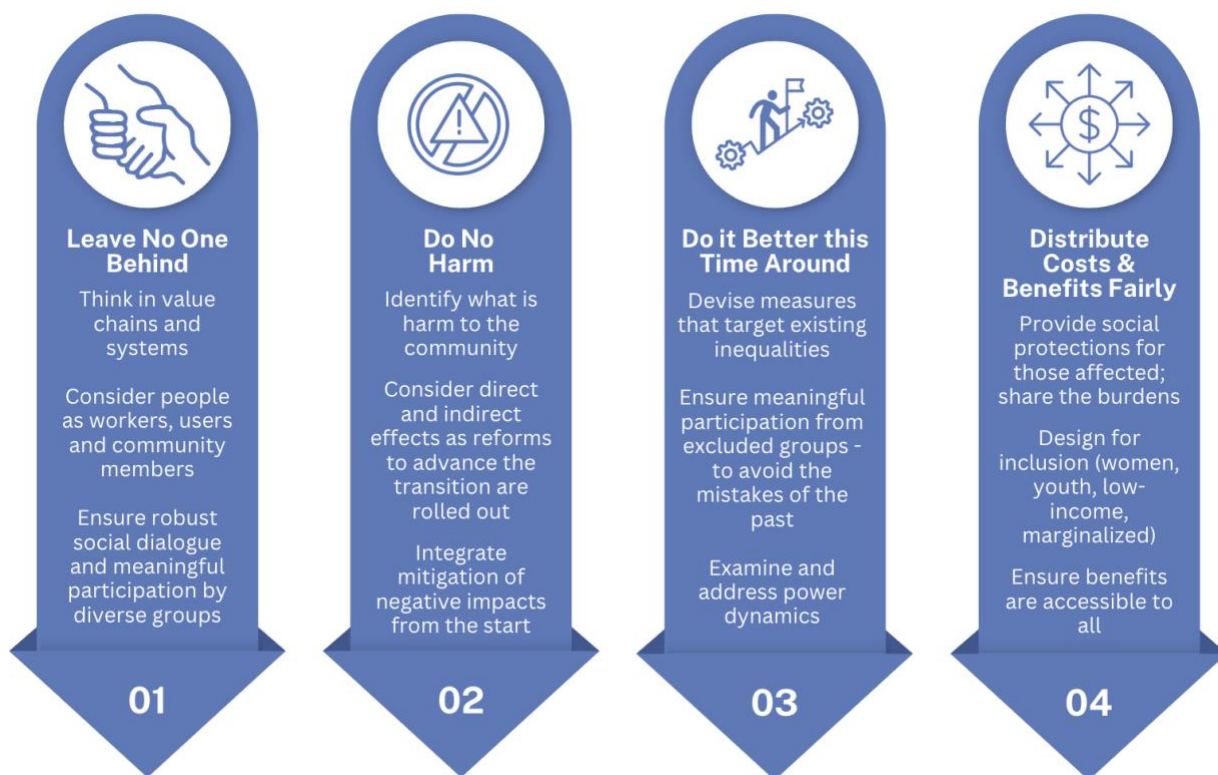
An EVCE in the Philippines could help unlock new opportunities, address local needs, and catalyze further collaboration. Ensuring that this entity aligns with and integrates just transition principles is also a core goal of ADB and APLFI and as such these principles will be central to its mission. Considering current gaps and opportunities to support e-mobility in the Philippines, several actions can be taken together or separately to form building blocks for the EVCE envisioned by ADB and APLFI. The EVCE can have a core goal of offering much needed EV training, but there are also opportunities for additional service lines to address the other needs identified through this research.

The EVCE could play various roles over time, supporting the specific work being done in-country and helping catalyze action and progress towards overall e-mobility goals and objectives. In this section we explore possible areas of focus, value propositions, and service lines for an EVCE. These can help to inform the development of a comprehensive business model – namely the high-level view of how the center can create value and for whom. We also point to considerations for a later step of developing a more comprehensive business plan that would detail financial and other aspects, and will feed back to refining and prioritizing the model for this organization going forward.

A. Incorporating just transition across the EVCE mission

In line with the just transition principles that have been highlighted throughout this report, integrating this lens into e-mobility initiatives from the beginning is the most effective way to ensure that their outcomes are aligned with a fair and inclusive transition for all. Before delving into the model and services of the EVCE, it is important to underscore that the four principles for a just transition – 1) Leave no one behind, 2) Do no harm, 3) Do it better this time around, and 4) Ensure fair distribution of costs and benefits – can be applied across the design and operation of this organization. Using the guiding questions from different sections of this report, working closely with a diverse group of stakeholders – particularly at-risk groups – and striving for fair and inclusive approaches across its operations, will enable the EVCE to help highlight these considerations as inherent to the transition process, test and evaluate which approaches work best to ensure just transition outcomes, and share lessons learned across the ecosystem.

Figure 28: Strategies for a just transition

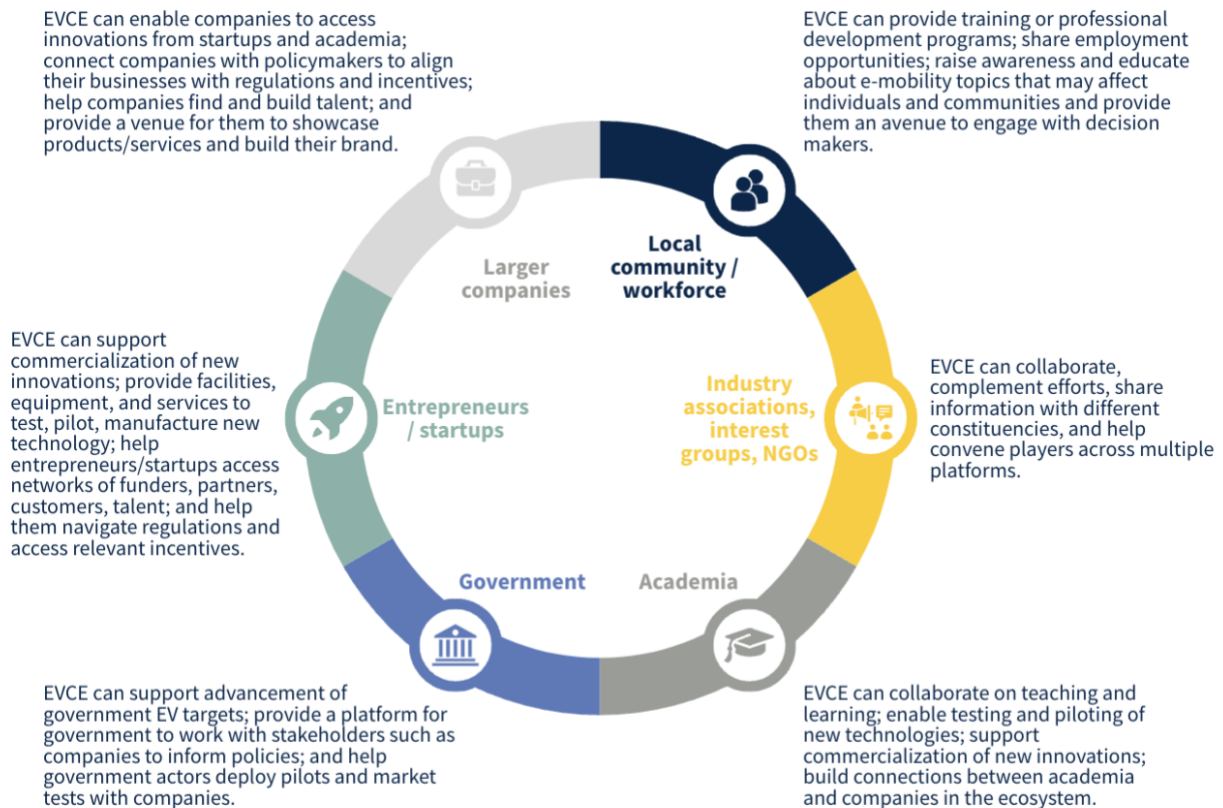


To do so, the EVCE can employ several strategies under each of the four principles (Figure 28). While these are not exhaustive and should be anchored in the specific needs and dynamics of the local context, they can help point the way, building support for this initiative and avoiding exacerbating inequalities – leading to a more inclusive transition to e-mobility in the Philippines.

B. Value proposition by stakeholder

As illustrated throughout this report, there are many stakeholders that are directly or indirectly involved or impacted by the e-mobility transition in the Philippines. The EVCE would work with and engage different stakeholders in different ways, so it is important to identify who these stakeholders are and what value the EVCE could offer them (Figure 29). Later, these value propositions should be refined and prioritized as it may not be viable nor strategic to play multiple roles for multiple stakeholders, at least in the beginning.

Figure 29: EVCE value proposition by stakeholder



In a later stage, a more comprehensive ecosystem and stakeholder mapping would be beneficial to understand better where the ecosystem is crowded or sparse, what the specific needs of stakeholders are, where different players could be collaborators or competitors, and what the best strategies would be to engage them and build buy-in. This will ensure that the EVCE can carve out a strategic role and drive greater impact.

At present, there are several established players in the ecosystem that are creating a lot of value and playing important roles – for example EVAP and Clean Air Asia, an organization with deep expertise and which leads a highly relevant e-mobility project in the country, to name a few. Engaging them in the process to leverage their experience and assets will go a long way in accelerating progress and avoiding duplication of efforts. Additionally, new players are emerging, such as the forthcoming Mobility Innovation Center being set up by EV Mobility Ventures, Inc. that will include a Green Tech Academy to offer training, licensing, and certification programs. Understanding how the EVCE could expand, complement, and add value to these efforts would ensure that resources are optimized and the focus areas continue to make sense as this dynamic space continues to evolve.

C. EVCE potential focus areas and services

Based on the challenges and areas of opportunity presented, we list below focus areas that the EVCE could consider pursuing, including rationale, potential services, and potential customers under each (Table 6). These recommendations do not imply that all focus areas and services should be pursued simultaneously or to the same degree, or all by the EVCE. In fact, they likely should not, at least to start. As with the other analyses presented in this section, we offer a wide range of ideas with high potential to catalyze e-mobility across the country. We also recognize that there are efforts on some of these areas already to different extents, so other players may be well-positioned to undertake some of them. A more holistic set of considerations related to the overall business model, goals, and desired impact of the EVCE should be taken into account when determining what this entity should focus on.

Table 6: EVCE focus areas and services

FOCUS AREA	RATIONALE	POTENTIAL SERVICES	POTENTIAL CUSTOMERS
EV Talent Development	There is an urgent need for EV training programs that match the needs of stakeholders both at present and in the short to medium term.	Initial stage • Training programs for different groups, prioritizing technicians and foundational training programs	Initial stage • Workshop mechanics • SMEs • Startups and established companies • LGUs
		Later stage • Experiential learning and research opportunities for students, offered in partnership with companies first, and later leveraging EVCE facilitiesPlatform for connecting talent with companies and other organizationsAdditional training programs addressing medium term needs	Later stage • Educational institutions • Individual students/ job seekers/ employees
Ecosystem Strengthening	Across policy, EV production and adoption, and workforce, the common thread is the need for more effective market creation strategies. Currently the demand is fragmented; better strategies are needed to convert this demand into uptake.	Initial stage • Establish partnerships with players across the ecosystem to contribute to a vision for e-mobility in the Philippines that is better articulated and more cohesive • Build a platform to collaborate with international funders across different initiatives	Initial stage • All ecosystem players engaging in e-mobility in the Philippines • Current international partners
		Later stage • Build pool of national and international experts and connect them to knowledge transfer initiatives • Document and disseminate success stories about e-mobility deployments, milestones and opportunities	Later stage • International organizations and philanthropy
Market Creation	Across policy, EV production and adoption, and workforce, the common thread is the need for more effective market creation strategies. Currently the demand is fragmented; better strategies are needed to convert this demand into uptake.	Initial stage • Education and awareness campaigns to promote EVs • Develop guidance for companies to navigate regulations, take advantage of incentives, etc. • Help coordinate or design market tests to demonstrate viable e-mobility solutions and business models in collaboration with government, companies, others	Initial stage • Startups and companies • LGUs and other government agencies for capacity building
		Later stage • Living lab for testing and piloting e-mobility innovations • Small scale manufacturing facilitiesCommercialization support	Later stage • Researchers
Advocacy	A united front with clear policy positions and goals for advocacy and collaboration would be valuable vis-a-vis government stakeholders, and they would incorporate just transition principles to ensure equitable outcomes.	Initial stage • Expand capacity to develop policy positions that can serve as input to policymakers • Develop just transition tools and frameworks to inform the design and implementation of programming	Initial stage • Industry, local communities, NGOs and other stakeholders with a vested interest in advancing e-mobility goals in a just way
		Later stage • Define and run campaigns on specific issues • Create a platform to connect companies and other stakeholders with policymakers	Later stage • Industry, local communities, NGOs and other stakeholders with a vested interest in advancing e-mobility goals in a just way

In considering how to make these ideas more actionable, we next identify potential entry points and existing assets to leverage. We present this for each of the potential focus areas to help think about prioritization and sequencing of the potential services that could be offered by the EVCE in an initial stage.

EV talent development

Potential entry points to develop the EV talent pipeline include focusing on technician-level skills – including expertise in vehicles, batteries, and chargers – to fill an immediate gap in the local ecosystem. To accelerate the scale and impact of training, the EVCE could start by offering training of trainers, which would help bridge the current gap in qualified instructors and enable programs to expand more rapidly. Collaborating with labor unions or advocacy groups in the design of training programs would ensure that these groups are included in future trainings, in line with just transition principles, and will lead to greater relevance and acceptance (See Figure 30 for an example from Michigan). Additionally, tying technician training to specific pilot or deployment projects would help create a ready pool of trainees and provide immediate opportunities for them to apply their knowledge, thereby enhancing both the practical impact and long-term sustainability of training initiatives.

Existing assets to leverage

- Autohub and other local institutions with existing e-mobility training programs; partnerships could be explored
- TESDA competency standards would be helpful for certain types of trainings
- Companies with existing training programs could serve as partners
- Organizations outside of the Philippines that have relevant training programs could be partners or sources of expertise

Figure 30: Collaborating with unions

United Auto Workers Center for Manufacturing a Green Economy (UAW-CMGE)

UAW-CMGE's approach to the green economy involves a focus on worker-led education, health and safety training, technical skill enhancement, as well as a strong emphasis on inclusive recruitment practices aimed at building a diverse workforce. This is a groundbreaking model that the UAW is moving forward as the leading union building critical climate technologies. With this model, workers can set new standards in the battery industry and throughout the entire green economy.

Source: [*UAW Center for Manufacturing a Green Economy*](#)

Ecosystem strengthening

There are many ways in which the EVCE could contribute to strengthening the local e-mobility ecosystem in the short term. The EVCE would first need to establish strong alignment and relationships with players in the local ecosystem before expanding its vision, partnerships, or operations. Adopting a collaborative rather than competitive mindset is especially valuable. The EVCE would need to identify high-impact activities to connect and build a more interconnected ecosystem, for example by creating an innovative platform or mechanism for collaboration.

Existing assets to leverage

- All ecosystem players engaging in e-mobility in the Philippines
- Current international partners

Market creation

To help grow the market, the EVCE could start by organizing EV tech demo days or similar events to create opportunities to showcase innovations, engage the public, and provide hands-on experience to future technicians and engineers. These efforts not only expose a broader audience to the benefits and practicalities of EV technology but also help bridge the gap between innovation and potential customers, fostering greater acceptance and demand for e-mobility solutions. The EVCE could also design and deploy market tests in close collaboration with local companies, beginning with the most promising and receptive market segments. By working directly with industry partners, these efforts can help obtain rapid market feedback and better understand real-world conditions.

Existing assets to leverage

- Existing success stories with LGUs to learn from and consider expanding to other locations
- Companies with ready products and services
- Innovation players such as New Energy Nexus could also be partners

Advocacy

As entry points in the advocacy realm, the EVCE could design EV awareness campaigns to debunk common myths related to EVs and help potential customers familiarize themselves with the technology. In line with the goal to center just transition considerations, the EVCE could also conduct just transition dialogues with different stakeholders to help develop common language and understanding of this concept across groups.

Existing assets to leverage

- EV companies interested in promoting their products
- Just transition initiatives by other players, to help expand them
- International partnerships and networks via ADB and other organizations to exchange knowledge about just transition

D. Potential training offerings

As training, in some form, is likely to be a key focus area for the EVCE, we share some additional considerations for designing and implementing training programs at such a center, based on information gathered through this research and WDI's experience and research on global EV training programs more broadly. In a later stage of developing a business plan for the EVCE, it would be helpful to do similar deep dives into other focus areas and potential services to develop strategies around those that will also connect to the center's revenue model, cost structure, competitive analysis, and more.

Potential training topics

Based on information gathered from our online surveys and focus group discussions, the following are training topics that are much needed from companies in the e-mobility ecosystem. We also include additional suggestions based on our synthesis of all of the findings. In terms of technical areas, topics could include EV maintenance, batteries, diagnostics, high-voltage safety, charging technology, and EV safety for emergency responders (Figure 31). There is also interest in emerging areas such as AI and circular economy, which could be offered in different formats or in partnership with academic. Collaboration with companies and academic institutions will be important to ensure that curriculum stays up-to-date, and topics, formats, and pricing remain relevant and competitive. As many companies are offering in-house training already, there could be potential to partner to build out content and train additional trainers. This is also an opportunity to collaborate with international partners in ways that could add value to the entire ecosystem.

Figure 31: Training topics of interest to companies



Designing and sequencing training programs

As EV adoption and production scale up, talent demands will grow too, but they will also shift to more advanced and specialized skills. There are some differences between EV training programs in consolidated markets and those in early markets, beyond just scale or volume (Table 7). Consolidated markets offer advanced, specialized, and industry-integrated EV training with strong hands-on and certification components, while early markets focus on foundational skills, general awareness, and capacity building, often with fewer resources and more basic curricula. The needs, structure, and sophistication of training programs evolve as

the market matures and technology adoption deepens. This does not preclude the EVCE from offering trainings that fall in the more advanced category – the right approach should above all be responsive to the local context and current needs. Ultimately, any organization seeking to offer trainings in this space will need to both anticipate and adapt to these shifting demands.

Table 7: Evolution of EV training programs

MARKET STAGE	KEY FEATURES
Early markets: foundational and broad-based programs	• Focus on awareness and basic skills: Training focuses on foundational topics—EV safety, basic maintenance, battery handling, and introductory diagnostics. Many programs are “inch-deep, mile-wide,” raising broad awareness rather than deep specialization. • Generalist approach: Programs at educational institutions often integrate EV modules into existing ICE-automotive curricula or offer short courses for a wide range of stakeholders, including policymakers, mechanics, and the general public. • Limited hands-on facilities: Fewer EV labs or simulation tools; hands-on experience may be limited to pilot programs or partnerships with local e-mobility companies, given that EV equipment is expensive. • Capacity building: Emphasis on training trainers, building curricula, and establishing national standards—often with support from international agencies or development partners. • Barriers: Challenges include lack of qualified trainers, limited funding for equipment, and the need to adapt curricula as technology and local market needs evolve. • Entry-level access: Many programs have no prerequisites, targeting upskilling of existing ICE mechanics or entry-level technicians.
Consolidated markets: advanced and specialized programs	• Scope and depth: Programs are highly specialized, covering the full EV value chain: manufacturing, battery assembly, advanced diagnostics, high-voltage safety, software integration, and charging infrastructure. • Hands-on, high-tech training: Use of simulation labs, virtual reality, and real EVs for immersive, practical experience. • Certification and standards: Rigorous, industry-aligned certifications with clear pathways to employment. • Industry partnerships: Strong collaboration with companies, utilities, and tech companies to ensure curricula match evolving industry needs. Programs often include internships, apprenticeships, and direct job pipelines. • Targeted tracks: Specialized tracks for engineers, technicians, first responders, and even programs to increase women’s participation in the sector.

Anticipating challenges and developing mitigation strategies

Launching new training programs or updating curricula to address new needs can present challenges. WDI research has highlighted challenges faced by organizations seeking to develop these programs, which include:

- **Initial investments**
 - Investing time for the curriculum development process, which can generally be lengthy
 - Securing initial capital to purchase equipment, for space, and for staff
 - Orchestrating the development of the physical infrastructure (EV lab equipment) with the training content and available expertise to teach it
 - Defining the type of equipment needed can also be challenging
- **Curriculum development and training staff**
 - Building internal expertise to get started requires time and resources
 - Identifying industry champions that can provide input into program development can be a bottleneck
 - Finding qualified professionals locally who have the right expertise and availability/interest in teaching
- **Implementation:**
 - Staying focused on priority programs to avoid diluting efforts and resources across too many offerings
 - Devising strategies to increase reach beyond local communities, considering that hands-on, in-person training component is crucial
 - Ensuring a steady stream of applicants and continuous improvement so the program can be successful

In addition to common challenges, WDI research also highlighted lessons and mitigation strategies, such as:

- **Leveraging partnerships**
 - Engage industry for different types of value, such as gathering input on the relevance of curriculum, accessing equipment through donations or using equipment on-site, and creating a recruitment pipeline for training program graduates
 - Industry engagement mechanisms can include advisory boards, equipment partnerships, site visits, and identifying and engaging industry champions
 - Create mutually beneficial relationships with startups to help students understand innovation in context, train startup staff on-site, and identify opportunities for internships and future employments
- **Honing the value proposition**
 - Conduct deep market research to understand what the needs are, what already exists, and where a new player can add value — be as specific as possible

- Create first mover advantage, when possible, by starting with a small pilot first and iterating based on market response
- Seek differentiators via specialized training focused on particular local need, by providing a unique credential or certification, or by offering increased flexibility and modularity in the programs offered
- **Acquiring or developing key resources**
 - Start small with staffing – beginning with the right expertise and supplementing with other types of support, or engaging experts from other regions to train local trainers for future offerings
 - Create an incremental EV equipment / facilities strategy of what will be needed at what time for training programs vs. creating comprehensive shopping list – but prioritize safety equipment
 - Tap into industry partners to use existing equipment
- **Financials**
 - Consider the initial investment needed, revenue model and operating expenses from the start, and use these to inform the rest of the business plan
 - Diversify revenue sources as much as possible from the start to manage risk

SECTION 7

Next steps

The findings and perspectives presented in this report are intended to provide an overall high-level picture of the status of the e-mobility transition and the skills development needed in the Philippines, with the caveats and limitations included in the Methodology section.

The building blocks and initial considerations included in the blueprint for the EVCE are based on these findings and WDI's experience, which is informed by research and learnings from other markets. We hope that these insights and considerations will help crystallize the vision for the EVCE in the Philippines, and spark action to move forward with this initiative.

As this vision becomes clearer, a logical next step is to develop a full-fledged business plan for the EVCE. This exercise would help dive deeper into specific needs and priorities of key stakeholders, identify key partnerships and evaluate potential funding models and operational strategies. Together, these activities can help set this effort up for success from the start, build support and buy-in from a diverse group of potential partners, and make it possible for the EVCE to translate vision to reality.

SECTION 8

Methodology

WDI took a mixed methods approach for this research. Beginning with desk research, the team conducted an extensive literature review of existing data, reports, and analysis relevant to EVs in the Philippines, globally, and other related topics included in this report. Literature review continued throughout the entire research process to fill gaps and corroborate findings from other data collection.

This additional data collection included meetings, interviews, site visits and focus group discussions during a field visit to Manila in March 2025. These focus group discussions were organized in collaboration with CAA and EVAP, which are two key players in the space, and whose contributions were extremely valuable to this research. Additional data was collected via conversations with various ADB team members, universities and other educational institutions, policymakers, and companies involved in different areas of the EV value chain in the Philippines such as manufacturing and component suppliers, charging infrastructure suppliers and property developers, and fleet operators, cooperatives, and logistics or delivery companies. Input was gathered from seventy-nine individuals during the field visit. Additionally, the team conducted several online interviews after the visit with key individuals who were not available during the field visit.

The WDI team also collaborated with CAA and EVAP to design and distribute two online surveys to gather additional qualitative and quantitative data on EV training and talent topics. One survey was geared towards companies and the other was for educational institutions. The analysis from these survey results is included throughout the report. Twenty-one companies and four educational institutions responded to the survey.

Finally, the WDI team co-organized an online workshop with ADB, CAA and EVAP to present summary, preliminary findings from the research, gather feedback from key stakeholders in the Philippines, and discuss next steps. A number of key stakeholders were invited directly to attend, and the workshop was also promoted on partner social media channels. The workshop was held on June 17, 2025, with 57 attendees. In addition to a presentation by the WDI team, speakers included Chief of Transport Sector Group at ADB James Leather, Senior Transport Specialist at ADB Bert Fabian, APLFI Executive Director Audie Vergara, APLFI Board Member and former Ambassador Chantale Wong, Deputy Executive Director of CAA, Glynda Bathan-Baterina, and Executive Director of EVAP, Manny Biona.

Following the workshop, the WDI team incorporated feedback from ADB and other key stakeholders and finalized this report.

In terms of limitations of this approach, the team acknowledges that the sample size for information gathering was relatively small, especially considering the breadth of the topics covered and number of players actively engaged in this space. The sample also skewed very heavily toward Manila, so perspectives from other parts of the country are not as well represented. For some types of players, it was also difficult to connect with the person/people most actively engaged in these topics, so some questions were not answered completely. Additionally, there was a limitation with the publicly available data. Some of the key data needed was outdated (either not gathered or reported publicly on a regular basis), or different sources reported different numbers (perhaps tracking or defining things differently, without clear explanation). The team mitigated these challenges in various ways, and included all sources and commentary on any issues in the findings.