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# **ADVANCING ELECTRIC VEHICLE ADOPTION IN THE PHILIPPINES THROUGH POLICY INTEGRATION**

Clean Air Asia

ANALYSIS

# Imprint

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/freiheit.org



/FriedrichNaumannStiftungFreiheit



/FNFreiheit

## Authors

Raymund Paolo Abad  
Naressa Saripada  
Myron Alcanzare  
Marion Micah Tinio  
Clean Air Asia

## Contact

Phone: +49 30 22 01 26 34  
Fax: +49 30 69 08 81 02  
email: [service@freiheit.org](mailto:service@freiheit.org)

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## Contact

Clean Air Asia  
Unit 3505 Robinsons  
Equitable Tower  
ADB Avenue, Pasig City,  
1605, Philippines  
Tel +63 2 8631 1042  
Fax +63 2 8631 1390  
info@cleanairasia.org

Clean Air Asia China Office  
11-152, JianGuoMenWai Diplomatic  
Residence Compound,  
No.1 XiuShui Street, ChaoYang District  
Beijing 100600 China  
Tel/Fax: + 8610 8532 6172  
china@cleanairasia.org

Clean Air Asia India Office  
Basement C-3, Green Park Extensic  
New Delhi 110016, India  
Tel + 91 11 40395508  
india@cleanairasia.org

**Country Networks:** Indonesia, Malaysia, Nepal, Philippines, Sri Lanka, Vietnam

[cleanairasia.org](http://cleanairasia.org)

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We work with partners to reduce air pollution and greenhouse gas emissions across Asia by building capacity, advocating for effective and appropriate policies and practice, and informing stakeholders of air pollution and climate change impacts. We aim to reduce air

pollution and greenhouse gas emissions in 1000+ cities in Asia through a range of innovative policies and programs covering air quality, transport and industrial emissions, and energy use.

We work with energy, environment, health and transport ministries, cities, the private sector, development agencies, academia and civil society to provide leadership and technical knowledge in Air Quality and Climate Change, and Sustainable Transportation (Low Emissions Urban Development, Clean Fuels and Vehicles, Green Freight and Logistics).

Since 2008, we have been a United Nations-recognized partnership comprised of more than 250 organizations in Asia and internationally, with country networks across the region. Our headquarters are in Manila, Philippines, and we have offices in Beijing, China and New Delhi, India.

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# Executive Summary

Republic Act 11687, or the Electric Industry Development Act (EVIDA), **mandates a 5% electric vehicle (EV) share in the vehicle fleets of government and corporate entities.** Local government units are also given **additional powers and functions by the EVIDA** towards electric vehicle adoption. These powers and functions are primarily on incorporating electric vehicles into public transportation, regulating charging infrastructure, and managing traffic in their local jurisdictions.

The policy brief aims to **provide policy guidance to local decision-makers for the successful implementation of electric mobility initiatives.** The policy brief documents the needs, challenges and opportunities of Philippine cities and municipalities in electric mobility, particularly those of the city governments of Manila, Pasig and Quezon.

Electric mobility in the LGUs is driven presently by **donations and pilot projects**, but for different use cases. Pasig City Government uses light electric vehicles for delivering health-related services to its citizens. Manila City Government plans to expand its current electric tricycle public transport program. Quezon City Government is planning to procure hybrid electric vehicles for its government fleet and electric buses for its city public bus service. **The use of three-wheel electric vehicles as public transport is common among the three cities.**

Policy instruments from the three city governments also **demonstrate preparations for electric mobility adoption.** Ordinance 8499 of Manila City, passed in 2016, created a livelihood program through providing electric tricycles for its resident drivers. The Quezon City Council passed a 2023 resolution that urges its Green Transport Office to designate green routes for electric tricycles.

To prepare for electric vehicle adoption, local governments **need support in financing, EV share procurement, EV fleet management, EV policy development, and institutional arrangements.**

Local authorities need more information about the costs and benefits of procuring, operating, and maintaining EVs, especially compared with internal combustion engine vehicles. LGUs also need **more financing options that will enable drivers to pay vehicle loans.** It is recommended that the National Government pursue more partnerships and financing opportunities with international organizations to shift the burden and risk from local government units.

LGUs will also benefit from knowledge materials that **describe the lifecycle costs and benefits of electric vehicles** over fossil-fueled vehicles.

LGUs are prepared to comply with the mandated 5% EV share but require **clarity on the methodology for measuring compliance.** Specifically, LGUs desire clearness on the EV vehicle types that the mandated EV share covers. They also ask for guidelines on accounting for unserviceable and special-use (e.g., emergency) vehicles. It is recommended that official circulars on mandatory EV share guidelines. A possible avenue is the updating of the DBM Budget Circular 2022-001<sup>1</sup> to express the priority for procuring electric vehicles.

**Proper fleet management** will enable LGUs to maximize the use and benefits of EVs. They note that options for repair and maintenance of EVs are limited, compounding the financial and technical gaps in managing their whole government fleet. Sufficient charging infrastructure is also necessary for maximizing EV use, especially for public transport. It is recommended that the National Government **develop information and education campaigns** that will address the technical gaps in EV and EV charging station operation and management.

LGUs desire policy guidelines about **integrating light electric vehicles** into their transportation planning, towards a more comprehensive and inclusive transportation system. Local pilots demonstrate the **adaptability of LEVs in Metro Manila streets** but present LGUs with concerns on road safety. There are existing guidelines on registration and road use for LEVs: LGUs ask for further **guidance on enforcing these guidelines**, especially regarding electric tricycles used for public transport. LGUs can also benefit from support on the identification of **green routes for electric tricycles** as a last-mile transport strategy.

LGUs have **varied approaches to governing local transportation planning** that translate to electric mobility transition. Despite the mandate of the National Transport Policy to establish city transport and traffic management units, some do not have dedicated offices for transportation planning. This lack of a focal office for transport planning also translates to challenges in electric mobility planning. It is recommended that the National Government publish circulars and **guidelines for institutional arrangements** for transportation planning and electric mobility.

# 1. Background

## 1.1 Overview of Electric Mobility in the Philippines

The Philippine electric vehicle (EV) industry continues to develop because of private and public sectors (i.e., government) efforts. A key EV-related legislation enacted is Republic Act 11687, known as the Electric Industry Development Act (EVIDA). EVIDA defines the regulatory foundation for an enabling environment that can support the growth of the EV industry in the country. One of the provisions is the mandatory compliance of 5% EV share among corporate and government vehicle fleets.

The Comprehensive Roadmap for Electric Vehicle Industry (CREVI) complements EVIDA by preparing the local EV industry to set out plans to accelerate the development, commercialization, and use of EVs in the country. CREVI focuses on four main areas: charging stations, research and development, manufacturing, and human resource development. These thematic areas are critical in meeting the government's short-, medium-, and long-term targets of EV (including battery and hybrid) adoption.

The government also outlined incentive programs to support the development of the local EV industry. One of these programs is the Electric Vehicles Incentive Scheme (EVIS), which provides fiscal and non-fiscal incentives to promote EV manufacturing in the country. Another fiscal scheme modifies the import duties on electric vehicles (zero tariffs) for the next five (5) years to boost the EV market and support the transition to cleaner and greener transport [1]. EV users will also benefit from discounted motor vehicle user charges, vehicle registration, and inspection fees collected by the Land Transportation Office (LTO)[2]. Non-fiscal incentives are also available through prioritization in registration, public transport franchise applications, exemption from number-coding schemes, and availing of TESDA training programs related to EVs. Likewise, manufacturers enjoy expedited import processing for parts and components for EV manufacturing and assembly and allow foreign EV professionals to work in the country under a technology transfer agreement [2].

The private sector has likewise supported the country's electric mobility initiatives. For instance, AC Motors, one of the country's largest automotive distribution and retail groups, has announced plans to establish 100 charging stations nationwide by 2024. According to the AC Motors chairman, these charging stations will be free for all EV owners for a year[3]. Similar efforts have been undertaken by other property development companies, who have added EV charging stations to their parking areas [4]. Moreover, on the manufacturing side, Envirotech Vehicles, Inc (EVTV) plans to invest 80 million USD to develop an EV manufacturing plant in Clark.

Several pilot demonstration efforts have also supported the transition towards EVs at different levels of

governance and project implementation in the country. The national government, through the Department of Energy (DOE), donated electric three-wheelers to government agencies (both national and local) across the entire country [5], which have been used to support government services. Other agencies also conducted EV demonstrations across the Philippines (Figure 1) to either support government services or provide public transport alternatives [6], [7]. These efforts led to the steady uptake of electric vehicles (EVs) to a total of 9,666 registered EVs in the Philippines as of 2022, according to the Land Transport Office (LTO).

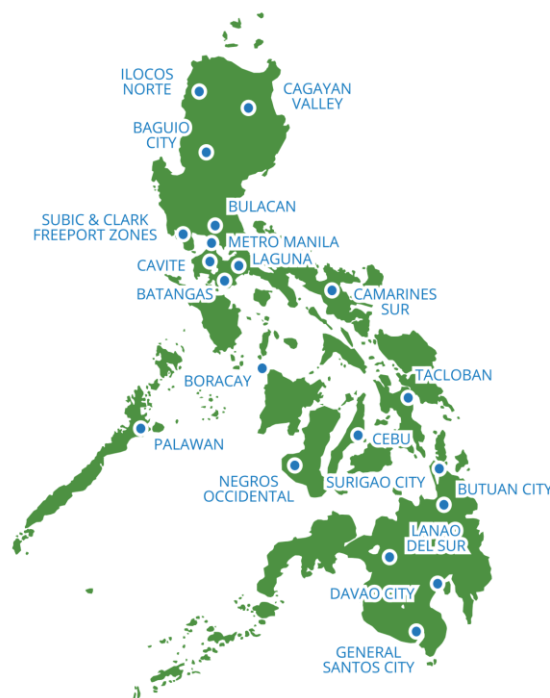


Figure 1 Locations where EV Initiatives have been rolled out in the Philippines [8]

A significant portion of these EV registrations are from two- and three-wheeler electric vehicles (Land Transportation Office, 2020). However, registration figures may not reflect the actual number of electric vehicles plying the roads, especially since the registration of e-bikes, e-motorcycles, or e-tricycles has not yet been fully implemented [9].

Electric two- and three-wheeled vehicles in the Philippines are generally used as personal or public transport vehicles [9]. The privately used e-bikes and e-motorcycles typically have lead batteries and cost between ₱6,000 to ₱50,000 [9]. Meanwhile, public utility e-trike models have larger seating capacities (i.e., 4 to 9 passengers) and larger battery voltages that mostly use lithium-ion batteries (62% of surveyed models) [9].

## 1.2 The role of local government units in electric vehicle adoption

Local governments are critical in supporting the adoption and transition towards electric vehicles. In EVIDA, Section 11 outlines the additional powers and functions of local government units (LGUs) in electric vehicle adoption. These functions can be summarized into three categories:

- incorporating EVs into public transportation,
- regulating EV charging infrastructure, and
- managing EV traffic in their jurisdictions.

These responsibilities encompass various aspects, including infrastructure development, regulations, and public awareness.

LGUs are mandated to incorporate green routes into their local public transport route plans (LPTRP). Green routes will be exclusively traversed by electric public utility vehicles. These plans must be consistent with the National Transport Policy [10], Department Order 2017-11 of the Department of Transportation [11], and Joint Memorandum Circular 2017-001 of the Department of Interior and Local Government [12].

LGU authorities are also responsible for regulating charging infrastructure in their localities. First, authorities issue Certificates of Inspection to EVCS in their jurisdictions. Second, they also monitor and submit a list of commercial-use charging stations to the DOE. Third, issue permits for the construction or renovation of buildings or establishments according to the Department of Public Works and Highways guidelines. Finally, local authorities are also responsible for identifying roads that light electric vehicles (LEV) can use within their jurisdiction. LGUs may provide segregated lanes along local and national roads for LEV use, provided these comply with DPWH guidelines.

Local governments must prepare for EV adoption in their cities or municipalities to support the national government's EV ambitions, such as targets stipulated in the EVIDA and CREVI. Aside from this, their preparations should also support the increasing uptake of e-mobility among private users. As an outcome, LGUs could yield environmental benefits by supporting and promoting EV use in their cities. These air quality benefits [13] are realized when conventional vehicles are replaced by energy-efficient vehicles, like EVs. Ultimately, supporting EV adoption in cities and municipalities supports the transition towards more sustainable transportation.

With support from the Friedrich Naumann Foundation (FNF), Clean Air Asia supported key LGUs in the Philippines to prepare for EV adoption by providing policy guidance to local decision-makers. The project allowed local policymakers to ensure a smooth and successful implementation of EV policies tailored to their local context. The project fostered discussion on additional support cities and municipalities need to roll out their electric mobility initiatives. The policy brief documents the outcomes of stakeholder consultations and provides a targeted perspective on electric mobility planning from the local government perspective. Finally, this document aims to contribute to discussions towards integrating national and government policies for e-mobility planning in the local context.

## 2. Case Studies: E-Mobility Initiatives

Clean Air Asia engaged with the city governments of Manila, Pasig, and Quezon to better understand their electric mobility initiatives and to receive feedback on the provisions for LGUs under EVIDA. These three cities have ongoing e-mobility initiatives using electric three-wheelers donated by the national government.

The following section describes how these city governments prepare for EV adoption in their respective cities. The document highlights the use case of EVs (i.e., electric three-wheelers), institutional arrangements, and locally implemented policies in these cities.

### 2.1 Use Case of Electric Vehicles in LGUs in the Philippines

The cities of Pasig, Manila, and Quezon are all implementing their electric three-wheeler initiatives. They are recipients of donated e-tricycles from the DOE and beneficiaries of e-mobility pilot initiatives. Table 1 summarizes the different uses of electric three-wheelers in these cities.

*Table 1 Use of E-Vehicles in Consulted Cities*

City	E-mobility initiatives
Pasig	Pasig City Government is a partner city of SOLUTIONSPlus <sup>1</sup> , which received a fleet of electric quadricycles to <b>deliver government services</b> , particularly for health centers. The project also developed a shared booking and routing management system for the e-

<sup>1</sup> The SOLUTIONSPlus, a project that aims to facilitate transformational change in urban mobility by implementing innovative and integrated electric mobility solutions. The project's core objectives include expanding the availability of electric vehicles, enhancing operational efficiency, facilitating the integration of

various forms of e-mobility in large urban areas, and addressing user needs and local conditions in Asia, Africa, Europe, and Latin America ([SOLUTIONSPUS. 2023](#)).



City	E-mobility initiatives
	<p>vehicles. The system also aims to enhance vehicle availability on demand by consolidating trip needs.</p> <p>Pasig City's <b>postal services</b> (PHLPost Pasig) also received 30 electric 2- and 3-wheeler vehicles to promote and strengthen sectoral integration of e-bikes as a transport mode. The project is part of the UN Environment Programme's global program to integrate 2- and 3-wheeler EVs into existing urban transport modes in developing and transitional countries. The city installed their first<sup>2</sup> four (4) public electric charging stations, accommodating up to eight EVs.</p>
Manila	<p>The City of Manila implemented <b>e-trike livelihood programs</b> to support drivers from low-income households. The city procured e-trikes and loaned these to drivers who pay 150 pesos daily (including charging costs). It plans to expand this livelihood program and seeks financing options to support this endeavor.</p>
Quezon	<p>The City Government of Quezon received 292 e-trikes from DOE. The local government distributed these electric tricycle units among 17 Tricycle Operators and Drivers' Associations within the city.</p> <p>The city is also planning to procure hybrid electric vehicles for their <b>government vehicle fleet</b> and an electric bus that will operate one route of the city's <b>bus service</b>. The city also determined that electrification of the city vehicle fleet is a priority action in their Enhanced Local Climate Change Action Plan and Air Quality Management Plan. The estimated benefit of electrification in the city government fleet will halve emissions by 2050<sup>3</sup>.</p> <p>The city also collaborated with MERALCO to establish three charging stations within the city (Barangay Payatas Motorpool, Batasan Hills TODA Terminal, and Amoranto Sports Complex). Each charging station has coin-operated charging pods and solar panels that utilize a net-metering service. These stations can concurrently charge up to eight e-trikes. With support from the Department of Science and Technology, the city is also exploring adding charging stations to support the increasing number of e-tricycles in the city.</p>

Electric mobility initiatives at the local government level are driven mainly by donated vehicles, with only a few explicitly stating their interest in procuring vehicles. As a result, most of the vehicles in these cities are from pilot demonstrations or projects that use electric three-wheelers.

EVs for public transport use (three-wheelers) are common among the consulted cities. Manila is exploring a leasing model where they subsidize operating costs (i.e., charging). Pasig City used their fleet mostly for delivering government services (postal and health). Quezon City explored the potential of procuring four-wheeled EVs for their vehicle fleet. The differences in applications reflect that cities have different purposes for their electric vehicles.

## 2.2 City Institutional Arrangement for E-Mobility

The project identified different focal agencies responsible for implementing different e-mobility initiatives (Table 2) through consultations with the cities. A key observation was that e-mobility programs are usually under the purview of the city's transport or traffic planning offices. For instance, Pasig's e-vehicles are under the management of the City Transportation Development and Management Office (CTDMO). The CTDMO is also leading the implementation of e-mobility projects in the city. In the case of Manila, which has no specific agency tasked with transportation planning, the Traffic and Parking Bureau (MTPB) regulates the operations of e-tricycles. The MTPB also deals with colorum (unregistered) e-tricycles in the city. Other agencies also become involved with planning depending on the city government's vision for electric mobility. In Quezon City, officials identified that vehicle electrification programs are vital in reducing emissions in the city. The environmental perspective of electric mobility led to the involvement of the Climate Change and Environmental Sustainability Department (CCESD) and the Green Transport Division of the Department of Public Order and Safety.

Table 2 Focal Department or Agency for E-Mobility Initiatives

City	Focal department/agency
Pasig	City Transportation Development and Management Office (CTDMO) E-Mobility Steering Committee
Manila	Manila Traffic and Parking Bureau
Quezon	Department of Public Order and Safety – Green Transport Division (DPOS-GTD) Transport and Traffic Management Department (TTMD) Climate Change and Environmental Sustainability Department (CCESD)

<sup>2</sup> Previously, most electric tricycle drivers were charging at home or via extension cords that are plugged in outlets of various Pasig City Government offices.

<sup>3</sup> Clean Air Asia and Quezon City Government (2023). Prioritization of Air Quality Management Plan Measures in Quezon City using LEAP-IBC Analysis - Final Report.



General Services Department

### 2.3 Policy Instruments for E-Mobility

Cities are also implementing different policy instruments in their localities. The policies, summarized in Table 3, vary according to the scope and level of e-mobility implementation in these cities. For example, in Pasig, the development of the Steering Committee through Executive Order 63, s. 2021 meant that a team planned, guided, monitored, and oversaw the implementation and sustainability of the electrification initiatives in the city. The Executive Order also represents the importance of designating focal persons to ensure that these initiatives are participatory across agencies, significantly contributing to their success. A city ordinance in Pasig also ensures the alignment of national and local government policies in exempting EVs from the vehicle volume reduction program.

Manila City passed a different ordinance that directly focuses on using e-vehicles (i.e., e-tricycles) for public transport service as a livelihood program promulgated by Ordinance 8499. The ordinance is vital in continuing the city's electrification efforts and ensuring drivers benefit from the transition to electric three-wheelers. However, the city communicated that financing these vehicles' procurement, operations, and maintenance remains a challenge.

*Table 3 Policy Instruments Implemented in Consulted Cities*

City	Policy instruments
Pasig	Executive Order No. 63 s. 2021 City Ordinance 50, s. 2022
Manila	Ordinance 8499 (Pending: Committee Hearing) Ordinance on electric vehicle use and operation
Quezon	QC Ordinance SP 2988, s. 2020 (Safe Cycling Ordinance) Resolution for Green Routes: March 2023

Lastly, Quezon City passed their Safe Cycling ordinance, which limits the types of electric-assisted transport (i.e., e-kick scooters and e-bikes) allowed to use cycling lanes. The same ordinance also mandates cyclists and riders of active transport to remain inside cycling lanes. The City Council also passed a resolution that urges the Green Transport Office to identify and designate green routes for electric tricycles. The resolution supports the efforts of the city to transition its tricycle fleet to electric 3-wheelers.

The above assessment highlights that e-mobility initiatives vary from city to city. Despite receiving the same units donated by the Department of Energy, the cities employed different approaches to maximizing the operations of these electric vehicles. There had been no standard approach for the management of these vehicles. There were also variations on the policies needed to support further the adoption of these vehicles to the local transport landscape. These could be attributed to the differences in capacities and resources of LGUs, which should be considered when crafting support mechanisms and

programs to advance EV adoption.

## 3. Support Needed by Local Governments

*Financing is a key enabler to advance EV uptake.*

The high cost of electric vehicles, even electric three-wheelers, remains a significant barrier towards widespread adoption of electric vehicles in cities. Stakeholders recognize the high financial requirement to transition to electric mobility. Financing, therefore, is still a key assistance requested by stakeholders to facilitate their electric mobility transition. Expanded financing options will support the procurement of the vehicles and their spare parts and components. The latter includes the maintenance of these electric vehicles, including their batteries, which account for around 40% of the total EV cost [14]. Such financing options ensure that EVs will remain serviceable throughout their lifespan. Allocating budget streams for EV maintenance reduces the risk of unused and unserviceable electric vehicles.

Other city governments have explored schemes to address financing issues associated with EV use. For example, city government recipients of donated electric tricycles<sup>4</sup> reported financing challenges to pay for the daily operational costs (i.e., charging and maintenance), especially for those vehicles used for non-revenue generating purposes (e.g. public school services). Another communicated challenge by stakeholders is the driver's failure to repay these tricycles under a rent-to-own scheme<sup>5</sup>. These challenges make it difficult for local governments to receive loans to procure EV units for their constituents.

Understanding the costs and benefits of energy-efficient vehicles will support local authorities in making informed decisions on procuring these vehicles. Stakeholders cited that they require the additional knowledge that will enable them to compare the total expenses and savings of purchasing the different types of energy-efficient vehicles (e.g., hybrid electric vehicles and battery electric vehicles). For decision-makers, the benefit of these calculations would support the financing allocation for vehicle fleet and maintenance. The technical knowledge will help decision-makers determine which vehicle type is suitable for early EV adoption, particularly those with high daily mileage.

*Set up mechanisms to enable LGU compliance with the mandatory EV fleet share.*

The EVIDA laid out a mandatory share for electric vehicles to generate their demand and support the development of its local industry. Notably, Section 16 of the law states:

*“The following entities shall ensure that **at least five percent (5%)** of their fleet, whether owned or leased, shall be EVs within the time-frame indicated in the CREVI” [2]*

EVIDA also states that the mandated electrification targets for local government fleets are part of the government’s energy efficiency project<sup>6</sup>. Furthermore, CREVI sets the timeline for compliance of local governments, specifically Chapter 5 targets to:

*“Achieve at least a 5% EV share in corporate and government fleets, public transport operators, and industrial and commercial companies at the end year of the Medium Term (2034) and increasing to 10% by 2040” [15]*

Local governments are prepared to meet the mandates of EVIDA. However, stakeholder consultations revealed they still need clarity on the mandated government EV fleet shares. For instance, local authorities are uncertain which vehicles will contribute to their 5% EV share requirement – by EV type (i.e., two-, three-, or four-wheeled) or for the entire vehicle fleet of the LGU.

Another issue of mandating EV shares that LGUs are concerned with is the proper documentation and tracking of EV target compliance. Specifically, the national government has yet to set up a monitoring program for local governments to report and track progress on meeting their EV shares by 2034. The Department of Energy has proposals to monitor EV shares’ compliance<sup>7</sup> by tracking the government vehicle procurement, monitoring the green public procurement program, or requiring EV retailers to register EV purchases.

The requested clarifications of stakeholders could be addressed through circulars from a relevant government agency that will account for the mandatory shares of LGUs. Stakeholders also recommend additional guidelines that will be included in the accounting of EVs in their jurisdiction, including:

- Accounting for the 5% electric vehicle shares based on the local government vehicle fleet size by 2034.
- Excluding **unserviceable** (undisposed) vehicles from the total government fleet size.
- Prioritize government vehicles used for daily operations to the 5% mandate and exclude special-use vehicles like fire trucks, ambulances, and other emergency response vehicles until these are widely adopted and available<sup>8</sup>.

LGUs are also responsible for inspecting and certifying charging infrastructure in their jurisdictions. Specifically, LGUs shall:

*“Issue certificates of inspection to charging stations... Ensure compliance of public and private buildings and establishments with Section 18 (Construction or Installation of Charging Stations in Dedicated Parking Slots) of this Act” [2]*

The DOE has a circular on the development, establishment, and operation of Electric Vehicle Charging Stations (EVCS) in the Philippines [16]. However, guidelines regarding the LGU’s inspection and certification process for different EVCS types are still lacking. Similarly, LGUs are concerned that premium parking slots offered at condominiums, business establishments, or property developers are all for commercial use and limited to the public. The national government can address these issues by:

- Outlining technical specifications for inspections of EVCS
- Defining which buildings and establishments may be own-use or commercial-use charging stations

### *Build capacity to operate and manage the city’s electric vehicle fleet effectively.*

The consultations from stakeholders who have implemented EV pilot programs (mostly electric 2- and 3-wheelers) revealed the importance of building the capacity to operate and maintain the electric vehicle properly. Capacity-building activities on potential applications and uses of electric vehicles could bridge knowledge gaps for end-users who may still be unfamiliar with their proper operation. Increasing the understanding of local government units on electric vehicles in the context of fleet management will enable them to maximize the benefits of these vehicles through proper maintenance. The following recommendations are from the city stakeholders who have implemented pilot demonstrations of electric vehicles in their localities.

City stakeholders learned the importance of considering the appropriate vehicle design that suits the physical environment (e.g., terrain, road dimensions, and others) where these vehicles would be used. For instance, a representative shared their experience that electric 2- and 3-wheelers are more apt for the narrow streets in Metro Manila. However, they also aired their concerns that the design of these electric 2- and 3-wheeled vehicles is susceptible to battery damage to flooding. Aside from considering the physical environment considerations, end-users must also understand the vehicle operating characteristics of their fleet (e.g., purpose, average travel distances, fuel costs per kilometer, etc.) to determine which trips could be operated by an electric vehicle. Prioritizing their dispatch, whenever possible, will also maximize the benefits of EVs by reducing their operating (i.e., fuel) costs.

Adequately designed charging infrastructure is vital to maintaining the operability of EVs, especially those used for public transport in the city. Charging anxiety has been a concern, especially for drivers [9] because their daily income depends on the number of trips they can make. Stakeholders shared that planning, designing, and operating charging infrastructure is an emerging issue to ensure EV users don't lose out to conventional tricycle operators, whose refuelling time is significantly lower. Authorities recognize that EV adoption in their localities is in its early stages. Hence, they are keen on building their technical capacities to plan their charging infrastructure.

Finally, the project consultations cited the need for training and information for these vehicles' proper maintenance and repair. Stakeholders note that there are limited options for repairing and maintaining electric vehicles, particularly those from pilot programs. As a result, many of the EV units are inoperable and stored in their garages. In addition, weak local after-sale support discouraged local authorities from continuously investing in and operating electric vehicles in their cities. The abovementioned issue compounds the fleet management insufficiencies (i.e., financial and technical) of government vehicle fleets (electric and traditional vehicles).

The pilot city experiences emphasize that there are information gaps on effectively managing and maintaining a fleet of electric vehicles. The consultations with stakeholders encourage the national government to develop information campaigns (e.g., publish knowledge materials and host learning events) covering topics on fleet management, repair, and maintenance of government vehicle fleets. The campaign will address the technical gaps in electric vehicle operation and advocate for the proper maintenance and sustainability of the entire vehicle fleet of governments. Specifically, technical capacity training for local governments should include the following:

- Deciding on fleet specifications fit for street design and purpose
- Fleet repair and maintenance
- Planning for charging stations

### *Policy development to integrate e-mobility into local transportation planning.*

Light electric vehicles, especially the two- and three-wheeler variants, are becoming more common in Philippine cities mainly because of their lower costs [9]. Both types, whether for private or public transport use, contribute to improving people's mobility. Stakeholders are eager to support the integration of these electric vehicles into the transport landscape of their cities by developing appropriate policies on their road use. However, the interviews revealed that local planners need additional **guidelines about integrating light electric vehicles** into the local transport landscape. The additional guidelines may cover aspects of traffic or transport management.

Pilot demonstrations of light electric vehicles showcased the adaptability of these EVs to Metro Manila's road network. However, some online forums question whether light electric vehicles are suited to operate on major roads with high vehicular traffic. Because of safety concerns, the stakeholders echo similar apprehensions about mixing LEVs with traditional four-wheel vehicles. However, some LEVs can operate at higher speeds and may pose problems for other road users (i.e., bicycles). The EVIDA mandates LGUs to provide segregated lanes, in coordination with the DPWH, for LEVs [2]. Furthermore, the Land Transportation Office (LTO) also released guidelines about registering and operating the different LEVs along various roads [17]. Despite these guidelines, LGUs still need clarity regarding the limitations of these electric vehicles on the roads, especially those that do not require registration.

LGUs regulate the operations of tricycles used as last-mile public transport through LTO Memorandum Circular No. 94-199 [18], under RA 7160 [19]. City stakeholders noted that electric tricycles used for public transport services yielded higher revenues for drivers because of lower operational costs and higher passenger occupancies<sup>9</sup>. These economic benefits led some tricycle operations to venture out of their usual zones of operation and into major thoroughfares where they are restricted [20]. As a result, LGUs face a common challenge where LEVs can potentially compete with higher-capacity public transport services. Stakeholders also expressed traffic congestion concerns if traditional tricycles are replaced by larger e-trikes and allowed to operate along major roads.

The stakeholders' concerns highlight the **need for policy development support**, including local governments' broader transport planning needs. Since LGUs are mandated to plan transit route development (through their LPTRPs) and regulate tricycle operations, guidance from the national government will aid in coordinating the interactions between public transport and last-mile transport services. A potential approach is initiating the formulation of guidelines on low-emissions transport planning. The guidelines can match the high adoption rate of e-bikes by designing streets and networks that are fit for e-bikes. The guidelines could include provisions for infrastructure development to support the adoption of light electric vehicles and avoid potential conflicts on the use of LEVs on city roads.

Aside from electric tricycles, the national government is promoting the use of EVs to operate specific public transport routes. Specifically, LGUs shall:

*"include green routes<sup>10</sup> in their respective Local Public Transport Route Plans consistent with the National Transport Policy" [2]*

Currently, green routes only include electric PUVs that satisfy the economic, social, environmental, quality of life, resilience, and inclusiveness criteria (UNDP LCT briefer). However, the national government (DOTr) has yet to

release their official guidelines or department order on green route selection and development.

Stakeholders have raised some concerns about green routes. First, they are wary that the green routes would reroute high-polluting vehicles to areas with less pollution. According to stakeholders, there should be mechanisms that will support the selection of green routes. Furthermore, the discussions also raised questions about green routes being treated as developmental routes. Stakeholders believe that green routes will reduce more emissions if existing routes with high transport emissions transition to green routes, preferably in phases.

Another recommendation is for the national government to explore the inclusion of electric tricycles as last-mile transport in their green route selection criteria. LGUs may readily support the green route integration for tricycles because they directly supervise the franchising of local tricycle services. For example, the City Council of Quezon City issued resolution SP-9203 in 2023, “urging the QC Government to identify and designate green routes for electric tricycles.” The proposal may also support fully integrating electric three-wheelers into the local transport system.

In the end, stakeholders identify several gaps in integrating electric vehicles, whether three- or four-wheelers, in local transport services. Local government officials need support and guidance from the national government on how electric three-wheelers interact with other public transport modes. Furthermore, the national government needs to clarify their criteria for green route development and how these are implemented to ensure a just transition towards low-emission transport modes.

*Develop institutions to enable local transport planning, including e-mobility adoption.*

The stakeholder consultations reiterate the challenges in devolving responsibilities from national to local governments on transport planning. Some LGUs do not have dedicated offices for transport planning, with some having a team composed of heads of planning and development offices for their local route plan development [21]. The discussions with several stakeholders indicate similar challenges relating to e-mobility transitions in cities or municipalities. In fact, several departments manage local transportation planning despite the mandate to establish a transport and traffic management unit in cities (Section 27 of the National Transport Policy) [10]. This lack of a focal office also translates into e-mobility planning without guidelines for LGUs. Furthermore, leadership changes, which also bring changes in priorities and strategies, compound the planning and implementation issues of transport-related projects, including electric mobility.

The stakeholder consultations revealed that cities have varying approaches to electric mobility transition. Although there are advantages to adopting an inter-agency

approach for transport planning, there are also benefits for institutionalizing an office that will lead in local transport planning, including traffic management, public transport planning (all transport modes), and active and electric mobility.

## 4. Policy Recommendations

Through the consultations, Clean Air Asia identified three priority areas of support that LGUs require from the National Government. These priority areas include support in financing, policy development and capacity building, and technical support on EV system deployment. Financing support is a unanimous concern among stakeholders because local authorities still view these as “untested technology.” Policy development and capacity building will enable local governments to support their own e-mobility transitions of their government fleets. Finally, LGUs also need technical support in expanding charging infrastructure to ensure the reliability of electric vehicles used for government operations. Table 4 outlines the different support areas needed by local governments and the corresponding recommendations for the national government.

*Table 4 Priority Areas for Support Needed by LGUs from the National Government*

Priority Area	Barriers and challenges	Recommended actions
Financing	<ul style="list-style-type: none"> <li>High upfront cost for procurement of reliable electric vehicles, including its parts and components</li> </ul>	<p>For national government:</p> <ul style="list-style-type: none"> <li>Update the DBM MC 2022-1 to express the priority for electric vehicles towards the mandatory EV fleet share targets of the EVIDA and the CREVI.</li> <li>Loans, grants and bank agreements can alleviate high investment costs</li> </ul> <p>For local governments:</p> <ul style="list-style-type: none"> <li>Leverage existing financing mechanisms</li> <li>Assist tricycle drivers to</li> </ul>

Priority Area	Barriers and challenges	Recommended actions
		organize themselves in cooperatives for easier access to financing mechanisms
Operation, repair, and maintenance of electric vehicle fleet	<ul style="list-style-type: none"> <li>Lack of immediately available local options for repair and maintenance</li> <li>Lack of technical capacity or dedicated personnel within LGUs to repair their existing unserviceable EV fleet</li> </ul>	<p>For national government:</p> <ul style="list-style-type: none"> <li>Issuance of knowledge products and technical guidance documents</li> <li>Require (local) EV manufacturers and retailers to include technical guide documents and training for repair and maintenance</li> <li>Collaborate with the private sector to establish EV repair services</li> <li>Create skilled EV technicians through accredited programs</li> </ul>
Integrated transport planning with electric vehicles	<ul style="list-style-type: none"> <li>Lack of national guidelines on green route selection</li> <li>Potential conflicts in the operations and competition of LEVs with existing public utility vehicles</li> </ul>	<p>For national government:</p> <ul style="list-style-type: none"> <li>Formulate guidelines for green route selection that consider comprehensive transport planning</li> <li>Revisit key performance indicators to ensure that these measure people's movement instead of vehicles.</li> </ul> <p>For local government:</p> <ul style="list-style-type: none"> <li>Align policies and ordinances</li> </ul>

Priority Area	Barriers and challenges	Recommended actions
		with national policies and frameworks, particularly the National Transport Policy
EV charging infrastructure development	<ul style="list-style-type: none"> <li>Lack of guidance regarding dedicated parking slots in condominiums and other related establishments</li> <li>Lack of dedicated charging stations accessible to the public</li> </ul>	<p>For national government:</p> <ul style="list-style-type: none"> <li>Formulate guidelines for publicly accessible parking slots in establishments that also sell or lease private parking slots.</li> </ul> <p>For local government:</p> <ul style="list-style-type: none"> <li>Explore partnerships for the installation of charging infrastructure</li> </ul>
Institutional arrangement and policy framework	<ul style="list-style-type: none"> <li>Different setup of transport offices in cities, which often results in the absence of integrated transport planning with e-mobility</li> </ul>	<p>For national government:</p> <ul style="list-style-type: none"> <li>Craft policy guidance about recommended institutional arrangements for electric mobility.</li> </ul> <p>For local government:</p> <ul style="list-style-type: none"> <li>Designate focal person/s or group/s for e-mobility</li> <li>Establish a dedicated office for integrated transport planning with e-mobility</li> </ul>

#### 4.1 Assistance in Financing E-Mobility

Cities are risk-averse and are cautioned to invest in “untested technology.” The high upfront costs of purchasing electric vehicles and installing charging stations discourage cities from programming these in their procurement plans. Loans, grants, and bank agreements can alleviate high investment costs. Still, the challenges



experienced while implementing the PUV modernization program and local e-trike programs discourage local governments from additional investment.

The National Government can shift the burden of investing in electric vehicles and charging stations from the local governments through international partnerships and financing opportunities. DBM Budget Circular 2022-1 can also be updated to express the priority for electric vehicles towards the mandatory EV fleet share targets of the EVIDA and the CREVI. The National Government can also publish knowledge materials that describe the lifecycle costs and benefits of electric vehicles over fossil fuel vehicles. These costs and benefits cover procurement, operation, maintenance, repair, and disposal.

Local governments may consider leveraging existing financing sources designed to support implementing climate change mitigation and adaptation projects to fund electric mobility initiatives. LGUs can also avail of funding and fiscal incentives through RA 11285 or the Energy Efficiency and Conservation Act (EEC) by considering its fleet electrification program as a Government Energy Efficiency Project (GEEP)<sup>11</sup>. Lastly, LGUs can access government financial institutions (GFI) loans to finance their electric vehicle and electric vehicle support infrastructure projects.

## 4.2 Guidelines on Integrating Different E-Mobility and E-Vehicle Types Into Transportation Planning

Integrating last-mile transport, particularly tricycles and e-tricycles, into city transportation management is a priority challenge. Although national government policy expresses the roles and prohibitions for tricycles, e-tricycles, and light electric vehicles [10], [17], [20], [22], [23], on-the-ground realities identified in the previous section challenge local policymaking and enforcement. The national government can support local authorities by clarifying how electric three-wheelers can be integrated into the local transportation landscape, especially since there is a possibility that these EVs can compete with public transport services. The DOTr can provide some clarity for these EVs in their franchising guidelines or their green route specifications.

The DILG and DOTr can also develop guidelines (i.e., joint memorandum circular) recommending institutional arrangements for transport planning, including electric mobility. A similar approach was made when the Disaster Risk Reduction and Management Law (RA 10121) mandated the creation of local disaster risk reduction and management offices. The joint memorandum circular may support the existing circular [21] that mandates the creation of a team to develop their local route plans. The circular, however, could support the development of a permanent office or department that will deal with all transport-related issues in the locality, including e-mobility.

## 4.3 Knowledge and Awareness About the Advantages of Electric Vehicles

Besides financing, city stakeholders note the lack of technical support for operation, repair and maintenance as a barrier to procuring electric vehicles. Uncertain battery range constrains the use of current city-owned electric vehicles. Skilled mechanics are also unavailable in city governments for fossil fuel and electric vehicles. The experience of cities wherein donated e-vehicles became unserviceable because battery problems discourage further investment and budgeting.

The National Government can facilitate training skilled workers in the electric mobility sector to increase the number of qualified vehicle technicians in LGUs. As the fleet management of fossil fuel vehicles remains a challenge because of a lack of funding for hiring personnel, the National Government can require electric vehicle manufacturers and dealers to open city-level after-sales service centers.

Local government units can include provisions in their procurement contracts for electric vehicles' fleet management training, preferential treatment for spare parts, and other after-sales services. LGUs can also require their personnel to obtain certification related to electric vehicle servicing (e.g., TESDA Battery Electric Vehicle Servicing Level II Competency Standards).

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