Accelerating the adoption and scale-up of electric mobility for low-carbon city development in the Philippines

Part I: Project Information

Name of Parent Program

Global Programme to Support Countries with the Shift to Electric Mobility.

GEF ID

10609

Project Type

FSP

Type of Trust Fund

GET

CBIT/NGI

CBIT **No**

NGI **No**

Project Title

Accelerating the adoption and scale-up of electric mobility for low-carbon city development in the Philippines

Countries

Philippines

Agency(ies)

UNIDO

Other Executing Partner(s)

Department of Trade and Industry

Executing Partner Type

Government

GEF Focal Area

Climate Change

Taxonomy

Focal Areas, Climate Change, Climate Change Mitigation, Sustainable Urban Systems and Transport, Influencing models, Strengthen institutional capacity and decision-making, Transform policy and regulatory environments, Stakeholders, Private Sector, Individuals/Entrepreneurs, SMEs, Capital providers, Civil Society, Non-Governmental Organization, Academia, Type of Engagement, Information Dissemination, Partnership, Consultation, Participation, Gender Equality, Gender results areas, Access to benefits and services, Gender Mainstreaming, Beneficiaries, Sex-disaggregated indicators, Capacity, Knowledge and Research, Capacity Development, Enabling Activities, Knowledge Exchange, Conference, North-South, South-South

Sector
Transport/Urban

Rio Markers
Climate Change Mitigation
Climate Change Mitigation 2

Climate Change Adaptation
Climate Change Adaptation 0

Submission Date
3/1/2022

Expected Implementation Start
7/1/2022

Expected Completion Date
6/30/2027

Duration
60In Months

Agency Fee($)
341,010.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount($)	Co-Fin Amount($)
CCM-1-2	Promote innovation and technology transfer for sustainable energy breakthroughs for electric drive technologies and electric mobility	GET	3,788,990.00	46,725,000.00
		Total Project Cost($)	**3,788,990.00**	**46,725,000.00**

B. Project description summary

Project Objective

Reduce GHG emissions from transport in the Philippines through e-mobility industry development

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 1: Enabling policy environment for e-mobility industry development	Technical Assistance	OUTCOME 1.1 Policy ecosystem and institutional framework for EV industry development in the Philippines strengthened	Output 1.1.1 Analysis of existing government EV policies and regulations in the Philippines with focus on industry development Output 1.1.2 Incentive framework for attracting investments in EV vehicles and infrastructure manufacturing with relevant regulatory framework analyzed and developed, promoting a gender responsive approach Output 1.1.3 Technical assistance for the formulation and implementation of the Comprehensive Roadmap on Electric Vehicles (CREV)	GET	730,000.00	2,600,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 2: Development of viable business models to increase demand for e-vehicles	Technical Assistance	Outcome 2.1 Bankable pipeline of e-mobility projects delivered	Output 2.1.1 EV market and global value chain analysis identifying opportunities for manufacturing of EVs leveraging Philippines comparative advantages prepared Output 2.1.2 EV deployment /integration plans in public transportation, logistics, private sector (corporate) with focus on long-term environmental sustainability prepared Output 2.1.3 Climate-smart and gender-responsive investment planning adopted by selected beneficiaries	GET	450,000.00	1,000,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 3: Demonstration and early deployment of innovative charging infrastructure and technology eco-investments	Investment	Outcome 3.1 De-risked investments in integrated e-mobility solutions covering RE, energy storage	Output 3.1.1 Pilot investments identified and prepared Output 3.1.2 Pilot investments demonstrating integration of EV with innovative charging infrastructure coupled with renewable energy and EV value chain improvements Output 3.1.3 Policy & regulatory support to Local Government Units (LGUs) with demonstration projects provided	GET	1,908,563.00	39,200,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 4: Scale-up of investments through partnerships, knowledge management and capacity building	Technical Assistance	Outcome 4.1 Partnerships promoted, knowledge shared with relevant stakeholders for promoting and accessing investments in low carbon technologies enhanced	Output 4.1.1 Knowledge exchange platforms and mechanisms strengthened with key national stakeholders based on lessons learned from industries and cities, with focus on women engagement Output 4.1.2 Linkages created with regional and global platforms on electric mobility as part of the Global Electric Mobility Program. Output 4.1.3 Training sessions for public and private sector on life cycle solutions for EVs and batteries	GET	400,000.00	1,450,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 5: Monitoring and evaluation	Technical Assistance	Outcome 5.1 Adequate monitoring of all project indicators	Output 5.1.1 Monitoring and mid-term project review Output 5.1.2 Project terminal evaluation	GET	120,000.00	250,000.00
				Sub Total ($)	**3,608,563.00**	**44,500,000.00**
Project Management Cost (PMC)						
				GET	180,427.00	2,225,000.00
				Sub Total($)	**180,427.00**	**2,225,000.00**
				Total Project Cost($)	**3,788,990.00**	**46,725,000.00**

Please provide justification

Not applicable

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
GEF Agency	UNIDO	Grant	Investment mobilized	83,950.00
GEF Agency	UNIDO	In-kind	Recurrent expenditures	300,000.00
Beneficiaries	General Santos City	In-kind	Recurrent expenditures	825,914.00
Beneficiaries	General Santos City	Public Investment	Investment mobilized	195,251.00
Beneficiaries	Subic Bay Metropolitan Authority	In-kind	Recurrent expenditures	185,692.00
Beneficiaries	Clark Development Corporation	In-kind	Recurrent expenditures	214,777.00
Beneficiaries	Baguio City	In-kind	Recurrent expenditures	524,581.00
Private Sector	Private companies	Equity	Investment mobilized	29,349,397.00
Private Sector	Development Bank of the Philippines, Land Bank of the Philippines	Loans	Investment mobilized	15,000,000.00
Civil Society Organization	U.P. Public Administration Research and Extension Services Foundation	In-kind	Recurrent expenditures	45,438.00
			Total Co-Financing($)	**46,725,000.00**

Describe how any "Investment Mobilized" was identified

Co-financing amounts in Philippine pesos have been converted to USD using one conversion rate of 1 USD = 51.216 PHP (UN Operational Rates of Exchange effective 1 February 2022). Discussions with relevant government agencies and private sector (e.g., local public transportation fleet operators, local electric vehicle manufacturers, charging point operators) on co-financing and co-investments have been held during the PPG phase. Table C includes confirmed co-financing (with letters provided) although additional identified co-financing where letter was not provided in time for submission is included in

description below. Government agencies: Department of Trade and Industry together with the Board of Investments are two executing agencies, therefore they have provided relevant in-kind contribution which is directly related to project execution (project coordination between governmental agencies, project steering committees, contribution to project policy work and market development work and analysis, participation in the capacity building activities). The Department of Energy is responsible for coordination of e-mobility development in the Philippines, through work on Comprehensive Roadmap on Electric Vehicles, development of charging infrastructure roadmap and relevant policy work supported by the World Bank. These activities contribute to the child project components 1 and 2. The DOE will be included in the Project Steering Committee. All these elements have been reflected in the in-kind contribution of the DOE. The Department of Transportation has a role in transport planning in the cities. It?s also the lead agency for the Davao High Priority Bus System project, which will be supported by this child project?s demonstration activity (Component 3) ? this is reflected in DOTr?s cash co-financing of the project. The entire HPBS project value is estimated at over 360 million USD, but as an investment co-financing only a portion reflecting cost of the e-bus infrastructure related to the child project demonstration activity has been indicated. DOTr will be engaged in policy work and the PSC, which have been reflected in the in-kind contribution of the DOTr. Civil Society Organization: The U.P. Public Administration Research and Extension Services Foundation has been selected as the Project Executing Entity and has committed 45,348 USD as its in-kind contribution to the project. Private sector: The Development Bank of the Philippines, Land Bank of the Philippines have both special loans programs for the modernization of public utility vehicles (including support to the e-jeepneys deployment), this co-financing in the form of loan is reflected in the table as part of the General Santos and Clark Freeport Zone pilot projects. Estimated private sector investment value is based on initial discussions with private sector companies and their planned investment in e-mobility: Stellar Mobility Transport Corp., RAMCAR New Business Ventures, Integrated Micro-Electronics, Inc., Global Electric Transport (GET) Philippines. All these companies expressed their interest and support to the project activities. The private sector co-financing covers also investment planned in e-jeepneys by the transport cooperatives from the Public Transport Alliance Group of GenSan. In the Davao City, a private company Aboitiz Davao Light and Power Company recently deployed 7 e-buses and is interested in the development of relevant charging infrastructure (including renewable-energy powered chargers), therefore it?s considered an important private sector partner providing investment co-financing to the project. In Clark Freeport Zone the Clark Development Corporation is partnering with private sector (SM Supermalls) to develop an intermodal terminal, which will be a demonstration site for the e-jeepneys and charging solutions. This terminal will be developed by the Premiere Clark Complex, Inc. and investment value is estimated at ca. 39 million USD. It is considered as part of private investment co-financing to the project.

D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
UNIDO	GET	Philippines	Climate Change	CC STAR Allocation	3,788,990	341,010	4,130,000.00
			Total Grant Resources($)		**3,788,990.00**	**341,010.00**	**4,130,000.00**

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount ($)

137,615

PPG Agency Fee ($)

12,385

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
UNIDO	GET	Philippines	Climate Change	CC STAR Allocation	137,615	12,385	**150,000.00**
				Total Project Costs($)	**137,615.00**	**12,385.00**	**150,000.00**

Core Indicators

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO?e (direct)	0	1381409	0	0
Expected metric tons of CO?e (indirect)	0	3086728	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO?e (direct)				
Expected metric tons of CO?e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO?e (direct)		1,381,409		
Expected metric tons of CO?e (indirect)		3,086,728		
Anticipated start year of accounting		2028		
Duration of accounting		10		

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)		57,945,609,454		

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
Solar Photovoltaic select		1.25		

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female		54,560		
Male		36,540		
Total	0	91100	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

Part II. Project Justification

1a. Project Description

changes in alignment with the project design with the original pif

Table 1. Changes to the project logical framework

Component	PIF	CEO Endorsement	Comment/Justification
Component 1.	Component 1. Integration of e-mobility in cities? energy planning and national e-mobility framework development	Component 1. Enabling policy environment for e-mobility industry development	Component rescoped based on change in line Ministry and reassessed needs
Outcome 1.1.	Outcome 1.1. Policy ecosystem and institutional framework for integrated energy-e-mobility planning at local level enhanced	Outcome 1.1. Policy ecosystem and institutional framework for EV industry development in the Philippines strengthened	Outcome 1.1. and 1.2. from PIF have been merged in the CEO endorsement document based on rescoping and reassessed needs
Outcome 1.2.	Outcome 1.2. E-mobility policy development enhanced		

Outputs	Output 1.1.1. Frameworks for local energy planning, incl. integration and optimization of e-mobility with renewables and energy storage in cities adopted Output 1.1.2. GHG accounting and management for transport in cities completed Output 1.2.1. National EV framework and charging infrastructure masterplan developed	Output 1.1.1. Analysis of existing government EV policies and regulations in the Philippines with focus on industry development Output 1.1.2. Incentive framework for attracting investments in EV vehicles and infrastructure manufacturing with relevant regulatory framework analyzed and developed with focus on women participation Output 1.1.3. Technical assistance for the formulation and implementation of the Comprehensive Roadmap on Electric Vehicles (CREV) delivered to DTI and relevant government stakeholders, with focus on women engagement Output 1.1.4. Technical assistance to EV technology standardization and establishment of Quality Infrastructure delivered to DTI/BOI	Component 1. outputs rescoped based on change in line Ministry and reassessed needs
Component 2	Component 2. Development of viable business models	Component 2. Development of viable business models to increase demand for e-vehicles	Language amended for improved specificity
Outcome 2.1	2.1. Bankable pipeline of e-mobility projects delivered	No change	n/a

Outputs	2.1.1. Training for stakeholders (utilities, private sector and other) on business models and creditworthiness 2.1.2. Delivery of projects pipeline assessments, financing options studies, and climate smart capital investment plans	Output 2.1.1. EV market and global value chain analysis identifying opportunities for manufacturing of EVs leveraging Philippines comparative advantages prepared Output 2.1.2. EV deployment /integration plans in public transportation, logistics, private sector (corporate) with focus on long-term environmental sustainability prepared Output 2.1.3. Climate-smart and gender responsive investment planning adopted by selected beneficiaries	Based on PPG phase and consultations, outputs were rescoped. PIF Output 2.1.1. is now reflected under Output 4.1.1 and Output 4.1.3. Output 2.1.2 has been modified to Output 2.1.3 with focus on climate-smart investment planning intact. New Output 2.1.1. reflects change in scope to identify EV market and global value chain opportunities for Philippines. Output 2.1.3 also amended to consider gender-responsiveness following Gender Analysis Report.
Component 3	Component 3. Demonstration and early deployment of innovative charging infrastructure and technology eco-investments	No change	n/a
Outcome 3.1	3.1. De-risked investments in integrated e-mobility solutions covering RE, energy storage and 2 wheelers	3.1. De-risked investments in integrated e-mobility solutions covering RE, energy storage	Based on PPG phase consultations and rescoping, focus on 2 wheelers was no longer present

Outputs	3.1.1. Optimization of urban-industrial energy systems and e-mobility solutions for public and private sector (3 wheeler) integrated with decentralized renewable energy and energy storage 3.1.2. Demonstration of business models for battery utilization in e-mobility and grid stability	Output 3.1.1. Pilot investments identified and prepared Output 3.1.2. Pilot investments demonstrating integration of EV with innovative charging infrastructure coupled with renewable energy and EV value chain improvements Output 3.1.3. Policy & regulatory support to Local Government Units (LGUs) with demonstration projects provided	Based on PPG phase and consultations, outputs were rescoped. It is necessary to support development of pilot investments (new Output 3.1.1) as well as in addition to the demonstrations (Output 3.1.2), develop policy and regulatory specific to LGUs around the demonstration projects (Output 3.1.3).
Component 4	Component 4. Scale-up of investments through partnerships, knowledge management and capacity building	No change	n/a
Outcome 4.1	Outcome 4.1. Partnerships promoted, knowledge shared for relevant stakeholders for promoting and accessing investments in low carbon technologies enhanced	No change	n/a

Output	Output 4.1.1. Knowledge exchange with key national stakeholders based on lessons learned from pilot cities Output 4.1.2 Linkages with regional and global platforms on electric mobility Output 4.1.3 Training sessions for the public and private sector on the integration of renewables and life-cycle challenges for EVs and batteries	Output 4.1.1. Knowledge exchange platforms and mechanisms strengthened with key national stakeholders based on lessons learned from industries and cities, with focus on women engagement Output 4.1.2. Linkages created with regional and global platforms on electric mobility as part of the Global Electric Mobility Program Output 4.1.3 Training sessions for public and private sector on life cycle solutions for EVs and batteries with focus on women participation	Output 4.1.1. has added ?industries? to reflect broader focus in stakeholders being targeted. Output 4.1.2 has been amended for consistency across UNIDO electric mobility projects. Gender responsive language has been added to Output 4.1.1 and 4.1.3 following results of Gender Analysis Report.
Component 5.	Component 5. Monitoring and Evaluation	No change	n/a
Outcome 5.1.	Outcome 5.1. Adequate monitoring of all project indicators	No change	n/a
Outputs	Output 5.1.1. Monitoring and mid-term evaluation Output 5.1.2 Terminal project evaluation	Output 5.1.1 Monitoring and mid-term project review Output 5.1.2 Project terminal evaluation	Output 5.1.2 changed for consistency with other UNIDO EV projects

Table 2.Changes to the project Budget Allocation

Component	**PIF**		**CEO Endorsement**		**Comment/Justification**
	GEF Budget	Co-financing	GEF Budget	Co-financing	

Component 1: Enabling policy environment for e-mobility industry development	730,000	2,600,000	No change	No change	Budget and co-financing was well scoped at PIF stage.
Component 2: Development of viable business models to increase demand for e-vehicles	450,000	1,000,000	No change	No change	Budget and co-financing were well scoped at PIF stage
Component 3: Demonstration and early deployment of innovative charging infrastructure and technology eco-investments	1,908,563	39,227,550	No change	No change	Budget and co-financing were well scoped at PIF stage
Component 4: Scale-up of investments through partnerships, knowledge management and capacity building	400,000	1,450,000	No change	No change	Budget and co-financing were well scoped at PIF stage
Component 5 Monitoring and Evaluation	120,000	250,000	No change	No change	Budget and co-financing were well scoped at PIF stage
Project management	180,427	2,225,000	No change	No change	Budget and co-financing were well scoped at PIF stage
Total	3,788,990	46,725,000	No change	No change	

a) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description);

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Human influence has changed and warmed the climate at a rate that is unprecedented in at least the last 2,000 years and observed warming is driven by GHG emissions from human activities, according to the 2021 Intergovernmental Panel on Climate Change (IPCC) report. Today human activities in the

transport sector are responsible for nearly one-quarter of global energy-related direct CO_2 emissions and is a significant contributor to air pollution. Oil has been the predominant energy source in the transport sector, providing 92% of final energy over the past decade. Increased demand for transport for people and goods and dependence on internal combustion engines (ICE) vehicles that run on oil products have called for more oil use and led to increased carbon dioxide (CO2) emissions.

Global and local objectives and commitments to improve climate and air quality underscore that the transport sector has a critical role to play and drive rapid change. Over the last decade momentum has accelerated to deploy a range of powertrains and alternative fuels. The 2010s were ground-breaking for the introduction of electric vehicles which have several benefits, including zero tailpipe emissions, better efficiency than internal combustion engine (ICE) vehicles and large potential for GHG emissions reduction when coupled with a low-carbon electricity generation sector. Provided the electricity used by an electric vehicle (EV) comes from renewable energy, electric mobility can be seen as a climate smart solution to decarbonizing the transport sector.

To date, countries have announced 100% zero-emission vehicle targets or the phase-out of internal combustion engine vehicles through 2050, or allowing new sales to be electric cars, in support of decarbonizing transportation sectors, meeting climate targets, promoting cleaner air as well as economic development. Environmental and sustainability objectives are major drivers behind countries? policy support in the development and deployment of electric powertrains for transport. Drivers for the uptake in the adoption of electric mobility also include reductions in battery prices, evolution in battery technologies, and developments in charging methods.

Although electric vehicles increase electricity demand, they reduce oil demand and greenhouse gas emissions. In 2019, there were about 7.2 million electric cars on the world?s roads, and these electric vehicles in operation globally avoided the consumption of almost 0.6 million barrels of oil products per day. In 2019, the electricity generation to supply the global electric vehicle fleet emitted 51 Mt CO2-eq, about half the amount that would have been emitted from an equivalent fleet of internal combustion engine vehicles, corresponding to 53 Mt CO2-eq of avoided emissions. GHG emissions savings from EVs are achieved thanks to the fact that the high energy efficiency of the electric powertrain combined with the current global carbon intensity of electricity systems emit less than ICEs in most countries.

Under the International Energy Agency (IEA)?s Sustainable Development Scenario which incorporates rapid grid decarbonization and the targets of the EV30@30 Campaign to collectively reach a 30% market share for electric vehicles in all modes except two-wheelers by 2030, the global electric vehicle stock (excluding two/three-wheelers) grows by 36% annually, reaching 245 million vehicles in 2030 ? more than 30 times above today?s level. In this scenario, the global electricity demand from EVs (including two/three-wheelers) increases nearly eleven-fold relative to 2019, to almost 1,000 TWh in 2030, but the global EV fleet displaces 210 Mtoe (4.2 million barrels a day) of gasoline and diesel in 2030, leading to 440 Mt CO_2-eq of avoided GHG emissions in 2030.

The IEA?s recent Net Zero by 2050 Roadmap provides a cost-effective and economically productive pathway to reach this formidable and critical goal of net zero emissions by 2050, setting out more than 400 milestones for what needs to be done, and when, to decarbonise the global economy in just three decades. Among these milestones include the massive deployment of electric vehicles. Staying on the path to net-zero emissions requires the massive deployment of all available clean energy technologies

such as renewables, electric vehicles and energy efficient building retrofits between now and 2030. Net zero means huge declines in the use of coal, oil and gas and that by 2045, new energy technologies will be widespread. This requires steps such as halting sales of new internal combustion engine passenger cars by 2035 and ensuring that most cars on the roads will be running on electricity or fuel cells by then.

To be a zero-carbon car from a life cycle perspective, a car will also need to be manufactured with zero material carbon emissions. The World Economic Forum?s recent report on Materials Roadmap for the Zero-Carbon Car states that the system-wide change is needed to also create circularity in the automotive sector. The report shows that a large proportion of automotive material carbon emissions could be abated by 2030 at no net-cost increase using technologies and practices that could be implemented today.

Despite the current growth in EV production and adoption, significant economic, regulatory and technical barriers exist to their mass adoption:

Economic barriers:

? EVs generally have higher price tags than conventional ICE vehicles.

? EVs face high costs of acquisition with fleet operators facing high capital costs to replace ICE vehicles with EVs (although EVs have very low operating costs)

Regulatory barriers:

? The characterization of EV charging as the sale of electricity or as a service.

? Tariff issues on charging stations and the cost-prohibitive prices on electricity.

Technical barriers:

? Charger standards and protocols not being standardized in countries resulting in lack of inter-operability.

? Grid stability related issues due to normal EV charging behaviour place extra load on the grid during peak hours.

? Battery performance issues with respect to safety at high temperatures and the life cycle of the battery.

Information barriers:

? General awareness among policy makers, the private sector and the public about EVs, their performance, as well as incentives and regulations in place for their use

? Range anxiety due to EVs having limited range compared to ICE cars based on the size of the battery.

b) the baseline scenario and any associated baseline projects,

Baseline scenario

According to the 2000 national GHG inventory, the energy sector accounted for 55% of the country?s total GHG emissions of 126.879 Mt of CO_2eq (excluding LULUCF). Within the energy sector, the transport sector was responsible for 37% of the sector?s total emissions, or 20.44% of the total emissions, which is equivalent to 25.937 Mt CO_2eq. It was estimated that the transport sector emitted 34.7 MtCO_2eq in 2016,[1][1] equivalent to an annual growth rate of 1.84% between 2000 and 2016.

Prior to the COVID-19 pandemic, the transport sector accounted for 27-28% of the total GHG emissions from the energy sector and was growing at 3.51% per year in 2017-2019.[2][2] With the pandemic in 2020, GHG emissions from the sector declined by 23% in 2019-2020 and its share dropped to 23% but remains the second largest source of GHG emissions after power generation. Asian Development Bank (ADB) projects that annual emissions from road transport will increase from 48.8 MtCO2e by 2030 to 139.9 MtCO2e by 2050 if no interventions will be undertaken to curb emissions.[3][3]

The Philippines Nationally Determined Contribution (NDC), which covers unconditional and conditional contributions, includes transport as one of the key elements of the Philippines contribution[4][4]. The Philippine National Transport Policy envisions ?a safe, secure, reliable, efficient, integrated, intermodal, affordable, cost-effective, environmentally sustainable, and people-oriented national transport system that ensures improved quality of life of the people.? The policy explicitly states that ?The use of clean and energy-efficient transport technology/fuels such as biofuels, natural gas, liquefied petroleum gas, hybrid, electric and Euro IV or higher compliant vehicles, will be promoted.? The National Climate Change Action Plan (NCCAP) 2011-2028 includes environmentally sustainable transport (EST) among the key outcomes of Sustainable Energy, which is a key strategic priority. This calls for the integration of EST and fuel conservation in national and local development plans as well as development of innovative financing mechanisms. One of the strategic areas of intervention is low-emission vehicles including e-vehicles (EVs).

In 2017, the Philippines announced its Public Utility Vehicle Modernization Program (PUVMP), which seeks to replace and modernize the Philippines 200,000 public utility vehicles. A target of 10% of the 200,000 vehicles being electric has been set for the program. The program also aims to have 70% of the units supplied by local vehicle makers. In the meantime, the Department of Trade and Industry (DTI) and Electric Vehicle Association of the Philippines (EVAP) are developing a comprehensive roadmap for the EV industry that sets out the targets and strategies for the industry including the goal of making the Philippines the third auto manufacturing hub in the Association of Southeast Asian Nations (ASEAN) region and a global manufacturing hub for low-cost transportation and commercial vehicles. The roadmap?s target is 21% EV share in total vehicles by 2030 (largely public utility vehicles) and 50% by 2040.[5][5]

Earlier, Executive Order 226 ?The Omnibus Investments Code? (1987) granted tax holiday and excise tax incentives for the importation of capital equipment to manufacturers of EV parts and components and operators of charging stations. Executive Order 488 (2006) modified the rates of import duty on components, parts, and accessories for the assembly of hybrid, electric, flexible fuel, and compressed natural gas motor vehicles to zero rates, allowing EV manufacturers to import components at more affordable prices. Sec. 45 of the Tax Reform for Acceleration and Inclusion (TRAIN) Law 2018 or RA 10963, amending Sec. 149 of the National Internal Revenue Code (NIRC), provides that hybrid vehicles shall be subject to 50% of the applicable excise tax rates on automobiles, and purely electric vehicles and pick-ups shall be exempt from excise tax on automobiles. [6][6] As to fuel, Sec. 33 of the TRAIN Law, amending Sec 108 B (7) of NIRC, states that the sale of power or fuel generated through renewable sources of energy and other emerging energy sources using technologies such as fuel cells and hydrogen fuels shall be subject to 0% rate of VAT. In 2019 the Sub Committee on Electric Road Vehicles released the PNS-ISO 6,469 series of standards under the general title Electrically Propelled Road Vehicles ? Safety Specification to assure the safety of EVs. Other standards covering charging systems, lithium-ion battery packs, plugs, socket-outlets, vehicle connectors and vehicle inlets and vehicle grid communication interface also were introduced.

As of 2019, close to 12,000 EVs had been registered with the Land Transportation Office (LTO) [7][7] and as of 2020 the number of key industry players had constituted 54 EV manufacturers (e-trikes and e-jeepneys) and importers, 11 parts and components manufacturers (including seven local lead acid battery manufacturers and battery assemblers[8][8]), and 18 dealers and traders[9][9]Of the 11,950 registered EVs as of 2019, 56.8% (6,783 units) were electric motorcycles, 35.6% (4,260) were electric tricycles, 5% (595) are e-jeepneys, and the rest are e-buses (3)[10][10], e-trucks (11), e-SUVs (38), and e-cars (260).[11][11] In any case, these numbers remain insignificant compared to the over 11.8 million registered fossil fuel-fed or internal combustion engine (ICE) vehicles as of December 2020[12][12]. Also, of several local e-jeepney manufacturers that were active four years ago, only one is left still producing units. This is due to several factors, including higher local production cost, strong competition from imported units, lack of mass demand, weak local supply chain, and limited design flexibility and access to technology, among several other factors.[13][13] EVAP forecasts an annual growth rate of 8-12%, which is expected to generate sales of 200,000 units by 2024.[14][14]

Yet, a significant barrier to adoption of EV vehicles is charging infrastructure, which is a key component of a successful EV ecosystem. In 2018, the Philippines had only 19 charging stations and an

EV to charging points ratio still below the industry norm of 10-25 EVs per charging point.[15][15] This number increased to an estimated 158 chargers and/or swapping stations distributed through-out the country as of 2021.[16][16] QEV also had a plan to install 200 charging stations nationwide, in SM malls and Shell stations.[17][17] The Department of Energy (DOE) Department Circular No. DC2021-07-0023 *Policy Framework on the Guidelines for the Development, Establishment, and Operation of Electric Vehicle Charging Stations in the Philippines* (?EVCS Policy Guidelines?), issued on 9 July 2021, provides the guidelines for establishing and operating EV charging stations. One particular challenge the DOE is also addressing is the development of a common charging protocol for EVs. The DOE requires support in the development of full protocol study and hopes to develop one charging protocol for the country with all imported e-vehicle companies required to adhere to it.

Meanwhile, Senate Bill 1382 pending in Congress also seeks to regulate ?the manufacture, importation, installation, utilization, and regulation of electric vehicles, charging stations, parts and components, and batteries.?[18][18] SB 1382 provides for the development of a Comprehensive Roadmap on Electric Vehicles (CREV), among other requirements towards the development of EVs in the country. The CREV is a national plan to accelerate the electrification of transportation in the country. To be incorporated in the Philippine Energy Plan and National Transport Policy, the CREV will have four components: electric vehicles and charging stations, manufacturing, research and development, and human resource development. The proposed law calls an EVCS operator as ?charging station service provider? that should be accredited by the DOE, which is assigned by the law as the primary agency towards the development and updating of the CREV. The proposed law also assigns the DTI as the primary agency towards the industry development of EVs, charging stations, parts and components, and batteries, and the development and updating of the manufacturing and human resource development components of the CREV. On the other hand, the Department of Transportation (DOTr) is assigned as the primary agency in EV demand generation, the regulation, registration, and franchising of EVs, and development of the EV and charging stations component of the CREV. The Department of Science and Technology (DOST) is assigned with the development and updating of the research and development component of the CREV.

Historically, the Philippines has also grappled with poor infrastructure and financing for new projects. The country was ranked 97th in the World Economic Forum?s 2017 competitiveness report while the UN Economic and Social Commission for Asia and the Pacific's Asia-Pacific Countries with Special Needs Development Report 2017 ranked the Philippines 5th in physical infrastructure among South East Asian Countries. This lack of infrastructure has discouraged foreign investment and in turn economic and social development. Effort has also been made to bridge the infrastructure investment gap using public-private partnership schemes at the local level however many cities struggle capacity restraints and lack proper competencies.

Local government units (LGUs) consist of various sub-national administrative units including the region, province, city, municipality, and barangay. According to the Local Government Code of the

Philippines, the barangay acts as the primary implementing unit of government policies, plans, programs, projects, and activities. Municipalities also coordinate and deliver primary services within their territorial jurisdictions. The province serves as a dynamic mechanism for developmental processes and effective governance of other LGUs within its territorial jurisdiction.

The Local Government Code of 1991 has given greater autonomy to LGUs with the ultimate of aim of increasing effectiveness and efficiency in the delivery of basic economic, social and environmental services to peoples and communities. Consequently, including recently, the roles of LGUs have been expanded to playing active roles in the achievement of national energy and climate goals. As shown earlier, the Climate Change Act of 2009, the Disaster Risk Reduction and Management Act of 2010, and the Energy Efficiency and Conservation Act of 2019 all give specific roles to LGUs in achieving the objectives of these laws, including particularly mainstreaming, and integrating climate mitigation and adaptation, disaster risk reduction and management, and energy efficiency and conservation in local government planning

Baseline initiatives and projects (national level)

Government initiatives

So far in the Philippines, some actions have been taken for the development of e-mobility on a wider scale. These developments include the Department of Energy implemented ?E-Trike Project?, which aimed to deploy 100,000 e-trikes nationwide to replace fossil fuel ones. The project was supported by the Asian Development Bank (ADB) and the Clean Technology Fund (CTF) with 500 million USD, however, it did not yield satisfying results in terms of successful business models.

Also, improvement of the road-based public transport in the Philippines was targeted by ?Jeepney+ NAMA? which included transport policy improvements and consolidation and modernization of the jeepney fleet (EURO4 diesel and e-buses, mini-buses and ?modern jeepneys?), as well as regulation of the jeepney market. In 2018 DOTr started deployment of modern e-buses in Metro Manila as a part of the government?s public utility vehicle modernization program. DOE has also been working on fuel diversification strategies for transport in the Philippines, which included e-vehicles.

Currently baseline initiatives include:

Public Utility Vehicle Modernization Program (PUVMP)[19][19]

The PUVMP was launched in 2017 and is based on DOTr Department Order (DO) 2017-011 ?Omnibus Guidelines on the Planning and Identification of Public Road Transportation Services and Franchise Issuance? and the Joint Memorandum Circular 2017-001 of the Department of Interior and Local Government (DILG) and the DOTr Guidelines on the Preparation and Issuance of Local Ordinances, Orders, Rules and Regulations Concerning the Local Public Transport Route Plan?.[20][20] The DOTr DO lays out the policies and hierarchy for the application of appropriate modes of public

transportation to be applied in a specific corridor or route. Priority is given to buses, followed by minibuses, jeepneys/UV Express, then Filcabs. The Joint DILG/DOTR Memorandum Circular provides the guidelines for LGUs in crafting the local public transport route plan (LPTRP). The PUVMP ?envisions a restructured, modern, well-managed and environmentally sustainable transport sector where drivers and operators have stable, sufficient and dignified livelihoods while commuters get to their destinations quickly, safely and comfortably.?[21][21] The PUVMP?s overarching goal is to reduce the reliance on private vehicle use towards environmentally sound mobility solutions which includes high quality public transportation systems.[22][22]

The PUVMP aims to transform the Philippine public transportation sector through its ten components, namely: (1) Regulatory Reform; (2) LGU Local Public Transport Route Planning; (3) Route Rationalization; (4) Industry Consolidation; 5) Fleet Modernization; 6) Financing; 7) Vehicle Useful Life Program; 8) Initial Implementation; 9) Stakeholder Support Mechanism; and 10) Communication.[23][23]

The PUVMP sets new guidelines for the issuance of franchise for road based public transport services. LGUs are now required to submit a LPTRP as a pre-requisite for granting new PUV franchises within their jurisdiction. The LPTRP should be based on route rationalization studies, which will determine the appropriate mode, quantity, and service characteristics of the public transport service in each corridor to ?make the routes more responsive to passenger demand and ensure that the hierarchy of roads and modes of transportation are followed.?[24][24] As of January 2020, only six LGUs (including General Santos City) had been issued notice of compliance, while only 20.63% (325 out of 1,575) of LGUs all over the country had submitted their respective LPTRPs.[25][25]

A major component of PUVMP is fleet modernization based on new vehicle standards and design that should make PUVs environmental-friendly, safe, secure, and convenient. In this regard, the PUVMP ?adopts a Vehicle Useful Life Program which consists of policies and programs that deal with different stages of the vehicle?s useful life. This includes the provision of a Motor Vehicle Type Approval System for new vehicles, maintenance programs and improvement of Motor Vehicle Inspection System and a Scrappage Program for end-of-life vehicles.? The PUVMP seeks to phase out old PUVs that are at least 15 years old[26][26] and aims to deploy around 100,000 e-trikes annually, 200,000 e-jeepneys or EURO-4 jeepneys in the next six years.[27][27]

Through LTFRB Memorandum Circular No. 2019-013, the program encourages industry consolidation and forming of strategic alliances among transport groups (this is through LTFRB Memorandum Circular No. 2019-013).[28][28]

In support of the program, special loan programs have been launched by the LANDBANK and the Development Bank of the Philippines (DBP) (to finance the acquisition of modern PUVs),[29][29] technical assistance have been provided to stakeholders, and pilot projects have been implemented. For example, to support operators and owners adopting the PUVMP, the government gives ?5-6-7-8? financial incentives, including 5% equity subsidy for each unit of vehicle, 6% interest rate per annum, seven (7) years repayment period, and maximum equity subsidy of PHP 80,000 (USD 1,500).[30][30] General Santos City was a pilot for the implementation of the PUVMP, including the preparation of LPTRP and deployment of e-jeepneys which are financed by DBP.[31][31] A bill has been filed in Congress to institutionalize the PUVMP[32][32] and ensure its continuity.[33][33]

In support of the PUVMP, the Joint DOE and DBM Budget Circular for the procurement of alternative fuel vehicles (AFVs) by NGAs, LGUs and government-owned and controlled corporations (GOCCs) pursuant to Section 36 of 2017 GAA, signed on July 11, 2017, mandates that 10 percent of total service fleet of NGAs, LGUs and GOCCs shall use more energy efficient and environment friendly such as electric vehicles, LPG and natural gas.

LTO AO 2021-039 ?Consolidated Guidelines in the Classification, Registration and Operation of all Types of Electric Vehicles? (published 11 May 2021) consolidates various AOs implemented since 2006, provides clarification on the rules governing the different categories of EVs, and provides the framework for the registration of electric vehicles.

Comprehensive Roadmap on Electric Vehicles (CREV)[34][34]

Senate Bill 1382 has been filed in the Philippine Congress towards the development of a CREV, among other requirements towards the development of EVs in the country. The CREV is a national plan to accelerate the electrification of transportation in the country. To be incorporated in the Philippine Energy Plan and National Transport Policy, the CREV will have four components: electric vehicles and charging stations, manufacturing, research and development, and human resource development. The CREV will have a work plan that shall be updated annually.

DOE is the primary agency towards the development and updating of the CREV. The proposed law also assigns the DTI as the primary agency towards the industry development of EVs, charging stations, parts and components, and batteries, and the development and updating of the manufacturing and human resource development components of the CREV. On the other hand, DOTr is assigned as the primary agency in EV demand generation, the regulation, registration, and franchising of EVs, and development of the EV and charging stations component of the CREV. DOST is assigned with the

development and updating of the research and development component of the CREV. HB 10213 Electric Vehicle Industry Development Bill is a parallel bill filed in the House of Representatives.

In parallel, the DTI and EVAP are developing a comprehensive roadmap for the EV industry that sets out the targets and strategies for the industry including the goal of making the Philippines the third auto manufacturing hub in the ASEAN region and a global manufacturing hub for low-cost transportation and commercial vehicles. The roadmap?s target is 21% EV share in total vehicles by 2030 (largely public utility vehicles) and 50% by 2040.[35][35]

Electric Vehicle Charging Stations[36][36]

EV charging infrastructure is a key component of a successful EV ecosystem. As of 2021, there were an estimated 158 chargers and/or swapping stations distributed through-out the country.[37][37] These consist mostly of lower capacity alternating current (AC) chargers, which are mostly stationed in private organizations which chose to adopt electric vehicles as part of their sustainability efforts. In addition, QEV plans to install charging stations nationwide, targeting 100 stations in SM malls and 100 stations in Shell outlets by 2022.[38][38]

DOE Department Circular No. DC2021-07-0023 *Policy Framework on the Guidelines for the Development, Establishment, and Operation of Electric Vehicle Charging Stations in the Philippines* (?EVCS Policy Guidelines?), issued on 9 July 2021, provides the guidelines for establishing and operating EV charging stations.

The guidelines define an EVCS operator as any person or entity who owns and operates EVCS for private, semi-public and public use, which may be installed in private or public buildings, establishments, and liquid fuel retail outlets (petroleum products service stations). The EVCS operator may open the use of the EVCS facility to the public for a fee or for its own private use. In addition, electricity distribution utilities may also engage in the EVCS business provided they comply with the applicable rules and guidelines on the business separation and unbundling of the Energy Regulatory Commission.

In addition to the EVCS Policy Guidelines, an EVCS operator shall also comply with the Building Code of the Philippines, the Philippine Electrical Code, and the Guidelines on Energy Conserving Design of Buildings. These laws and regulations provide for the minimum requirements for the location and installation of EVCS and its electrical-related components, ensuring the safety, accessibility, operability, sustainability, and integrity of the EVCS. As regards safety in particular, the EVCS systems and components should also comply with relevant Philippine National Standards (PNS) (see also below). And all components of the EVCS shall be certified with a Philippine Standard license and/or by an Import Commodity Clearance Certificate Compliance.

Additionally, to ensure the EVCS is being operated safely, the EVCS should be periodically maintained and assessed by a duly licensed professional or organization, commencing a year after its operation or connection to the grid or any supply of electricity. The EVCS operator, classified as either semi-public or public, is also enjoined to comply with other reportorial requirements, such as quarterly reports of the actual energy consumption of the EVCS.

Senate Bill 1382 mentioned above also seeks to regulate ?the manufacture, importation, installation, utilization, and regulation of electric vehicles, charging stations, parts and components, and batteries.?[39][39] The proposed law calls an EVCS operator as ?charging station service provider? that should be accredited by the DOE, which is assigned by the law as the primary agency for the promotion and adoption of EVs and development of charging infrastructure and regulation of charging stations and charging stations service providers. As the main enforcing authority of the National Building Code and the Philippine Electrical Code, the LGUs shall issue Certificate of Inspections for charging stations.

Product Standards[40][40]

To support the government?s drive to modernize the public transport system, the Department of Trade and Industry?s Bureau of Philippine Standards (DTI-BPS) has developed several standards that cater to the emerging market of electric vehicles (EVs).

Through the BPS Technical Committee on Road Vehicles (BPS/TC 44)?s Sub Committee on Electric Road Vehicles (SC 21), that was upgraded to the Technical Committee on Electrically Propelled Vehicles (BPS/TC 89), standards focused on ensuring safety and road performance of electric vehicles were developed. The SC 21 under the recommendation of TC 44 released the Philippine National Standard / International Organization for Standardization (PNS ISO) 6469 series of standards under general title electrically propelled road vehicles ? Safety Specifications to assure the safety of EVs. These 6469 series of standards include:

PNS ISO 6469-1:2012 Electrically propelled road vehicles ? Safety Specifications ? Part 1: On-board rechargeable energy storage system

- ? PNS ISO 6469-2:2012 Electrically propelled road vehicles ? Safety Specifications ? Part 2: Vehicle operational safety means and protection against failures
- ? PNS ISO 6469-3:2012 Electrically Road vehicles ? Safety Specifications ? Part 3: Protection of persons against electric hazards
- ? PNS ISO 6469-4:2012 Electrically propelled road vehicles ? Safety Specifications ? Part 4: Post Crash electrical safety

The PNS defines an Electric Vehicle as any vehicle propelled by an electric motor drawing current from a rechargeable storage battery or from other portable energy storage device made for use on public streets, roads, or highways. Through these standards, specific areas of these electrically

propelled road vehicles, electric propulsion systems, related components and their vehicle integration and their corresponding power and charging systems were studied, reviewed, and developed.

To further the advancement of standards on electric vehicles, the BPS has also adopted International Standards (IS) from the International Organization for Standardization (ISO), particularly ISO/TC 22/SC37 ? Electrically Propelled Vehicles, and International Electrotechnical Commission (IEC), particularly IEC/TC 69 ? Electric Road Vehicles and Electrical Industrial Trucks. Some of these international standards (including on EV safety specification, fuel cell road vehicles, hybrid vehicle, charging systems, lithium-ion battery packs, plugs, socket-outlets, vehicle connectors and vehicle inlets, and vehicle grid communication interface) adopted as PNS are shown below.

Table 3. International standards adopted as Philippine National Standards

Standards	Description
PNS IEC 61851-1:2019	Electric vehicle conductive charging system ? Part 1: General requirements
PNS IEC/TS 62840-1:2019	Electric vehicle battery swap system ? Part 1: General and guidance
PNS IEC 62840-2:2019	Electric vehicle battery swap system ? Part 2: Safety requirements
PNS ISO/TR 13062:2019	Electric mopeds and motorcycles ? Terminology and classification
PNS ISO 13063:2019	Electrically propelled mopeds and motorcycles ? Safety specifications
PNS ISO 13064-1:2019	Battery-electric mopeds and motorcycles ? Performance ? Part 1: Reference energy consumption and range
PNS ISO 13064-2:2019	Battery-electric mopeds and motorcycles ? Performance ? Part 2: Road operating characteristics

Source: Quoted by SERP-P (pids.gov.ph)

As of end-2021, the BPS has developed a total of 68 PNS on EVs, including mostly adoption of international standards (IEC/ISO/UN Regulations) as national standards. These standards include general reference standards on electrically propelled vehicles, EV components (32 standards), battery electric mopeds and motorcycles, fuel cell road vehicles, hybrid EVs, road vehicles and functional safety, and PUVs.[41][41] In line with the EE&C Act 2019, the DOE also plans to develop minimum energy performance standards (MEPS) for EV and EVCS.[42][42]

Incentives and Subsidies

The Philippine government has instituted various incentives that promote local EV and parts manufacture and encourage increased use of EVs in the country.[43][43] Under the Investment Priorities Plan of the BOI and the Inclusive Innovation Industrial Strategy (i3S) of the DTI entities that venture in EV manufacture are already offered fiscal and non-fiscal incentives.[44][44] One of the preferred activities supported by the IPP 2020 is the establishment of charging/refueling infrastructure for alternative energy vehicles.

EO 488 (2006) imposes zero tariffs on components, parts, and accessories for the assembly of hybrid, electric, flexible fuel, and CNG motor vehicles. The Green Jobs Act of 2016 (RA 10771), which considers EV and parts manufacture as source of green jobs, provide tariff exemption on capital equipment and 50% deduction on expenditures on related skills and R&D to the corporate income tax.

For EV manufacturers locating in special economic zones (like Subic and Clark Free Port Zones), the Special Economic Zone Act of 1995 (RA 7916) provides income tax holiday, reduced income tax rates, deduction of training expenses from corporate income tax, and various exemptions (importation tax and duties, VAT, local government taxes and fees)

Sec. 45 of the Tax Reform for Acceleration and Inclusion (TRAIN) Law 2018 or RA 10963, amending Sec. 149 of the National Internal Revenue Code (NIRC), provides that hybrid vehicles shall be subject to 50% of the applicable excise tax rates on automobiles, and purely electric vehicles and pick-ups shall be exempt from excise tax on automobiles. [45][45] As to fuel, Sec. 33 of the TRAIN Law, amending Sec 108 B (7) of NIRC, states that the sale of power or fuel generated through renewable sources of energy and other emerging energy sources using technologies such as fuel cells and hydrogen fuels shall be subject to 0% rate of VAT.

The Corporate Recovery and Tax Incentives for Enterprises (CREATE) Law (or RA 11534), which took effect in April 2021, seeks to lower income tax rates and rationalize fiscal incentives to further attract local and foreign investments. If EV manufacturing is included in the Strategic Investment Priority Program (SIPP) of the bill, it will enjoy the following:[46][46]

- Income Tax Holiday (ITH) granted for a period of 4 to 7 years, followed by the Special Corporate Income Tax Rate (SCIT) of 5 percent on gross income earned (GIE), in lieu of all national and local taxes, or enhanced deductions (ED) for 5 or 10 years.
- Duty exemptions on importation of capital equipment, raw materials, spare parts, or accessories value added tax (VAT) exemption on importation and VAT zero-rating on local purchase (partly vetoed by the President).
- New businesses and preferred activities in the SIPP, including charging infrastructure and support to alternative energy vehicles can also enjoy the incentives provided by the CREATE Law.

The above-mentioned SB 1382 also provides fiscal incentives for the manufacture, importation, and utilization of EVs.[47][47] For example, the manufacture and assembly of EVs, charging stations, and parts and components, as well as the establishment and operation of EVCs would be included in the annual Investments Priorities Plan of the BOI and would be entitled to incentives under the Omnibus Investment Code. The manufacturing component of the proposed CREV under the bill shall also include an EV incentives strategy (EVIS). The EVIS ?is an industry-specific, targeted, time-bound, performance-based, and transparent fiscal and non-fiscal support program for the transport sector to enable its transition from traditional motor vehicles to electric vehicles. The strategy focuses on developing the entire e-vehicle ecosystem through launching information, education, and campaigns, incentivizing industrial development, establishing and enforcing standards and regulations, promoting research and development, and revitalizing human resource development through upskilling and reskilling.?[48][48] The EVIS aims towards narrowing the cost between EVs and traditional vehicles and increasing local production of EVs. In this regard, the bill also encourages GFIs to provide concessional financial packages to entities engaged in any business activities related to the manufacture, importation, and utilization of EVs.

Research and Development

DOST runs grant R&D programs, and among the priority areas under these programs is E-mobility and Smart Transport. The grant programs include the following:[49][49]

a) Grants In Aid, traditionally catering only to academe, has been recently opened to the private sector, including the local EV manufacturing industry.

b) Collaborative Research and Development to Leverage Philippine Economy (CRADLE) provides up to US$25 million grant funds to joint academe and industry research initiatives.

c) Niche Centres for the Region for R&D (NICER) aims to address the discrepancy in access to R&D funding among the regions. Through the program, qualified higher education institutions in the regions are provided with grants so they can undertake quality research directed at promoting regional development with their existing capabilities and resources. To date, a Battery Research Centre and Electric Tricycle Research Centre has been established under the program.

d) Business Innovation through Science and Technology (BIST) aims to provide technical assistance to local private companies for the acquisition of strategic and relevant technologies so that they can undertake key research and development initiatives. The assistance may only be used to purchase high tech equipment or secure technology licensing or patent rights and will have to be refunded to DOST at zero interest.

The DOST in partnership with the University of the Philippines funded the Charging in Minutes (CHARM) Project that involved ?the development of a rapid charging system and a smart battery

control unit that implements a communication protocol with the charger to ensure battery integrity and safety.?[50][50]

The DOST, particularly its Philippine Council for Industry, Energy and Emerging Technology Research and Development (DOST-PCIEERD), also has tripartite cooperation with the DOE and University of the Philippines - Electrical and Electronics Engineering Institute (UP-EEEl) called the Determination of Optimal Placement of EVCS in a Local Public Transportation System.[51][51] Signed on 28 December 2020 and under the framework of the their joint Science and Technology for Energy Application (STEA) program, the collaboration also intends to identify appropriate emerging EV technologies to support the needs of the industry and EV roadmap.of EVs and HEVs and to develop a national certification level II (NC II) electrical vehicle technicians? course with TESDA.

E-mobility and Tourism

The tourism industry offers itself as a niche market for EVs in the country.[52][52] Latest available data on hand shows that the industry players (hotels and other accommodations, transport and tour operators, travel agencies) had a fleet size of 11,052 vehicles nationwide as of 2014, of which cars comprised 43%, bus and minibus 32%, and vans 15%.[53][53] Transport operators and tour and travel agencies accounted for 80% of the ownership of these vehicles.[54][54]

Department of Tourism DO 2019-010, amending DO Nos. 2011-018 and 2017-011, shall include electric tricycles in the coverage of Tourist Transport Services, ?to promote new and more sustainable transportation solutions, and to support the country?s tourism industry?.[55][55] In other words, transport services between two or more tourist destinations (as defined in DO 2011-018) shall consider in addition to bus coaches, bus mini-coaches, Asian utility Vehicles (AUV) electric tricycles. Provided however, that electric tricycles are only allowed to operate in tourism areas and/or zones as defined by the Department of Tourism or Tourism Infrastructure and Enterprise Zone Authority. Similarly, body make of tourist transport services (as defined in DO 2017-011) shall include, in addition to Bus Coach, bus Mini-Coach, Coaster, Van or Car, and/or SUV, electric tricycles. Provided, however, that these services are endorsed by DOT or TIEZA for franchise application.

Other foreign-assisted baseline projects

DOE/ADB E-trike Project

Originally targeted to deploy 100,000 e-trikes to LGUs, the project was scaled down and donated and delivered 3,000 e-trikes to selected LGUs in Metro Manila, selected municipalities and cities elsewhere in the country, and selected national government agencies, including DOE, DOTr, DOT, DOST, and the AFP. The USD45 million project was largely funded through a loan from the ADB.[56][56]

The 3,000 e-trikes, which cost USD10,249 per unit and were all powered by built-in lithium-ion batteries, ?are primarily being used for public transportation in major cities and tourism sites to increase visibility and promote public awareness on the advantages of this technology.?[57][57] During the COVID-19 pandemic, the e-trikes have been used for distribution of relief goods and food packages, transport of frontliners, health workers, and patients for dialysis and chemotherapy, street disinfection, ECQ monitoring, and other social amelioration and information dissemination activities.

Executed through 37 Deeds of Donation with LGU and NGA beneficiaries, the project required recipients to develop a deployment plan, including establishment of charging infrastructure and a mechanism for collecting and disposing of passenger side cars and batteries of existing tricycles and spent lithium-ion batteries. The deliveries of the e-trikes were accompanied by operations and maintenance workshops and training of prospective drivers and technicians.

Proposed UNIDO child project builds on the experience of the ADB-supported project and addresses identified gaps ? mainly in developing successful business models for EV uptake at the local level (including deployment of relevant charging infrastructure and building capacity of vehicles operators to fully utilise advantages of EVs).

DOTr /UNDP Low Carbon Urban Transport Project

GEF6 funded project Promotion of Low Carbon Urban Transport Systems in the Philippines, implemented by UNDP, which has been structured to create an enabling environment for the commercialization of low carbon urban transport systems (e.g. electric, hybrid vehicles and AGT systems) in the Philippines. This project targets mass public transport vehicles such as electric and hybrid buses, e-jeepneys. It focuses mainly on the institutional capacity building and demonstration activities in public transport (through planning; feasibility studies for the mass transit system and introduction of at least 15-20 low carbon transport modes such as hybrid and e-buses). It also foresees the development of charging infrastructure only on a small scale (installation in 2 pilot cities).

The project is general and cross-cutting, focuses on the development of local planning capacity and technical knowledge for e-mobility as well as deployment on e-vehicles for public transportation with supporting infrastructure and necessary standards.

Proposed UNIDO child project is complementing the UNDP project by focusing on charging infrastructure (powered by renewables) and the development of business capacities of the local private sector, and utilities in the context of e-mobility development.

DOE/WB Electric Mobility Development in the Philippines

The World Bank/DOE Project will promote low-carbon mobility and clean energy transition in the Philippines through the growth of the e-mobility sector. The project involves the following work streams and tasks:

Work Stream 1: E-mobility Development Assessment, that will review e-mobility global trends and conduct a market and regulatory/policy assessment of transport and energy impacts of e-mobility in the Philippines.

? Task 1.1 ? International Experience Overview in Initiating E-Mobility Development

? Task 1.2 ? Policy and Regulation Gap Analysis

? Task 1.3 ? Demand Side Analysis

? Task 1.4 ? Supply Side Analysis

Work Stream 2: Support development of a National E-Mobility Roadmap, by providing technical advice and practical recommendations to assist the GoP to develop a roadmap to adopt e-mobility

Work Stream 3: Development of Coherent Downstream E-Mobility Deployment Strategy for Metro Manila BRT Line 1project.

? Task 3.1: Scoping of pilot implementation of an electric (low-carbon) bus fleet MMBRT Line 1);

? Task 3.2: Implementation plan for the electric bus fleet

The outputs of this project will directly feed into policy work planned under Component 1 of this child project. Also, analysis planned in component 2 will utilize results of the World Bank-supported project.

DOE Development of the Philippine e-Mobility and Battery Manufacturing Value Chain Analysis and Strategy Development, Power System and Charging Infrastructure Development Analysis

The aim of this DOE-funded project is to carry out background data analysis and provide technical inputs as DOE crafts the national e-mobility roadmap. The study involves three major tasks: (1) EV manufacturing value chain analysis and strategy development; (2) electricity supply and distribution grid assessment; and (3) charging infrastructure development assessment and strategy. The study has a budget of PHP4.5 milllion.

UNE/GIZ Project

Integrating Electric 2&3 Wheelers into Existing Urban Transport Modes in Developing and Transitional Countries, funded by GIZ, implemented by the UN Environment. The project focuses on planning and project baseline setting ? including the characterization of fleets, existing policies as well as other issues such as the state of the art of the electric grid; policy design and piloting ? including stakeholder mobilization, awareness-raising, technical assessments, pilot projects, policy development etc.; knowledge management and policy replication ? through communications, global studies, training tools development, policy best practices etc. On 26 November 2019 the pilot with the Philippine Post

Corporation (PHL Post), TAILG and Clean Air Asia was launched during a Press Conference in Pasig City, Philippines.

Proposed UNIDO child project will build on results of technical assessments and policy work. Experiences of the pilot activities in Pasig city will be utilised in the detailed design of pilot activities for the UNIDO child project.

EC Solutions Plus

European Commission Solutions Plus Programme aims at developing integrated urban electric mobility solutions in the context of the Paris Agreement, the sustainable development goals and the New Urban Agenda. This programme will be closely linked with UN Environment global e-mobility programme through cross-participation in each other?s Steering Committees and working groups, increasing the impact and country coverage, reduce overlap and duplication, and mutually reinforce both projects to achieve enhanced impact. Demonstration projects of EC Solutions Plus will be implemented in Pasig City (Philippines) among other locations in the world.

The SOLUTIONSplus project is integrated with the GEF 7 Electric Mobility Programme ? providing knowledge products and technical expertise which will be used under the component 4 of the UNIDO child project.

Private sector baseline projects

In addition to the national initiatives and foreign assisted projects mentioned above, private sector projects forming the baseline for this project have been identified, based on the following criteria:

A. Previous experience in e-vehicles and charging infrastructure/existing player

B. Participation or previous experience with e-mobility projects

C. Fleet size/capacity

D. Years in the business/industry

E. Business model (and/or willingness to adopt a selected business model)

F. Jobs generation potential

G. Project concept and GHG mitigation potential

H. Co-financing potential

Based on secondary (largely online) sources of information and initial consultations with some industry players, the following private sector projects were drawn up and evaluated using the above-mentioned criteria.

Table 4. Criteria and assessment of industry players

Industry player		Sector Value Chain	Selection Criteria							
			A	B	C	D	E	F	G	H
1	ROMELCO	Electric Utility	Y	N	Y	Y	Y	Y	Y	Y
2	Lagao Drivers Operators Transport Cooperative (LADOTRANSCO)	e-jeepney Operator	Y	Y	Y	Y	Y	Y	Y	Y
3	Davao HPBS Operator (PPP)	e-bus Operator	N	N	Y	Y	Y	Y	Y	Y
4	Tojo Motors	EV manufacture	Y	Y	Y	Y	Y	Y	Y	
5	BYD (PPP)	Infrastructure (Monorail)	Y	Y	Y	Y	Y	Y	Y	Y
6	Udenna (PPP)	Infrastructure (Monorail)	N	N	Y	Y	Y	Y	Y	Y
7	Gerweiss	E-vehicle manufacturer/ e-trike operator/charging infrastructure/fleet management	Y	Y	Y	Y	Y	Y	Y	Y
8	HuMobility/EVEEI	Battery swapping/fleet management/e-vehicle operator	Y	Y	Y	Y	Y	Y	Y	Y

The first three projects represent different transport modes:

- Island deployment of 2- and 3-wheelers and development of RE-powered charging stations in Romblon. ROMELCO, the electric cooperative serving the Island Municipality of Romblon, has pioneered a project integrating e-vehicle deployment with renewable energy powered charging infrastructure. The project involved the deployment of 100 units of electric motorbike and installation of 3x300 kW wind turbines in Romblon Island, with grant funding from the Japan Ministry of the Environment for its Financing Programme to Demonstrate Advanced Low-Carbon Technology Innovation for Further Deployment in Developing Countries (FY2017-2018). ROMELCO leads a group of 41 off-grid and island ECs advocating increased if not 100% RE generation within their franchise areas. Previously, ROMELCO had developed a mini-hydro plant for the Sibuyan Island, a hybrid diesel-solar PV plus BESS in Cobrador Island. It has acquired three new islands for similar off-grid RE development. RE now accounts for about 40% of the electrical energy ROMELCO provides across its entire jurisdiction. It plans to raise that figure to 90% by the year 2020. The proposed child project could support the upscaling of the current project in Romblon and replication of the project concept in a similar off-grid island environment. The potential for replication in the country is high, including deployment of 3-wheelers or e-trikes, because the Philippines have many islands as well as of the thrust of the government to electrify these islands with RE-hybrid distributed generation.

- Deployment of e-jeepneys in General Santos. As part of the national government?s Public Utility Vehicle Modernization Program (PUVMP), the DOTr and the Local Government of General Santos City transferred 15 e-jeepneys to the Public Transport Alliance Group of GenSan (PTAG) in January 2020. This first batch of e-jeepneys deployed in the city is operated by one of PTAG?s members, the Lagao Drivers Operators Transport Cooperative (LADOTRANSCO). This is also part of PTAG?s

planned acquisition of 321 e-jeepneys that are being financed through a loan from the Development Bank of the Philippines (DBP). Each costing PHP2.3 million, the ?bus-like? jeepneys are air-conditioned, with closed circuit TV, and capacity of 22 passengers (from the usual 12-14 for ordinary jeepneys). The e-jeepneys will operate all the 14 approved routes of GenSan under its Local Public Transport Route Plan (LPTRP). The city was the first local government unit in the country that completed its LTPRP in June 2018, a year after the launching of the PUVMP.[59][58] PTAG is the first and largest transport cooperative in the city. Established in 2014, it was made up of seven member-cooperatives as of January 2020. Some of these cooperatives comprise former tricycle operators and drivers who switched to modern jeepneys following the PUVMP. As of January 2021, PTAG members has a total of 301 jeepneys, of which 51 are e-jeepneys, 30 EURO-4 diesel jeepneys, and the remaining 220 traditional jeepneys. The proposed child project could support the current deployment of e-jeepneys in General Santos City through upscaling and technical assistance, as well as facilitate its replication in other cities.

- Deployment of e-buses as part of the Davao City Public Transport Modernization Project (DPTMP). The City plans to establish a modern bus system in Davao City to replace current Public Utility Jeepneys (PUJ), tricycles, and other means of public transport. The new system includes (i) buses replacing PUJs in the city, (ii) optimization of bus routes, (iii) bus stops, bus depots, and minor improvement of roads, (iv) traffic management system, which will prioritize bus transport, (v) introducing performance-based contracts with bus operators, and (vi) social development program for affected people.[60][59] The Php18.66 billion project is scheduled for implementation from 2020 to 2023 and will deploy modern High Priority Bus System (HPBS) along 29 bus routes spanning 137 km core network and 489 feeder routes.[61][60] The core network will form part of an integrated and system wide operation with feeder routes covering an additional 400 route-km, and associated passenger infrastructure and bus terminal facilities. The improved franchising mechanism will promote performance based contracts, integrated fare collection systems, and streamlined through service operations. The project will deploy a total of 160 HPBS costing Php3.64 billion.[62][61] The project is considering the deployment of 110 e-buses. The project is supported by Asian Development Bank with technical assistance grant and a loan. The proposed child project could support the deployment of e-busses through deployment of relevant charging infrastructure and explore opportunities for replication in other cities.

The remaining five represent various aspects e-vehicle supply chain. The proposed child project could support ongoing or planned initiatives, including investments, of these companies, or work with these companies to develop innovative e-mobility supply chain projects.

- Tojo Motors? manufacturing facility is located in Sta. Rosa, Laguna. It sources majority of its components locally. Its e-trikes and e-jeeps are deployed nationwide, with most units in Naga City, General Santos City, and Boracay. The company is now currently setting up an assembly plant in General Santos to facilitate production and logistics. The current purchase order stands at 900 units.

- BYD proposes to build monorails in Iloilo City and Balanga, Bataan. BYD Auto China Ltd. Co. is one of China?s top-selling local automotive brand. BYD?s authorized distributor for private vehicles in the Philippines is Solar Transport and Automotive Resources Corp. (STAR Corp.). BYD?s electric buses are distributed in the Philippines by Columbia Motors Corporation.

- Bus-Monorail complementation in Davao City; tied to the planned deployment of modern buses.

- Gerweiss Motors Corporation is based in Boracay and deploys its e-trikes ecosystem that has included charging infrastructure, maintenance areas, and battery swapping since 2014. It was co-funded by Private Financing Advisory Network (PFAN).

- HuMobility, Inc. and EVEEI have the same principals. HuMobiliy is based in Antipolo City. It is the battery swapping and charging station service provider for the etrikes of Elaia Green Vehicles in Antipolo City. It also manages a fleet of e-trikes in Antipolo City. Electric Vehicle Expansion Enterprises, Inc. (EVEEI) operates a fleet of electric jeepneys in Filinvest City, Alabang in Muntinlupa City. It put up its own battery charging and swapping station in the area.

Beneficiaries Selection

Beneficiaries are those entities who will directly and indirectly benefit from the project activities. In this context these selection criteria focus on the selection of direct project beneficiaries.

For this project, direct beneficiaries are considered to be legal entities of three types:

1. Local government units (LGUs).

2. Economic zones or ecozones.

3. Private sector, including companies and enterprises, industry associations, transport groups, electric utilities or electric cooperatives

Economic zones, or ecozones have been added following the consultations with the DTI. These entities in the Philippines are neither LGUs or under the jurisdiction of LGUs nor private sector entities. In the Philippines, ecozones are under the direct jurisdiction of government-owned and controlled corporations (GOCCs).

Selected direct project beneficiaries will benefit from the project through grant supporting the implementation of pilot or demonstration investment projects (defined in alternative scenario ? component 3) and/or technical assistance services (in the form of capacity building, knowledge sharing, awareness raising, development and formulation of relevant planning documents, and the like). For the selected beneficiaries, particularly LGUs and ecozones, potential pilot or demonstration investment projects have been identified during the PPG phase. The cash or in-kind contributions of the project direct beneficiaries in the implementation of these investment projects and other project activities is treated as co-financing

The beneficiaries have been selected during the PPG phase, based on objective criteria discussed and agreed with relevant government counterparts (DTI and BOI, DOE and DENR). The selection process is described below.

Local government units (LGUs)

The following criteria were drawn up for the selection of LGUs or cities/municipalities:

A. Co-financing potential

B. Financial and private investment preparedness

C. Previous deployment of e-vehicles and charging infrastructure and/or participation in a similar government or donor program

D. Participation or previous experience in local energy planning or sustainable cities project/program (Implementation of the LGU Energy Code)

E. Membership in sustainable cities network

F. Renewable energy generation/potential

G. Project concept and GHG mitigation potential.

Following initial consultations with the DOE, a first basis for selecting candidate LGUs was their ER1-94 allocation.[63][62] In this regard, preference was given to cities with high ER1-94 allotment from hosting renewable energy projects. The only exception to this preference was Batangas City, which has very high ER1-94 allotment from hosting a natural gas project. The co-financing from LGUs may not just come from the funds of ER 1-94. LGUs, especially after the Mandanas Ruling, when aligned on its priorities (e.g. smart cities & those with sustainable tourism plans), may source the co-financing requirement from their other revenue streams or directly from their Internal Revenue Allotment (IRA).

Other shortlisted cities that did not have ER1-94 allocation were added based on qualitative assessments of their compliance to Criteria C to G. This also included a selection of cities based on specific projects, e.g., Mandaue City (for the APEC Low Carbon Model Town Project) and Romblon (deployment of electric 2-wheelers and charging infrastructure powered by wind energy). Furthermore, cities which participated in the DOE E-trike project (Criteria C) were considered (e.g. Mandaluyong and Pasig City).

To ensure coverage of different Philippine Island groups, and not to concentrate activities in one area, a representation of candidate cities and LGUs was made for Luzon, the Visayas and Mindanao in the selection process. Applying all the above-mentioned criteria, a final list of 16 candidate LGUs was drawn up and shown in the table below.

The 16 shortlisted LGUs were also assessed of their financial and investment readiness for private investments using standard indicators from the Bureau of Local Government Finance of the Department of Finance as well as of their actual public-private partnership (PPP) experience based on an ADB publication as well as other publicly available information available on the official websites. In this regard, Quezon City and Batangas City are highlighted because of their high scores with respect to these indicators. On the other hand, Romblon is also highlighted because it scores poorly with

respect to these indicators. The priority for the project is raising private funding (as co-financing), therefore the inclusion of the criteria on private financial and investment readiness.

The criteria, ?project concept and GHG mitigation potential?, captures both the innovativeness of the business model and impact of the intervention on the GHG mitigation from transport (including scaling up possibilities) - only qualitative assessment has been made.

Notwithstanding the relevance of the above-mentioned criteria, the most important element ultimately in the selection of candidate LGU beneficiaries is their buy-in to deploy EVs and implement and co-finance related investment projects or activities. In this regard, this set of criteria is not absolute but had served as a guide in shortlisting and engaging LGUs that might have a high likelihood of participating in the project.

Following the proposed approach, two LGUs have been selected with specific existing complementary/baseline projects and one LGU without specific investment baseline:

1. Davao City (baseline project: e-buses in the context of a city-wide transport modernization plan, that could also include deployment of e-jeepneys and e-trikes as value added).
2. General Santos City (baseline project: e-jeepneys in the context a Local Public Transport Route Plan-LPTRP).
3. Baguio City has been selected based on the recommendation of DTI as an executing agency; Baguio plans to become the first Smart City in the Philippines and has already an approved LPTRP.

The LPTRP is a key component of the Public utility Vehicle Modernization Program of the government. Thus, it is a recent requirement, and many LGUs with support from DOTr are building capacity to develop their own. It should be noted that the present template for LPTRP does not yet incorporate e-mobility.

Economic zones (ecozones)

Following discussions and recommendation of the DTI as the main executing agency, the selection of beneficiaries was expanded to include ecozones. Philippine Economic Zone Authority (PEZA), which is an attached agency of the DTI is responsible for attracting foreign investors to environment-friendly economic zones (ecozones). PEZA administers and manages the incentives of approved special ecozones in various parts of the country. Ecozones offer a good opportunity for deployment of e-mobility solutions in public transportation (work commuting from nearby areas) and development of Philippine e-mobility industry. Deployment of EVs in ecozones is also feasible since ecozones are a more controlled environment (than LGUs), facilitating project implementation and monitoring. In this regard, the DTI nominated two free port zones in the country: Clark and Subic, both in Central Luzon, as direct project beneficiaries.

Island deployment of 2- and 3-wheelers and development of RE-powered charging stations in Romblon. ROMELCO, the electric cooperative serving the Island Municipality of Romblon, has pioneered a project integrating e-vehicle deployment with renewable energy powered charging infrastructure. The project involved the deployment of 100 units of electric motorbike and installation

of 3x300 kW wind turbines in Romblon Island, with grant funding from the Japan Ministry of the Environment for its Financing Programme to Demonstrate Advanced Low-Carbon Technology Innovation for Further Deployment in Developing Countries (FY2017-2018).[58][63] ROMELCO leads a group of 41 off-grid and island ECs advocating increased if not 100% RE generation within their franchise areas. Previously, ROMELCO had developed a mini-hydro plant for the Sibuyan Island, a hybrid diesel-solar PV plus BESS in Cobrador Island. It has acquired three new islands for similar off-grid RE development. RE now accounts for about 40% of the electrical energy ROMELCO provides across its entire jurisdiction. It plans to raise that figure to 90% by the year 2020. The proposed child project could support the upscaling of the current project in Romblon and replication of the project concept in a similar off-grid island environment. The potential for replication in the country is high, including deployment of 3-wheelers or e-trikes, because the Philippines have many islands as well as of the thrust of the government to electrify these islands with RE-hybrid distributed generation.

Table 5. Criteria and assessment of Local Government Units

Region		LGUs	A. Co-financing Potential (ER1-94 Allocation, Php)[#]	B. Financial and Private Investments Preparedness[$]						Other criteria*					Utilities	Overall Performance Rating \1
				PPP	Revenue Growth (%)	OSR/ Total (%)	Debt Ratio (%)	Capital Investments / Revenues	Surplus/ Revenue (%)	C	D	E	F	G		
1. Luzon	1	Quezon City \a	36,769	Y	30	75	0	20	56	Y	Y	Y	Y	Y	MERALCO	Private utility
	2	Mandaluyong City \a \8	none	Y	14	71	4	4	27	Y	Y		Y	Y		
	3	Pasig City \a \b \9	none	N	22	76	0	15	61	Y	Y	Y	Y	Y		
	4	Norzagaray (Bulacan)	2,153,225	Y	0	35	2	18	49				Y			
	5	Dona Remedios Trinidad (Bulacan)	2,153,225	N	10	7	0	18	49				Y			
	6	Bay (Laguna) \a	4,362,926	N	13	22	2	27	26	Y			Y	Y		
	7	Batangas City \a \2	113,944,535	Y	28	49	0	7	55	Y	Y	Y	Y	Y		
	8	Romblon (Romblon) \3		Y	10	12	6	2	7	Y			Y	Y	ROMELCO	"AAA"
	9	Baguio City \b \11	none	Y	8	44	0	1	42	Y		Y	Y	Y	BENECO	"AAA"
2. Visayas	10	Iloilo City \b \4	7,124,562	Y	15	54	6	5	30		Y	Y	Y	Y	MORE Power	Private Utility
	11	Ormoc City (Leyte) \b \7	7,851,815	N	15	22	1	2	44		Y		Y	Y	LEYECO V	"AAA"
	12	Mandaue City (Cebu) \c \10	none	N	15	54	5	3	56		Y	Y	Y	Y	VECO (Aboitiz)	Private utility
	13	Valencia (Negros Oriental)	14,784,147	N	19	40	8	8	27				Y		NORECO II	"AAA"
3. Mindanao	14	Valencia City (Bukidnon)	4,044,060	N	12	15	5	0	23				Y		FIBECO	"AA"
	15	Davao City \5	2,267,155	N	11	40	8	8	27		Y		Y	Y	Davao Light and Power (Aboitiz)	Private Utility
	16	General Santos City \b \6	60,523	Y	15	27	0	7	36	Y	Y	Y	Y	Y	SOCOTECO II	"AAA"

\# Source: DOE

\$ Based on DOF BLGF 2015-2016 data at https://blgf.gov.ph/wp-content/uploads/2017/05/FY-2015-LGU-Financial-Performance-Monitoring-System.xls and https://blgf.gov.ph/wp-content/uploads/2016/08/Metadata.docx, and ADB 2016, *Philippines: Public-Private Partnerships by Local Government Units* . OSR means own-sourced revenues.

* Initial impressions/information; blanks imply no information

\a DOE E-trike recipients

\b UNDP/GEF LCT pilot cities

\c APEC Low Carbon Model Town

\1 NEA 2019, *Rural Electrification Chronicle 2016-2018* .

\2 Host to LNG terminal and other natural gas projects

\3 Host to RE projects and integration with 2-wheelers and charging infrastructure

\4 Also the host of UNDP/GEF DREAMS (RE) project, Provincial Renewable Energy Plan

\5 Davao Public Transport Modernization Project

\6 Only approved LPTRP; roll out of e-jeepneys; also host to a UNIDO Sustainable City SWM project

\7 Also host to a Tourism Master Plan and Ecological Industrial Zone projects

\8 Developing a comprehensive transport master plan incorporting EVs

\9 Adopting a well-planned approach to EV utilization, integrating EVs in urban logistics and local government operations (see http://www.solutionsplus.eu/pasig.html); ICLEI member, participant to IKI/ICLEI Ambitious City Promise project (2018-2021).

\10 Only city participating in the APEC Low Carbon Model Town Project (see https://philgbc.org/mandaue-city-awarded-with-the-apec-low-carbon-model-town/).

\11 https://opengovasia.com/baguio-aiming-to-be-the-first-smart-city-in-the-philippines/, https://baguio.gov.ph/content/city-adopts-public-private-partnership-development-approach,

Profile of selected beneficiaries

Local Government Units

Baguio City, together with General Santos City and Davao City, are among the only 33 cities in the Philippines classified as administratively independent highly urbanized city (HUC).[64][64]

Table 6. Profile of shortlisted Local Government Units as beneficiaries

	Baguio City	Davao City	General Santos City
Area, km2	57.51	2,443.61	492.86
Population (2020)	366,358	1,776,949	697,315
Population density (2020), per km2	6,370	727	1,415
Number of households (2015)	89,987	409,951	144,340
Annual population growth rate, 2015-2020	1.25%	1.79%	3.42%
Number of barangays	129	182	26
Region	Cordillera Autonomous Region (CAR)	Davao Region (Region XI)	SOCCSKSARGEN (Region XII)

Source: https://www.philatlas.com/philippines.html

Baguio City

Located 250 kilometers north of Manila and 1,445 meters above sea level, Baguio City is landlocked within the Province of Benguet and serves as the regional center of the Cordillera Administrative Region (CAR) in Northern Luzon. It has a land area of 57.51 sq. km. and population of 366,358 based on 2020 Census, which represents about 20% of the total population of CAR. Close to 30% of its land area are pine forests, including five forest reserves that have old growths of pine, giving it the title ?City of Pines?. Three of these forest reserves are watersheds that serve as sources of the City?s water supply.[65][65] The remaining 70% of its total land area are developed part, most of which built on uneven, hilly terrain of the northern section.[66][66]

Baguio City has been popularly long known as the ?Summer Capital of the Philippines? because the average year-round temperature varies from 13oC to 24oC and is rarely below 11oC or above 26oC.[67][67] Owing to its high elevation, the temperature in the City is normally 8 Celsius degrees lower compared to temperature of the rest of the country.[68][68] Its rich nature, cool climate and well-planned development that dates back to the American occupation period are the main reasons why tourism is one of Baguio City?s main economic sectors.

Trade and its export-oriented industries are the main driver of the City?s economy.[69][69] The City hosts the PEZA Baguio City Economic Zone and the John Hay Special Economic Zone that both all in all serves more than 130 companies or locators and employ more than 20,000 people.[70][70] The main exports from Baguio City are radio, television and communications equipment pegged at 68.13 percent, followed by fabricated metal products, except machinery and electrical, at 27.4 percent, and call centers at 4.10 percent.[71][71]

Baguio City aims to be the first Smart City in the country.[72][72] The present Mayor envisions the City ?as a SMART City where various types of electronic methods are used to manage the Summer Capital?s assets, resources and to provide even more efficient and effective services to the public.?

Baguio City has been cited as a model city for its sustainable transport institutional policies to ease the traffic situation in the City.[73][73] For example, Baguio City is the only city in the Philippines that has banned the operation of tricycles in all its streets and roads. Thus, jeepneys and taxis are the only means of public transport in the city. But the city government has banned PUVs or jeepneys in the

Central Business District, particularly along the entire stretch of the famous Session Road. Aggressive traffic management remains a top priority of the current City Administration.[74][74] To be sure, however, while 57% of Baguio City?s riding public rely on PUJs, this mode of transportation makes up only about 11-20% of all vehicle types plying in the different parts of the city.[75][75]

Baguio City is the second city, after General Santos City, with an approved Local Public Transport Route Plan.[76][76] The adoption of the LPTRP will pave the way for the consolidation of numerous and replicated routes of public utility jeepneys (PUJs) into 28 routes with six additional development routes, leading to a more systematic management and monitoring by the concerned government agencies.?[77][77] These 34 routes, including the new two circumferential lines and four tourism lines, will allow the deployment of a total of 1,940 jeepneys.[78][78]

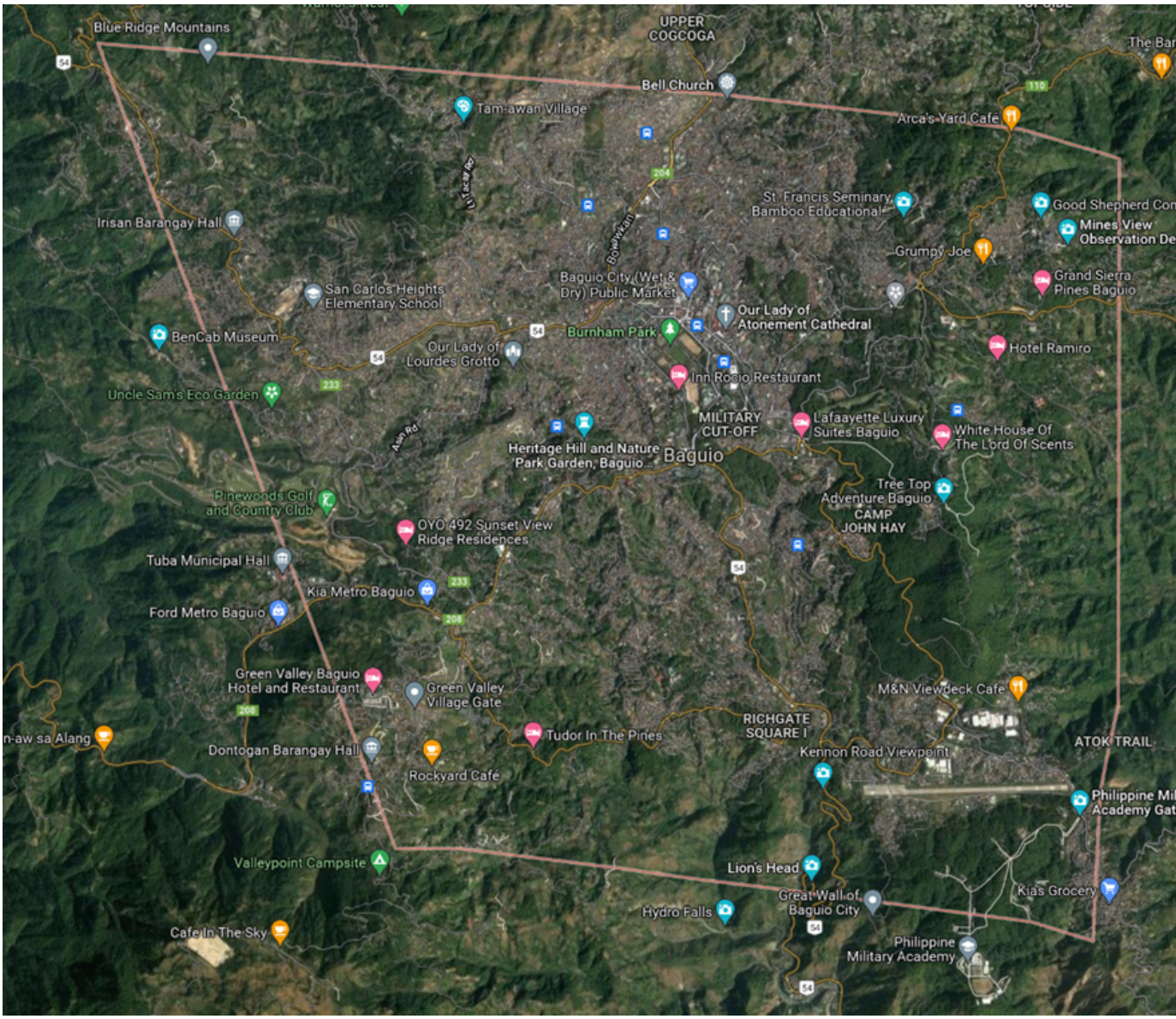

Figure 1. General satellite view of Baguio City

Source: maps.google.com

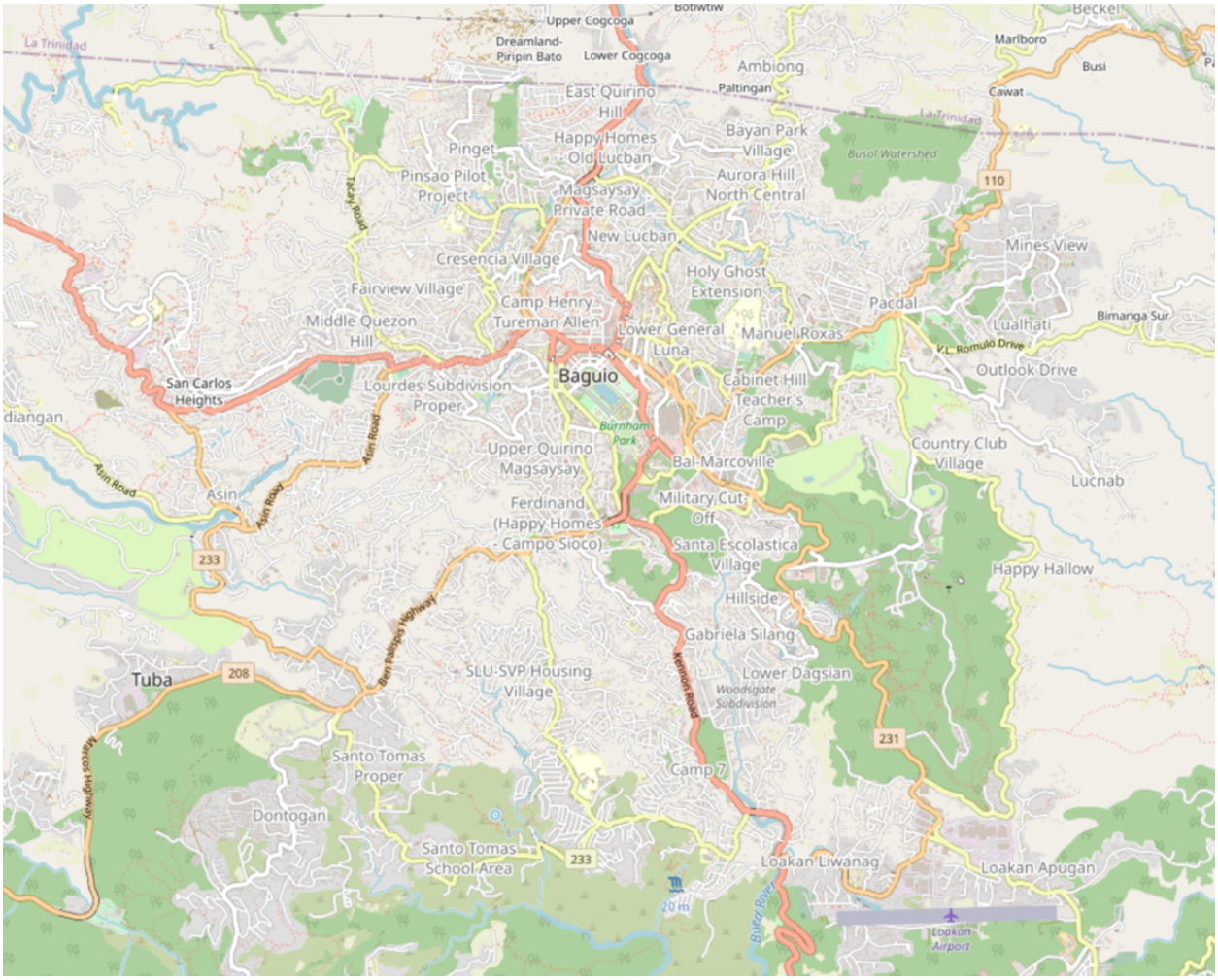

Figure 2. Map of the core urbanized area of Baguio City

Source: ? OpenStreetMap contributors

Davao City

The coastal city of Davao City is in and serves as the regional center of the Davao Region. It?s population of 1,776,949 based on the 2020 Census represented close to 34% of the Davao Region population. It?s land area of 2,443.61 km2 makes it the largest city in the Philippines in terms of land area[79][79] and one of the largest cities in the world, ?sprawling among coconut groves and Riceland? and ?largely rural outside its urban core?.[80][80]

Davao City lies at the mouth of the Davao River near the head of Davao Gulf. Its economic activities are served by 50 small ports and an international port that ?ships large quantities of abaca, a natural

fibre that is the main product grown in the adjacent agricultural hinterland.?[81][81] Indeed, agriculture remains its largest economic sector producing in addition banana, pineapple, coffee, and coconut. It is also Mindanao?s leading exporter of fruits and cacao. The chocolate industry is the largest agri-based development in the City.[82][82]

Figure 3. General satellite view of the Davao City

Source: maps.google.com

Figure 4. Map of the core urbanized area of Davao City

Source: ? OpenStreetMap contributors

Served by a major airport and highways, Davao City also served as regional headquarters for national and international commercial and administrative activities. For example, the City host the Mindanao Development Authority (MinDA). It also serves as the main entry point for the Brunei Darussalam ? Indonesia ? Malaysia ? Philippines East ASEAN Growth Area (BIMP-EAGA), of which the permanent Secretariat is MinDA.

Its vision is: ?Davao City is a globally liveable city and a center of excellence in governance, investment, tourism, climate change adaptation, disaster resiliency, and sustainable growth driven by empowered citizenry.?[83][83]

The *Davao City Transport Roadmap* aims ?to support the development of sustainable and integrated network of land-based transportation in the city. The purpose of the Roadmap is to support the

improvement of transportation so that it prioritizes modes according to their economic, environmental and community sustainability. The Roadmap sets the framework, over the next 20 years with a focus on the first 10 years, for transport networks and systems to be integrated and be more efficient. It also provides a mechanism to engage and partner with transport agencies to influence traffic and transport systems in the City of Davao.?[84][84]

According to the *Davao City Transport Roadmap*, the City?s public transport is served by PUJs (7,610 units), taxis (5,611 units), and tricycles (2,416 units). In addition, buses (910 units) and vans (1,076 units) serve regional routes from other cities and provinces in the Davao Region to Davao City. Almost 80% of trips are made by public transport, but private cars account for 80% of road users. Thus, the Roadmap aims to maximize the use of efficient, reliable and integrated public transport systems and minimize the growth in the use of private cars. The High Priority Bus System (discussed later) and proposed railway system will be the main actions to achieve these objectives.

General Santos City

Located 115.62 km South-Southwest of Davao City, General Santos City[85][85] is the southernmost city in the Philippines.[86][86] It is one of three HUCs in Mindanao (together with Davao City and Cagayan de Oro City). Also formerly known as Dadiangas, General Santos City is bounded by the municipalities of the provinces of South Cotabato and Sarangani in the SOCCSKSARGEN region. The population of General Santos City represents 14.23% of this region.[87][87]

While not the regional capital of the SOCCSKSARGEN region, General Santos City is considered the commercial, entertainment, cultural, and educational center of Region XII.[88][88] Notwithstanding, the City?s economic activities remain anchored in two sectors, namely, agro-industry and fisheries.[89][89] Like Davao City, General Santos City produces export quality high valued crops, exotic fruits, and livestock. Known as the ?Tuna Capital of the Philippines?, General Santos City produces sashimi-grade tuna. It also accounts for the second largest daily catch of fish in the country after Navotas City in the National Capital Region (Metro Manila).

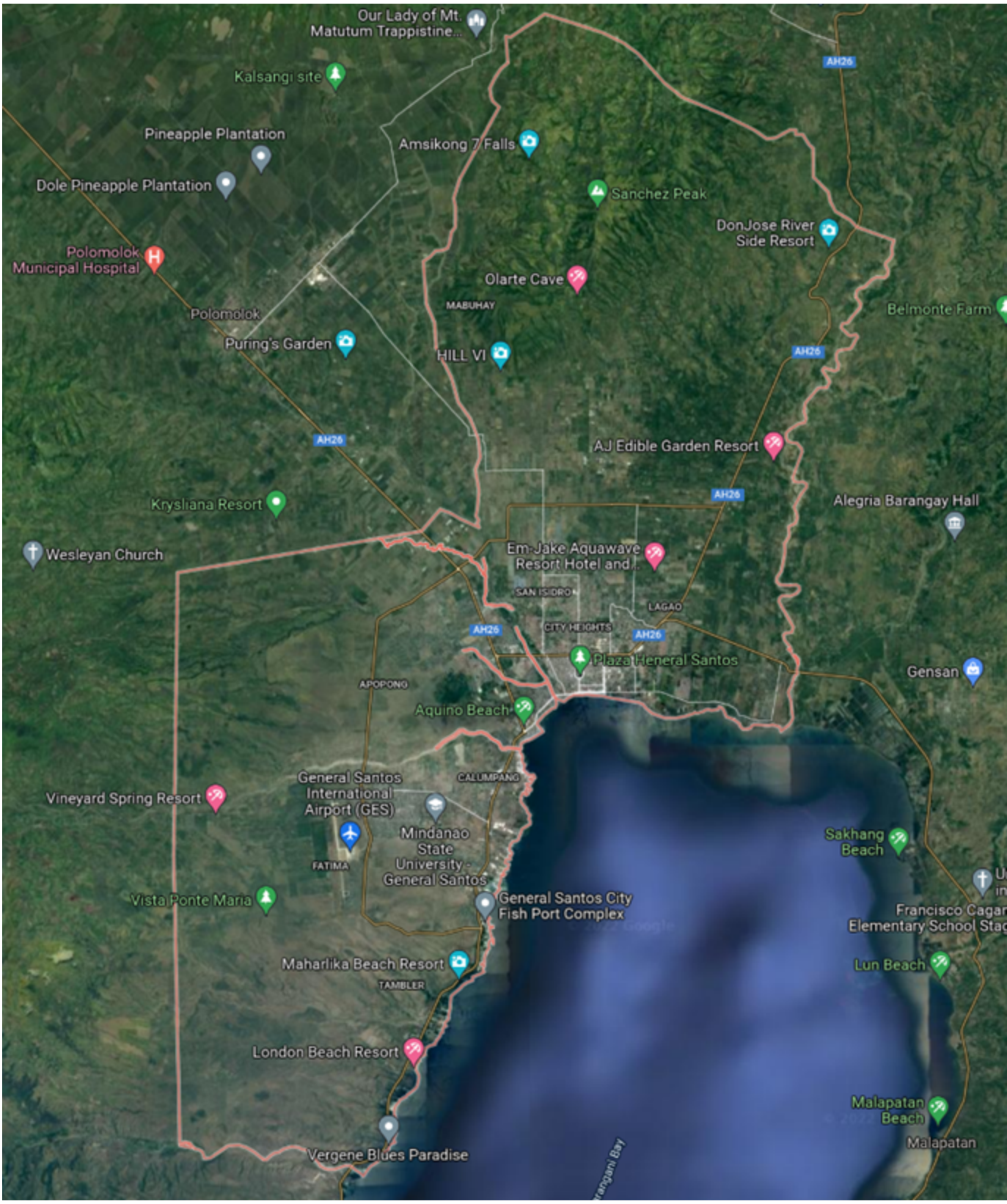

Figure 5. General satellite view of General Santos City

Source: maps.google.com

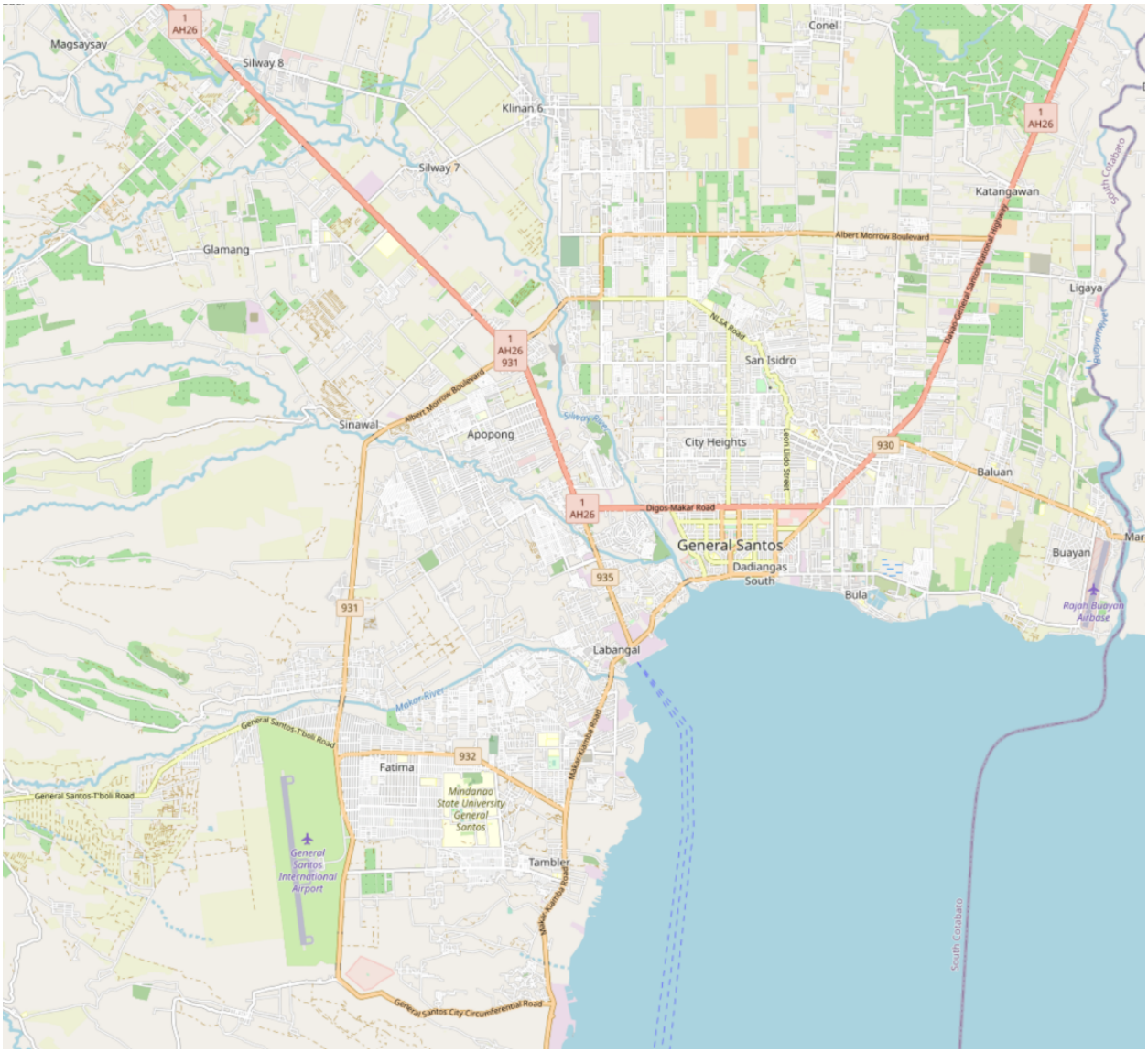

Figure 6. Map of the core urbanized area of General Santos City

Source: ? OpenStreetMap contributors

Located at the head of Sarangani Bay of the Celebes Sea along the southern shore of Mindanao, General Santos City is also principal shipping point in the region. Its national port, the largest in Southern Mindanao, is port of entry for overseas shipping in the region.[90][90]

General Santos City has a total of 583,194 km of local roads, of which less than 30% are paved with concrete or asphalt; the rest are unpaved roads. Its city road density of 0.836 km per 1000 population is

below the benchmark of 2.4.[91][91] 81% of all school-bound and work-bound trips are by public transportation, of which tricycles share almost half. A 2014 study estimated about 42,000 tricycles operating in General Santos City, while the LGU registered only 4,500 units. And there are still several tricycles with two-stroke engines operating within the City.[92][92]

General Santos City was one of the pilot cities for the implementation of the Public Utility Vehicle Modernization Program (PUVMP) of the Department of Transportation (DOTR), including the formulation of the first Local Public Transport Route Plan, which was approved in 2018.[93][93] With the vision of being a Green City, its sustainable transport strategies include: (i) prioritizing efficient paratransit (e-jeepneys) public transport services, which will eventually usher in higher forms of rapid mass transits in the future; (ii) establishing safe walking networks and non-motorized ways; (iii) improving road quality and density; (iv) reducing traffic demand, and (v) strictly implementing traffic management measures (i.e., on-street parking, one-way street system).[94][94] The General Santos LPTRP indicates that there are currently 17 routes that have been served by 1,035 units of PUJs. The LPTRP proposes 14 new routes that will be served by 1,167 units of PUJ, increasing the total number of units to 2,202.

Ecozones

A Special Economic Zone (SEZ) is commonly defined as a specific geographical area within a country with an advantageous business and investment environment.[95][95] The development of these economic zones aims to promote exports, create employment, and encourage investments, particularly foreign investments.[96][96] In the Philippines, economic zones were instituted in the late 1960s as part of the export-oriented industrialization strategy.[97][97] In the 1990s, the US military bases were closed, and those in Subic and Clark were converted into SEZs through the Republic Act No. 7227 or the Bases Conversion and Development Act (BCDA) of 1992.

Table 7. Profile of Clark Freeport and Special Economic Zone, and Subic Bay Freeport Zone

	Clark Freeport and Special Economic Zone	Subic Bay Freeport Zone
Land area	336.53 km2	670 km2
Locators	1,227	1,536

Employment (as of June 2021)	115,979	138,966
Exports (2020)	USD 6.45 billion	USD 1.03 billion
Tourist arrivals (2020)	1,247,862	29 million
Investments	PHP 245 billion	PHP 163 million
Investments growth (2019-2020)	3.38%	

Sources: https://subicnewslink.blogspot.com/2021/03/state-of-freeport-sbma-reports-p32-b.html, https://www.philstar.com/business/2015/12/19/1534424/sbma-names-top-15-locators, CDC 2020 Annual Report and 2021 Mid-Year Accomplishment Report.

Clark

The Clark Freeport and Special Economic Zone (CFEZ) refers to the 32,000 hectare area spanning the provinces of Pampanga and Tarlac. Located 60 km northwest of Metro Manila, the Clark area in Pampanga covers the cities of Angeles and Mabalacat and the town of Porac while parts of the area in Tarlac include the towns of Capas and Bamban, Tarlac. The CFEZ divided into two areas, the Clark Freeport Zone (CFZ) and the Clark Special Economic Zone (CSEZ). Inside the CSEZ is the Clark Global City, which will serve as the primary business district, and the New Clark City, which is a 9,450-hectare greenfield development positioned to be the country's first disaster-resilient, green and inclusive city and will be the home of the National Government Administrative Center (NGAC) plus a world-class Sports Complex.[98][98] The CFZ covers the area of the former United States Air Force facility, Clark Air Base. Most of which was converted to the Clark International Airport, and some remained under the control of the Philippine Air Force.[99][99]

The Master Plan for Clark aims at transforming the zone into an airport-driven urban center perfect for the requirements of high-end IT enabled industries, aviation and logistics related enterprises, tourism, and other sectors.[100][100] Clark?s vision is: By 2030, Clark Freeport Zone would be a modern sustainable aerotropolis and the preferred MICE (Meetings, Incentives, Conferences, Exhibits) and tourism destination in the Asia-Pacific Region.[101][101] The Department of Finance expects Clark to be a major growth driver for Central and Northern Luzon.[102][102]

New Clark City is expected to be the country?s first smart, resilient and green metropolis. [103][103] It aims of being disaster resilient and to showcase good and sustainable urban planning by enhancing public space availability, encouraging the use of non-motorised ways of transport, and undertaking mixed use and inclusive developments. Over the next few decades, New Clark City is expected to house one million residents and create 800,000 new jobs.[104][104] It will be developed in four phases and is targeted for completion in 2065.[105][105]

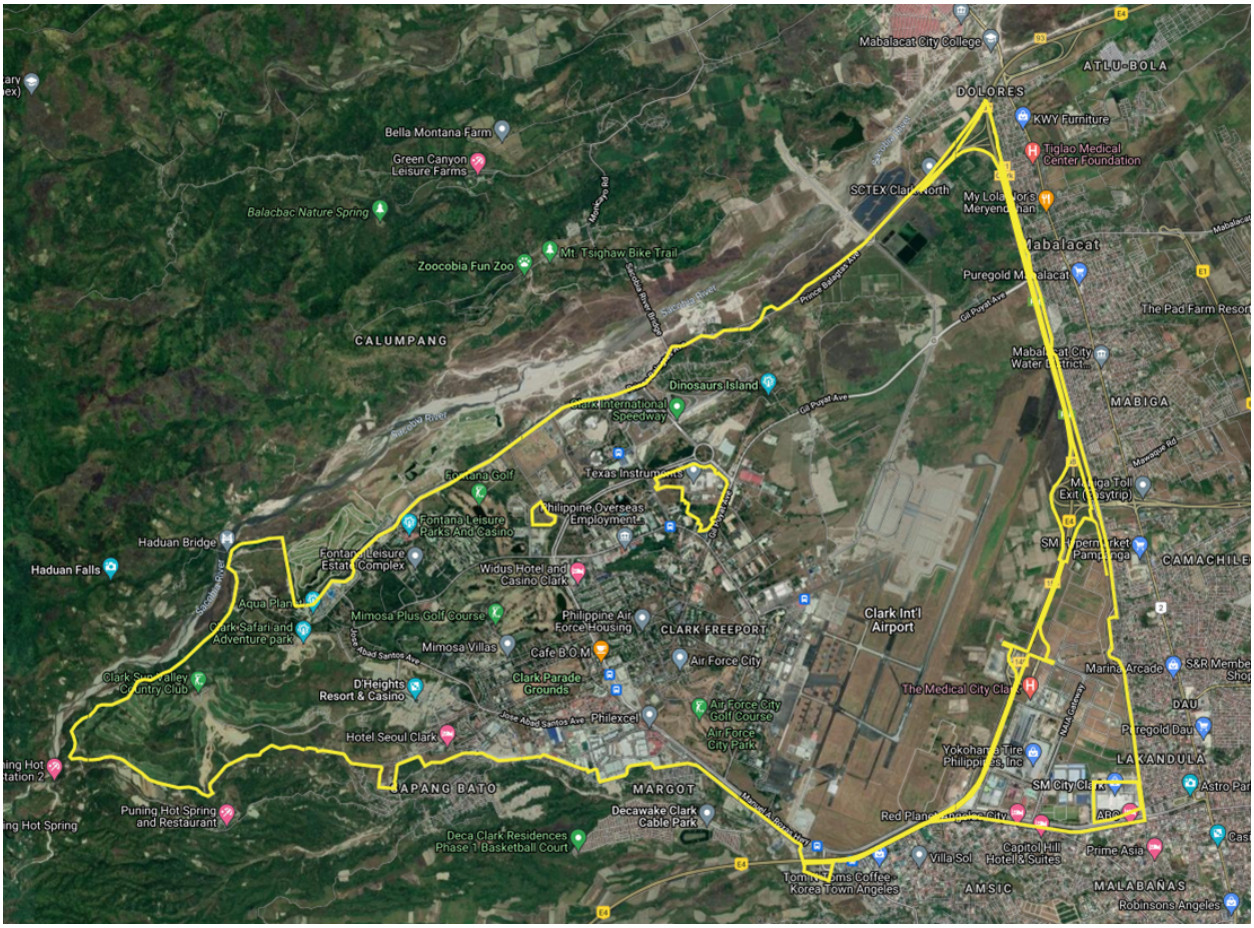

Figure 7. General satellite view of the Clark Freeport Zone area

Source: https://cdcgismaps.wordpress.com/cfz-locators/

NCC is among the beneficiaries in the Global Future Cities Programme of the Foreign, Commonwealth and Development Office of the UK Government. GFCP ?aims to carry out technical assistance for a set of targeted interventions to encourage sustainable development and increase prosperity while alleviating high levels of urban poverty, in particular based on three thematic pillars: urban planning,

transport and resilience.?[106][106] Based on a study commissioned by CDC in 2009, about 205,000 people travel to and from the ecozone daily, of which 66,000 by car, 97,000 by PUJs, and 41,000 by shuttle services.[107][107] It was also estimated that vehicular traffic in Clark would increase by 5% per year.[108][108]

Clark electricity services are provided by the Clark Electric Distribution Corporation (CEDC), a joint venture between Angeles Electric Corp and Manila Electric Company (MERALCO). CEDC operates 3 substations, 1,370 distribution transformers with a total capacity of 131 MVA for the Clark Economic Zone?s operational power.

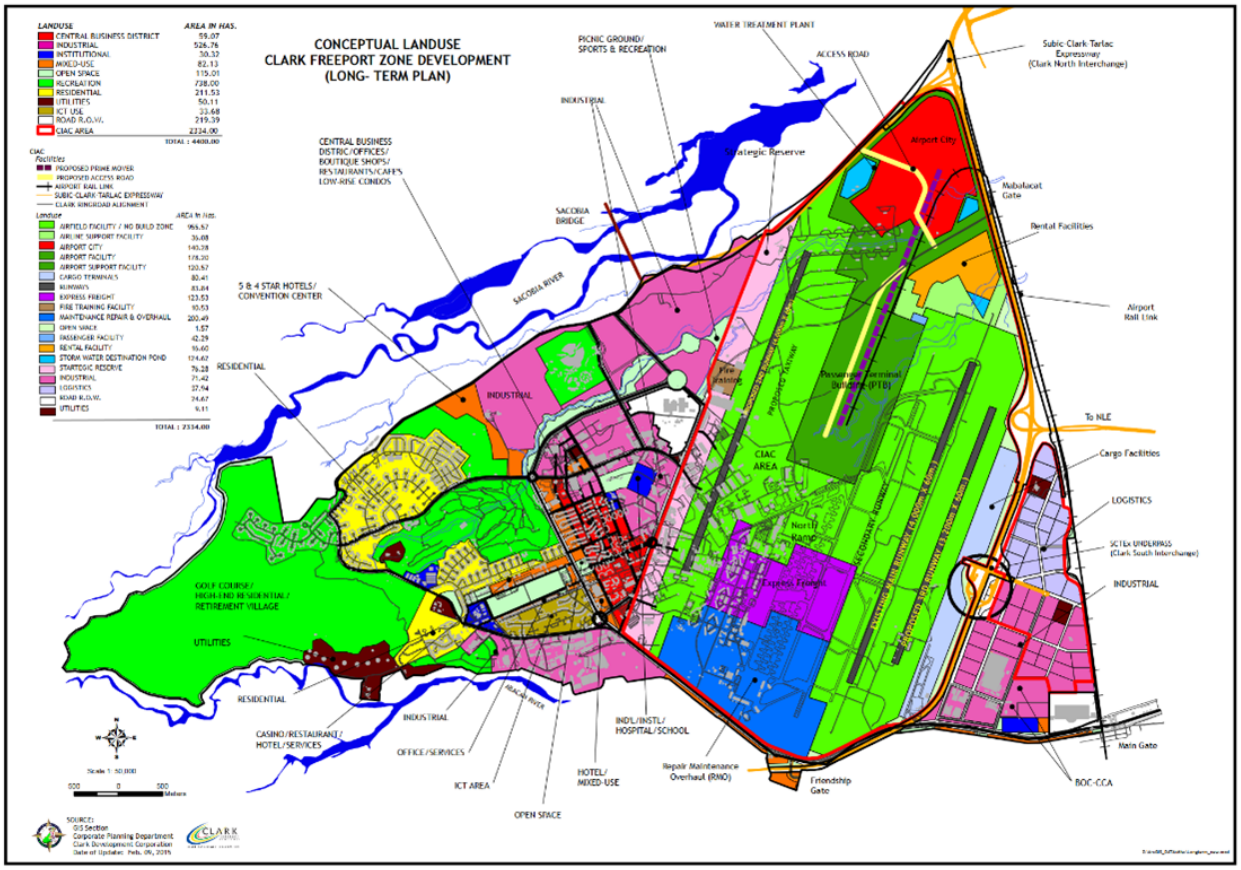

Figure 8. Conceptual land use plan of the Clark Freeport Zone

Source: https://cdcgismaps.files.wordpress.com/2015/08/longterm-new.pdf

Subic

The Subic Bay Freeport Zone (SBFZ) is the first Freeport in the Philippines, created under Republic Act 7227 or the *Bases Conversion and Development Act of 1992*. Located 110 kilometers northwest of Manila in Region III (Central Luzon), SBFZ occupies a total of 67,452 hectares of land (81%) and water (19%), which was the former US Naval Facility. It is surrounded by the municipalities of Subic (which accounts for 43% of SBFZ land area) and San Antonio and Olongapo City in Zambales, and municipalities of Hermosa, Morong, and Dinalupihan in Bataan. It is also along the ship lanes of major ports and cities in the country and Asia Pacific. It is easily accessible through two major expressways from various eco-zones and business and industrial centers in the country.

RA 7227 also established the Subic Bay Metropolitan Authority (SBMA) to operate, manage, develop, and administer the areas within the SBFZ. Its mandate is to develop SBFZ ?into a self-sustaining industrial, commercial, financial, and investment center to generate employment in and around the zone, and to attract and promote productive foreign investments.?

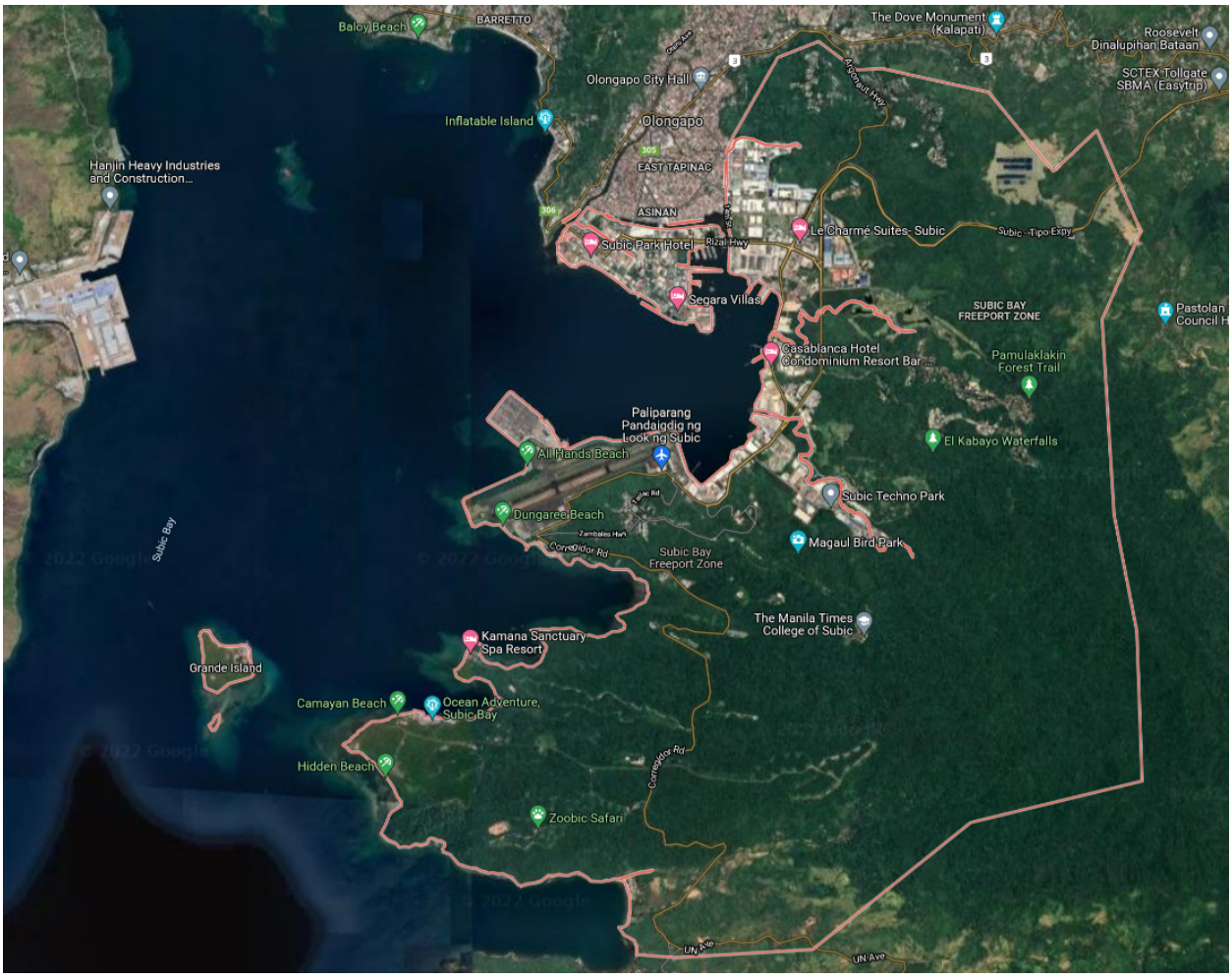

Figure 9. General satellite view of the Subic Bay Freeport Zone area

Source: maps.google.com

SBFZ has more than 126,000 workers employed by a total of 2,897 companies variously engaged in shipbuilding and other marine-related business, tourism, information and communications technology, manufacturing, and services.[109][109] As of end-2017, 54% of the workers were employed in services, including, and 26% in shipbuilding and marine-related services. 12% worked in manufacturing. Manufacturing, however, accounted for the biggest share of committed investment at 62%. Olongapo City and the rest of the Province of Zambales accounted for 63% of the worker?s origin. ROTECO, the joint venture between Ropali Corporation, a top motorcycle dealer in the Philippines, and TECO Electric and Machinery Co., Ltd., a prominent global Taiwanese company that develops and manufactures electric motors, was launched in Subic in 2015 to produce e-trikes and e-jeepneys.[110][110]

Besides being a key foreign direct investment destination, SBFZ has also become a popular tourist destination in the country with several theme parks and eco-tourism attractions and favorite venue for triathlons, water sports, conferences, and other similar activities and events.[111][111] SBFZ is one of the points in the growth triangle (Subic-Clark-Tarlac) and an engine for economic development in the region.[112][112] SBMA?s vision for SBFZ: ?By 2030, Greater Subic Area shall be the premier Freeport Zone in Asia.?

SBFZ is served by Subic EnerZone Corporation (SEZ) for its electricity supply requirements. SEZ is 100% owned by Aboitiz Power. Prior to COVID-19 electricity demand in the SBFZ was growing at 1.28% per year to 106.82 MW in 2019. Assuming an estimated 30% reduction in 2020 demand due to COVID-19 and recovery in the long-term growth in demand from 2021, power demand is projected to reach only 78 MW in 2030. SEZ recorded 3,627 customers in 2017 (including company locators, commercial establishments, and residences).

A total of 540 public transport vehicles operated by 24 companies were registered with SBMA as of 31 July 2018, of which 51% were taxis, 23% were PUVs (jeepneys), 21% were shuttle service (vans), and the rest buses.[113][113] These public transport vehicles are served by three terminals: one for buses, shuttle and PUVS, another for taxi and shuttle, and a third terminal for taxis. The road network at SBFZ totals around 167 km.[114][114]

•c) the proposed alternative scenario with a description of outcomes and components of the project;

The baseline scenario presents current status of e-mobility in the Philippines. Currently the sector is being developed by mainly government initiatives focused on public transport (the PUVMP).

Significant uptake of EVs in the country has been observed only in the public transportation (e-jeepneys, e-trikes), with some projects failing to deliver expected results in terms of number of deployed e-vehicles (ADB supported e-trike project). Currently private companies slowly start investment in e-mobility solutions (for logistics) and in manufacturing of e-vehicles and components. The reason for low level of adoption of e-mobility, compared to other countries in the region (e.g. China) is still low awareness of e-mobility in the society and private sector, with limited incentives provided by the government to all stakeholders (industry, business and society). Main existing incentives schemes address modernisation of public utility vehicles into e-vehicles. Low level of market uptake of e-mobility solutions is also connected with underdeveloped charging infrastructure in the country (but an underlying cause for this is that energy companies are not interested in developing charging infrastructure if the uptake of EVs is low). Currently there are no mandatory goals set in the policy for charging infrastructure development. Another factor impacting e-mobility development in the Philippines is that despite some ongoing e-mobility projects, there is still insufficient knowledge and evidence-based data extracted from successful technology demonstration projects, as well as lack of capacity and low awareness on e-mobility.

The project primarily focuses on the development of e-mobility value chain and industry in the Philippines with focus on electric vehicle deployment, charging infrastructure (incl. battery swapping) integrated with renewable energy, and the development of viable e-mobility business models (with focus public and private transport). It addresses these root causes through:

- Policy work stimulating e-mobility industry development, through development of incentives and standarisation.
- Stimulating industry development through market analysis and creation (supply and demand stimulation).
- Support investment and implementation of a demonstration-scale pilot projects for e-mobility in the public and commercial transport.
- Set the enabling environment for the scale-up of e-mobility investments through increased private sector engagement.
- Enhancing capacities of local governments and private sector to design and deploy viable e-mobility solutions.
- Monitoring, data collection and disseminate lessons learned.

The project aims at delivering policy improvements in the country and demonstration actions in selected pilot cities through policy, regulatory, and technical assistance on e-mobility investments. Selected demonstration or pilot project in each city will get a grant funding from the GEF coupled with a climate-smart capital investment planning assistance. These projects will focus on deploying e-mobility infrastructure mostly targeting locations with large transport flows. Deployed infrastructure would be made available for private and commercial light transport for in which business models for their operations would also be developed.

The project is structured into 4 components and one component specific on project monitoring and evaluation, with a goal of reducing GHG emission from Philippine transport sector, through increased adoption of e-mobility solutions in the country.

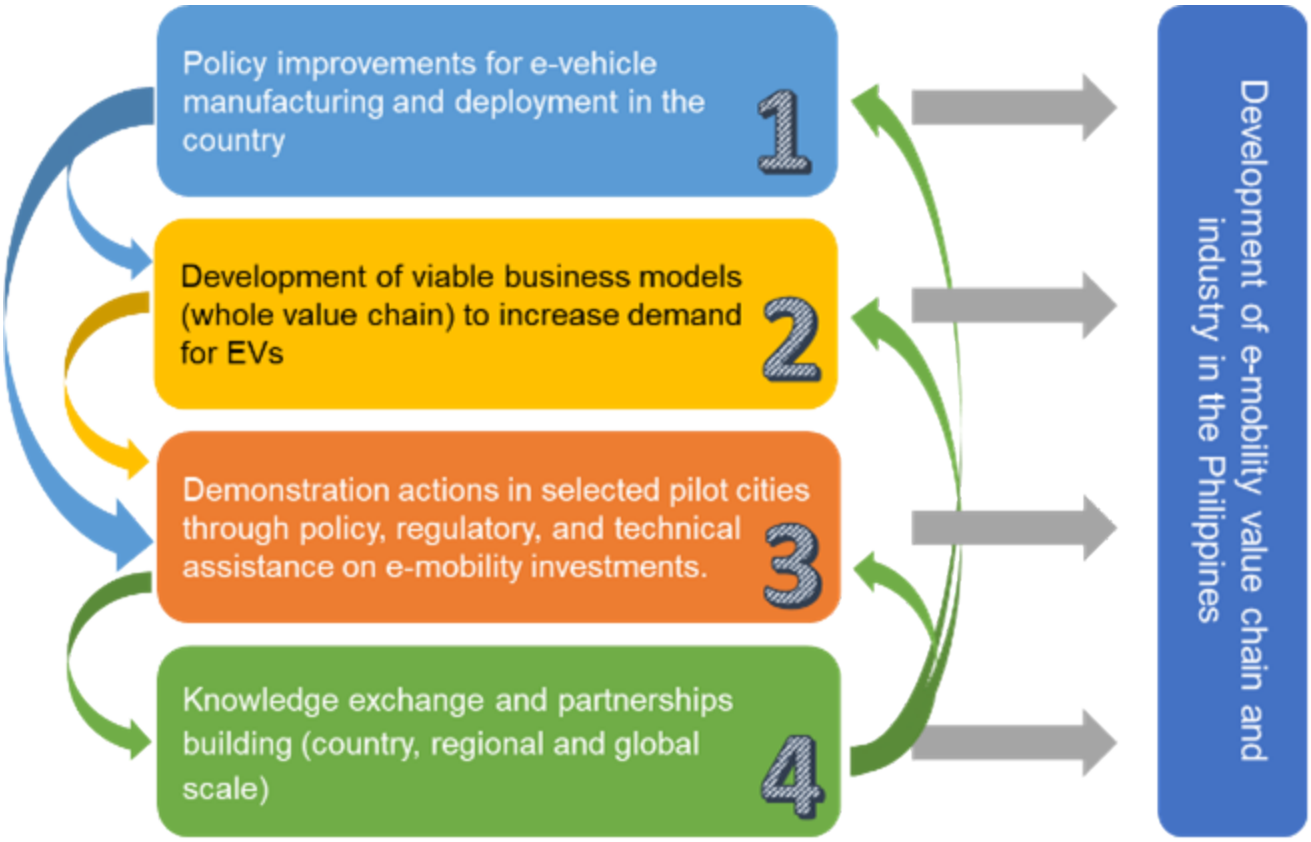

Figure 10. Project structure and logic

The project design draws from the priorities identified during stakeholder consultations and a literature review of past and ongoing work on Philippine transport sector to reduce emissions and air pollution. The ability to catalyse sustainable change in the national transport sector will likely be most effective through policy and capacity support, alongside with the technical assistance to pilot pipeline project that can be scaled in the future.

Priority Pilot Projects

During the project?s preparation stage, various pilot projects were investigated in discussions with relevant stakeholders. The criteria for demonstration projects identification included business model and/or high potential for replication and scale up, fleet size/capacity, jobs generation potential, GHG mitigation potential, co-financing potential/availability. The identified options for demonstration projects are presented below:

Table 8. Identified options for demonstration projects

Name of Project / code	Description	Potential targeted LGUs
TOUR	Use of e-vehicles by an interested tour operator To increase the deployment of e-vehicles in the tourism sector through application of the ESCO concept. An e-vehicle fleet operator will negotiate with a tour service provider or a hotel to replace their fleet with an e-vehicle and share in the savings depending on the specific ESCO business model used. This project could be implemented in Ormoc City and/or Iloilo City, considering these are favourite tourism destinations. A plus of these two cities is that both are partner cities of the UNDP-GEF LCT project. Estimated fleet size: 20 e-vans	Ormoc, Iloilo
BATT	Third-party investment in battery swapping To invest in battery swapping to reduce the cost of the e-vehicle units or fleet (as battery accounts for about 50% of e-vehicle cost). This should contribute to increased deployment of e-vehicles. Any of the four candidate cities that are recipient or beneficiaries of the DOE E-trike projects would be strong candidates for this type of project to complement the deployment of e-trikes in these cities. But Batangas City and Quezon City are recommended because of their high financial and investment readiness. Estimated fleet size: more than 1,000 e-trikes	Batangas City, Quezon City
RE-CHARGE	Upscaling and/or replication of island deployment of e-vehicles and development of RE-powered charging stations Replication of a deployment of 2-wheelers and development of renewable powered charging stations in the island municipality of Romblon. High replication potential, including deployment of 3-wheelers or e-trikes (many islands could be electrified with RE-hybrid distributed generation). Current project fleet size: 100 electric motorcycles	Romblon
E-JEEP	Deployment of e-jeepneys in General Santos by the transport alliance Support for the current deployment of e-jeepneys in General Santos City through finance and investment facilitation. Current project fleet size: 321 e-jeepneys	General Santos City
E-BUS	Deployment of e-buses as part of Davao City transport modernization plan Some of the buses that would be deployed under the transport modernization plan of Davao City would be e-buses supported by technical assistance and capacity building. Current project fleet size: 110 e-buses	Davao City

Name of Project / code	Description	Potential targeted LGUs
E-BIKE	Metro Manila bike lane network (integration of e-bikes) A collaboration among MMDA, DOTr and DPWH is building a 338.53 km bike lane network along EDSA as part of the Bayanihan II-supported Active Transport Projects. The MMDA counted 100,792 cyclists in June and 77,484 cyclists in July in nine intersections along EDSA alone. These planned bike lines could have integrated e-bikes with charging stations. Estimated fleet size: 70,000 to 100,000 cyclists	Quezon City, Mandaluyong City, Pasig City
GREEN ROUTES	Selected routes for modern jeeps in Metro Manila (integration of e-jeepneys) The LTFRB in June 2020 approved 34 routes for modern jeepney in Metro Manila, or what are called ?green routes?. These routes could be made more sustainable by integrating the deployment of e-jeepneys and supportive infrastructure. Estimated fleet size: more than 500 e-jeepneys	Quezon City, Mandaluyong City, Pasig City
GREEN DELIVERY	Use of electric vehicle for delivery of cargo and other LGU social services To upscale or replicate the use of 2/3-wheelers in Pasig City in delivering postal services as well as the development of flexible electric vans (FLEV) to replace minivans in transporting cargoes and delivering other local government social services, e.g., assisting in relief operations during calamities, delivering food during the current pandemic. Current project fleet size: 50 FEVs	Pasig City

Based on the consultations with DTI/BOI and selected beneficiaries (Davao City, General Santos City, Baguio City, Clark Freeport Zone, Subic Bay Freeport Zone), it was decided to focus on the development of charging infrastructure (using innovative business models), including application of renewable energy with optional battery swapping solutions and supply chain improvements. Based on initial consultation and assessment, the following investment demonstration project ideas, based on the outlined investment options ? Table 6) have been identified for the selected beneficiaries:

Table 9. Considered demonstration projects in beneficiary cities/ecozones

Davao City	a) Deployment of supporting charging infrastructure (powered by renewables) for e-buses within the High Priority Bus System in Davao City. b) Deployment of electric tricycles as a ?last mile? transport option ? replacement of ICE tricycles with electric and deployment of relevant charging infrastructure / battery swapping. c) TNVS ? Transport Network Vehicle Services (e.g. Grab, local services) ? demonstrating charging infrastructure to stimulate EV adoption (also for delivery). d) Online shopping deliveries ? introduction of e-vehicle solutions in the delivery companies, e.g.: JNT, LBC, JRS.
General Santos City	a) Deployment of e-jeepneys ? through seed funding and charging infrastructure (powered by renewables) for transport cooperatives (14 routes). b) Deployment of electric tricycles as a ?last mile? transport option ? replacement of ICE tricycles with electric and deployment of relevant charging infrastructure / battery swapping. c) TNVS ? Transport Network Vehicle Services (e.g. Grab, local services) ? demonstrating charging infrastructure to stimulate EV adoption (also for delivery). d) Online shopping deliveries ? introduction of e-vehicle solutions in the delivery companies, e.g.: JNT, LBC, JRS.
Baguio City	a) Feasibility study for e-mobility in the framework of Smart City plan including how to incentivize tourist transport (tourist area).
Subic Bay Freeport Zone	a) Renewable energy powered charging infrastructure for e-jeepneys. b) Transport of people within the zone ? e-shuttle service inside the ecozone (covering also transport of tourists).
Clark Freeport Zone	a) Renewable energy powered charging infrastructure for e-jeepneys. b) Transport of people within the zone ? e-shuttle service inside the ecozone (covering also transport of tourists).

Prioritized Pilot Projects description

The design of pilot projects should be based on viable and replicable business models. It is also recommended to focus on projects that will target public transportation to maximize the demonstration of these EVs to the public and maximize the environmental externalities (GHG mitigation) due to the frequent use of these vehicles. Due to limited available funding (GEF grant) the project resources can only effectively support pilot projects in 2-3 areas (LGUs). Spreading the funds among more LGUs and projects would result in a small grant amount, having in turn low impact on the investments. Therefore, based on the pilot project selection criteria, considering the ones which have the most potential impact (emission reductions, scaling-up potential) and can attract high level of co-financing, the following projects have been selected as demonstration projects:

1. Deployment of supporting charging infrastructure (powered by renewables) for e-buses within the High Priority Bus System in Davao City.

This project will build on the currently implemented High Priority Bus System (HPBS), which is supported by the DOTr and a loan, and technical assistance from ADB. The HPBS project will comprise 29 bus routes, divided into four tiers according to the levels of demand: MetroDavao (connecting all major commercial centers in the city with each other, providing the backbone passenger service), DavaoInter (services connecting the inner urban areas directly to the Davao Central Business District), DavaoFeeder (designed to link smaller centres and area of more dispersed populations to the MetroDavao services) and DavaoLocal (services designed to link outer rural areas of the city to the main transport system). The HPBS project will deploy new routes, bus stops, buses and depots, road infrastructure improvements as well as relevant traffic management systems.

The HPBS project will deploy (in 2022 - 2023) a total of a total of 1,040 buses (333 Metro Davao - electric, 525 Davao Inter - diesel and Davao Feeder - diesel, and 182 Davao local - diesel). Within the HPBS project 5 bus depots are planned (3 depots for EURO IV/V diesel buses and 2 depots for e-buses), 3 terminals and one driving school.

The proposed GEF-funded pilot project will focus on deployment of charging infrastructure in e-bus depots (located in Santo Nino and Sasa Depot), which will utilize renewable energy (PV) and energy storage for charging the e-buses. Currently the Mindanao Electricity Grid is characterized by high GHG emission intensity (0.7859 t CO_2/MWh)[1], if the buses would use only the grid electricity for charging this would not result in the net climate benefit for the HPBS project. By providing renewable energy infrastructure, electricity storage and charging equipment the GEF-funded project would help to reduce indirect GHG emissions resulting from the electricity grid. It would also demonstrate a climate friendly-business model for e-bus charging. This could also be scaled up to other locations (diesel-bus depots, terminals) in the city with support from private partners.

The proposed setup is to deploy two charging stations, each supplied by 250 kWp PV installation and battery storage (500 kWh). Detailed design of the pilot project will be done during project execution.

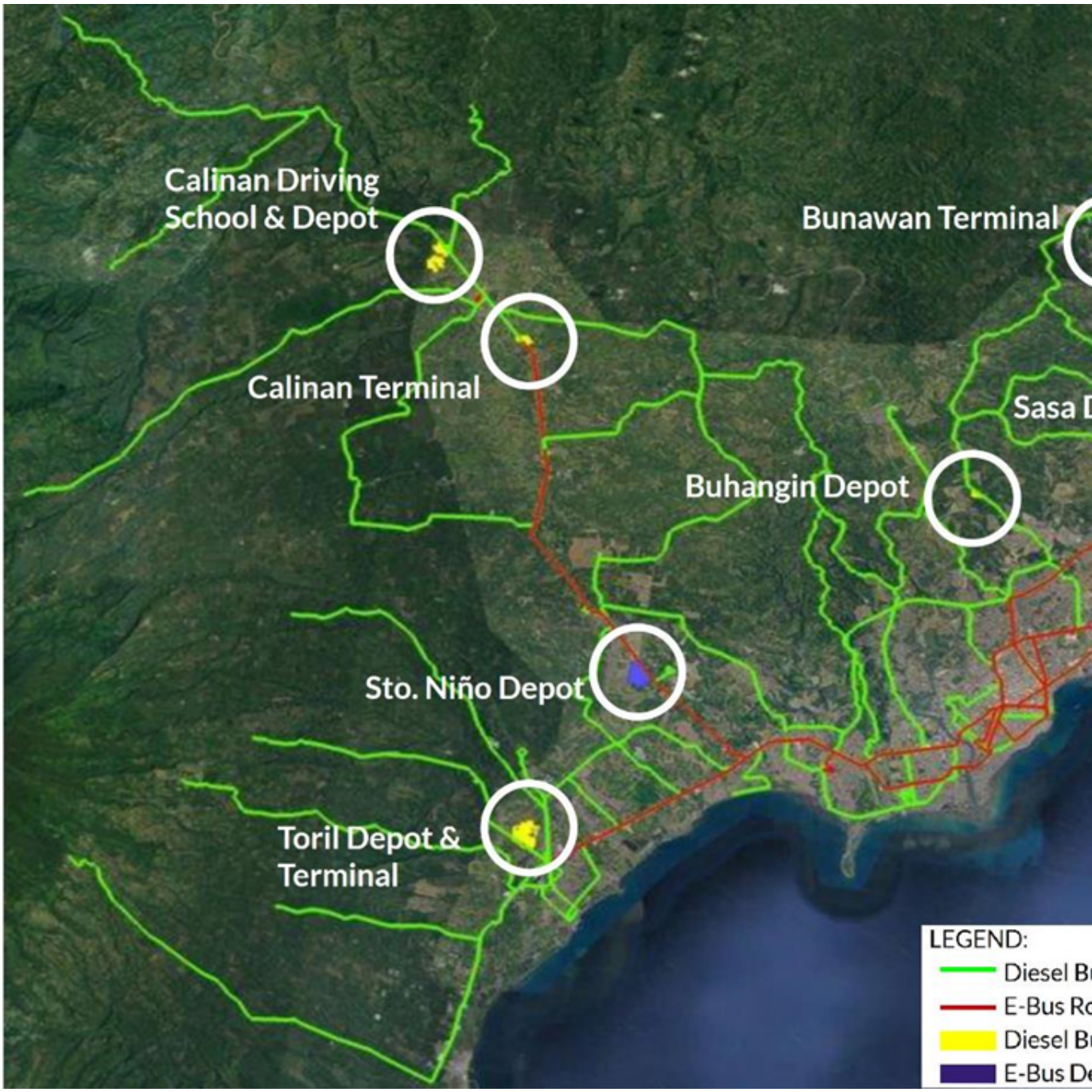

Figure 11. Plan of HPBS bus routes and depots in Davao City

Source: https://dotr.gov.ph/component/k2/item/1176-design-and-build-contract-for-the-davao-high-priority-bus-system-hpbs-project.html

2. Deployment of e-jeepneys ? through seed funding and charging infrastructure (powered by renewables) for transport cooperatives (14 routes).

As part of the national government?s Public Utility Vehicle Modernization Program (PUVMP), local transport cooperatives started modernization of jeepneys fleet in 2020 (15 e-jeepneys to the Public Transport Alliance Group of GenSan (PTAG)). PTAG plans acquisition of total 321 e-jeepneys financed through a loan from the Development Bank of the Philippines (DBP). The e-jeepneys will operate all the 14 approved new routes of GenSan under its Local Public Transport Route Plan (LPTRP) - Figure 11. As of January 2021, PTAG members had a total of 301 jeepneys, of which 51 are e-jeepneys, 30 EURO-4 diesel jeepneys, and the remaining 220 traditional jeepneys. These 14 new routes will deploy a total of 1,167 jeepneys, in addition to the 1,035 units deployed in 17 existing routes (LPTRP). The City of General Santos has set up a Special Support Fund for Transport Cooperatives to support them in the purchase of e-jeepneys. The city also has dedicated fund for modernization of the planned transport routes (road and related infrastructure improvement).

The proposed GEF-funded pilot project will support the current deployment of e-jeepneys in General Santos City through deployment of charging infrastructure, powered by renewables and supported by battery storage, for e-jeepneys in selected locations (to be determined based on further consultation with the transport cooperatives). As mentioned for the Davao project, currently the Mindanao Electricity Grid is characterized by high GHG emission intensity (0.7859 t CO2/MWh), so provision of renewable electricity for EVs would help to reduce indirect GHG emissions resulting from electricity use in e-jeepneys (currently they operate on grid-supplied electricity). It would also demonstrate a climate-friendly business model for e-jeepneys charging, which could be commercialized by local companies and scaled up to other locations (in the city and to other locations in the country).

It is planned to deploy 5 charging stations with a total PV capacity of 500 kWp, initially planned locations of the charging stations are at the three integrated off-street terminals identified in the LPTRP (Barangay Dadiangas South, Lagao Public Market, Barangay Calumpang). Detailed design of the pilot project will be done during project execution.

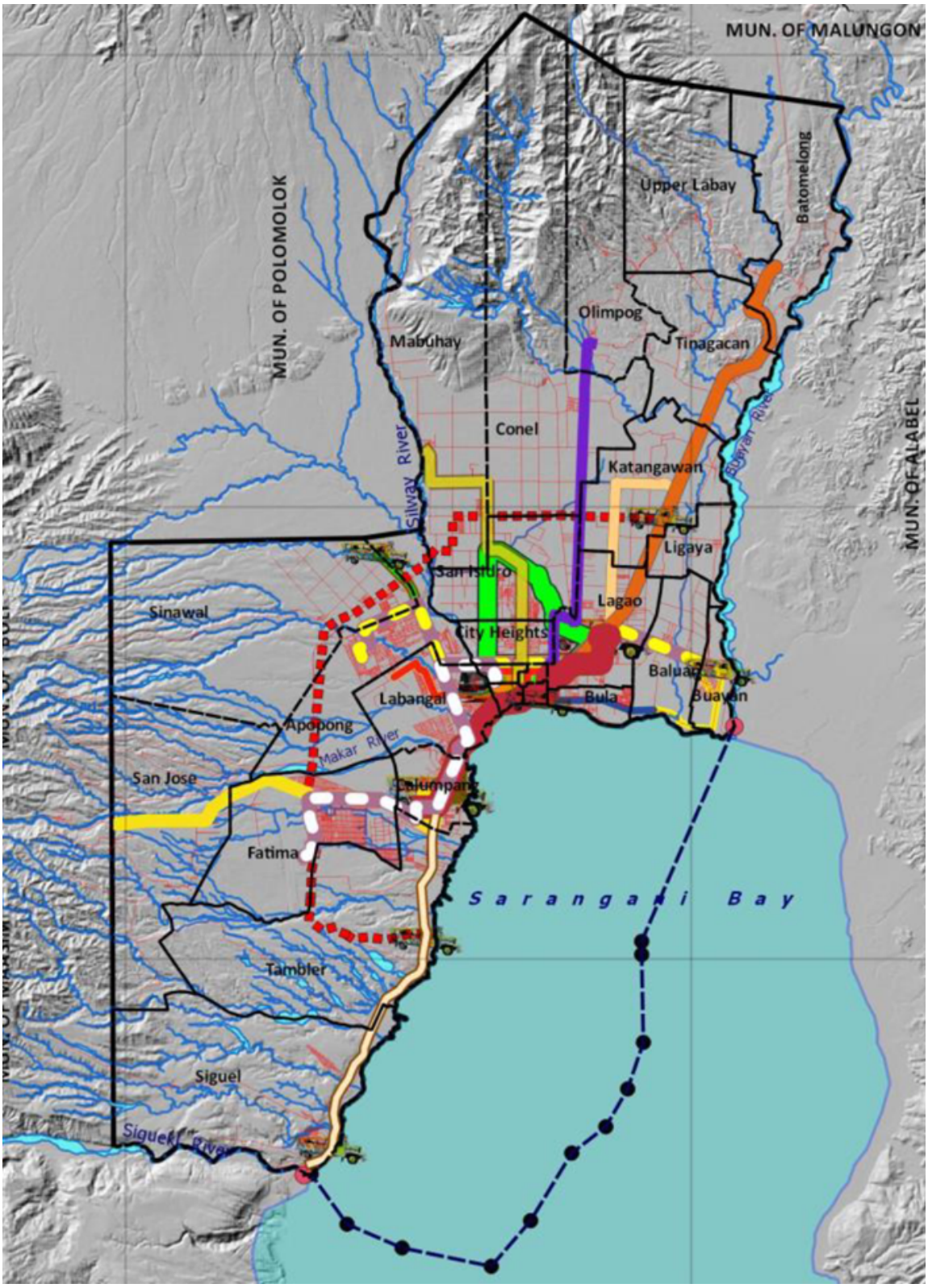

Figure 12. Map of consolidated jeepney routes in General Santos

Source: City of General Santos Local Public Transport Route Plan

3. Deployment of charging infrastructure and supporting services for electric passenger transport within the zone ? e-shuttle service inside the ecozone (covering also transport of tourists).

Clark Freeport Zone is rapidly developing area with the Clark Global City, planned to serve as the primary business district, and the New Clark City (currently 9,450-hectare greenfield development) which will the National Government Administrative Center (NGAC) and a world-class Sports Complex. Currently there are about 116,000 jobs located in the Clark area, with daily commuters from nearby cities (Angeles and Mabalacat ? more than 760,000 population). The Clark Zone administration (Clark Development Corporation - CDC) is currently planning a development of public transport hubs and routes for jeepneys (6 main routes and feeder routes). The CDC is also preparing an intermodal transportation terminal (23,955 square meters? area located at Clark?s Southern Gateway District, estimated terminal cost is 2 billion peso ? ca. 39 million USD) to streamline public transportation in the Clark Freeport Zone The establishment of the transportation terminal is intended to provide a sufficient number of departure bays for various modes of transportation such as Public Utility Buses (PUBs), Public Utility Jeepneys (PUJs), Bus Rapid Transport (BRT), shuttle services, and taxis, among others.

The proposed GEF-funded pilot project will support the deployment of e-vehicles for public transportation in the Clark Freeport Zone. The project will work with transport cooperatives to set up charging infrastructure in selected locations and pilot deployment of e-jeepneys for commuters and transport within the zone (detailed scope will be determined based on further consultation with the transport cooperatives). The Luzon Electricity Grid is also characterized by high GHG emission intensity (0.6836 t CO2/MWh), so provision of renewable electricity for EVs would help to reduce indirect GHG emissions resulting from electricity use in e-jeepneys. Initially planned location of the charging infrastructure is at the intermodal transport terminal in the Southern Gateway District. It is planned to deploy 1 charging station (coupled with renewable energy) at the terminal and 10 demo e-jeepneys for the transport cooperatives. Detailed design of the pilot project will be done during project execution.

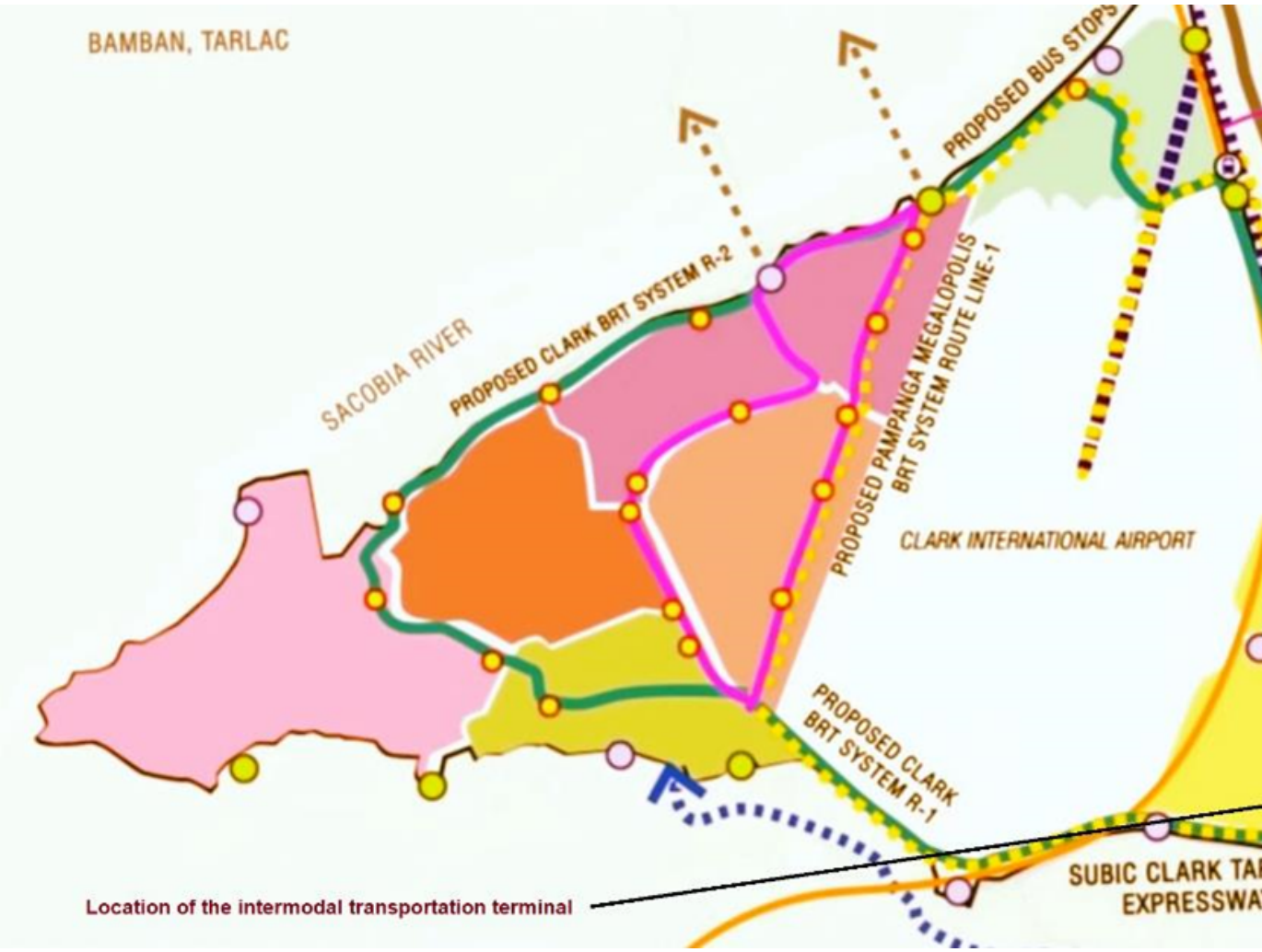

Figure 13. Planned transport routes development in the Clark Freeport Zone

Source: ASEAN Analytics (https://www.youtube.com/watch?v=2A9esVw02uQ), modified

For the remaining beneficiaries (Baguio City and Subic Bay Freeport Zone) technical assistance for identification and design of specific intervention will be provided by the project. These beneficiaries will also benefit from the project through targeted capacity building activities and e-mobility deployment planning. Those are also potential scale-up locations of pilot projects (subject to available financing).

The project Structure

The project is structured on five key components each targeting one or more root causes namely, policy and incentives, industry and market development, demonstration projects, capacity strengthening and monitoring and evaluation. The logical pathways between root causes, outputs and outcomes are shown in the theory of change diagram. The project's structure aligns with its parent Global Programme. The project will draw from the past experiences and ongoing efforts to mitigate the impact of transport

sector through enabling and accelerating the shift to e-mobility. The components along with their outputs and activities are outlined below.

Component 1: Enabling policy environment for e-mobility industry development

This component focuses on policy analysis, identification of existing gaps and possible support areas. Specifically, the project activities will lead to the development of an e-mobility industry incentive framework. Main stakeholders involved in this component will be the DTI, BOI, DOE (responsible for charging infrastructure), DOTr and DOF (in the context of incentives), with relevant other government agencies playing an important role, including participating in the policy drafting process. The activities will support pending bills in Congress related to PUVMP and EVs through policy papers. These proposed legislations have as key components on incentives and the Comprehensive Roadmap on Electric Vehicles (CREV).

Policy activities will also take into consideration gender dimension of e-mobility in the Philippines. Proposed policy measures will be gender responsive ? proposed activities will include analysis of social and gender dimensions of existing policies and the proposed recommendations will also include gender mainstreaming principles. Gender focal points, experts and groups that promote gender equality and women?s empowerment will be involved in the process of policy review and design. Also, youth engagement in e-mobility value chain will be analysed in the policy context. This includes conducting gender analysis, collecting gender disaggregated data during data collection, considering gender dimensions in the surveys and interviews and involving gender experts, gender focal points and/or organizations that promote gender equality and women?s? empowerment. Moreover, women?s organizations will be invited to validate the policies from a gender perspective.

Planned analysis and research work will be carried out using adequate research methods (specific requirements will be detailed in relevant terms of reference for assignments). The result will be peer-reviewed by external experts in the specialized field and relevant stakeholders (e.g. academia, government stakeholders, private sector stakeholders).

Planned Outcome:

Outcome 1.1. Policy ecosystem and institutional framework for EV industry development in the Philippines strengthened

The expected outputs that will contribute to the realization of the overall outcome of Component 1 are the following:

Output 1.1.1. Analysis of existing government EV policies and regulations in the Philippines with focus on industry development;

The project will carry out an analysis of policies and regulations landscape, taking results of the World Bank funded study as a starting point. The scope of the analysis will be on specific EV industry development needs in the Philippines. Government agencies involved in e-mobility policy will be

engaged as well as relevant industry associations (e.g. EVAP) and academia (universities and research institutes). The results of the analysis will be peer-reviewed, and results made available to relevant stakeholders.

Activities:

Activity 1.1.1.1. Develop Terms of Reference for the analysis of EV policies.

Activity 1.1.1.2. Analysis of EV policies with stakeholder consultations (including stakeholders working on gender dimensions).

Activity 1.1.1.3 Peer-review of the policy analysis

Activity 1.1.1.4**.** Delivery of final analysis and recommendations to the PSC

Output 1.1.2. Incentive framework for attracting investments in EV vehicles and infrastructure manufacturing with relevant regulatory framework analysed and developed promoting a gender responsive approach.

Based on the results of Output 1.1.1 the project will closely work with DTI, BOI, DOF other government agencies and industry stakeholders to draft an incentive framework stimulating investments and mainstreaming gender in industry development process. In order to propose the most feasible approach for the incentives a cost-benefit analysis of the proposed incentive scheme options will be carried out and final recommendation for the government partners will be provided on the incentives scheme.

Activities:

Activity 1.1.2.1. Develop Terms of Reference for the incentive framework development and cost-benefit analysis.

Activity 1.1.2.2. Development of the incentives scheme with stakeholder consultations (including stakeholders working on gender dimensions).

Activity 1.1.2.3 Cost-benefit analysis of the policy analysis, including analysis of social and gender dimensions.

Activity 1.1.2.4. Delivery of final draft of incentives scheme for adoption

Output 1.1.3. Technical assistance for the formulation and implementation of the Comprehensive Roadmap on Electric Vehicles Industry (CREVI) delivered to DTI and relevant government stakeholders, with focus on women engagement;

The Comprehensive Roadmap on Electric Vehicles (CREV) is currently developed by the DOE and DTI is responsible for inputs on the industry development (CREVI). Through this output the project will support DTI in developing the CREVI, through relevant analysis, technical papers and consultations with industry stakeholders and women groups.

Activities:

Activity 1.1.3.1. Develop Terms of Reference for the technical assistance on CREVI.

Activity 1.1.3.2. Delivery of technical assistance through targeted analysis and stakeholder consultations.

Output 1.1.4. Technical assistance to EV technology standardization and establishment of Quality Infrastructure delivered to DTI/BOI.

Bureau of Philippine Standards (BPS) under DTI as well as DOE are the key drivers of standardization for e-mobility. Specific activities under this output will include support to the BPS Technical Committee on EV in the adoption of IEC, ISO, and other relevant international standards, through international expert presentations and advisory services. Standardization is at the heart of Quality Infrastructure.

Activities:

Activity 1.1.4.1. Delivery of technical assistance through expert presentations and technical advisory services.

Component 2: Development of viable business models to increase demand for EVs

This component focuses on e-mobility value chain analysis and leveraging Philippines comparative advantages to stimulate e-mobility industry and business models development suitable for the Philippine context. For this purpose e-mobility deployment plans will be prepared in different setups: for public transportation, logistics and in private sector, to stimulate market uptake of the EVs and development of industry. As a third element the project will work with selected direct beneficiaries to increase their investment readiness in the e-mobility solutions, through development of climate-smart capital investment plans.

Planned Outcome:

Outcome 2.1. Development of viable business models to increase demand for e-vehicles

The expected outputs that will contribute to the realization of the overall outcome of Component 2 are the following:

Output 2.1.1. EV market and global value chain analysis identifying opportunities for manufacturing of EVs leveraging Philippines comparative advantages prepared;

The EV market and global value chain analysis will aim to identify opportunities for manufacturing of EVs leveraging Philippines comparative advantages (natural resources, existing industry, technology base). The results will provide inputs to policy development for stimulating development of e-mobility industry in the country. Planned analysis and research work will be carried out using adequate research methods (specific requirements will be detailed in relevant terms of reference for assignments). The

result will be peer-reviewed by external experts in the specialized field and relevant stakeholders (e.g. academia, government stakeholders, private sector stakeholders). Project activities will analyse how the Philippines could take advantage of rich copper and nickel reserves, with both metals used in batteries. Already, DTI/BOI includes the Copper Industry Roadmap among its manufacturing resurgence programs (comprising 32 industry roadmaps, including the EV industry roadmap).

Activities:

Activity 2.1.1.1. Develop Terms of Reference for the EV value chain analysis leveraging on the country?s comparative advantage in IT, electronics, and metal resource.

Activity 2.1.1.2. Preparation of feasibility reports on manufacturing options of EVs and parts with stakeholder consultations.

Activity 2.1.1.3 Peer-review of the prepared reports.

Activity 2.1.1.4**.** Delivery of final analysis and recommendations to the PSC

Output 2.1.2. EV deployment /integration plans in public transportation, logistics, private sector (corporate) prepared;

Based on the results of the market analysis broad EV deployment /integration plans in public transportation, logistics, private sector (corporate) will be prepared. They will identify opportunities and niches for development of e-mobility solutions in these sectors in the Philippines, with specific focus on pilot cities as examples and replication models. Integration of e-mobility in the LPTRPs, will be explored and integration of e-mobility and corresponding investments in the LGU Comprehensive Development Plan, Comprehensive Land Use Plan, Annual Investment Plan, Local Climate Change Action Plan, and Local Energy Efficiency and Conservation Plan. EV charging infrastructure (coupled with renewable energy) deployment models will be explored and developed.

These plans will be gender responsive, i.e. gender dimensions of mobility and business (manufacturing, services) will be considered, women?s transportation needs will be considered. Women groups/organizations will also be involved in the formulation of these plans, and relevant suggestions/ measures will be included to reduce gender inequality in the deployment plans. Moreover, gender-responsive investment planning applying gender lens investing principles will be used.

Activities:

Activity 2.1.2.1. Development of Terms of Reference for the EV deployment/integration plans in each sector.

Activity 2.1.2.2. Development of EV deployment/integration plans in public transportation.

Activity 2.1.2.3. Development of EV deployment/integration plans in logistics.

Activity 2.1.2.4**.** Development of EV deployment/integration plans in private sector.

Output 2.1.3. Climate-smart and gender responsive investment planning adopted by selected beneficiaries.

The technical assistance program for climate-smart investment planning will be designed to specifically meet beneficiaries? need and capacitate them in sustainable investment planning in order to increase the uptake of e-mobility solutions.

In order to ensure maximum ownership by beneficiaries, this component will begin the engagement with officials so that each activity under the Program will be identified, designed, and customized case by case. To achieve this preliminary objective, the project will convene target officials and partners at a flagship workshop: the Municipal Finance and Creditworthiness Academy. The event is designed to provide participants with prime training, but also to enable them to identify weaknesses in their financial management and, on that basis, to develop an action-plan for reform and capacity building.

Training topics at the Academy (to be confirmed with national/municipal counterparts beforehand) will include revenue management; expenditure control and asset maintenance; capital investment planning; debt management; the use of special purpose vehicles to ?ring fence? specific revenues; scoping of options for financing; and developing the enabling environment for private sector involvement. Following the Academy, and on the basis of the action-plans developed by each city during the Academy, the project will continue assisting beneficiaries by providing capacity building support. The scope and depth of technical assistance will depend on the individual action plans selected by the beneficiaries, the extent of collaboration from partners and stakeholders, and ability to secure funding for this purpose.

The areas of focus of the proposed technical assistance Program focuses on the development of Climate-Smart Capital Investment Plans This includes supporting beneficiaries in the production of procedures, policies, criteria, and objectives for implementing capital investment plans. At the project level, this component will include also training local technical staff in the conduct of cost estimates, carbon emissions forecasts, and resilience cost-effectiveness analysis. As a result, beneficiaries will have developed a pipeline of bankable climate change mitigation projects, which can access different financing sources (green finance and private financing). Additionally, and subject to available co-financing the technical assistance may cover also Financial Management Assessments and Credit Ratings (with an objective to provide target beneficiaries with confidential and/or public analysis as to their preparedness for potential financing transactions) and Project-Pipeline Assessments, Financing Options, Market Sounding Analyses (with an aim to help clients systematically assess options and, where appropriate, pursue reforms and actions that can help projects to secure financing) .

Activities:

Activity 2.1.3.1. Development of Terms of Reference for the technical assistance on climate-smart investment planning.

Activity 2.1.3.2. Municipal Finance and Creditworthiness Academy.

Activity 2.1.3.3. Delivery of Climate-Smart Capital Investment Planning and additional technical assistance to direct beneficiaries.

Component 3: Demonstration and early deployment of innovative charging infrastructure and technology eco-investments

This component will focus on building capacity to develop and deploy e-mobility solutions in the pilot areas (selected beneficiaries ? LGUs and Ecozones). Beneficiaries will get direct investment support for a selected identified best demonstration project (the one which will prove to have most impact, good scalability, and which could be implemented within the project duration). These projects will involve private sector and stimulate development of e-mobility value chain in the Philippines. The beneficiaries do not have a specific investment project identified will benefit from tailored analysis and planning activities for e-mobility adoption within their area. All investment projects will consider gender dimensions ? and put special emphasis on enabling access to mobility services to women and youth. To reflect the needs and priorities of women and youth, their representative groups will be included in the development of detailed deployment plans for the pilot projects.

Planned Outcome:

Outcome 3.1. Demonstration and early deployment of innovative charging infrastructure and technology eco-investments

The expected outputs that will contribute to the realization of the overall outcome of Component 3 are the following:

Output 3.1.1. Pilot investments identified and prepared.

This output will focus on detailed design of the selected pilot projects in beneficiary cities/ecozone and will cover extensive consultations and preparation of the feasibility studies for the investments. Analysis of project design from environmental, technical, social and gender dimensions with focus on renewable energy - EV integration based on the best international experience will be done. The resulting feasibility studies will assess:

- technical requirements (e.g., required number, location, type, power of the charging points, load to the grid and if a transformer sub-station is needed, impact of HVAC use on battery lifetime) and technical design (e.g., both overnight charging and opportunity charging will be analyzed and compared)

- economic performance and financial model of the investment (e.g., required CAPEX, OPEX, internal rate of return, revenue streams) including assessment and comparing of different procurement options such as aleasing and joint procurement

- environmental benefits (GHG emission reduction potential)

- environmental and social (incl. gender) impacts and mitigation measures including battery lifecycle

- risks and mitigation measures

Activities:

Activity 3.1.1.1. Stakeholder consultations for the development of the detailed project concept.

Activity 3.1.1.2. Development of feasibility studies for 3 investment projects.

Output 3.1.2. Pilot investments demonstrating integration of EV with innovative charging infrastructure coupled with renewable energy and EV value chain improvements.

This output will focus on direct deployment of the designed pilot project in selected beneficiaries. The project team will collaborate with the teams in cities/ecozones to streamline implementation of the designed demonstration projects.

Activities:

Activity 3.1.2.1. Execution of pilot project in General Santos City.

Activity 3.1.2.2. Execution of pilot project in Davao City.

Activity 3.1.2.3. Execution of pilot project in Clark Freeport Zone.

Output 3.1.3. Policy & regulatory support to Local Government Units (LGUs) with demonstration projects provided.

Beneficiaries will receive targeted policy and regulatory from the project to enable smooth implementation of the selected pilot projects. This will include trainings to policy makers to enhance their awareness on gender bias and how to mainstream gender dimensions into their work/policies. This will include integration of EV deployment for public transport in the LPTRP, as well as in other local development plans.

Activities:

Activity 3.1.3.1. Targeted technical support to the beneficiary cities/ecozones in the context of e-mobility integration in existing policies.

Activity 3.1.3.2. Trainings for beneficiaries? policy makers, including gender awareness topics.

<u>Component 4: Scale-up of investments through partnerships, knowledge management and capacity building</u>

This component aims to contribute to the scale-up of other components of the projects through capacity building and knowledge sharing on outputs of Component 1 - 3, in order to accelerate the adoption of EVs. This component will also put a strong emphasis on gender balance ? with inclusion of gender dimensions in the capacity building activities. Women will be encouraged to participate in the activities as facilitators and participants.

Therefore, the knowledge, experiences, and lessons learned from Component 1, 2 and 3 will be integrated as content of Component 4 and will be shared across national, regional, and global networks through the below outputs of this component. The project will also share project deliverables such as analytical reports, policies, business models and lessons learned with the Global Program in order to support scale-up and replication of e-mobility in other countries and regions.

All capacity building activities, knowledge materials and tools will be gender responsive. Specific training session on gender dimensions of mobility will be prepared and conducted to reduce gender bias and enhance awareness on the business case for gender equality. Existing women?s network will be engaged or new networks created in the context of e-mobility solutions development in the country.

Planned Outcome:

Outcome 4.1. Scale-up of investments through partnerships, knowledge management and capacity building

The expected outputs that will contribute to the realization of the overall outcome of Component 4 are the following:

Output 4.1.1. Knowledge exchange platforms and mechanisms strengthened with key national stakeholders based on lessons learned from industries and cities, with focus on women engagement.

This output will focus on identification and collaboration with existing platforms for e-mobility in the country. Women?s networks will be identified and strengthened/established for knowledge exchange on e-mobility. National events will be organised to bring various stakeholders (industry, academia, LGUs) together for knowledge exchange and gather lessons learned, harnessing them for project execution.

Activities:

Activity 4.1.1.1. Organization of annual national events on electric mobility, sustainable battery use and life-cycle solutions to electric mobility

Activity 4.1.1.2. Women?s network established for knowledge exchange on e-mobility.

Output 4.1.2. Linkages created with regional and global platforms on electric mobility as part of the Global Electric Mobility Program.

Knowledge sharing and scale-up is a key part of the project with a dedicated component to ensure direct engagement with the Asia and Pacific Regional Support and Investment Platform run by the Asian Development Bank and the global programme. This project stands to contribute lessons learned and best practices to the programme?s thematic working groups, in particular the working groups on Charging infrastructure, grid, system and power market integration and batteries as well as Light-duty vehicles (2- and 3-wheelers and cars).

The Project also aims to take advantage of the platform by ensuring national stakeholders are the beneficiaries of technical support, the networks and communities of practice, training and capacity building and information from global working groups provided under the platform. The project will share project deliverables such as analytical reports, policies, business models and lessons learnt with the Global Programme to support scale-up and replication of e-mobility in other countries and regions.

Activities:

Activity 4.1.2.1. Annual participation in knowledge and best practice sharing through regular exchange of global, regional and national experiences through the Asia and Pacific Regional Support and Investment Platform.

Activity 4.1.2.2. Preparation and dissemination of best practices / lessons learned based on the project outputs.

Output 4.1.3. Training sessions for public and private sector on life cycle solutions for EVs and batteries.

Under this output, training modules tailored to the national context of the Philippines will be developed and capacity building workshops for national stakeholders and private sector will be conducted. The project will benefit from the Global Programme?s training materials that are prepared for use in the support and investment platforms. The training modules will include a range of environmental, social and technical topics such as; RE-EV integration, GHG emission reduction potential of e-mobility, how to tackle range anxiety, future technology scenarios and environmental impact with a focus on battery lifecycle. The PMU will reach out and promote the participation of women to the trainings. The time, date and location of the trainings and workshops will be suitable for women.

Activities:

Activity 4.1.3.1 Development of training modules tailored to the Philippines, based on Global Programme resources.

Activity 4.1.3.2 Delivery of trainings and workshops using prepared resources.

Component 5: Monitoring and Evaluation.

Day-to-day monitoring of the project activities falls under the responsibility of the Project Executing Entity. UNIDO will oversee the execution of the project and will be responsible for the Mid-term review and Terminal Evaluation of the project. Therefore, this Component falls under UNIDO?s responsibility. Its scope is to oversee project execution and evaluate the progress on each component to ensure the project is completed following the time plan and the budget allocated, as well as to be responsive and proactive about any potential adjustment or opportunities that arise that can further leverage the GEF grant for achieving additional GEBs.

Outputs under this component include regular monitoring of the project execution by the selected PEE, mid-term project review in the third year of the project period, and a terminal project evaluation. As per GEF and UNIDO guidelines, an independent terminal project evaluation will be conducted at the conclusion of the project to glean best practices and lessons learned for future projects.

All monitoring and evaluation tools and documents, such as the monitoring plan, progress reports, final evaluation report, and thematic evaluations (e.g. training needs assessment), will include gender dimensions, and report with respect to an established baseline for gender related targets in the gender mainstreaming action plan.

Planned outcome:

Outcome 5.1. Adequate monitoring of all project indicators

The expected outputs that will contribute to the realization of the overall outcome of Component 5 are the following

Output 5.1.1. Monitoring and mid-term project review.

Activities:

Activity 5.1.1.1 Regular monitoring of project activities against project targets

Activity 5.1.1.2 Independent mid-term review conducted

Output 5.1.2. Project terminal evaluation.

Activities:

Activity 5.1.2.1 Independent terminal evaluation on the project conducted at the end of the project

Theory of Change (TOC)

The project solutions in the ToC are based on the root causes lay under the unsustainable transport problem in the Philippines. The project outputs are structured to target one or more root causes. Different colors and lines denote the different aspects of the project?s theory of change (root causes, assumptions, outputs, etc.). Component 5 on monitoring and evaluation, gender mainstreaming and environmental and social impact assessment are considered cross-cutting and not shown in the ToC.

The ToC shows that IF the outputs (project interventions) are conducted successfully THEN the project will reduce GHG emissions resulting from decarbonised electric mobility BECAUSE creating evidence through pilot technology demonstration, building capacity on e-mobility and sustainable battery use and enabling policies and investment conditions for private sector will accelerate the adoption of EVs in the Philippines.

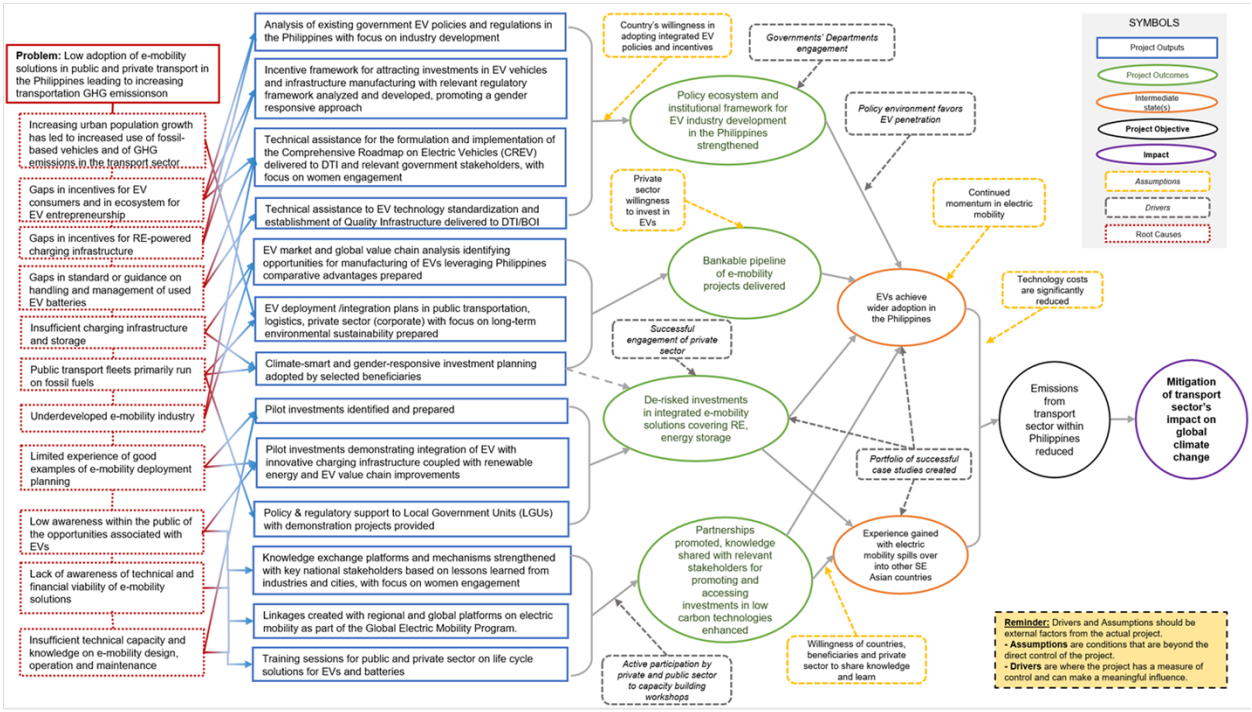

Figure 14. Theory of Change

d) alignment with GEF focal area and/or impact program strategies;

This project is categorized under the GEF-7 Climate Change Mitigation (CCM) focal area, specifically addressing the strategic area of CCM-2: Promote innovation and technology transfer for sustainable energy breakthroughs for electric drive technologies and electric mobility. The project supports decarbonization of Philippine?s transport sector by promoting the adoption of low-carbon electric mobility and development of innovative electric mobility solutions, contributing to direct reductions in GHG emissions and indirect reductions via scale-up within the market and the country.

e) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing;

From the current baseline, it?s obvious that an important gap in the Philippines exists, which slows down the adoption of e-mobility ? the country lacks charging infrastructure development, substantive incentives for e-mobility industry and private sector and good business models for e-mobility use in logistics and public transportation. The Philippines requires further incremental technical and financial assistance from the GEF to ensure that its transportation sector decarbonises at a rate consistent with meeting the Paris Agreement. This assistance is essential to strengthen institutional capacities and policy ecosystem for electric mobility and de-risk electric mobility technologies to attract stable co-

financing from foreign and domestic investments in advanced technologies. With a relatively minimal GEF grant, calculated at a cost of 2.74 USD per tonne (based on direct emission reductions only), this project will support mobilization of investment to support and accelerate the adoption of electric mobility in the Philippines, contributing to the programmes overall objective of reducing global greenhouse gas emissions from the transport sector.

Table 10. Project incremental reasoning.

Components	Business as usual	Incremental cost reasoning	Main outcomes expected
1. Enabling policy environment for e-mobility industry development	Lack of policy standards coherence and incentives results in a low rate of charging infrastructure deployment and adoption of EV in public/private fleets Existing projects target transport planning, standards and incentives, not charging infrastructure development and industry development.	The systematic promotion of mutually reinforcing policies and incentives schemes for EV manufacturing in the whole value chain (incl. charging infrastructure with RE integration) are developed	Policy guidance and incentives framework, coupled with institutional framework for electric mobility value chain development
2. Development of viable business models to increase demand for e-vehicles	Lack of viable business models for private investment in charging infrastructure and EV solutions, manufacturing.	Analysis of value chain for identification of opportunities for Philippines EV industry, based on comparative advantages Plans for stimulating manufacturing and deployment of EVs in public and private fleets. Development of viable investments pipeline, increased creditworthiness of entities create a favourable investment environment.	Unlocked private investment e-mobility manufacturing and solutions deployment in public and private transport

3. Demonstration and early deployment of innovative charging infrastructure and technology eco-investments	Adoption of new technologies will follow market at a rate inconsistent with meeting required targets for mitigation of transport GHG The existing projects focus on public transport demonstrations and public utilities.	Innovative electric mobility technologies and life-cycle solutions for EVs and batteries are trialled, increasing national awareness, interest and evaluation of their use	Investment in innovative electric mobility and battery technologies is de-risked, accelerating their mainstreaming and adoption
4. Scale-up of investments through partnerships, knowledge management and capacity building	Knowledge and expertise on EVs, RE integrated charging infrastructure and life-cycle issues for batteries is insufficient to meet national targets	Increased national technical capacity and knowledge developed with connections through the national, regional and global programme and networks	Capacity development and knowledge exchange on lessons learned scale-up to national, regional and global networks
5. Monitoring and evaluation	Lessons from implementation are not captured and project risks not meeting its objectives	Effective monitoring and evaluation of the project is completed	The project achieves objectives with lessons learned for improving future projects

f) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and

The project will generate multiple global environmental benefits, building on a series of baseline initiatives currently being undertaken. The GHG emissions are calculated based on a top-down UNEP methodology applied across the GEF-UNEP Global Programme. This approach differs from the bottom-up methodology that was applied during the PIF stage.

The initial estimations for the PIF yielded a total GHG emission reduction of 6,632,828 t CO_2 (over 10 years), with 1,326,566 t CO2 direct emission reduction and 5,306,262 t CO2 of indirect emission reduction. The estimations were based on "Calculating Greenhouse Gas Benefits of Global Environment Facility Transportation Projects". Direct emission reduction was a result of demonstration projects and their secondary impacts (assuming relevant causality factors), and indirect emission reductions were calculated through a bottom-up approach, making a conservative estimation of the number of times the project is likely to multiply in the long run (replication factor = 4). Assumed investment lifetime was 10 years. The GHG emission reduction done at the PPG stage has been prepared using UNEP?s EMOB tool for calculating using similar assumptions on the investment lifetime. The refined design of the pilot projects described in this document, did not impact the direct emission reduction value (including secondary direct) - emission reductions are at comparable level as included in the PIF (currently 1,305,542 t CO_2 at the PPG). The main difference is due to the use of the

top-down approach for estimation of indirect emission reductions, which is estimated at 50% of the indirect emission reduction of the PIF (currently 3,086,728 t CO_2). The top-down methodology has been adopted in support of greater consistency across GEF electric mobility projects.

The project will provide technical assistance and facilitate investment mobilization for pilot demonstrations in selected cities and ecozones. The project?s direct impact is assumed to be GHG emission reductions (75,867 t CO2 direct, 1,305,542 t CO2 secondary direct) resulting from the deployment of EV charging infrastructure (11 charging stations) powered with renewable energy (1.25 MW of total PV capacity) which will serve e-jeepneys (in Clark Freeport Zone and General Santos City) and e-buses (in Davao City). Deployment of demonstration 10 e-jeepneys is also accounted (in Clark Freeport Zone). For the secondary direct emission reduction it is assumed that further uptake of the chargers and e-jeepneys in pilot cities/ecozones will happen due to private sector investment (assumed 40% causality factor). Indirect emission reductions are a result of larger changes in mobility due to the combined effect of factors such as policy changes, industry development, capacity building and behavioural changes occurring during the project period ? this is estimated using top-down model approach in the UNEP?s EMOB Calculator (consistent with other Programme child projects).

Table .: Summary of project GHG emissions mitigation potential

Total top-down emission mitigation potential, tCO2, thereof	
Total direct emissions mitigation 2022 - 2037, tCO2	1,381,409
Direct emission mitigation from demonstration 2022 - 2037, tCO2	75,867
Secondary direct emission mitigation 2022 - 2037, tCO2	1,305,542
Indirect emission mitigation 2022 - 2037, tCO2	3,086,728
Total project related emissions reductions, tCO2	4,468,137
Total GEF investment, USD	3,788,990
GEF efficiency USD/ Total direct emissions mitigation 2022 - 2037, tCO2	2.74
GEF efficiency USD/ Total project related emissions reductions, tCO2	0.85

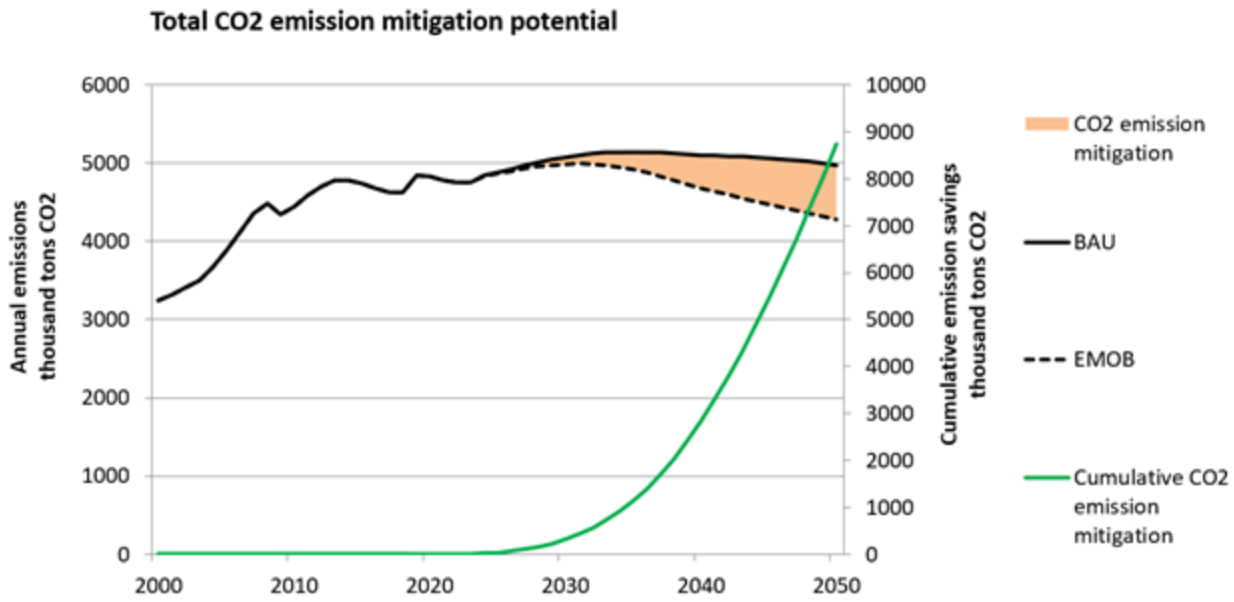

Figure 15. Comparison of low-carbon e-mobility scenario to business-as-usual

For the EMOB Calculator the vehicle stock numbers in the Philippines are taken from national data and estimations. The economy growth rate indicator is also used for secondary direct and indirect GHG emission calculations. The growth rate (%) of the Philippines economy is expected to bounce back to the pre-COVID period, therefore, this value is estimated to average 5.8% from 2023 to 2030 and slowdown to stay 5% from 2031 to 2050 based on World Bank data. The value for electricity well-to-tank emissions (grid emission factor, kgCO2/kWh) is taken from the Department of Energy of the Philippines data (Combined margin, average for main grids), population data is gathered from the statistics of UN Population division and GDP prospects from IFC. It is also considered that the grid emission factor of the Philippines is assumed to be reduced moderately starting from 2025 in line with national policies and INDC and trends such as climate agenda, green recovery and capital investment costs for renewable energy technologies.

g) innovativeness, sustainability and potential for scaling up. ?

Innovation

The Philippine?s automotive industry is mainly focused on supplying components for large car manufacturers globally. Electric mobility is not yet developed in the Philippines, with very limited adoption of e-mobility solutions with the first pilot in public transportation focused on e-trikes and e-jeepneys. With limited charging infrastructure, the country is falling behind other countries in the region in e-mobility solutions adoption. There are only a few local manufacturers of simple e-mobility solutions (like e-trikes and e-jeepneys). In transitioning Philippine?s mobility towards electric mobility,

increased support is needed for enhancing an ecosystem that supports entrepreneurship, innovation and adoption of EVs.

This project will help to stimulate adoption of advanced e-mobility solutions in public and private transport by the identification of innovative electric mobility solutions and developing an entrepreneurship support program for these innovative electric mobility solutions. The project will also demonstrate the following: 1) the use and operation of EVs for local public transportation and logistics; 2) the use and operation of charging infrastructure for Evs integrated with renewable energy systems; 3) the use of data to support the planning and management of charging infrastructure, fleets of public transport vehicles, and GHG emissions reduction; and 4) the use of second life batteries.

The project will use Geographic Information System (GIS) solutions (possibly start-up enterprises) to plan for collecting data through hardware and software and to develop innovative mobile applications that will support charging infrastructure planning for public transport, as well as to facilitate matching electric vehicles with corporate and public customers and enhancing the use of EVs for extra service. The project will collect data and do analysis to improve logistics. This includes recommendation on new public routes, and locations to install more chargers to be proposed to relevant authorities for consideration and implementation. All of these interventions are expected to enable digital innovations that support the planning of charging infrastructure as well as the adoption of electric vehicles for public transport.

Sustainability

The design of each project activity and selection of counterparts is premised on ensuring long-term sustainability of the change that this GEF project will catalyse. Fundamentally, there needs to be national ownership of all interventions and their mainstreaming into the operations of the national entities to ensure that institutions will be responsible for taking actions forward beyond the project implementation period.

Long-term ownership and sustainability will be ensured through working closely with Department of Trade and Industry, Board of Investments, and the selected executing entity, as well as other national partners and private sector. Developed tools and methodology will be universal and owned by the DTI/BOI, which will guarantee the overall sustainability of the project outcomes.

Accelerated adoption of technological solutions will be executed as public-private partnerships. The selected private sector partners will secure part of the required financing for the execution, as defined in the tendering process. As such, the private partner will have a vested interest that the technologies operate successfully for them to recover their investments. Given the commercial interest in sustaining the operations of the projects, the different proponents will also have an interest in keeping the projects running and hence sustain the global environmental benefits beyond the project lifetime.

In addition to creating public-private partnerships and investments in this project, the project will emphasize on developing innovations and models that are suitable for local needs and contexts.

Specifically each demonstration in the Innovation Section above will be divided into a few phases/stages. In the initial phase, the project will only demonstrate a few prototypes of electric vehicles and chargers integrated with PV systems, and a pilot area for the second life application of used batteries. The project will take opportunities to collect data and monitor the implementation, assess barriers and feedback from this initial phase to monitor and inform scale-up of the project?s activities. The project will take into account feedback, lessons learned from the initial phase and further improve technical, financial, and digital innovations for demonstrations in the later stages of the project, and also collect data and monitor the implementation closely in order to ensure that the technical, financial, and digital innovations/models suit local contexts and needs, which will contribute to ensuring the sustainability of these developed innovations after the project period.

Potential for scale-up

The project?s strategy to ensure scale-up and replication is to develop the supporting policy framework, national examples and build up capacity, particularly within national and local government departments, private sector, research and academic institutions, and financial institutions since these organizations are in the best position to replicate the activities. The outputs to be generated by the The project will contribute to creating an enabling environment for integrating sustainability strategies into investment planning and management. All planned outputs are consistent with, and instrumental to, achievement of the objectives of Philippine key policies and legislation. Therefore, the combined efforts of technical project components are designed in such a way to ensure the scale-up of global environmental benefits beyond the life of the project. Finally, the project will share project deliverables such as analytical reports, policies, business models and lessons learnt with the Global Programme in order to support scale-up and replication of e-mobility in other countries and regions.

In addition, the project will have potential for scale-up at different levels through project partners both government agencies and private sector. The policy and regulatory framework to be developed, focusing on incentives for development of e-mobility industry in the country will be proposed to the Department of Trade and Industry, relevant government agencies, and working groups established under this project, respectively. Thus, the policy and regulatory framework to be developed will have potential for scale-up at the national level.

Innovative technical, financial, and business models to be developed through the Component 2 activities and demonstrations in this project will also be prepared for scale-up and dissemination in other cities and ecozones in the country, based on experiences gained during the project implementation.

Furthermore, through Component 4 of the project on capacity building, up-scaling, and knowledge exchange, the project will contribute to the scale-up of other components of the projects in the country through capacity building and knowledge sharing on outputs of Component 1, 2 and 3. Knowledge, experiences, and lessons learned from these components will be integrated as content of Component 3 and will be shared across national, regional, and global networks, through trainings, workshops, and conferences ? within the framework of the Global E-mobility Programme.

In summary, the project has been designed to provide various channels for scale-up at different levels (city, national, regional and global levels), including project partners that are government agencies, project partners that are private sector, other private sector stakeholders in ecozones (industry partners), and participants in trainings, workshops and conferences.

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[1] EV bill pushed in Senate to reduce PH dependence on oil (newsbytes.ph)

[2] DOE *Philippine Energy Plan 2018-2040*, *Philippine Energy Plan 2020-2040*

[3] WB 2021, p. 3.

[4] The GHG mitigation potentials of EVs are estimated at 19.5 MtCO2eq for electric motorcycles, 36.6 MtCO2eq for electric tricycles, and 168.7 MtCO2eq for electric jeepneys. (ADB in WB 2021, p. 3.)

[5] Rosselon 2021 (SERP-P (pids.gov.ph))

[6] https://lowcarbontransport.ph/ra-10963-tax-reform-for-acceleration-and-inclusion-train/

[7] Rosselon 2021 (SERP-P (pids.gov.ph)). See also WB 2021, p. 8.

[8] (PDF) Philippine Electric Vehicle Policy Analysis Report - Draft Report (researchgate.net), p. 113.

[9] Ha and Manongdo 2021, p. 11.

[10] This does not include the seven e-buses recently deployed in Davao City. (7 e-buses offer free rides to Davao passengers | MindaNews)

[11] WB 2021, p. 8.

[12] Ha and Manongdo 2021

[13] Integrated Transport Planning Ltd. (ITP) 2021. ?Electric Mobility Development Assessment?. World Bank/ESMAP, Electric Mobility Development in the Philippines.

[14] Quoted in Ha and Manongdo 2021, p. 8.

[15] Rosselon 2021 (SERP-P (pids.gov.ph))

[16] ITP 2021.

[17] (PDF) Philippine Electric Vehicle Policy Analysis Report - Draft Report (researchgate.net)

[18] https://legacy.senate.gov.ph/lisdata/3242729284!.pdf

[19] See also https://cpbrd.congress.gov.ph/images/PDF%20Attachments/CPBRD%20Policy%20Brief/PB2020-02_PUV.pdf.

[20] http://ncts.upd.edu.ph/tssp/wp-content/uploads/2021/12/13-TSSP2021-PUVMP-in-Gensan.pdf

[21] https://ltfrb.gov.ph/?page_id=3191

[22] http://ncts.upd.edu.ph/tssp/wp-content/uploads/2021/12/13-TSSP2021-PUVMP-in-Gensan.pdf

[23] PB2020-02_PUV.pdf (congress.gov.ph), p. 5.

[24] https://ltfrb.gov.ph/?page_id=3191

[25] PB2020-02_PUV.pdf (congress.gov.ph), p. 7.

[26] According to PB2020-02_PUV.pdf (congress.gov.ph), 90% of the total 180,000 PUJs registered by the LTFRB were already 15 years old and above as of 2018. ?This vehicle condition places the commuting public 10 times more likely to get into accidents than private car riders (GIZ Jeepney Market Tranportation Program as cited by LTFRB 2018).? In addition, a jeepney might be technically 15 years old (based on LTFRB records) but its engine could be a lot older.

[27] Sustainability | Free Full-Text | Socio-Economic and Environmental Analyses of Sustainable Public Transport in the Philippines (mdpi.com)

[28] As of 30 April 2021, LTFRB reported a total of 95,243 consolidated franchises since the launch of PUVMP in 2017 (https://www.pna.gov.ph/articles/1140020).

[29] DOTr signed separate MOUs with the LANDBANK in April 2017 for its PHP1 billion Special Environment-Friendly and Efficiently Driven (SPEED) Jeepney Program and with the DBP in January 2021 for its Support Alternative Driving Approaches (PASADA) Program. Both programs finance the acquisition of new or modern PUVs (https://dotr.gov.ph/48-dotr-latest-news/298-dotr-secretary-tugade-says-puv-modernization-program-not-anti-poor.html). As of January 2020, LBP is processing loans for 383 units with an equivalent amount of P867.5 million, while DBP is considering loans for 1,362 units which amounts to P2.8 billion, potentially releasing about P140 million in subsidies. (PB2020-02_PUV.pdf (congress.gov.ph))

[30] Sustainability | Free Full-Text | Socio-Economic and Environmental Analyses of Sustainable Public Transport in the Philippines (mdpi.com). See also PB2020-02_PUV.pdf (congress.gov.ph), p. 8.

[31] http://ncts.upd.edu.ph/tssp/wp-content/uploads/2021/12/13-TSSP2021-PUVMP-in-Gensan.pdf

[32] http://legacy.senate.gov.ph/lis/bill_res.aspx?congress=18&q=SBN-2414

[33] http://ncts.upd.edu.ph/tssp/wp-content/uploads/2021/12/13-TSSP2021-PUVMP-in-Gensan.pdf

[34] 3242729284!.pdf (senate.gov.ph)

[35] Rosselon 2021 (SERP-P (pids.gov.ph))

[36] This section is based on https://www.zicolaw.com/resources/alerts/new-framework-for-the-operation-of-ev-charging-stations-issued-in-the-philippines/

[37] Integrated Transport Planning Ltd. (ITP) 2021. ?Electric Mobility Development Assessment?. World Bank/ESMAP, Electric Mobility Development in the Philippines.

[38] (PDF) Philippine Electric Vehicle Policy Analysis Report - Draft Report (researchgate.net), p. 124.

[39] https://legacy.senate.gov.ph/lisdata/3242729284!.pdf

[40] https://www.dti.gov.ph/archives/news-archives/dti-bps-develops-standards-to-support-electric-vehicles/

[41] ITP 2021, ?Appendix A?, pp. 53-56.

[42] DOE PEP 2020-2040, p. 156.

[43] ?The value of EVs is mostly concentrated on batteries and power electronics; hence, the need to introduce mechanisms targeted at attracting investors in these areas.? ((PDF) Philippine Electric Vehicle Policy Analysis Report - Draft Report (researchgate.net), p. 131.)

[44] SERP-P (pids.gov.ph)

[45] https://lowcarbontransport.ph/ra-10963-tax-reform-for-acceleration-and-inclusion-train/

[46] ITP 2021, p. 31.

[47] 3242729284!.pdf (senate.gov.ph)

[48] ITP 2021, p. 27.

[49] ITP 2021, p. 27.

[50] (PDF) Philippine Electric Vehicle Policy Analysis Report - Draft Report (researchgate.net), p. 108.

[51] DOE PEP 2020-2040.

[52] (PDF) Philippine Electric Vehicle Policy Analysis Report - Draft Report (researchgate.net), p. 119.

[53] (PDF) Philippine Electric Vehicle Policy Analysis Report - Draft Report (researchgate.net), pp. 119-120.

[54] (PDF) Philippine Electric Vehicle Policy Analysis Report - Draft Report (researchgate.net), p. 120.

[55] DO 2019-010.pdf - Google Drive

[56] ADB 2021, Philippines: Market Transformation through Introduction of Energy-Efficient Electric Vehicles Project, Project Completion Report.

[57] DOE PEP 2020-2040, p. 153.

[58] https://global.honda/about/sustainability/environment/face/case86/04.html

[59] GenSan transport group acquires 15 ?bus-like? jeepneys | Philippine News Agency (pna.gov.ph)

[60] https://www.adb.org/projects/45296-006/main#project-pds

[61] https://tribune.net.ph/index.php/2019/12/07/neda-approves-p18-b-davao-transport-overhaul/

[62] https://davaocityinfo.com/high-priority-bus-system-kick-off-october-2020/

[63] Energy Regulations No. (ER) 1-94 is a policy under the Department of Energy Act of 1992 and Electric Power Industry Reform Act of 2001 (EPIRA) which stipulates that host communities will get a share of one centavo for every kilowatt-hour (P0.01/kWh) generated by power plants operating in its area. The funds generated can be used by host beneficiaries for the electrification of areas or households that have no access to power, development and livelihood programs, as well as reforestation, watershed management, health, and environmental enhancement initiatives.

[64] HUCs have a minimum population of 200,000 and an annual income of at least *fifty million Philippine pesos* (?50 M). (https://www.philatlas.com/cities.html)

[65] https://www.baguio.gov.ph/about-baguio-city

[66] https://philippinescities.com/baguio-city/

[67] https://weatherspark.com/y/135196/Average-Weather-in-Baguio-Philippines-Year-Round

[68] https://philippinescities.com/baguio-city/

[69] https://www.baguio.gov.ph/content/trade-industry-propels-baguio-economy

[70]See https://www.baguio.gov.ph/content/5286-employed-john-hay-economic-zone-locators and https://www.baguio.gov.ph/content/trade-industry-propels-baguio-economy.

[71] https://www.baguio.gov.ph/content/trade-industry-propels-baguio-economy

[72] https://opengovasia.com/baguio-aiming-to-be-the-first-smart-city-in-the-philippines/. Towards this end, the City is undertaking several ?smart? investments, including the Integrated Command and Control Center, an Integrated Communication Platform (ICP), a Video Management System (VMS) with Video Analytics, Computer-Aided Dispatch (CAD), Geographical Information System (GIS), and big data analytics for the city of Baguio. For example, the planned Integrated Command and Control Center will serve as Baguio City?s monitoring centre and coordination office all-in-one. It will be operated by a combined force from the CDRRMO, Police, Fire Services, Health and EMS Departments. It also launched a Smart City app in 2020. The country also launched of the Philippines Digital Cities 2025 initiative on 30 June 2020. Under the initiative, 25 digital cities in the were named as the centres of focus for new economic development in the next three years. During the launch, Metro Clark and Davao City were named along with four other cities as top centers of excellence for Information Technology-Business Process Outsourcing (IT-BPO). See https://opengovasia.com/philippine-launches-digital-cities-2025-initiative/.

[73] https://wwf.org.ph/wp-content/uploads/2020/06/2017-Sustainable-Urban-Mobility-A-Case-Study-of-Philippine-Cities-Initiatives.pdf

[74] LTFRB okays Baguio?s public transport route plan - HERALD EXPRESS | News in Cordillera and Northern Luzon (baguioheraldexpressonline.com)

[75] Baguio City - The Promotion of Low Carbon Urban Transport Systems in the Philippines (LCT) (lowcarbontransport.ph)

[76] http://www.baguiomidlandcourier.com.ph/city.asp?mode=archives/2021/august/8-22-2021/city4-LTFRB-approves-local-route.txt

[77] Baguio Midland Courier Website

[78] http://www.baguiomidlandcourier.com.ph/city.asp?mode=archives/2021/august/8-22-2021/city4-LTFRB-approves-local-route.txt

[79] https://nro11.neda.gov.ph/davao-region/davao-city/

[80] https://www.britannica.com/place/Davao-City

[81] https://www.britannica.com/place/Davao-City

[82] https://nro11.neda.gov.ph/davao-region/davao-city/

[83] https://www.davaocity.gov.ph/know-davao-city/corporate-profile/

[84] https://www.davaocity.gov.ph/wp-content/uploads/2019/04/Davao-City-Tranport-Roadmap-Summary-Report.pdf

[85] The city is named for General Paulino Santos, who directed the pioneer settlement (mostly by Christian Filipino migrants) and development of the Koronadal Valley that began in the mid-1930s. (https://www.britannica.com/place/General-Santos)

[86] https://ro12.doh.gov.ph/index.php/health-profile/chartered-cities-profile/general-santos-city

[87] The regional center of SOCCSKSARGEN is Koronadal City in South Cotabato.

[88] https://eportal.gensantos.gov.ph/about-general-santos/

[89] https://ro12.doh.gov.ph/index.php/health-profile/chartered-cities-profile/general-santos-city

[90] https://www.britannica.com/place/General-Santos

[91] http://ncts.upd.edu.ph/tssp/wp-content/uploads/2021/12/13-TSSP2021-PUVMP-in-Gensan.pdf. The rest of the paragraph derives from this study.

[92] *City of General Santos Local Public Transport Route Plan* (Gensan LPTRP)

[93] http://ncts.upd.edu.ph/tssp/wp-content/uploads/2021/12/13-TSSP2021-PUVMP-in-Gensan.pdf

[94] http://www.gensansuidmp.com/sectoral-strategies

[95] https://www.twai.it/journal/tnote-99/

[96] https://isdsnet.com/ijds-v7n2-07.pdf

[97] https://isdsnet.com/ijds-v7n2-07.pdf

[98] https://bcda.gov.ph/projects/clark

[99] https://itsmorefunincentralluzon.com/freeport-zone/clark-freeport-and-special-economic-zone/

[100] https://www.clarkfreeportzone.com/about.html

[101] https://www.clark.com.ph/?Category=VISION

[102] https://mb.com.ph/2021/05/27/dizon-urges-next-admin-to-continue-clark-development/.

[103] https://www.globalfuturecities.org/republic-philippines/cities/new-clark-city. See also https://mb.com.ph/2021/06/12/prop-up-master-planning-the-future-in-new-clark-city/.

[104] https://mb.com.ph/2021/06/12/prop-up-master-planning-the-future-in-new-clark-city/

[105] https://surbanajurong.com/sector/new-clark-city/

[106] https://www.globalfuturecities.org/global-future-cities-programme

[107] op_no_12_-_sustainable_tourism_in_a_low_carbon_economy.pdf (ateneo.edu), p. 27.

[108] Ibid.

[109] https://scad.gov.ph/2020/01/30/subic-cited-as-asias-fastest-growing-free-trade-zone/

[110] Rosselon 2021 (SERP-P (pids.gov.ph))

[111] *Subic Bay Freeport Zone Socio-Economic Profile 2018 edition*.

[112] https://www.facebook.com/SubicBayFreeportZone/

[113] *Subic Bay Freeport Zone Socio-Economic Profile 2018 edition*

[114] Subic Bay 2010, *Transportation Master Plan*, Subic Bay Freeport Zone Comprehensive Master Planning Project.

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

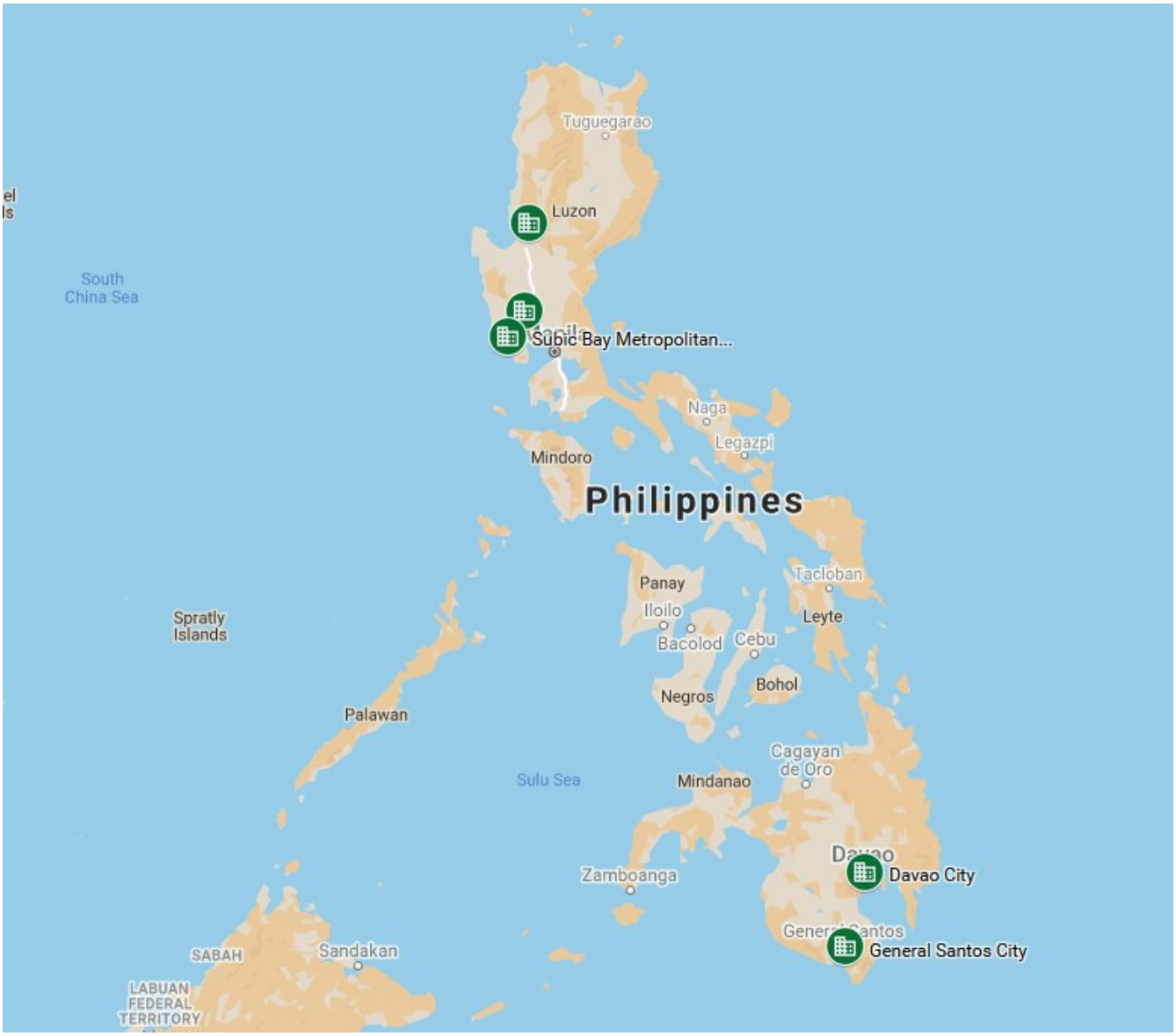

Figure 16. Location of the project interventions in the Philippines

Davao City: 7?04?N 125?36?E

General Santos: 6?07?00,127?N 125?10?00,170?E

Baguio City: 16?25?N 120?36?E

Clark Freeport Zone: 15.18493?N 120.5394?E

Subic Bay Freeport Zone: 14.807?N 120.287?E

1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

The current project is hosted under the ?Global Programme to Support Countries with the Shift to Electric Mobility?, led by UNEP. The Global Programme is based on the following four components:

Component 1: Global thematic working groups and knowledge materials

Component 2: Support and Investment Platforms

Component 3: Country project implementation

Component 4: Tracking progress, monitoring and dissemination

The Global Programme has put in place the monitoring framework below to track progress both globally and at the level of the country child projects. 12 indicators have been designed for this purpose: 6 relying on global level information (highlighted in blue) and 6 relying on country level information (highlighted in green).

Global E-mobility Programme Monitoring Framework

Global level monitoring | Country level monitoring

Objective level indicators			
Indicator A: Direct and Indirect Greenhouse Gas Emissions Mitigated (metric tons of CO2) mitigated			
Indicator B: Direct and Indirect enegy savings (MJ)			
Indicator C: Number of direct beneficiaries (disaggregated by Gender)			
Component 1 **Global thematic working groups and knowledge materials**	**Component 2** **Support and Investment Platforms**	**Component 3** **Country project implementation (Child Projects)**	**Component 4** **Tracking progress, monitoring and dissemination**
Outcome 1 Knowledge products are generated to support policy making and investment decision-making through four global thematic working groups	**Outcome 2** Conditions are created for market expansion and investment in electric mobility through support and investment platforms	**Outcome 3** Conditions are created at country and city level for the introduction of electric mobility demonstration projects, and wider up take of electric mobility	**Outcome 4** Projects and electric mobility markets are tracked, and key developments, best practices and other lessons learned are shared to promote wider uptake of electric mobility.
Indicator 1.1 # of knowledge products developed by the four thematic working groups and used by the Support and Investment platforms in their training and outreach activities	Indicator 2.1 % of countries using services and knowledge products offered by the Support and Investment Platform	Indicator 3.1 % of countries with an improved institutional framework and a strategy to promote the uptake of low-carbon electric mobility	Indicator 4.1 % of countries generating and sharing best practices and other lessons learned on low-carbon electric mobility with the global programme
	Indicator 2.2 # of e-mobility scale-up and / or replication concepts facilitated as a result of the match-making	Indicator 3.2 % of countries with nationally generated evidence of the technical, financial and/or environmental benefits of low-carbon electric mobility	Indicator 4.2 # of e-mobility knowledge products refined based on evidence coming from the country projects
	Indicator 2.3 # of financial institutions / development banks (national/regional) that have been engaged through the Global Programme and are actively supporting e-mobility projects	Indicator 3.3 % of countries that have improved preparedness to accelerate market transformation towards low-carbon electric mobility	Indicator 4.3 # of non-e-mobility programme countries committing to actively promote the uptake of low-carbon e-mobility
	Indicator 2.4 # of US$ leveraged to scale-up low-carbon electric mobility through the support and investment platforms	Indicator 3.4 % of countries with measures in place to ensure the long-term environmental sustainability of low-carbon electric mobility	

Table 13: Global E-Mobility Programme Monitoring Framewor

The global project will report against this framework on an annual basis, using (1) the global level data from the Global Thematic Working Groups and from the Support and Investment Platforms, and (2) country level data provided by each country project during their annual Project Implementation Review (PIR) process.

For this purpose and whenever applicable, the global level indicators highlighted in green are translated into a country-level indicator in the Project Results Framework located in Annex A of the present CEO Endorsement Document. During project implementation, UNIDO will be requested to report against

the indicators of the country Project Results Framework (Annex A) on an annual basis, during the PIR process, in addition to the usual GEF Core Indicators (mentioned at the top of the table above).

At the global level, a steering committee led by the United Nations Environment Programme will coordinate and monitor the implementation and the outputs of the GEF 7 Electric Mobility Programme. On technical gaps, four thematic working groups at the global level will support the rapid introduction of electric mobility in GEF recipient countries. These working groups will generate universal knowledge products that contain best practices, factsheets, interactive tools and guidance, as well as experiences from countries that have advanced their e-mobility market. The working groups will be integrated by representatives from the global programme regional platforms, GEF-7 countries, IEA, vehicle manufacturers, utilities, researchers and the civil society. The governance structure is presented in the figure below.

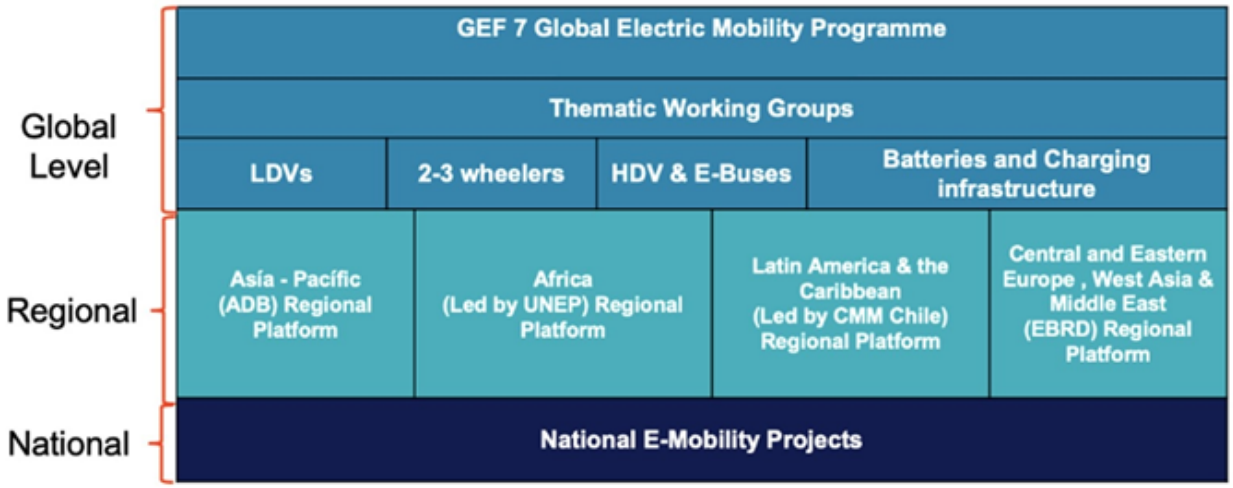

Figure 5: Governance structure of GEF-7 Global Electric Mobility Programme

Governance structure between the global programme, the national e-mobility projects, and the regional Support and Investment Platform:

The coordination between the global program, the steering committee, the thematic working groups, and the national projects will be facilitated by the regional Support and Investment Platform. The role of the regional platform is to provide customized technical assistance to ensure the success of the country projects. Moreover, knowledge products developed by the working groups will be adapted and disseminated by the regional platform according to the regional and national context, specific needs, and languages.

The 4 Support and Investment Platform will interact with and support participating countries in the region to link with each other through the following activities:

1. The creation of a community of practice for the GEF 7 regional countries;

2. Facilitation of knowledge transfer between countries, and regions, especially those with common characteristics like SIDS;

3. The creation of thematic groups in light-duty vehicles (LDVs), 2-3 wheelers, and buses at regional level;

4. A marketplace between countries, technology providers and financial institutions;

5. Help desk for technical assistance to GEF 7 countries;

6. Personalized assistance from international experts in electric mobility;

7. Generation of training sessions and workshops.

The national child projects will generate a learning curve on electric mobility that can be transferred to other countries within and outside of the region through the global programme. As a first contact point, the regional Support and Investment Platform will facilitate the flow of learnt lessons from child projects, such as: data and demonstration results, working business models, operational know-how, working financial instruments, and working policies and regulations. At the global level, the scenarios proposed to share country knowledge and experiences on electric mobility are the thematic working groups, while at the regional level the countries will participate in the community of practice, the thematic regional groups, the marketplace, trainings and workshops.

2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Civil Society Organizations Yes

Indigenous Peoples and Local Communities

Private Sector Entities Yes

If none of the above, please explain why:

Please provide the Stakeholder Engagement Plan or equivalent assessment.

Stakeholder Engagement Plan attached

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement

Stakeholder	Role

Stakeholder	Role
Department of Trade and Industry (DTI)	The DTI is the executive department of the Philippine Government tasked as the main economic catalyst that enables innovative, competitive, job-generating, inclusive business, and empowers consumers. It acts as a catalyst for intensified private sector activity in order to accelerate and sustain economic growth through comprehensive industrial growth strategy, progressive and socially responsible trade liberalization and deregulation programs and policymaking designed for the expansion and diversification of Philippine trade - both domestic and foreign. DTI is also responsible for standards development for e-mobility charging infrastructure. DTI will be engaged as a main executing agency.
Board of Investments	As an attached agency of Department of Trade and Industry (DTI), the Philippine Board of Investments (BOI) is responsible for the development of investments here in the Philippines. Leading the promotions of various industries and investment opportunities, BOI assists Filipino and foreign investors to venture and thrive in vast areas of economic pursuits and acts as your one-stop shop in doing business in the Philippines. BOI support the EV industry development with the recent measures that provide incentives for EV manufacturers as well as on imports. BOI will be engaged as a co-executing agency with DTI
Department of the Interior and Local Government (DILG)	DILG is responsible for the general supervision, law implementation and assisting local governments and on public order and safety. The agency ensures that LGU complies with national government directives and same time promote harmonization of various plans and programs vertically (municipality, province, region) and horizontally (across sectors). Replication of best practices is also being facilitated by DILG, having the institutional capacity and mandate to do so. Since private commercial transport (3-wheelers) is supervised by local governments and that main project activity will be carried out in the pilot cities, the DILG would be extensively engaged in execution of the project. DILG will be engaged as a Project Steering Committee member.
Department of Transportation (DOTr)	The DOTr is the primary policy, programming and administrative entity of the executive branch of the government dedicated to transportation systems. The DOTr plays an important role in e-mobility policy development and transportation planning, thus it will be one of key stakeholders in the project. DOTr will be engaged as a Project Steering Committee member.

Stakeholder	Role
Department of Energy (DOE)	DOE is the lead implementing agency for the National Energy Efficiency and Conservation (NEEC) Act and the Renewable Energy Act is mandated to provide adequate, reliable and affordable energy to industries to enable them to provide continuous employment and low cost of goods and services, and to the ordinary citizen to enable them to achieve a decent lifestyle. DOE is responsible for the development of the Philippines E-mobility framework and charging infrastructure masterplan, as well as energy efficiency standards for vehicles. DOE conducts the National Policy Review on Energy as part of the initiative to continually assess the state of the energy sector of the country. DOE will be engaged as a Project Steering Committee member.
National Economic and Development Authority	The National Economic and Development Authority will assist in offering guidance to place the proposed project within the context of national policy and planning regarding socio-economic, environmental, SDGs and climate change mitigation goals. NEDA will be engaged in Project Steering Committee as an observer.
Department of Environment and Natural Resources (DENR)	DENR plays a key role in research and development in environmental protection and energy. The NOU specifically is a stakeholder in this project in view of the focus of this project on synergies between the UNFCCC and the Stockholm Convention. DENR as a GEF focal point will be engaged in project monitoring ? through regular consultations and in Project Steering Committee as an observer.
Climate Change Commission (CCC)	The CCC is a policy-making government body tasked to coordinate, monitor and evaluate programs & action plans tackling the impacts of climate change in the Philippines. The CCC aims to converge cross-sectoral issues, advocating solutions and initiatives. CCC has a Climate for Resilience (CORE) program that acts as a replication platform for local government units. The CCC is presently developing and finalizing the National Portfolio Formulation Documentation (NPFD) to provide overall guidance on various assistance and support to the Philippines in terms of climate change initiatives. CCC?s involvement will include providing insight into lessons learned from previous and ongoing climate initiatives. CCC serves as the National Focal Point for the UNFCCC as well as for the Kyoto Protocol. CCC also fosters multi-stakeholder and multi-level approach in climate governance, engaging relevant agencies and stakeholders to various forms of collaborations and partnerships. CCC?s critical role is being the lead government partner in project governance, noting CCC's mandate to coordinate, monitor and evaluate programs and action plans of the government relating to climate change. It serves as a clearinghouse, ensuring all initiatives on climate change are well-coordinated and directed. CCC will be engaged in Project Steering Committee as an observer.

Stakeholder	Role
Local Government Units (LGUs) in selected cities/provinces	LGUs are divided into three levels ? provinces and independent cities; component cities and municipalities; and barangays. According to the Constitution of the Philippines, the local governments "shall enjoy local autonomy", and in which the Philippine president exercises "general supervision". As such, LGUs are tasked with sustainable urban planning (including transport and energy) on a local level and thus will be a key stakeholder for the selected cities/provinces. Selected LGUs will be directly involved in project execution as project beneficiaries.
Economic Zones	Under Republic Act No. 7916, as amended, otherwise known as ?The Special Economic Zone Act of 1995? administered by the Philippine Economic Zone Authority (PEZA), ecozones or ?special economic zones? (SEZ) are established as a separate customs territory to promote flow of local and foreign investments that would generate employment opportunities and stimulate investments by providing attractive climate and incentives for business activity and for other purposes. Ecozones in the Philippines are selected areas of highly developed or which have the potential to be developed into agri-industrial, tourist, recreational, commercial, banking, investment and financial centers whose metes and bounds are fixed or delimited by Presidential Proclamation. Selected Economic Zones will be directly involved in project execution as project beneficiaries.
Public-Private Partnership Center of the Philippines	The PPP Center facilitates the implementation of the country?s Public-Private Partnership (PPP) Program. It is a government institution that serves as the central coordinating and monitoring agency for all PPP projects in the country. It champions the country?s PPP Program by enabling implementing agencies (IAs) in all aspects of project preparation and by providing projects advisory and facilitation services. The Center serves for the country?s inclusive growth and sustainable development. To achieve this, it facilitates and optimizes public-private partnerships in the country for the delivery of public infrastructure and other development services. The PPP Center provides technical assistance to national government agencies (NGAs), government-owned-and controlled corporations (GOCCs), government financial institutions (GFIs), state universities and colleges (SUCs), and local government units (LGUs) as well as to the private sector to help develop and implement critical infrastructure and other development projects. Thanks to its role it would be one of key stakeholders in the project to ensure effective scaling-up activities. The PPP Center will be involved in project execution through engagement in consultations for selected activities.

Stakeholder	Role
Development Bank of the Philippines (DBP)	The Development Bank of the Philippines is a state-owned development bank. In its developmental mission and initiatives, DBP is committed to environmental protection and sustainable development and promotes projects that contribute to environmental protection thru its lending activities, CSR and other advocacy projects. They seek to provide credit facilities where funding gaps exist, i.e., in environmental management and protection projects and will be engaged in support the investment components of the project. The DBP is a potential co-financier for project activities and will be engaged in the project as a potential funding source.
Bank of the Philippine Islands (BPI)	BPI is the oldest bank in the Philippines still in operation and is the country's largest bank in terms of market capitalization. Through its Sustainable Energy Finance (SEF) Program, it offers financing opportunities that invest in technologies aimed at improving the efficiency of energy generation, energy distribution and energy use. One of the 3 focus areas of projects that can be funded under the SEF Program is Energy Efficiency (EE) to shift to equipment, which consumes less energy while achieving the same or higher output. This funding will be further explored during the PPG phase through stakeholder consultation process. The BPI is a potential co-financier for project activities and will be engaged in the project as a potential funding source.
International Finance Corporation (IFC)	The IFC offers investment, advisory, and asset management services to encourage private sector development in developing countries. It is a key expert in PPP projects with its aim to create opportunities for people to escape poverty and achieve better living standards by mobilizing financial resources for private enterprise, promoting accessible and competitive markets, supporting businesses and other private sector entities, and creating jobs and delivering necessary services. Furthermore, through its Excellence in Design for Greater Efficiencies (EDGE) program it empowers partners to achieve the most resource efficient design in fast growing emerging markets. IFC is one of key stakeholders to be included in the project in the context of scaling-up activities and co-financing for investment component. The IFC is a potential co-financier for project activities and will be engaged in the project as a potential funding source.
Philippine Chamber of Commerce and Industry (PCCI)	PCCI is the voice of Philippine business recognized by government and international institutions. The main responsibility of PCCI is to provide focused advocacy for business growth and sustainable development by providing business services for the advancement of grassroots entrepreneurship, chamber development, international trade relations, business innovation and excellence, and operating efficiency. The PCCI and the Chamber of Commerce of specific regions are crucial to build the capacity of trade associations in the region also in regards to efficient and sustainable CC management. The PCCI will offer inputs from the Philippine business community into the project. The PCCI will be involved in stakeholder consultations and engaged in the policy analysis.

Stakeholder	Role
E-Vehicle Association in the Philippines (EVAP)	EVAP is an association of EV manufacturers in the Philippines. Originally conceived as a purely an industry association, EVAP is now expanding its role to include participation in various policy discussions and initiatives that would accelerate the adoption of EV in the country. EVAP as one of key stakeholders will be engaged in project components in the context of policy analysis and development.
Civil Society Groups/NGOs Policy	Important for policy advise and commitments on co-financing resources for policy advocacy. These groups will be engaged as part of the policy outputs under Component 1.
League of Cities of the Philippines	A formal organization of 145 cities, its role is to foster unity and cooperation among all cities in the country, advocate integrated development planning, coordination of basic services between the national government and the cities as well as between cities, and democratization of participation, representation and resources in local governance. The League of Cities will be engaged in the project to provide municipalities inputs into the project as well as assist in the effective scale-up of the project to other cities in the Philippines. League of Cities will be engaged as a one of key stakeholders to ensure scalability of project outcomes.
Private Sector	Industrial enterprises and waste management actors as well as other high-energy consuming equipment (e.g. Carrier, IBM, and other industry players). Other private sector actors that will be engaged include the Electric Vehicle Association of the Philippines (EVAP) that are active in promoting e-mobility by working to shape the policy environment and overall system design.

Table 14: Stakeholders and project role

Select what role civil society will play in the project:

Consulted only; Yes

Member of Advisory Body; Contractor;

Co-financier;

Member of project steering committee or equivalent decision-making body;

Executor or co-executor;

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

Philippines remains the top country in Asia in terms of closing the gender gap, with 78.4% of its overall gender gap closed to date, according to the Global Gender Gap Report 2021 of the World Economic Forum. Not only has Philippines virtually closed both its educational attainment and health and survival gaps, but it is also among the 18 countries in the world that have closed at least 79.5% of their economic participation and opportunity gaps. Female life expectancy is five years longer than male, while the literacy rate is above 98% for both sexes. A larger percentage of women and girls are enrolled in tertiary and secondary education. This result is due in part to the fact that the Philippines is one of the few countries that has closed at the same time its gender gap in senior roles, and in professional and technical roles.[1]

However, women should be incentivized to participate more in the broader labour force. Only 49.1% of women are in the job market, corresponding to a gap closure of just 65.3% on this indicator. On average, 22% of the wage gap and 31% of the income gap have yet to close. In terms of political empowerment, the report said only 36.2 percent of this gap has been closed as women only occupy 28 percent of the seats in the Congress and about 13 percent are holding minister positions. [1] A gender analysis will be undertaken as part of actions in the sector which will further inform mainstreaming across all activities and measures.

Gender mainstreaming will be based on GEF's Policy on Gender Mainstreaming, UNIDO Policy on Gender Equality and the Empowerment of Women (2019) and the UNIDO Strategy for Gender Equality and the Empowerment of Women, 2020-2023 as well as the Guide on Gender Mainstreaming Environmental Management Projects.

UNIDO recognizes that gender equality and the empowerment of women have a significant positive impact on sustained economic growth and inclusive development of sustainable transport, key drivers of poverty alleviation and social progress.

As a guiding principle, the project is designed to ensure that both women and men are provided equal opportunities to
lead, participate and benefit from the project. In practical terms, this will be demonstrated in a multitude of ways:

A gender analysis has been conducted based on which a Gender Mainstreaming Strategy and Action Plan has been formulated. This action plan will service as an additional monitoring tool to ensure that that gender targets will be reached. Therefore, regular monitoring reports on the gender mainstreaming strategy of the project will be conducted and progress measures based on the defined indicators.

Based on the General-Neutral ToRs, gender sensitive recruitment will be practiced at all levels where possible, especially in the selection of project staff and experts, as well as technical staff. Gender sensitive recruitment will be encouraged in instances where the project does not have direct influence.

Gender dimensions will be considered when data collections or assessments are conducted as part of project implementation. Examples include sex-disaggregated data collection and performing gender analysis as part of Environmental and Social Impact Assessments. Research, data and assessments will consider gender and age differentiated needs of women and men from different social groups.

Gender dimensions will be considered in all decision-making processes. With respect to project management, the Project Steering Committee will aim to be gender balanced and extend invitations to observers that represent gender dimensions, such as organizations / associations promoting gender equality and advocating women?s empowerment. During project activity implementation, effort will be given during stakeholder consultations towards focusing on gender equality and women?s empowerment issues, in particular during policy review and formulation.

Efforts will be made to promote participation of women in training activities, both at managerial and technical levels, as participants and trainers. This can include advertising of the events to women?s technical associations, encouraging companies to send female employees, provide childcare and safe transport, offer scholarships or reduced fees for women, adjusting TOR for selection of the trainers, etc.

The project will pursue thorough gender responsive communication and ensure stakeholder involvement at all levels, with special regard to involving women and men, as well as civil society and non-governmental organizations promoting gender equality. This shall mitigate social and gender related risks, promote gender equality, create a culture of mutual acceptance, and maximize the potential contribution of the project to improving gender equality in the energy field.

The planned project outcomes will be enhanced by considering gender equality and women?s empowerment by adopting a gender lens at high-level decision-making bodies and forums, and within planning and developments relating to sustainable transport. A component-by-component description is provided:

? Component 1: The focus of this component is on developing the evidence base for reforms in the public transport and broader e-mobility sector in a participatory manner that will build the capacity of government stakeholders and local experts. The gender and youth participatory approach will also increase ownership of the e-mobility agenda, improving the longer-term institutional capacity to manage further reforms. The policy activities under this component will include gender mainstreaming consideration.

? Component 2: The focus of this component is to analyse the potential for e-mobility market development in the country and prepare plans for adoption of e-mobility solutions. These plans will include gender dimensions and engagement of women in the development process.

? Component 3: The focus of this component is the successful implementation of a demonstration-scale pilot project for e-mobility. The project will consult with the women associations and local community during the design of the pilot projects to not only integrate the needs of women and youth into project design but also provide equal opportunities for women and men to lead, benefit from and participate in the demonstration-scale pilot project.

? Component 4: The training activities under this component have women participation targets and women's training needs are taken into account following consultations with local women?s organizations.

A gender analysis has been conducted during the PPG phase that can be seen in the Annex G. Research has demonstrated that women public transport passengers are more susceptible to negative impacts of inadequate mobility choices as well as low public transport service levels and safety. The gender context and relevance of the project integrated into the final project design and it covers the different implications for women and men. It involves the identification of the differentiated needs (e.g., safety) and roles of women and men particularly related to the e-mobility project and policy interventions. The project log frame is gender mainstreamed. Notably, an important driver in this process could be the fact that, according to some studies, women are more likely than men to support or accept sustainability and green economy policies as they appear to be more sensitive to environmental risks and more prepared to make behavioural changes.[2]

To establish a baseline and develop targets, basic relevant data and qualitative information collected during PPG phase and gender indicators at the output level have been incorporated in the project design. The project will track gender indicators throughout the project implementation (Annex A: Project Results Framework). During project implementation the project will continue identifying and addressing gender issues, including collecting additional baseline data and monitoring progress towards the targets.

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[1] World Economic Forum?s (WEF) Global Gender Report 2021, p38

[2] CIVITAS Smart Choices for Cities Gender Equality and Mobility: mind the gap!, 2020: https://civitas.eu/content/civitas-policy-note-gender-equality-andmobility-mind-gap

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?

Yes

Closing gender gaps in access to and control over natural resources; Yes

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women

Does the project?s results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Elaborate on the private sector's engagement in the project, if any.

The private sector will directly benefit from all project components, and will be directly engaged as part of the activities under Components 2, 3 and 4. The project will engage with private sector representatives to collect their input to the market analysis (Output 2.1.1) and engage with private companies for the development of EV deployment plans (Output 2.1.2). The private sector will also be represented through participation of interested relevant companies and/or associations (e.g., EVAP) in stakeholder meetings.

One of the key objectives of UNIDO?s strategy in cities is to address the urgent need for subnational entities such as selected beneficiaries (General Santos City, Davao City, Baguio City and special economic zones) to crowd in private investments. A precondition to enable beneficiaries to access domestic/international capital markets is the obtainment of investment grade creditworthiness. Currently, only 4% of the largest cities in developing countries are creditworthy, which means that access to financing is the fundamental problem hindering sustainable development. Strengthening beneficiaries? creditworthiness and building its capacity to pursue commercial-based financing can have far reaching effects on its ability to attract investments and partner with the private sector. Under Output 2.1.3. UNIDO will offer extensive assistance to build beneficiaries? officials? capacity to develop, manage, and supervise public-private partnerships. This includes a pipeline assessment to scope out financing options on related projects, identify revenue streams, pool projects together, etc.

The project foresees implementation of pilot projects in 2 ? 3 locations with direct engagement of private sector (transport companies, EV components/infrastructure manufacturers) ? detailed arrangements will be done during the development of pilot project feasibility studies (Output 3.1.1). With this approach, UNIDO is determined to crowd in private investments for e-mobility projects.

The capacity building component will also enable opportunities for private participation across the full spectrum knowledge sharing activities on country, regional and global scale (Outputs 4.1.1 ? 4.1.3).

5. Risks to Achieving Project Objectives

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

Table 11. Project risks, risk level and mitigation actions

Risks	Risk Level	Mitigation Actions

Risks	Risk Level	Mitigation Actions
Lack of trust and/or interest between the national and international technology providers, which is essential for the success of the project. The companies may be not convinced about the benefits of implementing new methodologies and new technologies.	Medium	Awareness raising campaigns will be promoted in order to disseminate benefits (financial, energy, environmental, safety, etc.) of new technologies and best practices will be a key component of the Global and Regional Platoform. Case studies to prove the business case and deliver energy saving figures, technology components available at the Platform (virtually and in reality) to be able to see and touch them and representatives from the foreign companies on site as well to create trust.
Availability of technical resources for the proper application of new technologies, since some of the new technologies has not been applied in developing countries.	Medium	Technological solutions will be carefully selected to ensure they can be sustained and replicated in the future. Moreover, through the Global Programme and Regional Platform the project will sustain a continuous dialogue with international suppliers. To deliver the required capacity building, the project will employ the services of highly skilled experts.
Climatic changes, including costal storms, flooding, heat waves and other weather extremes, will influence the sustainability of the pilot demonstrations.	Medium	The risks will be mitigated related to charging infrastructure by ensuring that this infrastructure meets current international standards and ? where applicable ? contracting will also include a clause on resilience to climate impacts. Project planning decisions, project design, and construction methods will take into account of the on-site implications of these climate hazards. The risks associated with climate change include extreme weather conditions will be addressed by ensuring that any infrastructure investment supported by the project is climate-proofed. An environment and social management plan has been prepared to screen and avoid/minimize related risks, in particular for the pilot project locations.

Risks	Risk Level	Mitigation Actions
Change in priorities leading to reduced support to the project, implementation delays and reductions in the effectiveness of delivery of the capacity building programs. Changes may occur in local leadership next year, as it is an election year for local government officials.	Low	Close communication with the government and proper designation of persons responsible, will ensure open channels of information flow, so the project team will have early warning and will be able to address concerns of the government early (if there were to be any).
Safety risk due to improper servicing/maintenance of new technology or after-sales service knowledge.	Low	Training will be an important activity of the project. After sales service, expertise will be developed through intensive training and the certification of all service operators on safety procedures recommended.

Risks	Risk Level	Mitigation Actions
Social/ Gender Risk: Low participation from women; little engagement from women or missing qualified female technicians/entrepreneurs from the private sector; lack of interest of stakeholders in applying a gender responsive approach	Medium	This risk will be mitigated through specifically targeting women involved in the sector for participation in consultations on policy improvements under Component 1, and for safety and other considerations under Component 2. Disaggregated data on gender participation will be collected at all meetings and other events related to the project, and targeted invitations will be made for enhanced female participation as needed. Awareness on gender dimensions will be raised consistently ensuring presenting both human rights based approach and presenting the business case for GEEW. To ensure gender inclusiveness of all project activities, UNIDO methodology for gender assessment and gender responsive communication showing the benefits of gender equality for both women and men will be applied. To mainstream gender dimensions and empower women, adequate and gender responsive communication strategy will be implemented, and sensitization workshops will be organized. A full gender analysis was carried out and its recommendations were incorporated into the project design.

COVID-19 risks and opportunities:

Risks: The risks connected with COVID-19 which have been identified at project design stage include (i) the likely reduced availability of co-financing resources, (ii) the risk of delays in project implementation and (iii) potential changes in the priorities of stakeholders due to the ongoing economic and social challenges connected to the pandemic or its consequences.

The project activities have been designed fully considering the negative implications of COVID-19 for the execution of the project. Proposed activities will be executed using safety measures, including by increased use of remote meeting technologies for training and consultation processes (in consideration of the local circumstances of the involved stakeholders - access to fast-speed internet and videoconferencing), and the increased focus on preventive precautionary protocols. Adequate consideration of possible delays is factored in the project execution timeline, and the risk of possible shift in government priorities will be

carefully monitored through close consultation with the Philippine Government (both local and central) during project execution.

Opportunities: The project will potentially benefit from the government?s COVID-19 financial recovery package for the business sectors. The Philippine Government launched a four-pillar socio-economic strategy to mitigate the impact of the pandemic and aid the national recovery effort. The framework aims to provide emergency support for vulnerable groups and individuals; expand medical resources to fight Covid-19 and ensure the safety of health workers; implement fiscal and monetary initiatives to keep the economy afloat; and launch an economic recovery plan to create jobs and sustain growth[1].

The four-pillar socio-economic strategy is identified below[2]:
Pillar 1: Emergency support for poor and low-income households, small business employees, and other vulnerable groups through various assistance programs and wage subsidies.

Pillar II: Expanded medical resources to fight COVID-19 and ensure the safety of frontliners (health insurance coverage for all COVID-19 patients; special risk allowance, hazard pay, and personal protective equipment (PPE) for frontline health workers; increased testing capacity; etc.).

Pillar III: Monetary actions to keep the economy afloat and other financing support for emergency response and recovery initiatives.

Pillar IV: An economic recovery program to create jobs and sustain growth, including Bayanihan II.

The implementation of the economic recovery package is the component of the abovementioned strategy, which consists of a combination of fiscal, monetary, and financial instruments totaling about PHP2.8 trillion, or 15.4 percent of the country?s gross domestic product[3]. On March 26, 2021, President Duterte signed the Corporate Recovery and Tax Incentives for Enterprises Act (CREATE). CREATE is the largest fiscal stimulus for businesses in Philippine?s recent history. It is estimated to provide private enterprises more than 1 trillion pesos worth of tax relief over the next 10 years. MSMEs will be the biggest beneficiaries of CREATE through the grant of the largest ever corporate income tax rate reduction in the country, from 30 percent to 20 percent. Large corporations also enjoy an immediate reduction in the corporate income tax rate from 30 to 25 percent.

Climate change risks

The Philippines is highly vulnerable to the impacts of climate change, including sea level rise, increased frequency of extreme weather events, rising temperatures, and extreme rainfall, public health risks, and endangerment of vulnerable groups such as women and indigenous people. This is due to its high exposure to natural hazards (cyclones, landslides, floods, droughts), dependence on climate-sensitive natural resources, and vast coastlines where all of its major cities and the majority of the population reside. A rich yet increasingly depleted natural and marine resources base supports livelihoods through fisheries, agriculture, forestry, energy, mining, and tourism and provides critical ecosystem services such as shoreline protection, flood control, soil stability, and habitats for biodiversity[4].

The latest IPCC Assessment Report concluded that climate change will create new poor between now and 2100. Poverty breeds disaster vulnerability, and those who have least in life risk like most. Based on a study by the Asian Development Bank on the economics of climate change, the country stands to lose 6% of its GDP annually by 2100 if it disregards climate change risks. This same study found that if the

Philippines invests 0.5% of its GDP by 2020 in climate change adaptation, it can avert losses of up to 4% of its GDP by 2100.[5]

The Philippine Government has made great strides to combat climate change and protect the environment. The Philippines? Climate Change Act was passed in 2009, which created the Climate Change Commission (CCC) as the lead policymaking body in the Philippines tasked to coordinate, monitor and evaluate the programs and action plans of the government relating to climate change. Important strategy documents include the National Framework Strategy on Climate Change (2010?2022) and the National Climate Change Action Plan (2011?2028), which sets out policies related to food and water security, environmental stability, human security, climate smart industries and services, sustainable energy, and knowledge and capacity development. The Philippines submitted its Nationally Determined Contributions to the UNFCCC in 2016 and ratified the Paris Agreement on March 23, 2017.[6]

Despite the quick response and positive trends on the long?term development plan, there is still a long way to go to mitigate vulnerability on the impact of climate change. Research suggests that on average a one degree increase in ambient temperature can result in a 0.5?8.5% increase in electricity demand.[7] This increase in demand places strain on energy generation systems that is compounded by the heat stress on the energy generation system itself, commonly due to its own cooling requirements, which can reduce overall efficiency.

The higher energy demand is likely to put stress on generation facilities and transmission networks. Electrification of transport is likely to increase this strain and the consumption of gas, the major and most controllable electricity source, as additional energy will be consumed throughout the grid.

Cyclone (also known as hurricane or typhoon) hazard is classified as high in Philippines. This means that there is more than a 20% chance of potentially damaging wind speeds in the project area in the next 10 years. Based on this information, the impact of cyclones must be considered in all phases of the project, in particular during design and construction. In addition, the projected changes in precipitation would lead to more damage because of rainfalls (floods). This is a risk for structures and electrical systems. Structures of PV plants may be altered if they are not properly design, occurring breakage. Structure breakages and electrical system degradation may be direct dangers for local public and alter access to transport and energy.

Climate risks on electric vehicles are comparable to climate risks on conventional vehicle. Vehicles can be strongly damaged or carried out by floods (such situations already occur and should be a more recurrent issue in the future). In addition to material damages, it may lead to physical damages of people.

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[1] https://oxfordbusinessgroup.com/analysis/strategic-support-blend-policy-options-seeks-kick-start-economic-recovery

[2] https://www.dof.gov.ph/the-4-pillar-socioeconomic-strategy-against-covid-19

[3] https://www.pna.gov.ph/articles/1154069

[4] https://www.climatelinks.org/resources/climate-risk-profile-philippines

[5] https://niccdies.climate.gov.ph/climate-change-impacts

[6] https://openknowledge.worldbank.org/handle/10986/36370

[7] https://thinkhazard.org/en/report/196-philippines

6. Institutional Arrangement and Coordination

Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

Institutional arrangement

The lead agency for the global e-mobility programme is UN Environment. GEF Implementing Agency for the Philippines child project is UNIDO. A project officer will be appointed in UNIDO HQ to oversee its implementation. The UNIDO Country Office in the Philippines will also play a significant role in the supervision of the project, including the provision of additional coordination and technical support as necessary.

The project execution will be done through multiple partnership/contractual arrangements between UNIDO and selected national/international entities with relevant mandates and capacities. The Department of Trade and Industry (DTI) is the main national Executing Agency (AE) for the project, and the Board of Investment (BOI) (attached agency of the DTI) is the appointed Focal Point (FP) of the project. UNIDO and DTI/BOI has jointly identified the University of the Philippines Public Administration Research and Extension Services Foundation (UPPAF) as the Project Executing Entity (PEE) for the project. The PEE has been identified through an open call for proposals in line with UNIDO?s procurement rules and procedures, and in consultation with the DTI/BOI (governmental counterpart). The selection of the UPPAF ads the PEE has been endorsed by the GEF-OFP for the Philippines.

During the procurement process, UNIDO has conducted capacity assessment for the UPPAF based on the HACT (Harmonized Approach to Cash Transfers) methodology and found that the entity has sufficient capacity to execute the project activities. HACT establish common principles and process for managing cash transfers among UN agencies that have adopted the approach across all countries and operational contexts.

The UPPAF will have a contractual agreement with UNIDO (endorsed by the DTI/BOI) to execute all the project activities and related services under the Component 1 to 4 and day-to-day monitoring activities under the Component 5. As to the activities related to Mid-term Review and Terminal Evaluation under the Component 5, UNIDO will be the responsible entity. Terms of Reference (ToR) for the Project Execution Agreement between UPPAF and UNIDO has been drafted during the PPG phase (for the PEE selection tender). The contractual arrangement will specify the exact deliverables expected from the PEE. Additional working agreement will be agreed upon and signed between UNIDO, DTI/BOI and the UPPAF. The PEE will be required to report to the Project Steering Committee headed by the DTI/BOI in line with the project Working Arrangement described in the project document, as well as to UNIDO in line with the project execution agreement. The project management unit (PMU) will consist of project coordinator, project assistance and technical experts, where required, and will be formed by the PEE.

The Project Steering Committee (PSC) will consist of the Departments involved in decision making in the field of transport, energy, environment, finance and planning as well as UNIDO as the GEF partner agency. The PSC will be chaired by the DTI and BOI, members will include the Department of Energy

(DOE), Department of Environment and Environmental Resources (DENR), Department of Transport (DOTr) and selected Local Government Units/Ecozones. The PEE will report directly to the PSC. The PSC will provide advisory instructions and guidance to the PEE and make decisions on the execution of the project activities whenever required to ensure the execution goes in line with the project's priorities and national context. Selected cities (Davao City, General Santos City, Baguio City) and ecozones (Clark Freeport Zone, Subic Bay Freeport Zone) representatives will act as executing partners at the local level and will ensure that the activities are properly coordinated with the government programs and other on-going activities. They will carry out duties in line with the approved project document and work plan, as well as per partnership agreement with UNIDO.

The PSC will be the decision-making body if and when major amendments to the project required throughout the project. Institutional arrangements are showed in the scheme below.

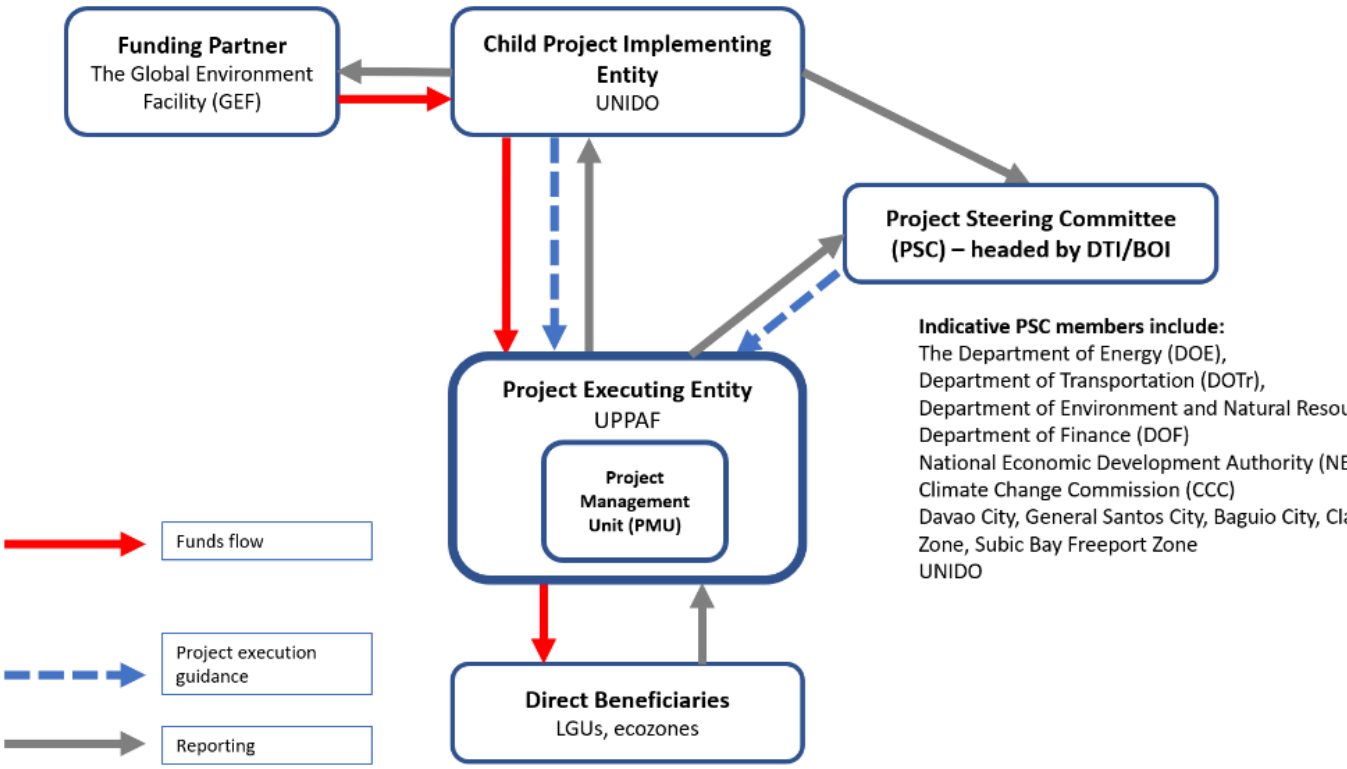

Figure 17. Implementation arrangements for the project

Main institutional project counterparts include Electric Vehicle Association of the Philippines (EVAP) and League of Cities of the Philippines (LCP).

Coordination

The project establishes linkages with other agencies and actors that are currently planning or implementing relevant projects which will contribute to the overall outcome of the proposed GEF project. Some of such

partners active in this area are the World Bank, Asian Development Bank, local private entrepreneurs, CSOs and NGOs, academia, etc.

Table 12. Coordination with relevant project/programmes in the Philippines

No.	Project/Programme title	Budget (approx.) USD	Source of funding	Year	Agency(ies)
1	Market Transformation through Introduction of Energy Efficient Electric Tricycles Project	45,000,000	Asian Development Bank	2013 - 2019	Department of Energy (DOE)
2	DOTR-UNDP Low Carbon Urban Transport Systems (LCT)	2,900,000	GEF-5	2016 ? 2021 (extended)	United Nations Development Programme, Department of Transportation
3	Technical Assistance on Electric Mobility Development in The Philippines	250,000	World Bank	2021 - 2022	World Bank, Department of Energy
4	Integrating Electric 2&3 Wheelers into Existing Urban Transport Modes in Developing and Transitional Countries	N/A	Interniational Climate Initiative (IKI)	2017 - 2022	UN Environment Programme
5	SOLUTIONSplus	N/A	European Union	2020 - 2024	UEMI secretariat, (a non-profit entity based in Berlin) and implemented by UN-Habitat
6	Davao Public Transport Modernization Project	1,400,000,000	Asian Development Bank	2021 - 2023	Deapartment of Ttransportation, Davao City
7	Public Utility Vehicle Modernization Program (PUVMP)	N/A	Development bank of the Philippines, Land Bank of the Philippines	Since 2017, ongoing	Department of Transportation

Transfer of assets

Full or partial ownership of equipment/assets purchased under the project may be transferred to national counterparts and/or project beneficiaries during the project implementation as deemed appropriate by the government counterpart in consultation with the UNIDO Project Manager.

Legal context

?The present project is governed by the provisions of the Standard Basic Cooperation Agreement between the Republic of Philippines and UNIDO, signed and entered into force on 26 February 1993.?

7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assesments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

Ambisyon Natin 2040

Ambisyon Natin 2040 envisions that all Filipinos experience a strongly rooted (Matatag), comfortable (Maginhawa), and secure life (Panatag na Buhay) by 2040. ?With this vision, Filipinos are hoped to demonstrate close family ties and strong sense of community; Filipinos are free from poverty and hunger; Filipinos live long and enjoy a comfortable life; and Filipinos are protected by a clean and fair government.? Ambisyon Natin 2040 aims to increase the quality of life of Filipinos.

The proposed project aims to increase the penetration of electric vehicles that do not emit air pollutants and therefore contrinbute to clean air and increase air quality. Poluttion from mobile and stationary sources are the leading causes of pulmonary diseases that kill millions of people each year. The positive health impacts of electric vehicles will therefore contribute to Ambisyon Natin 2040 in terms of a more comfortable and secure life for Filipinos.

Philippine Development Plan (PDP) 2017-2022

The Philippine Development Plan (PDP) 2017-2022 is the first medium-term plan anchored on AmBisyon Natin 2040. The PDP ?is the country?s development framework that seeks to address poverty, create employment opportunities and achieve inclusive growth.? One indicator to measure performance in these aspects of overall quality of life is the Human Development Index (HDI). The COVID-19 adjusted updated PDP aims to improve the Philippines HDI from 0.693 in 2015.

The proposed project will contribute specifically to the following overall strategies of the PDP, which are shown in the figure below:

1) Expand opportunities across regions

2) Expand access to economic opportunities

3) Scale-up technology adoption

4) Accelerate strategic infrastructure development, in this case particularly transport infrastructures

5) Build safe, resilient, and sustainable communities

6) Ensure ecological integrity, clean and healthy environment

Nationally Determined Contributions (NDC)

Through the NDC, the Philippines commits to a projected GHG emissions reduction and avoidance of 75%, of which 2.71% is unconditional and 72.29% is conditional, representing the country?s ambition for GHG mitigation for the period 2020 to 2030 for the sectors of agriculture, wastes, industry, transport, and energy. The transport sector for one remains the most energy-intensive sector in the country, accounting for more than one-third of total final energy consumption in 2017.

The proposed project, by electrifying the transport sector and promoting renewable energy-based charging infrastructure can contribute significantly to the NDC target.

The NDC also recognizes the importance of capacity building in increasing the adaptive capacity of the country. The proposed project through its capacity building and awareness components aims to contribute to increasing the adaptive capacity of the country.

The NDC also recognizes the importance bilateral, regional and multilateral cooperation in implementing the mitigation commitments. The project will be a continuing cooperation between UNIDO and the Philippine government.

The NDC upholds the National Climate Change Action Plan (NCCAP), the Philippine Development Plan (PDP), and the Philippine Energy Plan (PEP) among other national sustainable development plan and frameworks in achieving the country?s commitment to this global goal.

National Framework Strategy on Climate Change (NFSCC)/NCCAP (National Climate Change Action Plan)/NAP (National Adaptation Plan)

The National Framework Strategy on Climate Change (NFSCC) was established by the Climate Change Act (RA 9729) in 2009, to guide the country in developing programs and policies in response to climate change. The main goal of the framework strategy is to build the adaptive capacity of communities and increase the resilience of natural ecosystems to climate change and optimize mitigation opportunities towards sustainable development. The NFSCC envisions a climate risk-resilient Philippines with healthy, safe, prosperous, and self-reliant communities, and thriving and productive ecosystems Further, it also highlights the mutually beneficial relationship between climate change mitigation and adaptation. The NFSCC serves as the framework for the development of local and national climate change action plans.

The NFSCC serves as the roadmap for increasing the country?s social and economic adaptive capacity, the resilience of its ecosystems, and the best use of mitigation and finance opportunities. The NFSCC defines the overall parameters for developing a national action plan. It identified adaptation as the anchor strategy and considered mitigation as a function of adaptation.

The NCCAP details the long-term agenda of the country at all levels of government for climate change adaptation and mitigation covering the period of 2011 to 2028, which is divided into three 6-year phases

that coincide with the terms of the Philippine Development Plan (PDP) and the national electoral and planning cycles. The NCCAP?s ultimate goal is to ?build the adaptive capacities of women and men in their communities, increase the resilience of vulnerable sectors and natural ecosystems to climate change and optimize mitigation opportunities towards gender-responsive and rights-based sustainable development.? It identifies communities and areas most vulnerable to adverse impacts (of climate change) and considers differential impacts on women, children and marginalized populations.

The project will directly contribute to key strategic priorities and expected outcomes of the NCCAP, namely, ecological and environmental stability, sustainable energy, and knowledge and capacity development.

National Disaster Risk Reduction and Management Plan (NDRRMP)

The overarching goal of the NDRRMP is a ?safe, adaptive, and disaster-resilient Filipino communities towards sustainable development?. By contributing to resilient transport infrastructures, electric vehicles contribute to reducing vulnerabilities of communities during disasters. The project directly upholds one of the key results areas of the NDRRMP, which is Disaster Risk Reduction. The infrastructure investments in the project represents a key strategic action under the NDRRMP, which is Investing for Resilience, as well as contribute directly to one expected outcome, which is Increased structural integrity of critical infrastructure (besides housing and building). On the other hand, the capacity building component of the project, including activities to increase awareness of all stakeholders and target beneficiaries and capacity of local governments, represent two other strategic actions under the Plan, which are Understanding Risk and Strengthening Risk Governance, as well as contribute to these expected outcomes of the Plan: Enhanced risk awareness and risk-informed decisions and actions of governments and communities; and Increased institutional capacities of local DRRM offices.

The NDRRMP includes recommendations on comprehensive actions that should be taken at the local levels to increase resilience and adaptive capacity of communities. These actions should be considered in the final design of the activities in the proposed project.

The Philippine Energy Plan (PEP) 2020-2040

The Philippine Energy Plan (PEP) 2020-2040 in support of the Ambisyon Natin 2040 ?reiterates the energy sector?s goal to chart a transformative direction towards attaining a clean energy future.? ?Under its Clean Energy Scenario (CES), the PEP provides for ambitious plans, policies and targets on renewable energy, natural gas, alternative fuels, and energy efficient technologies.?

The UNIDO-DTI project will contribute directly to the following goal under the CES: 10% penetration rate of electric vehicles to road transport by 2040. This long-term goal under the PEP 2020-2040 will be achieved particularly through the Alternative Fuels and Emerging Technologies (AFET) Program.

Alternative Fuels and Emerging Technologies (AFET) Program

The AFET Program aims to contribute to diversifying the energy mix, increasing energy supply security, reducing dependence on imported fuels, and supporting the global commitment to climate change mitigation. The development and integration of AFETs in energy systems also offers the public with options on advance energy technologies and more environment-friendly energy fuels. In pursuit of these objectives, the DOE has issued Department Circular (DC) 2020-10-0023 prescribing the ?Policy Framework for the Development of the Fuel Economy Rating, Fuel Economy Performance, and Related Energy Efficiency and Conservation Policies for the Transport Sector and Other Support Infrastructures,? which encompasses all manufacturers, importers, distributors, and

dealers of vehicles in the Philippines. Under the DC, the development and operation of Electric Vehicle (EV) and Electric Vehicle Charging Station (EVCS) shall be structured to facilitate safe operation and growth, while ensuring equitable non-discriminatory and open access for all. The DC also seeks to empower the consumers in choosing fuel-efficient transport vehicles, realize energy savings, reduction of fuel consumption, phase out of fuel inefficient transport vehicles, and the reduction of greenhouse gas emission (GHG).

A complementing policy framework has been also issued, the DC 2021-07-0023168 providing for a ?Policy Framework on the Guidelines for the Development, Establishment, and Operation of EVCS in the Philippines? or referred to as the EVCS Policy Guidelines. The guidelines cover activities related to the establishment, use, and operation of EVCS. In preparation for the widespread adoption of EVs, the DOE has taken the initiative, as outlined in this DC, to further streamline EV adoption and maximize the combined economic, social, energy security, and environmental benefits. This is also to consolidate and harmonize all existing issuances to ensure the safe, efficient operations and system reliability, and to accelerate investments in EVCS in the country.

Designed to scale up investments in e-vehicles deployment, industry development and charging infrastructures, the UNIDO/DTI project will promote partnerships and share knowledge with stakeholders including DOE and other government agencies. Together with other similar initiatives, the project can therefore be counted as among DOE?s collaborative efforts with partner agencies ?in support to the formulation and adoption of policies related to AFET.?

DOE also calls for the development of the Comprehenisve Electric Vehicle Roadmap (CEVR) that is ?a national plan with an annual work plan to accelerate the electrification of transportation in the country with four (4) components: EVs and charging stations, manufacturing, research and development, and human resource development.? In this regard, one of the expected outputs of the UNIDO/DTI project is a ?Technical assistance for the formulation and implementation of the Comprehensive Roadmap on Electric Vehicles (CREV) delivered to DTI and relevant government stakeholders, with focus on women engagement.?

National Renewable Energy Program (NREP) 2020-2040

The PEP through NREP 2020-2040 targets at least 35% RE share in the total power generation mix by 2030 and more than 50% share by 2040. ?To achieve these goals, the NREP recommends the adoption of other measures to allow for higher RE penetration in the system to usher in energy transition.? Investment in RE-based or RE-powered charging infrastructures would be one of these measures. Distribution utilities

are of course well positioned both to meet the RE target through the various RE policy instruments instituted by the RE Act of 2008, including net metering, renewable portfoilio standard (RPS), green energy option (GEOP), renewable energy market (REM), and invest in RE-powered charging infrastructures in anticipation of increased penetration of e-vehicles.

Energy Efficiency and Conservation Program

Under Component 1 Enabling policy environment for e-mobility industry development, the UNIDO/DTI Project will also contriute to the ?Analysis of existing government EV policies and regulations in the Philippines with focus on industry development?. Under the DOE, these policies also include the development of minimum energy performance (MEP) and code of practice on energy labeling of products (COPE) and in this regard the formulation of partciulr product requirements (PPR) for electric vehicles. This is also consistent with the the Philippine Energy Labelling Program and the Energy Efficiency and Conservation Act of 2019.

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[1] REPUBLIC OF THE PHILIPPINES Nationally Determined Contribution Communicated to the UNFCCC on 15 April 2021 https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Philippines%20First/Philippines%20-%20NDC.pdf

[2] PEP 2020-2040 ?Towards a Sustainable and Clean Energy Future?, p. 1.

[3] Ibid.

[4] Ibid., p. 156.

[5] Ibid., p. 91.

[6] In fact, a good example is the ROMELCO project in Romblon, which is included among the candidate beneficiaries for this UNIDO/DTI project.

8. Knowledge Management

Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

Following the GEF?s Independent Evaluation Office (2020), knowledge is an important resource of GEF that supports its strategic objectives to address global environmental concerns. The purpose of knowledge management (KM) is to streamline and improve the impact of UNIDO/GEF funded project in Philippines and inform global, regional and national policy dialogues to reverse environmental problems through innovative e-mobility practices. Further on the knowledge-sharing and learning across the UNIDO partnership should be strengthened, particularly through the enhanced support for deepening the local benefits. At country level the KM consider applications to assist national policy to review specific legal and technical direction through new gains in order to consolidate achieved products and learn from other projects as a baseline for future investments.

The KM sub/component will explore the ways to create, manage and disseminate knowledge on e-mobility and environmental related issues in the project focus area and national wide. The implementation will follow a KM system that will be constantly updated throughout the project implementation period. The approach will explore different ways and processes to better manage knowledge gained and cycles, aiming at interlinking knowledge from multiple stakeholders and end-users. Communities of practice and new technologies such as e-mobility and climate finance mechanism will be tailored to support collaborative and innovative exchanges.

The project will consider from its start developing a comprehensive work plan for building a knowledge management system. To that fact the following steps will be undertaken:

? Creation of KM team (composed with members from the project team and different central and local project partners)

? Preparation of detailed KM implementation plan

? Build KM tools easily integrated into IT platforms through an open access approach.

The project will focus on streamlining an effective KM roadmap including:

? Improve the information management sharing and collaboration and learning across the partners (other projects/programs, central and local project partners, national agencies active in e-mobility approaches in Philippines)

? Strengthen/expand the approaches for up taking the lessons and best practices (use of UNIDO experiences and current projects)

? More systematically integrate knowledge capture, dissemination and learning into UNIDO/GEF project design, implementation and reporting.

In more details:

? Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

? The project will identify and participate, as relevant and appropriate, in meetings and conferences which may be of benefit to project implementation through lessons learned. The project will identify, analyze and share lessons learned that may be beneficial in the design and implementation of similar future projects.

? Different tools such as creation of project website to share its activities, expected impact and the role of the civil society and private sector will be used by the selected PEE. Collaboration with other entities through their information exchange platform can be an added channel. Promotion through social media channels, UNIDO portal and participating in EXPOs that in addition to other tools that will be generated on later stage shall be efficient as support to knowledge management. To easily share knowledge and lessons learned within and beyond the project intervention zone, UNIDO?s Open Data Platform will be used to collect relevant reports and data on technology investments projects.

? All knowledge management activities (such as workshops, trainings, awareness raising) will be gender mainstreamed. This includes integration of gender dimensions into project documents (incl. action plans), publications, for instance presenting sex-disaggregated data, gender-energy nexus theory, gender sensitive language in publications, photos showing both women and men, and avoid presenting stereotypes, as well as assuring that women, men and the youth have access to and benefit from the knowledge created.

? Continuous monitoring will be conducted throughout the project life-time. Up-to-date reports will be shared with the main stakeholders. The project will develop strategic communication plan for information exchange with the key organizations active in the area and other international organizations that can pave the way to achieving project targets and outcomes.

As a GEF Implementing Agency, UNIDO has a growing global experience (e.g., China, Thailand, Nepal, Jordan, Albania, South Africa, Malaysia) in the implementation of e-mobility projects and the knowledge and network to be leveraged by the proposed project will consolidate knowledge of the sector within and across UNIDO projects and for global level initiatives. This approach will enable and facilitate knowledge sharing between stakeholders involved in e-mobility to provide an ongoing coordination mechanism that will remain in place beyond the project period.

Moreover, IEA and UNEP will establish four Thematic Working Groups to facilitate exchanges on technical topics between industrialized, developing and emerging countries and to serve as the major knowledge management facility for the GEF Programme and beyond. The overall objective of the Global Thematic Working Groups is to develop knowledge products, tools and trainings that will be disseminated through the Regional Support and Investment Platforms for use by decisionmakers in governments and in private sector to prepare for the introduction and scale-up of electric mobility. The work is led by the IEA and UNEP and will be carried out in close collaboration with the leads of the Support and Investment Platforms, as well as the e-mobility Country Child Projects funded by the GEF and the e-mobility city projects funded by the European Commission under the EC SOLUTIONS plus project. All knowledge products developed will be made publicly and freely accessible through a joint GEF 7 / EC SOLUTIONS plus e-mobility on-line toolbox (or in some exceptional cases through the partners dedicated GEF 7 Global Electric Mobility Programme webpages).

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[1] IEO (2020): Evaluation of Knowledge Management in the GEF. Independent Evaluation Office of GEF, report, p.43

9. Monitoring and Evaluation

Describe the budgeted M and E plan

Project monitoring and evaluation (M&E) will be conducted in accordance with established UNIDO and GEF procedures. The overall objective of the monitoring and evaluation process is to ensure successful and quality implementation of the project by doing the following:

i) Tracking and reviewing project activities execution and actual accomplishments;

ii) Providing visibility into progress as the project proceeds so that the implementation team can take early corrective action if performance deviates significantly from original plans;

iii) Adjusting and updating project strategy and implementation plan to reflect possible changes on the ground, results achieved and corrective actions taken; and

iv) Ensuring linkages and harmonization of project activities with that of other related projects at national, regional and global levels.

According to the Monitoring and Evaluation policy of the GEF and UNIDO, follow-up studies like Country Portfolio Evaluations and Thematic Evaluations can be initiated and conducted. All project partners and contractors are obliged to (i) make available studies, reports and other documentation related to the project and (ii) facilitate interviews with staff involved in the project activities.

At the same time, M&E will comply with the rules and regulations governing the M&E of UNIDO technical cooperation projects, in particular the UNIDO Evaluation Policy and the Guidelines for Technical Cooperation, both in their respective current versions.

A detailed monitoring plan for tracking and reporting on project time-bound milestones and accomplishments will be prepared by the PEE and UNIDO at the beginning of project implementation and then periodically updated. By making reference to the impact and performance indicators defined in the Project Results Framework, the monitoring plan will track, report on and review project activities and accomplishments.

The PEE will be responsible for day-to-day execution and management of project activities and monitoring the execution, performance and the tracking of progress towards the achievement of milestones.

The PEE will be responsible for narrative reporting to the GEF, and the preparation of draft Annual Project Implementation Reviews (PIR) that will be submitted to the GEF by UNIDO. UNIDO will be responsible for oversight and tracking overall project milestones and progress towards the attainment of the set project outputs.

The mid-term review and terminal evaluation (TE) will be prepared by an independent evaluator as established in the M&E Plan. One mid-term review will be carried out and a final independent terminal evaluation at least one month before the completion of the project. UNIDO execute independent mid-term review and terminal evaluation of the project. The UNIDO project manager will inform UNIDO Evaluation Group at least 6 months before project completion about the expected timing for the Terminal Evaluation (TE). The UNIDO Evaluation Group will then manage the terminal evaluation in close consultation with the project manager.

All monitoring and evaluation documents, such as progress reports, terminal evaluation report, and thematic evaluations (e.g., capacity needs assessment), as well as publications reporting on the project, will include gender dimensions wherever adequate. The table below provides the tentative budget for monitoring and the two evaluations, which have been included in Output 5.1 of Project Component 5. UNIDO as the Implementing Agency will involve the GEF Operational Focal Point and project stakeholders in order to ensure the use of the evaluation results for further planning and implementation.

The M&E plan will encompass monitoring of the Gender Analysis Report, Gender Mainstreaming action plan as well as the Environmental and Social Management Plan.

Table 14. Project?s indicative monitoring and evaluation work plan

Type of M&E Activity	Responsibility	Budget(USD)	Remarks	Timeframe
Inception Workshop and inception report	PMU	Incl. in the contract arrangement with national execution partner		Within first two months of project start up
M&E design and tools to collect and record data (performance indicators) including a survey to confirm baseline values for industry, manufacturers, policy makers, gender, etc.	PMU			Within first two months of project start up and mid project
Regular monitoring and analysis of performance indicators (technical, social, policy, environmental, gender)	PMU			Regularly to feed into project management and Annual Project Review
Project Implementation Reviews (PIRs) including ?lessons learned?	PMU (for data collection and drafting) and UNIDO (to final report and submission to GEF)			Annually
Annual Project Review to assess project progress and performance	PMU			Annually prior to the finalization of APR/PIR and to the definition of annual work plans

Steering Committee (SC) Meetings	PMU, UNIDO		It will be part of PMU activity	Annually to coincide with the Annual Project Review and ad hoc when urgent and important decisions need approval of SC
Mid-term review including survey to measure progress against baseline for investments, trainings and policy makers	PMU, external consultants, UNIDO PM, UNIDO Quality Monitoring Division in advising on TOR and selection of evaluators, Steering Committee and M&E specialists as required	**50,000**	Indicative cost	Year 3 of project execution
Final survey to measure progress against baseline for projects	UNIDO PM; PMU and M&E specialists as required	**70,000**	It will be part of PMU activity	At least two months prior to end of the project
Project Terminal Evaluation	UNIDO Independent Evaluation Division, PMU, PM UNIDO HQ and Project Steering Committee, Independent external evaluators		Indicative cost	Evaluation at least one month before the end of the project; report at the end of project implementation
Visits to field sites	PMU, UNIDO PM		It will be part of PMU activity	As required, through out the project
Total indicative cost		**120,000**		

10. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

The increased use of low-carbon transportation and infrastructure will directly serve 90,600 passengers, of which estimated 60% are assumed to be women (women tend to use public transport more to men[1]). Other direct beneficiaries are expected in the private and public sector as recipients of trainings and knowledge exchange through connecting with regional and global platforms. Assuming that 40% of the population of the targeted cities will be permanent users of e-jeepneys and e-buses, the project will indirectly benefit 1,167,246 people. The project will impact a wide scope of inhabitants due to cleaner air.

The estimation of number of direct beneficiaries is 91,100 beneficiaries (54560 women, 36540 men). The total number consists of the following:

Number of trainees in all technical and institutional workshops and training sessions: 500 (40% women)

Number of municipal population (90,600) that will use e-jeepneys and e-buses using deployed charging infrastructure (60% women)

The project will create socio-economic benefits at that national and local level by supporting Philippine?s electric vehicle market continue to develop, in turn creating co-benefits in the form of new jobs along the EV value chain in the Philippines, a reduction in the Philippine?s contribution to GHG emissions globally, and improvements in national and local air quality. Electric vehicles have emerged as a key technological solution to decarbonizing the transport sector and Philippines?s decision to pursue development of their own EV automotive sector nationally creates synergies to meet climate targets while creating opportunities for people to work, develop new technological skills and improve the quality of life in local communities. The project supports this through the development of support programme for entrepreneurs and SMEs working on electric mobility and supports inclusivity by dedicated attention to women entrepreneurs working in the space and support opportunities for women to work in the labour market in the Philippines. From a gender perspective, the project also supports development of safe, clean and efficient transport for men and women, in turn supporting economic growth by reducing travel time and providing reliable modes of transport through new proposed policy and planning measures. Please see the ESMP for further details.

[1] Gender and Transport, Discussion Paper No. 2011-11, International Transport Forum

11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
	Medium/Moderate		

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

The project has been categorized as Category B as per the UNIDO Environmental and Social Safeguards Policies and Procedures (ESSPP) and based on an analysis of the environmental and social risks of the project which means that there are few likely adverse impacts, which will be site-specific, and few if any will be irreversible. In most cases, impacts can be readily avoided or mitigated with appropriate mitigation measures or incorporating internationally recognized design criteria and standards. During the PPG phase, an Environmental and Social Management Plan (ESMP) has been developed and is included herewith as an attachment.

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
180210_ESMP_final_clean	CEO Endorsement ESS	

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Project Strategy	Objectively verifiable indicators (quantified)	Baseline	Target at End of Project	Sources of verification	Global Programme Indicator
PROJECT OBJECTIVE: Reduce GHG emissions from transport in the Philippines through e-mobility industry development.	Direct GHG emissions reduced from integration of EVs with RE and from scale-up of EV use beyond business as usual, based on the project demos (tons CO2)	0	Direct: 75,867tCO2e Direct secondary: 1,305,542 tCO2e	Demo monitoring report	Direct and indirect GHG emissions mitigated (metric tons of CO2)
	Indirect GHG emissions reduced from integration of EVs with RE and from scale-up of EV use beyond business as usual, based on replication of the project demos (tons CO2)	0	Indirect: 3,086,728 tCO2e	Records of replication in other cities and original demo city	Direct and indirect GHG emissions mitigated (metric tons of CO2)
	Amount of RE used to charge EVs in the Philippines (both direct via project demos and indirect via replication of demos) (MW)	0	1.25 MW installed	Demo monitoring report Records of replication in other cities and original demo city	

	Energy saved in the Philippines (both direct via project demos and indirect via replication of demos)	0	57,945,609,454 MJ	Demo monitoring report Records of replication in other cities and original demo city	Direct and indirect energy savings (MJ)
	Number of direct beneficiaries disaggregated by gender as co-benefits of GEF investment	0	Women: 54,360 Men: 36,240	Monitoring report	Number of direct beneficiaries (disaggregated by gender)
Project Component 1: Enabling policy environment for e-mobility industry development					
OUTCOME 1.1 Policy ecosystem and institutional framework for EV industry development in the Philippines strengthened	Number of (gender-responsive) incentive policies, amendments or roadmaps related to EV market development approved or under current active review with high potential for approval at the ministerial level for entry into the policy pipeline	0	3	Documentation of ministerial level approval of policies or amendments for entry into the policy pipeline	Indicator 3.1 % of countries with improved institutional framework and strategy to promote the uptake of low-carbon electric mobility Indicator 3.3 % of countries that have improved preparedness to accelerate market transformation towards low-carbon electric mobility

Output 1.1.1 Analysis of existing government EV policies and regulations in the Philippines with focus on industry development	# of reports: Analysis of existing government EV policies and regulations in the Philippines with focus on industry development At least 1 organization involved that promotes GEEW	0	1	Project records on official submissions of policy analysis to the government	
Output 1.1.2 Incentive framework for attracting investments in EV vehicles and infrastructure manufacturing with relevant regulatory framework analyzed and developed promoting a gender-responsive approach	# of incentive frameworks for attracting investments in EV vehicles and infrastructure manufacturing	0	1	Project records on official submissions of policy documents to the government	
	# of cost-benefit analysis of the recommended fiscal incentive support measures, including analysis of social and gender dimensions	0	1	Project records on official submissions of policy documents to the government	
Output 1.1.3 Technical assistance for the formulation and implementation of the Comprehensive Roadmap on Electric Vehicles (CREV) delivered to	# of documents: Human resource development roadmap and strategy for the government and industry with focus on women and youth engagement	0	1	Project records on official submissions of policy documents to the government	

DTI and relevant government stakeholders, with focus on women engagement	# of documents: Comprehensive Roadmap on Electric Vehicles (CREV) covering the necessary infrastructure, standards, human resource development, investment strategy and other policies and regulations	0	1	Project records on official submissions of policy documents to the government	
Output 1.1.4 Technical assistance to EV technology standardization and establishment of Quality Infrastructure delivered to DTI/BOI	# of standardization bodies supported by the project	0	1	Project report on the technical assistance provided to DTI/BOI, including list of relevant standards	
Project Component 2: Development of viable business models to increase demand for e-vehicles					
Outcome 2.1 Bankable pipeline of e-mobility projects delivered		0	1	Project monitoring report on the business models development. Feasibility studies Climate-smart investment plans	Indicator 3.2 % of countries with nationally generated evidence of the technical, financial and/or environmental benefits of low-carbon electric mobility

Output 2.1.1 EV market and global value chain analysis identifying opportunities for manufacturing of EVs leveraging Philippines comparative advantages prepared	# of market and global value chain analysis	0	1	Project monitoring report on the business models development. Value chain analysis	
	# of feasibility reports on manufacturing options of EV and parts, leveraging on the country?s comparative advantage in IT, electronics and metal resources	0	1	Project monitoring report on the business models development. Feasibility reports	
Output 2.1.2 EV deployment /integration plans in public transportation, logistics, private sector (corporate) with focus on long-term environmental sustainability prepared	# of plans prepared for EV deployment /integration in public transportation, logistics, private sector (corporate), including long-term environmental sustainability measures prepared	0	2-3	Project monitoring report on the business models development. EV deployment /integration plans prepared for adoption by selected beneficiaries	Indicator 3.4 % of countries with measures in place to ensure the long-term environmental sustainability of low-carbon electric mobility
Output 2.1.3 Climate-smart and gender-responsive investment planning adopted by selected beneficiaries	# of climate-smart and gender-responsive investment plans prepared for selected beneficiaries	0	2-3	Project monitoring report on the business models development. Climate-smart capital investment plans prepared for adoption by selected beneficiaries	

Component 3: Demonstration and early deployment of innovative charging infrastructure and technology eco-investments					
Outcome 3.1 De-risked investments in integrated e-mobility solutions covering RE, energy storage				Project monitoring report on demonstration projects	
Output 3.1.1 Pilot investments identified and prepared	# of feasibility studies for investment projects prepared	0	2-3	Feasibility studies Project monitoring report on demonstration projects	
Output 3.1.2 Pilot investments demonstrating integration of EV with innovative charging infrastructure coupled with renewable energy and EV value chain improvements	# of RE integrated charging capacity installed (MW)	0	1.25	Project monitoring reports on demonstration projects with key technical data	
	# of different sites demonstrated (public/private fleets and EV infrastructure)	0	2-3	Project monitoring reports on demonstration projects with key technical data and scaling-up options identified	
Output 3.1.3 Policy & regulatory support to Local Government Units (LGUs) with demonstration projects provided	# of LGUs supported with gender-responsive policy support	0	2-3	Project report on the support provided Number of policymakers supported (gender disaggregated)	
Component 4: Scale-up of investments through partnerships, knowledge management and capacity building					

Outcome 4.1 Partnerships promoted, knowledge shared with relevant stakeholders for promoting and accessing investments in low carbon technologies enhanced	# of policy makers and private sector actors reached	0	500 (At least 40% women)	Project monitoring report on partnerships and knowledge management, including: List of stakeholder consultations List of participants (gender disaggregated)	
Output 4.1.1 Knowledge exchange platforms and mechanisms strengthened with key national stakeholders based on lessons learned from industries and cities, with focus on women engagement	# of national events participated on electric mobility, sustainable battery use and life-cycle solutions to electric mobility	0	5	List of participants (gender disaggregated) Minutes of Meeting Event Reports	
	At least 40% of attendees/ facilitators that are women At least 1 event that highlights gender dimensions of e-mobility Women?s network/ chapter established for knowledge exchange	n/a	At least 40%	List of participants (gender disaggregated)	
Output 4.1.2 Linkages created with regional and global platforms on electric mobility as part of the Global Electric Mobility Program.	Annual participation in knowledge and best practice sharing through regular exchange of global, regional and national experiences through the Global Programme	0	5	List of participants (gender disaggregated) Minutes of Meeting Event Reports	Indicator 2.1 % of countries using services and knowledge products offered by the Support and Investment Platform

	Proportion of attendees that are women	n/a	At least 40%	List of participants (gender disaggregated)	
	# Best practices / lessons learned shared with global programme	0	5	Best practice / lessons learned descriptions shared Progress reports (PIRs)	Indicator 4.1 % of countries generating and sharing best practices and other lessons learned on low-carbon electric mobility with the global programme
Output 4.1.3 Training sessions for public and private sector on life cycle solutions for EVs and batteries	Number of training sessions for public and private sector	0	X	Training material Meeting minutes List of participants (gender disaggregated)	
	Proportion of attendees that are women	n/a	At least 40%	List of participants (gender disaggregated)	
Project Component 5: Monitoring and evaluation					

OUTCOME 5.1 **Adequate monitoring of all project indicators**	Adequate monitoring of all project indicators in line with GEF, UNIDO and Government of the Philippines requirements through PIRs, mid-term project review and project terminal evaluation	0	5	Progress reports (PIRs) Mid-term project review document Project terminal evaluation report The data below is collected during the project for all activities: ? # and proportion (%) of women participated in capacity-building, workshops and events ? # and proportion (%) of women employed by project office at a professional level and jobs created (gender-aggregated) ? All the progress reports include the progress on the implementation of the gender mainstreaming strategy and action plan.	
Output 5.1.1 Monitoring and mid-term project review	Annual project implementation reports (PIR) developed and submitted to the GEF including progress on gender mainstreaming strategy and action plan	0	5	Annual PIRs	
	Mid-term project review conducted	0	1	Mid-term project review (MTR) document	
Output 5.1.2 **Project terminal evaluation**	Independent project terminal evaluation conducted	0	1	Project terminal evaluation report	

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

Please refer to the uploaded Annex B which contains the below-listed four documents which are too large to introduce here:

- Annex B.1 - Responses to GEF Sec Reviews (on the PFD)

- Annex B.2 - Responses to GEF Sec Reviews (on the PFD Addendum)

- Annex B.3 - Responses to STAP comments

- Annex B.4 - Responses to Council comments

Annex B.4 - Responses to Council comments

Global Programme to Support Countries with the Shift to Electric Mobility (GEFID 10114)

? Comment by Yoshiko Motoyama, GEF Alternate Council Member, Japan, Deputy Director Global Environment Division, International Cooperation Bureau, Ministry of Foreign Affairs of Japan, Council, Japan made on 6/1/2020

The below comments from Japan were provided prior to the Council meeting. An initial agency response was provided and can be found in the list of documents specific to the project in the GEF Portal.

On single-country projects, especially with large stated co-finance ratios, and cyclical-industry-related projects, such as Project 10564 (Environmentally Sustainable Development of the Iron and Steel Industry) and Project 10544 (electric mobility addendum):

? We anticipate that participants of these projects may be severely impacted by the COVID-19 crisis. How realistic are the published co-financing arrangements to be met, and for the industry to meet the higher operating costs - - without de facto subsidization from the GEF?

Response:
The current health crisis related to COVI-19 poses some difficult challenges for the automotive sector, but also, looking more specifically at the electric vehicles segment, it offers some opportunities.

Challenges include delays related to the finalization of the design of some of the national child projects, due for instance to international travel restrictions for the specialists involved in the design and the relative consultations. Broader challenges also include depression of demand for cars, at least in the short term, and potential shift in government priorities to focus limited national budget and workforce to more pressing health- crisis related issues. At this point it is difficult to make assumptions regarding the extent to which this will affect government priorities with regards to the allocation of budget and work force. What can be said is that there is a clear case to be made for mobility to as a key pillar for sustainable and clean transportation investments in the context of economic recovery plans.

Opportunities: According to today?s knowledge, there seems to be a correlation between air quality and COVID- 19, whereby COVID-19 incidence and mortality are significantly higher in areas that have high levels of local air pollution. This includes particulate matters (e.g. PM2.5, PM10)[1] as well as N_2O from both mobile (e.g. trucks and cars) and stationary (e.g. coal power stations) emission sources . Since electric mobility has the potential to significantly contribute to improved urban air quality, we assume that it will play an important role in countries? strategies to respond to the COVID-19 pandemic.

Similarly, a shift to electric mobility will significantly reduce the dependency of countries to import petroleum petrol fuels. It therefore increases resilience against restrictions or price spikes resulting from international crisis.

While during COVID-19 vehicles sales have plummeted by half or more, electric vehicles sales have been relatively less affected. Analysts from Bloomberg New Energy Finance have estimated that the electric segment of car sales will continue to outperform in terms of growth the traditional cars one as we move past the crisis, even though oil prices at a historic low will create some negative headwinds. However, orders of buses are likely to suffer delays if public perception of mass transit as unsafe does persist.

Furthermore, in terms of green recovery, clean mobility is expected to play a key role in getting the global economy back on track. Continued social distancing measures will have an impact on how we use transportation services, and in particular public transportation, but certain modes of public transport are expected to grow, in particular in low and middle-income countries. These modes include 2&3 wheeler taxis, or usual taxis and ride- hailing providers using passenger cars, to reduce close contact with higher numbers of riders. For many of these modes good electric alternatives are available.

Based on current trends and signals it is expected that after COVID-19 the shift to electric mobility would continue, if not increase. Many city governments around the world are looking at opportunities to take advantage of the significant reduction in urban congestion linked to the COVID-19 mobility restrictions to introduce permanent limitations to the use of private vehicles, especially if internal combustion engines. Such measures will not only reduce local air pollutants (such as particulates PM2.5 and PM10, but also N_2O) and carbon emissions but can also increase resilience of transport systems against the current - and any potential future - health crises. The contribution of low-carbon mobility, including electric mobility, to a more resilient economy will be further integrated in the Programme and highlighted throughout the training components to be delivered to participating countries.

? What happens to the funds/projects if some participants cease to become going concerns (=i.e. bankruptcy)?

Response:
The information presented in the project documentation (PIFs and PFDs) represents the best available information available at the time of the submission to Council, following the technical review from the GEFSEC. Some level of change in the project design and in the availability of the amount of co-financing estimated ex- ante is possible and sometimes even desirable, considering the additional in depth design analysis conducted during the project preparation phase, including through the PPG-funded activities, between the submission of PIFs/PFDs and the submission of the relative CEO ER.

Co-financing arrangements and amounts specified in PIFs/PFDs are best-case estimations that GEF Implementing Agencies and National Executing entities or participating actors provide for the formulation of the project proposals. These up-front estimates are assessed as part of the GEFSEC review process in terms of their relevance and adequacy vis-?-vis the scope and objective of the proposed Project/Program activities.

Once the PIF/PFD is approved by Council, as part of the detailed design process, Agencies and actors listed as other providers of co-financing amounts are asked to reassess and formally confirm that the co-financing volumes which had been included in the PIF/PFD have been approved by the competent authority within each specific organization. This is formalized through the submission of co-financing confirmation letters. In case a specific entity is no longer able to provide the previously stated co-financing amount, either in full or in part, generally Implementing Agency and GEFSEC would work together to assess if the stated co-financing is essential to achieve the project/program?s objective. If so, GEFSEC and Agency assess if the expected amount of co- financing that is no longer available can be replaced by existing or additional co-financing from other actors. In

case the co-financing is deemed essential, and there is no possibility to source such funds that are considered necessary to achieve the stated objectives, GEFSEC and Agency would consider whether to revise the approved project/program, and if not possible/advisable the project/program would not receive CEO Endorsement.

Given that the development phase will take around 12 months, and that the COVID crisis might trigger some government support to accelerate the further uptake of electric vehicles, as we have seen in France, for example (see quote below) , we hope that the co-finance might not be such an issue in a year from now, when the CEO endorsement documents will be due for submission. In any case, if planned investments and/or co-finance becomes an issue, agencies will work with the project developers to identify other sources of co-finance that can substitute the initial set of co-financiers, while keeping the project scope. If this is not possible, the developers will try to re-adjust the scope to respond to available co-finance that is still aligned with the project objectives. If this fails as well, then the developers might wish to either postpone the project or discuss with the country if the project should/can go ahead.

? We raised at the last council our interest in verifying the ability of GEF and its accredited agencies to conduct independent audits of such contributions, including verifying and assessing the abilities of the involved parties to meet the co-financing obligations of this project. We recognize that this process --- along with many other due diligence procedures --- could be increasingly impaired by the latest COVID- 19 crisis. Detailed explanations on how the Secretariat plans to handle these types of issues would be appreciated (preferably in writing to be posted on the GEF website, as it is not clear from the existing material and guidelines on the website)

Response:
In addition to the explanation provided above on the dynamics of co-financing, co-financing is reported on a yearly basis, based on progresses related to the sourcing and use of co-financing amounts. In the case of the e- mobility Programme, the Lead Implementing Agency is UNEP. For each project implemented by UNEP, the Project Manager has responsibility to seek signed co-finance reports from each co-financier of that given project. While the co-financiers are not audited, their signed (by the

authorized authority in each entity providing co- financing) co-finance reports are available for the mid-term and terminal evaluators, so that the evaluation process can assess if that given GEF project reached or not the co-finance amounts which had been estimated up-front.

? We would also like to stress the need for transparency and balanced involvement of private sector providers in any of these corporate projects (particularly highly cyclical sector projects such as the ones included in this work program in the steel and automobiles sectors), especially amid the COVID crisis, given that all such industry participants indiscriminately face severe business conditions. Projects should be carefully constructed and communicated, so that they are not deemed to infringe upon rules against subsidization of particular entities, thereby ?reinforcing the market power of some targeted companies at the expense of other firms? (as per the rules). For example, ?to de-risk investments in ....? in the project description/ objectives implies the potential of subsidization, highlighting the need for transparency in their construct and execution, so that they are visibly in line with GEF rules and regulations and the Private Sector Engagement Strategy to be adopted at this Council session. This type of crystal-clear communication/ governance insurance measure is essential for the GEF to credibly raise funding for private sector-driven projects in a tough financial environment.

Response:

We certainly acknowledge the importance of the point being raised here: all projects must be careful to run clear, fair and transparent procurement policies, which Agencies have in place for GEF projects. The recently adopted MINIMUM FIDUCIARY STANDARDS FOR GEF PARTNER AGENCIES Policy (GA/PL/02, of Dec 19, 2019), which covers both the Agency?s internal procurement policies and procurement by recipients of funds, provides that:

Specific GEF Partner Agency policies and guidelines promote economy, efficiency, transparency and fairness in procurement through written standards and procedures that specify procurement requirements, accountability, and authority to take procurement actions. As a minimum, these policies and guidelines provide for:

o Open competition and define the situations in which other less competitive methods can be used; and

o Wide participation through publication of business opportunities; descriptive bid/ proposal documents that disclose the evaluation criteria to be used; neutral and broad specifications; non-discriminatory participation and selection principles; and sufficient time to submit bids or proposals.

UNEP is the GEF agency leading the global e-mobility programme and will take on this guidance in the development of the global project and its own child projects and will also pass it along to all other Implementing Agencies (UNDP, UNIDO, DBSA and EBRD). Of course, the participation of private sector partners and entities is key for the e-mobility programme and UNEP and the other Implementation Agencies will continue to seek their support and participation in the program. The Program objective is to promote a shift towards electric mobility and away from Internal Combustion Engines, and as such all projects will be working with private sector partners that are actively working in this space.

In this context, it may also be useful to refer to the GEF-7 Programming Directions, para 121, as they refer to the Climate Change Focal Area:

121. To take advantage of the GEF?s comparative advantage, programming under this objective does not prioritize direct support for large-scale deployment and diffusion of mitigation options with GEF financing only. Rather, GEF-7 resources should be utilized to reduce risks and enhance enabling environments in order to facilitate additional investments and support by other international financing institutions, the private sector, and/or domestic sources to replicate and scale up in a timely manner.

The global e-mobility program is responding to the GEF?s grant role to support innovation and technology transfer at key early and middle stages of development, focusing on the demonstration and early deployment of innovative technologies to deliver sustainable energy solutions that control, reduce, or prevent GHG emissions.

? Comment by Kordula Mehlhart, GEF Council Member, Head of Division on Climate Finance, BMZ, Council, Germany made on 6/18/2020

Germany approves the following PIFs in the work program but asks that the following comments are taken into account:

Germany approves the addendum to the global programme that contributes to the adoption of e-mobility by strengthening the technical and financial capacities of countries and taking into account different local prerequisites and requirements.

Suggestions for improvements to be made during the drafting of the final project proposal:

? The introduction of e-busses to local public transportation fleets differs from other e-mobility forms, e.g. from heavy duty long-distance trucks, when it comes to technical aspects, charging infrastructure and the role of public / private investments. Given the unique involvement of public stakeholders in the purchase and operation of e-busses as well as the significant effect e-busses can have in terms of GHG-emission reductions in urban centres, this subject deserves a great amount of attention. Germany therefore proposes, that the significance of the acceleration of ebus adoption be reflected in the program structure, by creating an additional working group focused on e-busses in public transportation.

Response:
Many countries have prioritized the introduction of electric busses in their country projects. Often as part of their efforts to introduce mass transit/ bus rapid transit systems. There will be a key interest in developing tools about the introduction of e-busses in developing country operating environments. There are also many lessons learned and examples (good and bad) in all regions that need sharing (for example the Chile and South Africa pilots). On the other hand, no country projects have prioritized electric trucks in their projects. Generally, this sector is seen as the last sector to switch, after busses, 2&3 wheelers and light duty vehicles (with the exception of the smaller delivery trucks like vans and so). Therefore, our thinking is to focus the HDV working group on busses. With possibly (probably) a smaller sub-group focusing on electric trucks. So rather than having a busses sub-group, we want to focus the HDV working group on busses and have a sub-group on trucks.

? Germany welcomes that information exchange and knowledge management are a substantial part of the programme. We suggest establishing a close working relationship to the new TUMI (Transformative Urban Mobility Initiative) E-Bus mission. The?TUMI E-Bus Mission? follows a similar logic and approach in supporting cities in the uptake of e-busses. As the e-bus implementation

in public transport is largely dependent on an involvement of city level decisionmakers, the TUMI E-Bus Mission can contribute to the proposed programme by feeding in local perspectives and requirements.

Response:
UNEP already has existing working relations with the Transformative Urban Mobility Initiative. Coordination with and involvement of the TUMI initiative in the global e-mobility programme will be added to the project document (especially through the activities implemented as part of the Regional Support and Investment Platforms).

? Comment by Anar Mamdani, Director, Environment Division (MSS), Global Issues and Development Branch (MFM), Global Affairs Canada, Council, Canada made on 6/26/2020

? We recommend that there be some consideration to mitigating the environmental impacts of electric vehicles, particularly where facilities for managing batteries don?t exist.

Response:

Component 1 of the global e-mobility project includes a Global Thematic Working Group on ?Electric vehicle charging, grid integration, renewable power supply and battery re-use, recycling and safe disposal?. This Working Group?s main objective will be to develop and make available knowledge materials that support governments in their ambitions for advancing a sustainable roll out of electric mobility, including policy instruments to ensure the sustainability of the battery supply chain and the end-of-life treatment of batteries. It also aims at the facilitation of discussions between regulators, recyclers and battery / vehicle manufacturers to better understand and enhance battery design to improve recyclability of batteries, especially with regards to economic viability.

In addition, Component 4 of the country child projects is usually focused on the long-term environmental sustainability of low-carbon electric mobility, which include outputs/activities to ensure/promote the environmentally sound management of used batteries (i.e. collection, re-use, recycling and disposal).

? Comment by Elizabeth Nichols, U.S. Department of State | Bureau of Oceans, International Environmental and Scientific Affairs (OES), Office of Environmental Equality and Transboundary Issues (EQT), Council, United States made on 7/2/2020

? Within Bangladesh, we recommend additionally coordinating with the State Minister for Power, Energy, and Mineral Resources, and the Dhaka North City Corporation Mayor.

Response:
Comment taken and shared with UNDP project proponents in charge of the Bangladesh child project. This recommendation will be considered during the proposal development phase of the Bangladesh e-mobility project.

? Within Sri Lanka, there was very minimal reference to the project?s stakeholders. We look forward to seeing much more clearly defined information on stakeholders and their engagement in the next stage of proposal development.

Response:
Comment taken and shared with UNEP project proponents in charge of the Sri Lanka child project. Engagement of project stakeholders will be further elaborated during the proposal development phase of the Sri Lanka e- mobility project.

? Comment by Dr Katharina Stepping, Deputy Head of Unit Climate Finance, Federal Ministry for Economic Cooperation and Development (BMZ), Council, Germany made on 6/28/2019

Germany welcomes the proposal aiming to support countries to design and implement electric mobility programs as part of an overall shift to sustainable, low carbon transport sector. Germany welcomes the proposal as the first global inter-agency electric mobility programme and appreciates that the project clearly aims at supporting the rapid introduction of electric mobility in GEF recipient countries, herby making a contribution to the low carbon transition in the transport sector. At the same time, Germany has the following comments that it suggests be addressed in the next phase of finalizing the project proposal:

Suggestions for improvements to be made during the drafting of the final project proposal:

? Germany welcomes that the project foresees a clear role for the private sector as a supplier for electro mobility technologies. However, given that private sector investments in electric mobility will be key, Germany would welcome the inclusion of activities that specifically directed at spurring private investments in electric mobility (from the demand side). For instance, some firms have switched parts of their operations to electric fleets. These types of opportunities could be considered within the PIF.

Response:
Almost all of the Country Child Projects are geared towards the introduction of electric 2&3 wheelers (and sometimes e-passenger cars) as well as e-buses into private or government owned public transportation fleets through: 1) Awareness raising, capacity building and institutionalization of e-mobility; 2) Short term barrier removal through demonstration of e-mobility; 3.) Scale-up and replication through development of e-mobility policies, business models and financial mechanisms; and 4.) Support of environmental sustainability through battery re-use / end-of-life considerations and integration of renewable power for vehicle charging. The Country Child Projects therefore target to spur e-mobility demand in the project countries.

The Regional Support and Investment Platforms under the Global Programme will create market-place events whereby the current as well as potential new projects meet with financiers (development banks, venture capital, green funds) and e-mobility manufacturers. The idea is to bundle demand for EVs and EV supply equipment and to raise interest from manufacturers in regions of the world, which are not yet in the focus of manufacturers, but have a great market potential.

The Global Working Groups and the Regional Supply and Investment Platforms are a means of private sector participation, and invites all major EV and EV supply equipment manufacturers to participate in events, tasks groups, etc. This also includes bringing together multinational EV and EVSE manufacturers with the vibrant mobility service provider start-up scene in low and middle-income countries.

Many Country Child Project also include work streams to incentivize the local assembly and manufacturing of e- vehicles, such as e-motorcycles and e-3wheelers.

? Germany welcomes the comprehensive and overall well-structured project design. To further facilitate an overview of the project ?s intended activities, Germany welcomes the inclusion of quantitative indications in the description of component 3 on how many pilot projects, regulatory measures etc are planned.

Response:
Each country child project includes a project results framework with quantitative indicators and end-of-project targets to measure the number of pilot projects, regulatory measures, etc., achieved/developed within the framework of the GEF project. However, at the time of submission of the Global Child Project, not all Country Child Projects (and in particular those 10 Country Child Projects submitted as part of the second round) have been finalized, and thus the exact amount of policies planned, business models envisaged and financial mechanisms to be set-up cannot not be provided.

? While the proposal provides a comprehensive overview of highly relevant initiatives and programmes, Germany welcomes including existent initiatives such as the Transformative Urban Mobility Initiative

and the C40 Cities Finance Facility as well as upcoming initiatives such as TUMIVolt to enable exchange of experiences as well as potentials for future collaboration. This is especially relevant considering the planned future expansion of the proposed project to countries like Nigeria and Mexico which are partner countries to above mentioned initiatives.

Response:
UNEP has working relations with both TUMI as well as C40 (in particular through the ?Zero Emission Bus Rapid- deployment Accelerator? (ZEBRA) initiative), and coordination with and involvement of both initiatives in the global e-mobility programme, especially through the activities implemented as part of the Regional Support and Investment Platforms, will be added to the project document.

? Germany welcomes the proposal ?s reliance on IEA scenarios to lay out the project approach. To even further increase the proposal ?s line of argument, Germany would welcome a very brief explanation on why the proposal focuses on the IEA ?s B2DS and not on the 2DS scenario when describing the programme ?s focus. This could for example be provided on page 26 in the first paragraph.

Response:
Work funded by the GEF working towards Climate Change Mitigation is related to the UNFCCC and the Climate Agreements achieved as part of the Conference of the Parties (COP). The Paris Agreement?s central aim is ?to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius?. The IEA Beyond 2 Degree Scenario (B2DS) reflects this. Language can be added as suggested.

? Comment by James Woodsome, International Economist, O ce of International Development Policy, International Affairs, U.S. Department of the Treasury, Council, United States made on 7/3/2019

Feasibility. The core of this proposal for Armenia deserves further scrutiny. The claim of 5,000 electric vehicles does not fit with other statistics, for example press reports citing the Minister of Nature Protection as saying that 30 electric vehicles were imported into Armenia in 2018. While there may

have been a several-fold increase in electric vehicle imports in Armenia since 2016, those imports would have started from extremely low levels. That Armenia would manufacture electric vehicles does not track with the fact there is no real manufacturing industry even for traditional petroleum fuel vehicles at present. Due to the ratcheting duties caused by incremental adoption of the Eurasian Economic Union (EAEU) common external tariff, Armenia will face steadily increasing prices for imports of cars from outside the EAEU, complicating the adoption of such technology. We encourage more background investigation before its basic feasibility can be established.

Response:
Regarding the question on Armenia, unfortunately there is a mistake with the short description of the Armenia child project baseline in Table 2 of the PFD. This will be corrected during the Child Project development and a note will be attached to the PFD to that effect. The 5,000 EVs mentioned and the local manufacturing actually belong to Ukraine. The US Council comment is right and Armenia imported about 30 EVs in 2018 (https://energyagency.am/en/page_pdf/tsragri-anvanoum). The project feasibility in Armenia will be further analyzed during development, but the government has prioritized the promotion of electric vehicles as one of the transport measures in their NDC. Armenia recently waived the VAT on EVs to stimulate the EV
market (https://energyagency.am/en/category/noroutyounner-ev-mijocaroumner/elektromobilneri-nermoutsoumy- kazatvi-aah). In general, high import duties for vehicles can be an opportunity rather than a barrier for EV import. In case these duties are waived or reduced for EVs (to some extent that is already the case with the VAT exemption for EVs in Armenia), it provides a meaningful monetary incentive for customers to buy electric vehicles. EV market uptake in Norway is largely due to import and registration tax exemptions for EVs, while import of conventional cars is subject to high taxes. Yerevan has instituted an exemption of parking fees for EV?s and has deployed some recharging infrastructure. Armenia already has a low emissions factor of about 0.4 tons of CO2/MWh and the introduction of EV?s in Armenia would be able to reduce emissions with such a grid profile, and Armenia has introduced several policies to incentivize renewable power generation investments. For example, projects have been implemented or have been committed to improve energy transmission efficiency and reliability, and investment in renewables is taking off. This GEF project aims to demonstrate light duty vehicles in a government fleet in Yerevan, and in 2019, 23 charging stations will be installed through a GEF-6 funded Small Grant Programs implemented and led by UNDP. Promoting electric vehicles together with renewable energy will improve energy efficiency and further reduce CO2 emissions, air pollution and energy dependence in Armenia. This will be in full alignment with the countries? NDC and its strong commitment to the introduction of clean and sustainable energies.

? Comment by Lauren C?line Naville Gisn?s, NORAD, Department for Climate, Energy and Environment, Council, Norway made on 6/29/2019 ?

•? We put great emphasis on cutting GHG emissions through electrification of the transport sector. We are of the opinion that if all take concerted action, it will drive down costs because of scale production.

•? Every country has to choose their own path. However, an important lesson so far is that one needs to tax emissions. You need carrots and sticks. In line with general GEF principles of an enabling policy framework, one should pay attention to relevant tax policies when designing GEF programs, including policies for reducing fossil fuel subsidies.

Response:
The Child Country Projects all include work on the development of adequate policy frameworks to support the uptake of e-mobility ? including regulatory, fiscal and other local measures. For example, some of the country projects include outputs on fiscal reforms in order to base registration and / or import taxation for vehicles on CO2 emissions or fuel consumption. In some of the countries (i.e. in some of the SIDS), work will be brought forward to liberalize the power market and to allow the supply of power by independent power producers, which facilitates the introduction of renewable power generation and breaks the monopoly of subsidized petroleum fuel powered electricity generation.

ANNEX C: Status of Utilization of Project Preparation Grant (PPG). (Provide detailed funding amount of the PPG activities financing status in the table below:

Table 1. Status of Utilization of Project Preparation Grant (PPG)

Project Preparation Activities Implemented	*GETF/LDCF/SCCF Amount ($)*		
	Budgeted Amount	*Amount Spent To date*	*Amount Committed*
1100 - International consultants	50,000	18,367	31,633
1500 ? Local travel	15,000		15,000
1700 ? National consultant	30,000	50,086	-20,086
2100 ? Contractual services	8,379	789	7,590
3500 ? International meetings	25,000		25,000
5100 ? Other direct costs	9,236	11,073	-1,837
Total	**137,615**	**80,315**	**57,300**

Remaining funds (57,300.05 USD) will be utilized for the eligible expenditure items under PPG during project inception, within one year after the project has been CEO Endorsed.

The following activities have been completed during the PPG:

- ? Stakeholder engagement activities during PPG (consultations, workshops, steering committee)
- ? Disclosure of relevant studies and information to stakeholders
- ? Analysis of baseline and ongoing/planned initiatives
- ? Collection of baseline data on relevant sectors/technologies
- ? Preparation of environmental and social management plan (ESMP)
- ? Gender Assessments

- ? Description of the project implementation/execution modalities and agencies (incl. draft TOR for contractual arrangements, assessments of proposed executing agency capacity)
- ? Obtaining of co-financing letters from donors, NGOs, Agencies and government
- ? Finalization of project documents

ANNEX D: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.

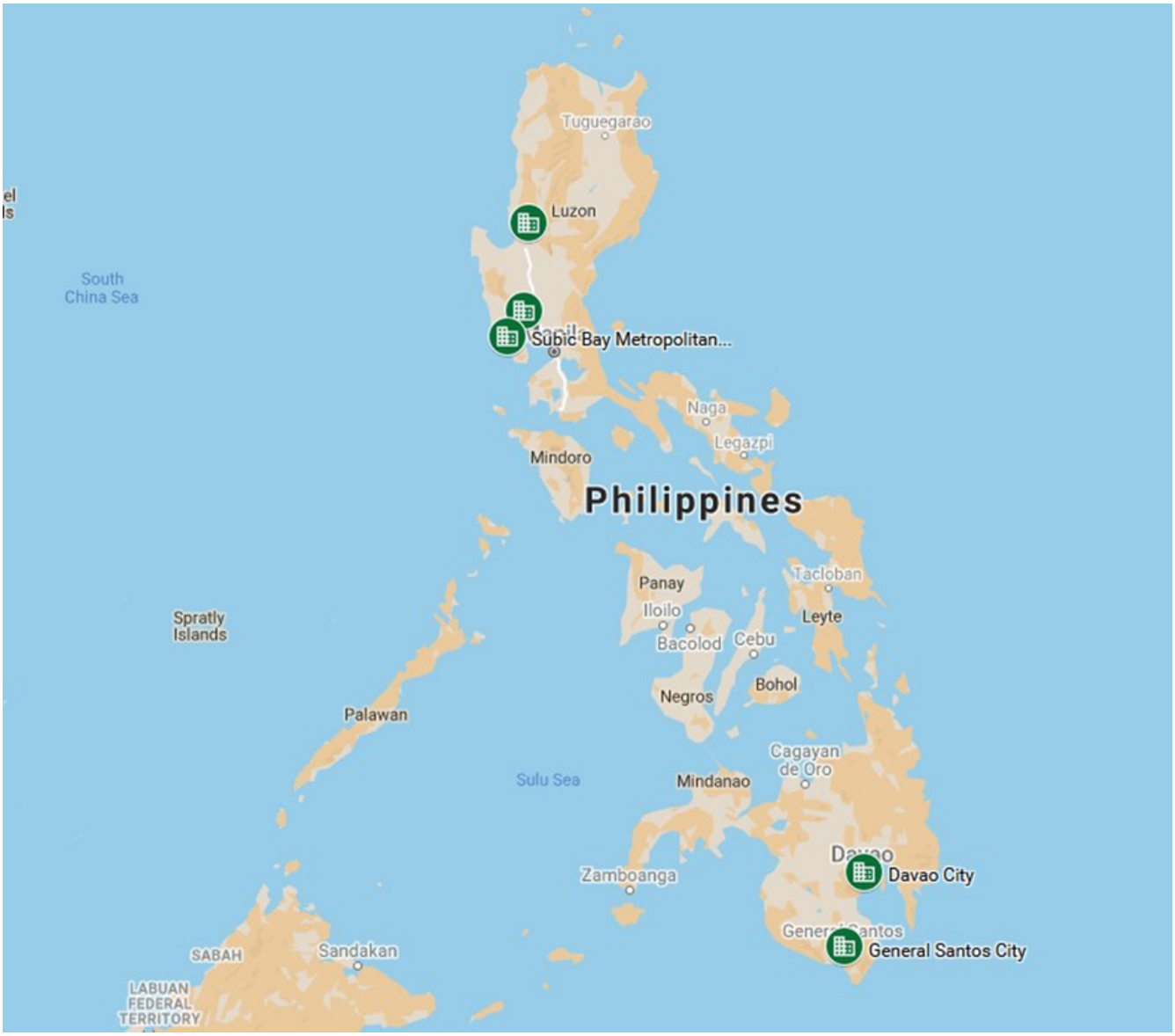
Davao City: 7?04?N 125?36?E

General Santos: 6?07?00,127?N 125?10?00,170?E

Baguio City: 16?25?N 120?36?E

Clark Freeport Zone: 15.18493?N 120.5394?E

Subic Bay Freeport Zone: 14.807?N 120.287?E



ANNEX E: Project Budget Table

Please attach a project budget table.

The detailed project budget has been attached separately, as the file is too large to be introduced here.
Below is a summarised indicative budget per output per year of the project.

	2022	*2023*	*2024*	*2025*	*2026*	*2027*	*Total*
Component 1	230,000.00	430,000.00	20,000.00	20,000.00	20,000.00	10,000.00	730,000.00
Output 1.1.1	70,000.00	70,000.00	-	-	-	-	140,000.00
Output 1.1.2	100,000.00	250,000.00	-	-	-	-	350,000.00

Output 1.1.3	40,000.00	90,000.00	-	-	-	-	130,000.00
Output 1.1.4	20,000.00	20,000.00	20,000.00	20,000.00	20,000.00	10,000.00	110,000.00
Component 2	50,000.00	200,000.00	200,000.00	-	-	-	450,000.00
Output 2.1.1	50,000.00	70,000.00	-	-	-	-	120,000.00
Output 2.1.2	-	80,000.00	-	-	-	-	80,000.00
Output 2.1.3	-	50,000.00	200,000.00	-	-	-	250,000.00
Component 3	-	210,000.00	1,030,000.00	630,000.00	38,563.00	-	1,908,563.00
Output 3.1.1	-	150,000.00	-	-	-	-	150,000.00
Output 3.1.2	-	-	1,000,000.00	600,000.00	38,563.00	-	1,638,563.00
Output 3.1.3	-	60,000.00	30,000.00	30,000.00	-	-	120,000.00
Component 4	50,000.00	100,000.00	100,000.00	80,000.00	50,000.00	20,000.00	400,000.00
Output 4.1.1	25,000.00	50,000.00	35,000.00	30,000.00	20,000.00	20,000.00	180,000.00
Output 4.1.2	10,000.00	25,000.00	40,000.00	30,000.00	20,000.00	-	125,000.00
Output 4.1.3	15,000.00	25,000.00	25,000.00	20,000.00	10,000.00	-	95,000.00
Component 5	-	-	-	50,000.00	-	70,000.00	120,000.00
Output 5.1.1	-	-	-	50,000.00	-	-	50,000.00
Output 5.1.2	-	-	-	-	-	70,000.00	70,000.00
TOTAL	**330,000.00**	**940,000.00**	**1,350,000.00**	**780,000.00**	**108,563.00**	**100,000.00**	3,608,563.00
PMC	18,042.70	36,085.40	36,085.40	36,085.40	36,085.40	18,042.70	180,427.00

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

Not applicable

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agencys is

required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

Not applicable

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies? capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).

Not applicable