



## Support the Shift to Electric Mobility in Togo

### Part I: Project Information

**Name of Parent Program**

[Global Programme to Support Countries with the Shift to Electric Mobility.](#)

**GEF ID**

10272

**Project Type**

MSP

**Type of Trust Fund**

GET

**CBIT/NGI**

CBIT **No**

NGI **No**

**Project Title**

Support the Shift to Electric Mobility in Togo

**Countries**

Togo

**Agency(ies)**

UNEP

**Other Executing Partner(s)**

Ministry of Environment and Forestry Resources

**Executing Partner Type**

Government

**GEF Focal Area**

Climate Change

**Taxonomy**

Focal Areas, Climate Change, Climate Change Mitigation, Energy Efficiency, Renewable Energy, Technology Transfer, Sustainable Urban Systems and Transport, Influencing models, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Deploy innovative financial instruments, Demonstrate innovative approaches, Convene multi-stakeholder alliances, Stakeholders, Type of Engagement, Consultation, Participation, Information Dissemination, Private Sector, Large corporations, SMEs, Capital providers, Financial intermediaries and market facilitators, Individuals/Entrepreneurs, Civil Society, Community Based Organization, Academia, Non-Governmental Organization, Communications, Awareness Raising, Behavior change, Education, Gender Equality, Gender Mainstreaming, Women groups, Beneficiaries, Sex-disaggregated indicators, Gender results areas, Access to benefits and services, Participation and leadership, Capacity, Knowledge and Research, Capacity Development, Innovation, Knowledge Generation, Knowledge Exchange

**Rio Markers****Climate Change Mitigation**

Climate Change Mitigation 2

**Climate Change Adaptation**

Climate Change Adaptation 0

**Submission Date**

5/7/2021

**Expected Implementation Start**

10/1/2021

**Expected Completion Date**

9/30/2025

**Duration**

48In Months

**Agency Fee(\$)**

38,134.00

## 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 technology and electric mobility	GET	423,716.00	1,220,000.00
		<b>Total Project Cost(\$)</b>	<b>423,716.00</b>	<b>1,220,000.00</b>

**B. Project description summary****Project Objective**

Mitigate GHG emissions by accelerating the introduction of electric mobility in Togo through the development of a policy framework, capacity building and demonstration of electric motorcycles to prepare for upscaling and replication.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 1. Institutionalization of low-carbon electric mobility	Technical Assistance	1. The government adopts a strategy for the promotion of low-carbon electric mobility by establishing a coordinated institutional framework.	<p>1.1 An inter-sectorial electric mobility coordination body is established</p> <p>1.2 A national strategy for electric mobility, including gender sensitive business development in the transport sector is developed and submitted for adoption.</p> <p>1.3. Key stakeholders from public and private sector are trained in the Global Electric Mobility Programme activities (national and regional workshops, trainings and thematic working groups).</p>	GET	82,000.00	165,000.00

Component 2. Short term barrier removal through low-carbon e-moto-taxi demonstration and charging development	Investment	2. Demonstrations provide evidence of technical, financial and environmental sustainability to government and transport companies to plan for scale-up of low-carbon electric mobility.	<p>2.1. A comprehensive feasibility study and implementation plan for electric moto-taxi demonstration including a low-carbon charging scheme, and a data collection framework are developed along with the reporting and analytical framework.</p> <p>2.2. Demonstration vehicles and charging equipment are procured, staff trained, the demonstration project is implemented, monitored and data are collected, analysed and disseminated.</p>	GET	150,116.00	245,000.00
Component 3. Preparing for scale-up and replication of low-carbon electric mobility	Technical Assistance	3. Government creates conditions for removing existing barriers by drafting regulatory reforms and financial mechanisms for adoption of e-mobility in the country	<p>3.1 Fiscal policies and regulatory schemes are developed to incentivize the uptake of electric mobility.</p> <p>3.2: An e-mobility business roundtable including private sector and financial institutions is established to develop financial schemes and concepts for e-mobility upscaling</p>	GET	75,400.00	665,000.00

Component 4. Long-term environmental sustainability of low-carbon electric mobility	Technical Assistance	4. Long term sustainability of low carbon electric mobility is ensured by government institutions	4.1. A study to integrate renewable power for electric vehicle recharging is carried out.  4.2 A scheme for collection, re-use, recycling and sound disposal of used electric vehicle batteries is developed and submitted for adoption.	GET	50,900.00	35,000.00	
Monitoring and Evaluation				GET	30,300.00		
					<b>Sub Total (\$)</b>	<b>388,716.00</b>	<b>1,110,000.00</b>
<b>Project Management Cost (PMC)</b>							
				GET	35,000.00	110,000.00	
					<b>Sub Total(\$)</b>	<b>35,000.00</b>	<b>110,000.00</b>
					<b>Total Project Cost(\$)</b>	<b>423,716.00</b>	<b>1,220,000.00</b>

## 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(\$)
Recipient Country Government	Ministry of Environment and Forestry Resources	In-kind	Recurrent expenditures	140,000.00
Recipient Country Government	Ministry of Mines and Energy	Public Investment	Investment mobilized	500,000.00
Recipient Country Government	Ministry of Mines and Energy	In-kind	Recurrent expenditures	100,000.00
Recipient Country Government	Ministry of Infrastructure and Transport	Grant	Investment mobilized	300,000.00
Recipient Country Government	Ministry of Infrastructure and Transport	In-kind	Recurrent expenditures	100,000.00
GEF Agency	UNEP	Grant	Investment mobilized	60,000.00
GEF Agency	UNEP	In-kind	Recurrent expenditures	20,000.00
			<b>Total Co-Financing(\$)</b>	<b>1,220,000.00</b>

## Describe how any "Investment Mobilized" was identified

• UNEP is contributing with a grant of USD 60,000, which UNEP has mobilised through the European Commission funded Solutions Plus project (Grant Agreement number: 875041 – SOLUTIONSplus – H2020-LC-GV-2018-2019-2020/H2020-LC-GV-2019, started implementation January 2020). This grant is to build upon an existing project with EV demonstration activities, and to replicate lessons learnt from the SOLUTIONSplus demonstration projects. where businesses, local authorities, and public transport providers in other cities are invited to submit proposals to replicate the business models and demonstration efforts. The call for proposals will respect both local and EU legal requirements. The grant portion will be used for the procurement of charging equipment and for targeted support of local innovators to install and /or operate the equipment. • The Investment Mobilized through Ministry of Mines and Energy is based on the Blitta solar photovoltaic power plant in the central region of Togo implemented by Ministry of Mines and Energy. It is estimated, that by 2030 about 2% of the power plants electricity output will be consumed by electric 2 & 3 wheelers. Therefore, the investment mobilized is estimated at approximately 2% of the investment value of the Blitta power plant (USD 25,134,000) which equals about USD 500,000. There is a great potential for synergies between electric 2&3 wheelers and mini- and micro-grids used for electrification in rural area. E-mobility can contribute to solving the issue of low power demand in rural areas which can jeopardise the profitability and sustainability of rural electrification projects. Electrification of last-mile travel modes such as 2&3 wheelers could be a means of making mini-grid applications more profitable while providing a clean and relatively cheap fuel (when compared to gasoline used in conventional motorcycles) for local population. As part of the work under Output 4.1, the project will aim to make clear linkages between e-mobility and solar off-grid electricity solutions. • The investment mobilized by Ministry of Transport is based on grants received through the World Bank projects specified in the co-financing letter. The World Bank project "Togo - Trade and Logistic Services Competitiveness Project" targets the professionalization of transport sector workers and the review and development of the regulatory framework of the transport sector. The World Bank "Infrastructure and Urban Development Project" targets 1.) the improvement of urban infrastructure; and 2.) institutional strengthening for improved urban planning and infrastructure development. The project aims at the joint implementation of capacity building activities, trainings and policy development, where applicable. Note: At the time of submission of the CEO Endorsement Document to the GEF, the co-finance letter of the Ministry of Transport was still in the signature process. In order to avoid delaying the submission beyond the cancellation deadline of the 1st of April 2021, we decided to submit the CEO Endorsement Document without the letter. We however expect to receive it early April 2021.

## 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(\$)
UNEP	GET	Togo	Climate Change	CC STAR Allocation	423,716	38,134
<b>Total Grant Resources(\$)</b>					<b>423,716.00</b>	<b>38,134.00</b>



**E. Non Grant Instrument**

NON-GRANT INSTRUMENT at CEO Endorsement

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Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

## F. Project Preparation Grant (PPG)

PPG Required **false**

PPG Amount (\$)

35,000

PPG Agency Fee (\$)

3,150

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)
UNEP	GET	Togo	Climate Change	CC STAR Allocation	35,000	3,150
<b>Total Project Costs(\$)</b>					<b>35,000.00</b>	<b>3,150.00</b>

## 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 <sub>2</sub> e (direct)	0	134135	0	0
Expected metric tons of CO <sub>2</sub> e (indirect)	0	312272	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 <sub>2</sub> e (direct)				
Expected metric tons of CO <sub>2</sub> 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 <sub>2</sub> e (direct)		134,135		
Expected metric tons of CO <sub>2</sub> e (indirect)		312,272		

Anticipated start year of accounting	2021
Duration of accounting	15

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)		1,477,791,135		

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)
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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		515		
Male		826		
Total	0	1341	0	0

**Part II. Project Justification****1a. Project Description****1a. Changes in project design**

*Describe any changes in alignment with the project design with the original child project concept note (i.e. changes in component, outcome or output wording, changes in GEF funds allocation per component/outcome, changes in co-finance commitments and allocation per component/outcome, etc.).*

Compared to the initial concept, the Togo child project components have been reworded as follows:

Component	Concept Note statement	CEO Endorsement Document statement	Explanations for the changes
Component 1	Develop legal, regulatory and institutional framework to support electric mobility uptake in Togo	Institutionalization of low-carbon electric mobility	Harmonization of country child project component statements across the Global Electric Mobility Programme
Component 2	Demonstration of electric motorcycles and cars and establishment of measurement, reporting & verification (MRV) framework	Short term barrier removal through low-carbon e-mobility demonstrations	
Component 3	Preparation of scale-up and replication of electric mobility	Preparing for scale-up and replication of low-carbon electric mobility	
Component 4	Promotion of long-term sustainability of electric mobility	Long-term environmental sustainability of low-carbon electric mobility	

While the initial concept targeted the demonstration of electric cars and electric 2&3 wheelers, the final project focuses on the demonstration of up to 25 electric moto-taxis, alongside the required charging infrastructure, and including solar charging. The Technical Assistance needed to implement the project has been reinforced and additional partners have been included to manage the selection of the private sector stakeholders for the demonstration project and to support with procurement of the demo vehicles.

At the time of the PFD submission, the estimated co-finance was US\$ 1,496,000, including US\$ 374,000 of in-kind from the Ministry of Environment and Forestry Resources and US\$ 1,122,000 of public investment from the Ministry of Mines and Energy of Togo. While the total co-finance committed at CEO Endorsement is slightly lower than the total amount estimated at PFD, the project has managed to broaden the base of co-finance partners, as follows:

Co-finance partner	Estimated co-finance contribution as per the PFD (US\$)	Committed co-finance at CEO Endorsement (US\$)	Explanation for the changes
Ministry of Environment and Forestry Resources (recurrent expenditures)	374,000	140,000	The in-kind contribution from the Ministry of Environment is slightly lower, since it will receive support from other ministries in the execution of this project
Ministry of Mines and Energy (investment mobilized)	1,122,000	500,000	Calculations on investment mobilized through renewable power projects have been refined to a more realistic value.
Ministry of Mines and Energy (recurrent expenditures)	0	100,000	New co-finance committed
Ministry of Infrastructure and Transport (investment mobilized)	0	300,000	New co-finance committed
Ministry of Infrastructure and Transport (recurrent expenditures)	0	100,000	New co-finance committed
UNEP (investment mobilized)	0	60,000	New co-finance committed
UNEP (recurrent expenditures)	0	20,000	New co-finance committed
<b>Total</b>	<b>1,496,000</b>	<b>1,220,000</b>	

Given that Togo is a Least Developed Country (LDC) and that e-mobility is a very new (and therefore unknown) market in the country, it has been challenging to obtain additional co-financing commitments for the Togo e-mobility project at this stage. However, based on the discussions and consultations held during the project development phase, it is foreseen that the project will have opportunities to leverage additional co-finance during the implementation phase:

- As explained in Component 2 of the “3) Proposed Alternative Scenario” section further down, the Togo GEF project intends to support the procurement of up to 25 demonstration electric motorcycles, with the GEF funds only covering the incremental costs vis-à-vis ICE motorcycles. The rest of the cost is to be funded by a private sector partner, which will be selected as part of the Component 2 activities. This means a total of USD 25,000 (25 x USD 1,000) of additional cash co-finance will be raised once the private sector partner is selected.
- The project development team has also been in close contact with mobility service providers based in Togo, such as GOZEM and TaxieTogo. The latter is a subsidiary of Motorhino, which is assembling electric motorcycles in Denmark and China. Both companies have expressed keen interest in being part of the project, although they were not able to commit to co-finance contributions at this stage.
- In addition, as further explained in the CEO Endorsement document, GOZEM is partnering with a local bank (Coris Bank International) to offer preferential financing to individual mototaxi owners. This model can be potentially used to upscale e-motorcycle financing in Togo, which will be also tabled at the e-mobility business roundtables (Component 3).
- During bilateral discussions held with the West African Development Bank (BOAD) office in Lomé, they signaled their interest to support the financing of e-mobility up-scaling once the demonstration project (Component 2) will have proven the technical and economic viability of e-motorcycles in Togo.
- Furthermore, the project also intends to partner with the AfDB, which is the main financier of the CIZO rural electrification project (as mentioned further down in the CEO Endorsement Document). The CIZO project aims to promote large-scale electrification of rural Togo through a solar micro and mini-grid system. Component 4 of the GEF project also focuses on renewable energy power integration and aims at establishing links between solar off-grid power generation and rural electric mobility.
- Finally, the GEF project has also identified interest from UNTAPPED, a venture capital company based in San Francisco (with teams in East Africa, West Africa, the Caribbean and Europe), with regards to their intention to potentially provide lease financing for electric vehicles.

## 1b. Project Description

### 1) Global environmental and/or adaptation problems, root causes and barriers that need to be addressed

#### Global environmental problem:

A global transition to low- and zero- emission mobility is essential to meet international climate commitments, including the Paris Climate Agreement. The transport sector is currently responsible for approximately one quarter of energy-related carbon dioxide emissions, this is expected to grow to one-third by 2050. In addition, the transport sector is a leading contributor to short-lived climate pollution, especially black carbon.

The global vehicle fleet is set to double by 2050, and almost all this growth will take place in low- and middle-income countries. By 2050 two out of three cars will be found in developing countries. This means that achieving global climate targets will require a shift to zero emissions mobility in all countries, including low- and middle-income ones.

In Togo, the transport sector accounts for more than 40% of energy use related emissions and is, besides mining, the single largest source of CO<sub>2</sub> emissions (Figure 1). Unlike mining, the transport sector is seeing high annual growth rates. Between 2005 and 2017, CO<sub>2</sub> emission from fuel combustion more than doubled<sup>[1]</sup>.

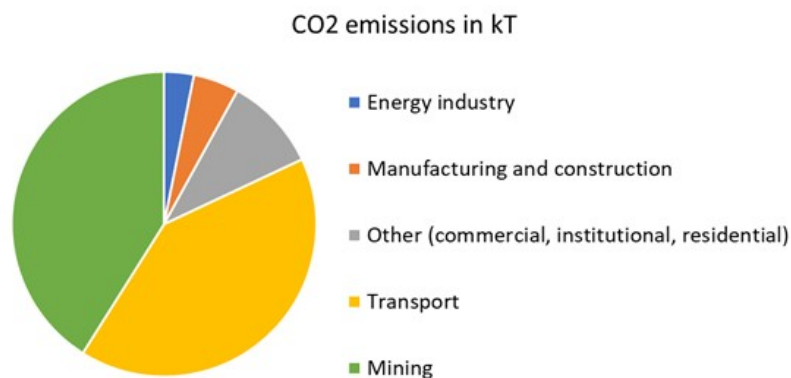


Figure 1 Energy use related CO2 emissions

(source: Third National Communication on climate change 2016)

Between 2004 and 2017 the vehicle fleet in Togo almost tripled (Figure 2), with most of the growth coming from 2-wheelers. While there were around 40,000 motorcycles in Togo in 2000, this number increased five-fold to about 210,000 motorcycles in 2017, with most of these motorcycles being used as taxis. These motorcycles are very cheap and basic models being imported from either China or India, with only a few coming from Japan. Their technology is simple, based on engines with carburetors and no emission control. They thus are highly polluting and contribute to deterioration of air quality in urban areas in Togo. The fleet of private passenger cars also almost doubled over the observed 17 years. The strong growth of the motorcycle and passenger car fleet also reflects the lack of public transport alternatives to satisfy travel demand.

At the same time, the use of petroleum fuel grew significantly. Between 2005 and 2017, the consumption of motor gasoline almost doubled while the consumption of diesel grew by almost 250%.

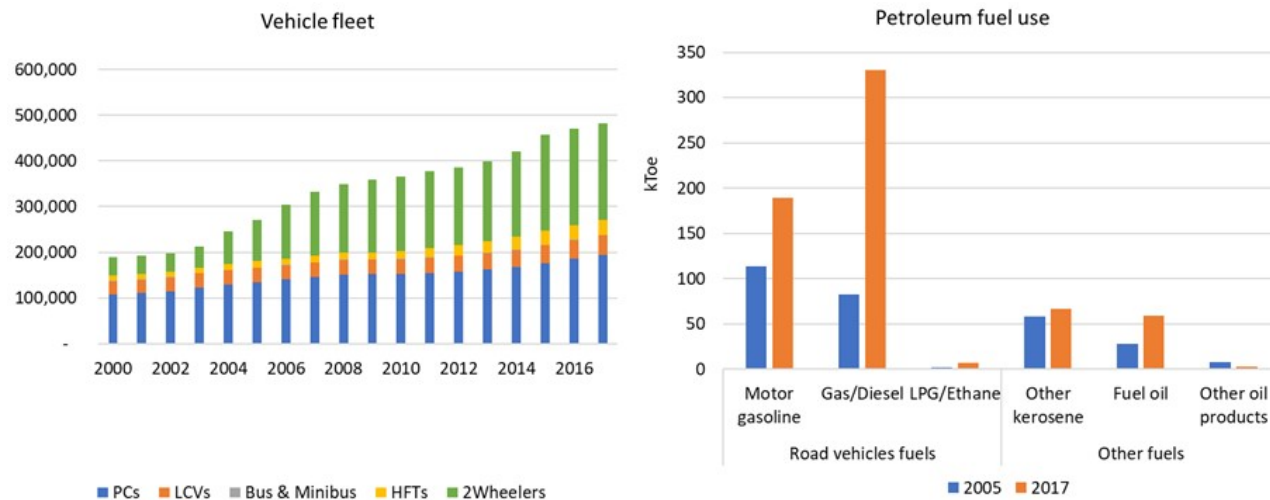


Figure 2 Growth of the vehicle fleet and petroleum fuel use in Togo

(Source: PROJET TRANSPORT DURABLE A FAIBLE EMISSION, GFEI 2019 and IEA Website 2019)

With no refineries of its own, Togo is entirely reliant on imports to meet its refined petroleum product requirements. The quality of fuels has come under criticism in the last few years owing to the high level of sulphur and other additives that are not permitted in more developed parts of the world. Following the trends, the oil import bill is projected to continue its upward trajectory unless there is an intervention. Fuel prices at the pump are about USD 1.1 per liter for gasoline.

According to the World Bank Energy Support and Investment Project<sup>[2]</sup> installed capacity amounted to 205 MW of domestic power generation in 2016, of which 100 MW are based on the Contour Global Heavy Fuel Oil (HFO) power plant, 50 MW are based on diesel generation, 30 MW are based on hydro and 25 MW are based on open cycle gas turbine generation (Communauté Électrique du Bénin, CEB). Interconnection capacity is about 95 MW for power import, which is mostly based on hydro generation. In 2015, 90 percent of Togo's electricity was imported from Nigeria and Ghana through CEB's interconnections, with the rest being supplied by Contour Global and other minor domestic sources. Since most of the imported electricity is based on hydro, the carbon footprint is estimated to be around below 0.2 kgCO<sub>2</sub>/kWh. Grid electricity in Togo has therefore a low carbon content, with immediate and substantive GHG emission reductions if used in electric vehicles. Electricity price is about USD 29Ct/kWh.

Without any intervention, transport energy demand and CO<sub>2</sub> emissions are projected to grow at rates observed over the past two decades. This growth in energy use and emission will go hand-in-hand with increased air pollution and expenditures on petroleum fuel import. The objective of this project is to support Togo with the introduction of electric vehicles in privately and publicly operated passenger transport fleets and to help decouple increasing transport demand from energy use and CO<sub>2</sub> emissions.

#### Root causes and barriers:

Although Togo's per capita GDP was only at USD 578 in 2016<sup>[3]</sup> (nominal), economic growth is averaging at about 5% p.a. over the past ten years, mostly driven by trade and services. The transport sector is a key enabler to sustained economic growth but lack of infrastructure, influx of large amounts of old and polluting vehicles and an underdeveloped public transport sector are hampering adequate movement of people and goods. Nonetheless, with increasing economic activity, transport demand is projected to grow, and energy use and emissions will grow accordingly, which has been identified to be a root cause.

Clearly, the low purchasing power in Togo is another root cause preventing market uptake of cleaner and more efficient vehicles (both new and used). The necessity for a large share of the population to live from hand to mouth with very little capacity to save money and little access to affordable finance to invest into income-generating assets is one of the reasons for the proliferation of very cheap and polluting vehicles with low technology standards and short lifetime. This is amplified by the lack of capacity to put in place strategies to enable the provision of clean and efficient public transport services. For example, SOTRAL, the state-owned bus



operating company in Lomé, currently owns a fleet of about 90 12m city buses, but only a third are operational<sup>[4]</sup>. Although the service provided by public buses is very much appreciated by customers mostly due to the lower costs, it does cover only a few lines in Lomé and is thus not a means of satisfying transport demand.

The lack of funding for public transportation is a root-cause that leads to the proliferation of small and unregulated private transport operators. The presence of a multitude of private taxi and moto-taxi operators who either own their vehicle or who work as drivers for owners of small fleets of vehicles, render the public transportation system expensive (compared to disposable income), inefficient and insecure.

Barriers preventing the adoption of electric mobility in Togo can be summarized as the following: little awareness about electric mobility, insufficient institutional capacity and coordination, inadequate policy frameworks, absence of financial mechanisms and business models taking into account the local conditions to invest in electric mobility and undersupply of the market with electric vehicles.

Currently there is no experience in Togo with procurement, operation and maintenance of electric vehicles in fleets because the vehicles are not currently available in the Togolese market, and therefore the concept is yet to be proven. Nonetheless, the interest of taxi fleet operators to buy and use electric moto-taxis is high, based on the discussions held during the project development phase and the keen interest expressed by local partners such as Gozem, Motorhino/Taxietogo, and driver unions. Gozem, a ride-hailing service provider, is considering the use of electric vehicles as part of their existing fleet, while Taxietogo/Motorhino already has 5 electric motorcycles in use as part of its fleet in Lomé. Once proved technically, operationally and financially viable, financing institutions and private investors are ready to finance the purchase of electric motorcycles. It is the aim of this project to provide this evidence by demonstrating adequate electric motorcycles for use as moto-taxis in Togo.

Several ministries and government agencies are involved in transport policymaking. These include the Ministry of Transport and Infrastructure, the Ministry of Mines and Energy, the Ministry of Environment and Forestry Resources, the Ministry of Economy and Finance, and the Ministry of Trade, Industry, Private Sector Development and Local Consumption and the Ministry of Urban Development and Housing. Coordination of government stakeholders with often contradicting objectives and limited knowledge about electric mobility is a serious barrier to the introduction of the technology.

Current policy frameworks do not cater for the adoption of electric vehicles. Vehicle importation duties are based on vehicle price and provide no incentive to choose more efficient technology. Togo so far has no age limit for the importation of vehicles, which leads to an influx of very old, cheap and polluting vehicles. Administrative processes for vehicle registration are not adapted for the registration of electric vehicles. The energy sector so far is not ready for independent power producers to feed in renewable electricity into the transmission and distribution grid. No technical regulation for EV charging exists neither are there policies in place which allow charging companies to offer their service.

There are no financial support mechanisms to incentivize investment in electric vehicles. The objective of targeted financing is to achieve annual, monthly or weekly total costs of ownership of an electric vehicle below a comparable conventional vehicle (depending on the type of vehicle, i.e. an electric bus in a public transport fleet, an electric car in a taxi fleet or an electric motorcycle owned by the motorcycle taxi driver) by stretching the payment of the higher upfront investment over longer re-payment and repaying the over higher investment costs through substantially lower operation and maintenance costs.

The absence of such financing mechanisms in combination with the relatively small market for electric vehicles provides little incentive for importers to offer electric vehicles in Togo. So far, only one importer is offering electric motorcycles in the Togolese market and no other EVs can be purchased newly. While the barrier for official car dealerships to sell new electric vehicles in developing countries is high, i.e. due to internal classification within manufactures to only sell products where the adequate operation can be guaranteed, spare parts can be provided and skills of the local workforce are sufficient to provide high-quality maintenance, there is no such barrier for the importation of electric motorcycles. The Danish/Togolese company Motorhino is starting to sell electric motorcycles in Togo, including the provision of aftermarket services and maintenance, with only a few e-motorcycles being sold so far (~ 5). It is the aim of the project to increase the offer for electric motorcycles in Togo, including the provision of spares and the ability to maintain these vehicles. The project in Togo will build on the experience gained in similar projects in Kenya, Uganda and Rwanda, where considerable potential for e-2&3wheeler import, assembly, manufacturing and operation is already existing.

## 2) Baseline scenario and any associated baseline projects

### Baseline projection of the vehicle fleet growth

Based on historic growth rates, the vehicle fleet in Togo is estimated to grow from about half a million vehicles in 2017 (including light and heavy-duty vehicles and 2&3 wheelers) to more than 830,000 vehicles in 2030 and to more than 2.5 million vehicles in 2050. With no intervention to shift to cleaner and more efficient vehicles, this growth of the vehicle fleet will result in similar increases in transport energy use, CO<sub>2</sub> and air pollutant emissions, and will cause significant costs for the society stemming from fuel expenditures as well as health-related costs.

#### Baseline projection of stock, sales, energy use and CO<sub>2</sub> emissions of the moto-taxi sector

In the absence of the provision of adequate public transportation, passenger travel is mostly provided through informal taxi operations. The by far largest share of transport services is covered through motorcycle taxis, which are called "zemdjan" in Togo. In 2017, it is estimated that more than 210,000 motorcycles were on the road. The moto-taxi sector is unregulated, and up to November 2019 drivers were not required to have a driving license. It is estimated that at least 70% of the "zemdjan" drivers did not pass any theoretical or practical exams. By the end of the year 2019, possession of a driving license became a requirement for moto-taxi drivers. Costs per trip average between EUR 0.30 and EUR 1.00, while the average daily turnover of moto-taxi drivers is estimated to be around EUR 8.00[5]. Providing taxi services is often one of the few opportunities for otherwise unemployed youth to earn a living. In many other cases, working as a "zemdjan" driver provides a second income.

Moto-taxi drivers are estimated to drive between 80 km and 100km a day. Survey data from Kenya suggests the average fuel consumption of motorcycles is in the area of 4.0 L/100km. Given the high share of motorcycles on the entire vehicle fleet in Togo, it is estimated that in 2017, motorcycles were responsible for about a third of all transport-related CO<sub>2</sub> emissions. In the baseline scenario, it is projected that the motorcycle fleet in Togo will double in size from about 210,000 vehicles today[6] to about 400,000 in the next ten years, and to triple to about 600,000 in 2050. CO<sub>2</sub> emissions from motorcycles are estimated to grow by 45% until 2030 and to more than double by 2050. This growth of CO<sub>2</sub> emissions goes hand in hand with a growth in air pollutants, especially since pollutant emissions of new and used motorcycles in Togo are not regulated.

In 2011, Diaz Olvera et al[7] held a survey among 147 moto-taxi drivers in Lomé. A summary of the weekly income of drivers is shown in Table 1. According to the research, moto-taxi drivers were able to generate a daily income between USD 3 and USD 6.60 back in 2011 in Lomé. This data underlines the scarcity of capital to be invested in motorcycles, since the daily incomes suggest that this might be just enough to survive. Drivers report daily working hours of about 10h/d during about six days per week. As consequence, health issues such as back pain, vision problems, fatigue and respiratory problems, among others, have been reported. Some of these problems, in particular those related to air pollution, could be tackled by the broad introduction of electric motorcycles.

Table 1 weekly income of moto-taxi drivers in lome in 2011

	Revenue USD	Inputs USD	Rent paid to the vehicle owner USD	Weekly earning USD
Self employed	84	37		47
Work and pay	103	45	24	35
Renter	75	34	22	19

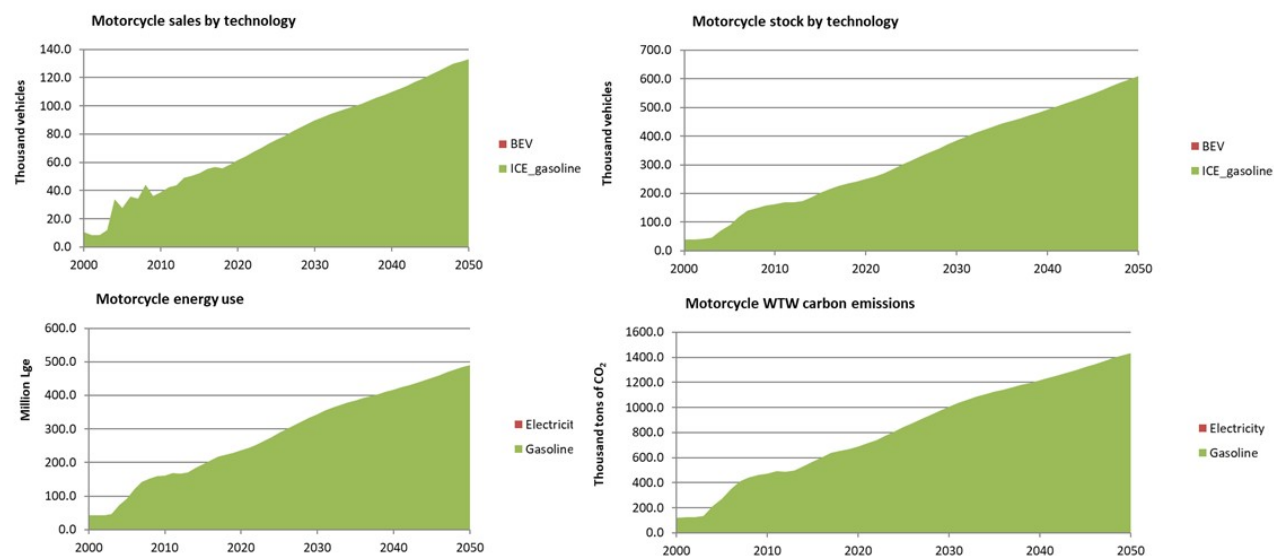


Figure 3 Motorcycle sales, stock, energy use and CO<sub>2</sub> emissions  
until 2050 under the baseline scenario

Many moto-taxi fleet operators exist in Togo but only a few such as the company GOZEM[8] and Taxietogo[9] are currently providing services using a mobility app.

GOZEM is operating vehicle fleets in Togo and Benin, with the plan to expand to other countries including Burkina Faso, Cameroon, Ivory Coast, Gabon, Mali and Senegal. The company is running a ride-hail application, which allows the customer to choose between moto-taxi, 3-wheeler, car and car with air conditioning and which provides functionality compared to UBER. While conventional moto-taxis would either wait for a customer or driving around, the app is targeting to maximize ridership. GOZEM drivers will need to acquire their own motorcycle and are charged a commission for using the app. In December 2020, GOZEM started a partnership with the local Coris Bank to provide access to loans at acceptable costs to the drivers to buy new motorcycles[10]. The partnership is part of "GOZEM Vehicle Financing Solutions", which targets to make the moto-taxi loan market more transparent and therefore more reliable, with the effect of lower financing cost. Repayment of the loan is directly linked to the GOZEM electronic wallet of the driver and therefore provides evidence of the drivers' performance and ability to pay back the loan to the bank.

Taxietogo provides a similar service compared to GOZEM but is a subsidiary of the Danish company Motorhino[11], which is assembling own e-motorcycle model in China. Since July 2020, 5 electric motorcycles are running as part of the Motorhino / Taxietogo fleet in Lomé. According to personal talks, the company is currently using e-motorcycles with a range of 60km, which will be improved to 120 km with the new model which is expected to be operational first half of 2021. The business model of Taxietogo foresees that the e-motorcycle is provided by the company to the driver, who, through monthly payments, will acquire ownership of the motorcycle over the course of two years. The motorcycle is expected to cost between USD 2,500 and 3,200, depending on the size of the battery, a visualization of the proposed business model is provided in Figure 4.

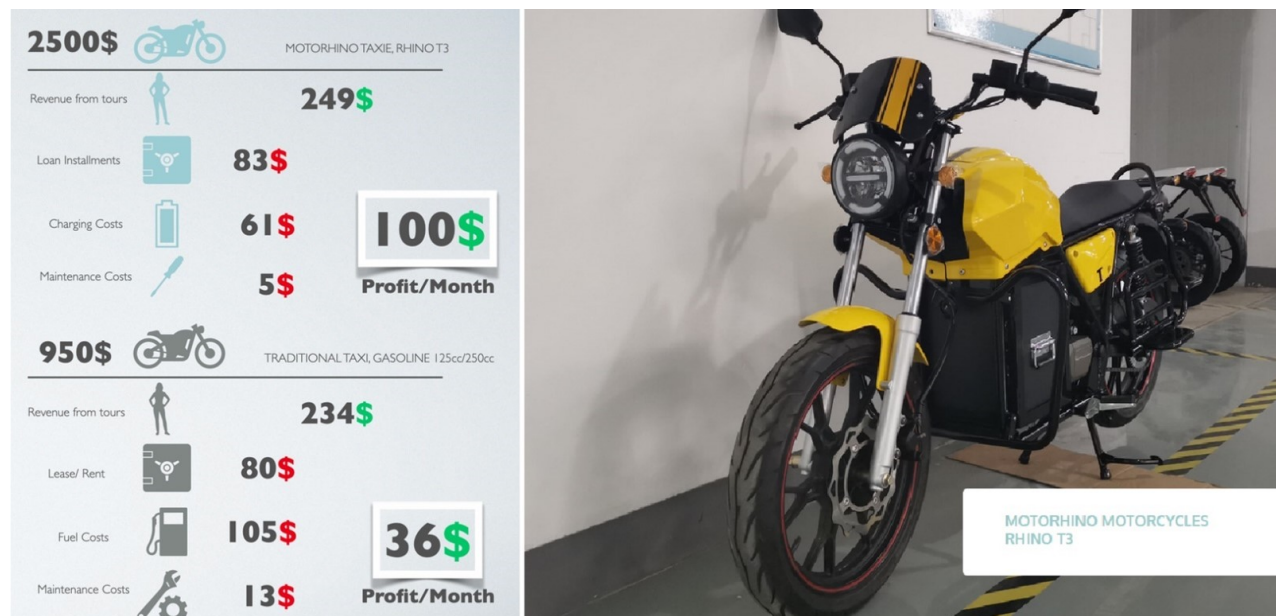


Figure 4 proposed business model of Taxiéto and Motorhino T3

(Source: <https://motorhino.dk/om>)

The business model is still to be proven and both GOZEM and Taxiéto / Motorhino are good candidates to implement an extended e-mototaxi pilot, targeting different research and testing questions. Motorhino would be willing to provide e-motorcycles to other fleet operators in the country. Both companies are interested in exploring the option of battery swapping, including the integration of solar charging.

#### Baseline projections of the public transportation sector in Lomé

Plans exist to strengthen the public transport sector in Lomé. An expansion of today's fleet of about 90 mostly old 12 meter city buses by another 90 new buses is currently being implemented. Contractual agreements to acquire these buses are already in place. Fuel quality in Togo prevents the operation of buses with emission standards higher than Euro III, which is why the new buses will comply with the Euro III emission standard. In the medium term, a bus fleet of about 300 buses is envisaged.

#### Current regulatory and fiscal frameworks for the transport sector

When importing a vehicle to Togo, about 11 different taxes, levies, and fees will be applied. An overview of these tax components is provided in Table 2. Almost all of the different taxes are based on the value of the vehicle as stated in the Bill of Lading. The two major components are the Customs Duties (20%) and the Value Added Tax (18%). For privately used vehicles without any exemption, the maximum tax value would account for about 47% (total minus BIC). Vehicles dedicated to the transport of passengers with less than 10 seats are taxed also at 20%. In this case, the total tax burden would amount for a maximum of 48%. Vehicles with more than 10 seats are taxed at 10%, total importation tax would amount to 38% in this case.

Table 2 tax scheme for vehicle importation in togo

Name of the tax	Explication	Basis	Value in %	Max. tax in %
DD	Customs duties (Droits de douanes)	Value	0, 5, 10 or 20	20%
RS	Statistical Royalty (Redevance Statistique)	Value	1	1%
TPI	Infrastructure protection tax (Taxe de protection des infrastructures)	2000 CFA	Based on individual weight in tons	-
PCS	Community levy for Solidarity West African Economic and Monetary Union - UEMOA (Prélèvement communautaire de solidarité (UEMOA))	Value	1	1%
PC	Community levy for ECOWAS (Prélèvement communautaire (CEDEAO))	Value	1	1%
PNS	National Solidarity Levy (Prélèvement National de Solidarité)	Value	0.5	1%
ADA	Other Excise Taxes (Autres Droits d'Accises)	Val+DD+RS+ TPI+PCS+PC+PNS	5	5%
BIC	Levy for Industrial and Commercial Profit (Prélèvement pour Bénéfice Industriel et Commercial)	Val+DD+RS+ TPI+PCS+PC+PNS	1	1%
TVA	Value added tax (Taxe sur la Valeur Ajoutée)	Val+DD+RS+ TPI+PCS+PC+PNS	18	18%
RID	IT Fee (Redevance Informatique)	Value	0.75	1%
RI	IT fee for declaration (Redevance Informatique pour déclaration)	5000 FCFA	Flat rate	-
<b>Total maximal import duty as percentage share of vehicle price</b>				<b>48%</b>

The approval of vehicles take place in three steps[12]: 1.) Tax clearance; 2.) Technical approval and homologation; and 3.) Registration.

It is carried out as follows (copied from source):

1. The importer goes to the Single Window of Foreign Trade to initiate the reception of imported vehicles and pay taxes and customs duties;
2. After checking the import documents and paying the import taxes and customs duties, the customs send a certificate of conformity via the Customs Unit located on the campus of the Directorate of Road and Rail Transport (DTRF), to the head of the Directorate of Technical Control of Vehicles (DCTV). The customs cell on the DTRF campus was created to limit fraud;
3. DCTV requests proof of payment of customs duties and vehicle insurance. The DCTV is linked to the insurance network (via the POOL of insurance companies) and has access to the customs software for the management of payment of duties (SYDONIA). The insurance pool is a centralized private insurance system set up to limit insurance fraud, such as the presentation of false insurance certificates: vehicle owners are thus insured by the insurance pool and not by a specific insurance company;
4. Approval is carried out by the DCTV controller (on the DTRF site) and includes a visual and administrative inspection of the vehicle (chassis number, power, steering position, etc.);
5. The roadworthiness test is then carried out by SOTOPLA-CEVA;
6. The vehicle is registered if the results of the roadworthiness test are in conformity.

Attempts have been made to regulate the moto-taxi sector. According to Diaz Olvera et al (D. Olvera et al, 2015): "Togo was one of the first countries to introduce specific regulations for commercial motorcycle transport. Since 1996 these have specified the authorizations that are necessary (in particular the license issued by the Ministry of Trade, third-party insurance, a vehicle registration certificate and a vehicle inspection certificate), and the operating conditions (the motorcycle must be painted yellow, be fitted with specific number plates, display an identification number, carry no more than a certain number of passengers, and helmet use is compulsory). However, as in most of the cities in Sub-Saharan Africa where there are motorcycle taxis, the local authorities are not able to enforce the regulations." According to the research carried out by Olvera et al, almost none of the interviewed drivers have a driving license. It is also reported that only 1 out of 4 wear helmets regularly and that almost none of the passengers can wear a helmet because most often there is none. In terms of insurance it is reported that most often the motorcycles have a third party insurance during the first year since this is compulsory for vehicle registration, but afterward getting the vehicle insured is neglected.

#### Current regulatory and fiscal frameworks for the energy sector

So far, the electricity used in Togo has a low carbon footprint (~estimated at around 0.2 kgCO<sub>2</sub>/kWh) because the majority (90%) of the electricity used is based on hydro power imported from Nigeria. Domestic power generation capacity is quite dirty, with the majority being provided by Contour Global's HFO power plant, and other petroleum fuel based power generation such as diesel gen sets and a gas power plant operated by CEB. The carbon footprint of the future power mix in Togo greatly depends on the success of the renewable power projects currently in the pipeline.

It is necessary to align expansion of renewable power generation with plans to introduce and upscale electric mobility. While the current project focuses on e-moto-taxis in Lomé, the policy measures proposed in the document will be effective nation-wide. In this regard, it needs to be noted that there is a great potential for synergies between electric 2&3 wheelers and mini- and micro-grids used for electrification in rural area. Since battery capacity for electric 2&3 wheelers is in the range of 2 to 6 kWh, such relatively small batteries could be easily charged using solar panels. For example, one solar panel with a name plate capacity of 200 W and cost of around 150 USD could charge a 2 kWh battery within a day. Applying, two panels per battery, a full charge could be achieved in below 6h. In addition, these batteries could then also play a role as local energy storage, for example to power lighting and other applications such as electronic devices. Since microgrids are often struggling with low power demand, electrification of local transportation could be a means of making mini-grid applications more profitable while providing a clean and relatively cheap fuel (when compared to gasoline used in conventional motorcycles) for local population. It is against this background that many institutions are now getting more and more interested in investigating the role of e-mobility and rural electrification

According to the report "Togo Energy Sector Policy Review"[13] the electricity subsector "is under the overall supervision of the Ministry of Mines and Energy (MME). The key public entities in Togo's electricity sub-sector are: (i) **Compagnie d'Énergie Electrique du Togo (CEET)** responsible for the transmission and distribution of electricity within Togo. While CEET also maintains some generation assets, it is largely a distribution company purchasing nearly all of its electricity from CEB and from Contour Global, an independent power producer; (ii) **ARSE**, the electricity sector regulatory entity set-up since 2000 within the MME; (iii) **the Communauté Electrique du Bénin (CEB)**, a bi-national entity co-owned by Togo and Benin and set up in 1960 to develop power generation and transmission projects mutually benefitting the two countries. Since November 2010, Contour Global, an Independent Power Producer (IPP), commissioned 100MW of diesel units in the capital, Lomé. Togo is also a member of ECOWAS and WAEMU and is a participant in the West African Power Pool (WAPP) and the West African Gas Pipeline (WAGP) projects."

In May 2016, the **Togolese Agency for Rural Electrification and Renewable Energies (AT2ER)** was created (presidential decree N ° 2016 - 064 / PR). AT2ER is a public institution, endowed with financial autonomy and is responsible for the implementation of the country's rural electrification policy, the promotion and development of renewable energies. AT2ER is responsible for accelerating rural electrification and increasing the share of renewable energies in Togo's energy mix and any intervention aimed at guaranteeing the supply of electricity to rural populations is carried out by the agency. All relevant ministries in Togo are part of the governing board of AT2ER.

The current rate of access to power is about 40% in Togo. Togo recently developed a strategy to provide access to power to all Togolese by 2030: **The Togo 2030 Electrification Strategy**. The strategy has been developed by the company Lighting Global and is based on three pillars: 1) Deployment of solar kits at the household level (up to 1000Wh daily consumption and up to 200W installed capacity); 2) Deployment of mini-grids (up to 8kWh daily consumption and up to 2000W installed capacity); and 3) Grid expansion. A combination of private sector investment mainly through public-private partnerships (PPPs) and targeted support sourced from development aid programmes and green funds will be used to finance the electrification process. It is estimated that the total cost to fully electrify the country by 2030 amounts to about 995 billion FCFA, which equals to about 1.7 billion USD (Figure 4).

The Togo 2030 Electrification Strategy distinguishes into 3 phases for installation of solar kits, mini-grids and grid expansion: demonstration phase (2018 -2020), acceleration phase (2021 – 2025) and consolidation phase (2026 – 2030), and lines detailed steps and milestones for the regulatory framework, financial needs and the need for technical assistance. For example, for the installation of solar kits, the strategy asks for tax exemption, the review of the regulatory framework (e.g. standards for importation of electrical equipment) and the creation of a national platform accessible to all operators that collect credit history. In addition, the strategy identifies the need for a 5% interest credit line as well as for guarantees and direct subsidies. Similarly, for the introduction of mini-grids the strategy asks for exemption from VAT and Customs duty on mini-grid components (e.g. inverters, batteries, plus photovoltaic, panels – which are already exempt), technical assistance to finance a national study on consumers' readiness to pay, detailed pre-feasibility studies on mini-grid sites and their prioritization and a review of the regulatory framework. Similar to the financing of solar kits, concessional loans as well as direct subsidies to incentivize mini-grid deployment will be needed. For grid expansion, the strategy identifies the need to review and adjust the regulatory framework in particular for PPP and IPP frameworks, reservation and dispatch requirements, the scope of AT2ER/CEET. It furthermore names the demand for support for the structuring and launch of competitive independent power producer (IPP) calls for tender. In addition, technical studies for grid extension to new locations and grid densification in already connected locations are required. In total, about 208 MW of grid-connected power generation capacity is part of the grid expansion pillar to the Togo Electrification Strategy.

To date, IPPs are still not allowed to access the grid owned by CEET.

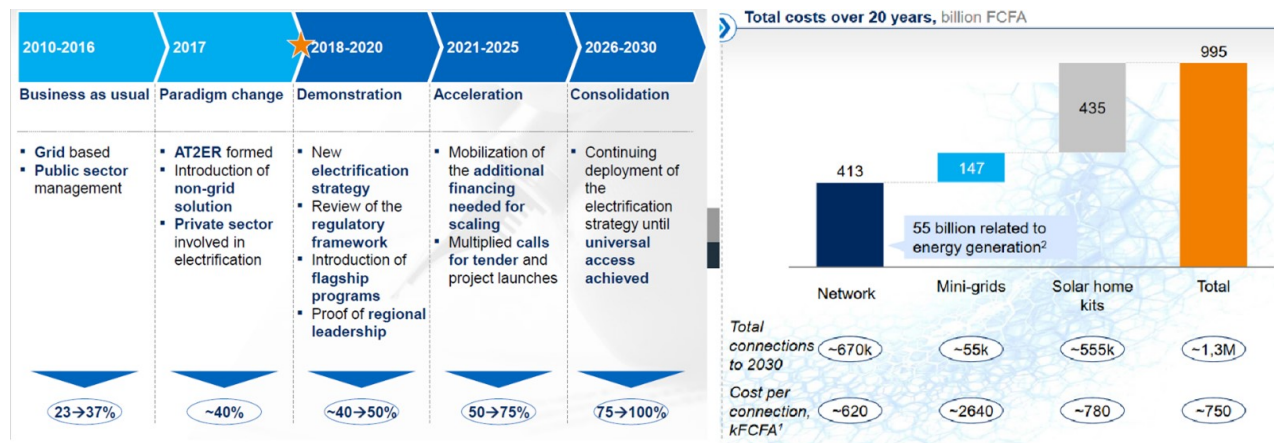


Figure 5 Timeline and costs for electrification in Togo according to the Togo 2030 Electrification Strategy

#### Baseline investments

The World Bank is currently implementing an IDA credit of USD 30 million for an **Infrastructure and Urban Development Project**[14]. The project comprises two active components: 1.) Urban Infrastructure and Basic Services; 2.) Institutional Strengthening and Technical Assistance. The investment part of the project focuses on the construction and rehabilitation of road infrastructure, drainage as well as markets and water/power supply in selected areas in the City of Lomé, Kara and Dapaong. The technical assistance part focuses on capacity building and institutional strengthening to better manage urban growth and infrastructure development and includes the development of tools to regulate urban development. It is envisaged to link the capacity building activities and to evaluate whether provisions for the development of charging infrastructure can be included in the infrastructure investments.

In addition to this, the **"Togo - Trade and Logistic Services Competitiveness Project"**[15] implemented by the World Bank is supporting education and professionalization of professionals active in the transport sector, including review of the legal and regulatory system of the road transport sector. Togo receives funding amounting to USD 4 million. One of the activities is to improve the vehicle inspection system in Lomé. The project will explore synergies with regards to capacity building and training, regulatory improvements and the work on vehicle inspection. It will be evaluated during project implementation whether for example training programmes could be expanded to electric mobility.

For covering the growing energy needs in Togo, the **CIZO project** was launched by the President of the Republic on December 02, 2017 in Awagomé. The CIZO project aims at meeting up to 50 percent of the country's energy needs by solar by 2030. This project led by AT2ER aims to electrify 100,000 Togolese rural households in three years and 300,000 households (equivalent to 1,500,000 inhabitants) in 5 years via domestic solar kits funded through a Pay-As-You-Go mode. The project also plans to equip 1,000 health centres and 3,000 small farms with individual solar or irrigation kits. The pilot phase has started with the operator BBOX, whose mission is to deploy 10,000 solar kits. At the end of 2018, more than 8,000 households had access to electricity thanks to the solar kits installed by BBOX.

The project will be rolled out in three phases over 12 years with a total cost of approximately US\$ 1.7 billion. Funding is expected to materialize through public-private partnerships (PPP) of which 18% will be financed by the government and the remainder by private investors. The African Development Bank (AfDB) has pledged to avail about US\$ 35 million to finance private investors.

The CIZO project revolves around five main components:

1. The establishment of a national Pay-as-you-Go (PayGo) platform for the management of solar kits;
2. The deployment of a national granular distribution network;

3. The creation of regional solar academies responsible for training and certifying local installers and technicians;
4. The establishment of subsidies for disadvantaged rural households, as well as the equipment of small farms and health centers and solar water pumps;
5. The establishment of a public fund to support distribution companies.

Although introduced in urban areas, electric 2&3 wheelers have a great potential to serve the mobility needs in rural parts of the country. The integration of mini and micro grids with e-mobility based on the use of electric 2&3 wheelers can unlock various synergies, such as increased power demand and hence utilization rate and profitability of micro grid systems while providing a cheaper and clean fuel to mobility service operators. A study on the integration of renewable power in EV charging will be carried out as part of the project, not only focusing on aligning e-mobility scenarios, power demand and renewable power integration in the urbanized areas, but also expanding on the possible role of e-mobility and renewable power integration in rural areas.

According to a press release<sup>[16]</sup>, the **West African Development Bank (BOAD)** "has decided to release a 10.7 million euro envelope to support the development of a solar power plant in Togo. This park, with a capacity of 50 MW, will provide electricity to about 30,000 households. [...] The project is being undertaken under a public-private partnership and will be under concession for 25 years. After this period, the infrastructure will revert to the Togolese State through the state-owned electricity company of Togo (Compagnie d'Énergie Électrique du Togo (CEET)). The overall cost of the plant is CFAF 20 billion. The rest of the funds will be sourced from the Abu Dhabi Fund for Development and other development partners."

The **Togo Energy and Support Investment project implemented by World Bank**<sup>[17]</sup> has a total volume of USD 36 million. Of this amount, about USD 27 million will be directed towards investment into the rehabilitation of medium voltage and low voltage transmission and distribution systems in Lomé (IDA US\$15 million), the reinforcement of the Lomé medium voltage network (IDA US\$6 million equivalent) and network extension and new connections (US\$6 million equivalent). Technical Assistance with a volume of about 6.6 million USD will be used to support a power sector reform in Togo. The upgrading of power transport and distribution networks is essential for the up-scaling of e-mobility. Although electric 2&3 wheelers can be charged using off-grid or hybrid systems, e-mobility will add power demand and hence the necessity to generate and transmit power. A study focussing on the integration of e-mobility and renewable power generation in Togo will further investigate the role of grid upgrading on the future of e-mobility in Togo.

An overview of all baseline investments is provided in Table 3 below.

Table 3 Overview of baseline investments

Sector	Financial Institution	Time frame	Total FCFA, billion	Estimated USD	Projects financed
Transport	World Bank	2019-2024	-	30,000,000	Infrastructure and Urban Development Project (WB 2019 Report No: PAD2414) Urban Infrastructure and Basic Services; Institutional Strengthening and Technical Assistance
Energy	World Bank	2018-ongoing	-	36,000,000	Togo Energy Support and Investment Project
Energy	BOAD	2020-ongoing	-	12,000,000	Construction of the 50MW Bitta solar power plant
Energy	AFD	2013-ongoing	20	34,000,000	Extension of Lomé's electricity grid (cofinanced with the EU, €30 M) Research to harness hydroelectric potential Technical assistance to CEET
Energy	EU	2015-ongoing	20	34,000,000	Extension of Lomé's grid (€7.8 M) Review of the legal and regulatory framework of the energy sector Transborder electrification of rural communities in Southern Togo from Ghana (12 locations) and Benin (8 locations)
Energy	Exim India	2013-ongoing	15	25,500,000	Electrification project for 130 rural locations (rural electrification phase 4)
Energy	World Bank	2009-ongoing	46	78,200,000	Emergency power infrastructure upgrade project ~ CFA 26 bn (09-13) Project to improve operating performance in the sector and provide access to electricity in the Lomé region ~ CFA 20 bn (2017-)
Energy	CIZO	2017-2029	-	estimated cost: 1.7 billion	Funded through public-private partnership (PPP) of which 18% will be financed by the government and the remainder by private investors
Energy	AfDB	2017-ongoing	-	35,000,000	Used for introduction of solar kits and mini-grids to electrify 300,000 household AfDB credit line to finance private investors as part of Project CIZO

### 3) Proposed alternative scenario with a description of project components, outcomes, outputs, and deliverables



The objective of the electric mobility project is to lay the ground for the successful introduction of electric mobility in Togo. This comprises building the necessary administrative structures, the development of capacity among key decision-makers, and the provision of a coherent e-mobility strategy. As part of the project, an e-mobility coordination body comprising stakeholders from the Ministry of Environment and Forestry Resources, the Ministry of Transport and Infrastructure, the Ministry of Economy and Finance, the Ministry of Mines and Energy, the Ministry of Urban Development and Housing and the Ministry of Trade, Industry, Private Sector Development and Local Consumption will be established. The coordination body will ensure that all relevant stakeholders approach the introduction of e-mobility in a coordinated and cooperative manner and that the private sector will find a focal point, which can inform on e-mobility regulation and policy and support the local private sector with the set-up of e-mobility businesses. The development of the national e-mobility strategy will build on the analysis of the current policy framework for the transport and the energy sector and will be guided by the e-mobility coordination body. Policy gaps will be identified in order to propose adequate measures to fill these gaps and to incentivize the uptake of e-mobility. The strategy will also include work on aligning e-mobility scenarios with investments into power generation and will integrate results of the renewable power integration study developed under component 4. Electrification of passenger transport with the aim at reducing energy use, GHG, and air pollutant emission will be the overarching and common target guided by the e-mobility strategy and coordinated through e-mobility coordination body.

The project focuses on the introduction of electric motorcycles that are used as taxis, called moto-taxis. Electric motorcycles are a low-cost measure to mitigate CO<sub>2</sub> emissions, reduce energy use and associated costs and reduce air pollution and associated negative impact on health in Togo. Moto-taxis are responsible for about a third of Togo's transport energy use and emissions with a projection to significantly grow over the coming decades, hence the introduction of electric motorcycles holds a high potential for overall emission mitigation in Togo. Since already today the payback time to recover the additional investment for an electric motorcycle compared to a conventional motorcycle is significantly shorter than the lifetime of the vehicle, the project can trigger a complete shift to electric motorcycles in Togo.

The project will collaborate with a local private sector partners to implement the demonstration project. For the management of the electric motorcycle fleet, private sector stakeholders in the moto-taxi sector such as GOZEM or Taxietogo have already identified electrification as part of their business model. These companies are a local ride-hailing service providers that are considering the use of electric vehicles as part of their existing fleet (GOZEM) or purely focusing on the use of electric motorcycles (Taxietogo / Motorhino). To better define technical parameters and viable business models for e-motorcycle battery charging, a comparative feasibility analysis will be conducted to assess the feasibility of developing a battery swapping scheme including various mobility service providers in Togo / Lomé. Therefore, up to 25 electric motorcycles, eventually from different manufacturers, will be piloted with different power output, battery capacity, engine configurations, and charging options to define a comprehensive set of technical parameters, which satisfy the Togolese e-motorcycle market. Togolese petrol station operators (TOTAL and CAP) have already been identified as a potential host for charging and / or battery swapping stations.

At the same time, the project aims at developing an environment for long term development of the e-mobility market, focussing on electric 2&3 wheelers in the first place. Based on the demonstration project, policy reforms will be proposed and submitted for adoption to incentivize the uptake of electric mobility, primarily through waivers on import duties, revised regulations for EV import and registration, and a power market which is ready for the provision of EV charging services. It is part of the project to bring together local e-mobility entrepreneurs and financial institutions to identify financing needs and to develop initial e-mobility financing schemes. As part of an e-mobility business round table, innovative e-mobility business models will be discussed, whereby at least two of the most promising business models will be developed into concepts to seek for financing from local and international financiers. E-mobility business models to be discussed during the roundtables can include mobility services, charging services as well as the assembly and manufacturing of electric 2&3 wheelers, including retrofitting.

Finally, the project will investigate ways to ensure environmental sustainability of electric mobility in Togo, including 1) The development of an initial scheme to collect, re-use, and prepare for recycling of used e-mobility batteries; and 2) A strategy on how to integrate electric vehicle charging with the growing renewable power network, including through micro and mini-grid applications in Togo, and linking with the project CIZO. The latter will specifically investigate the possibilities of the use of electric motorcycles beyond urban areas, and explore synergies with the plans to increase the rate of electrification in the rural parts of Togo.

Table 4 below provides an overview about the contributions and responsibilities of the Ministry of Environment and Forestry Resources, the Ministry of Mines and Energy and Ministry of Infrastructure and Transport by component and output. While the Ministry of Environment and Forestry Resources has overall leadership as the Executing Agency of the project, including the management of funds, hiring of international and local experts disbursement of funds and reporting to UNEP, Table 4 designates roles with regards to content for each of the outputs.

Table 4 Overview of responsibilities by ministry

Component	Output	Ministry of Environment and Forestry Resources	Ministry of Mines and Energy	Ministry of Infrastructure and Transport
Component 1	Output 1.1: An inter-sectorial electric mobility coordination body is established	<i>Chair the PSC, organize the meetings, provide meeting room</i>	<i>Member of the PSC, participate the meetings</i>	<i>Member of the PSC, participate the meetings</i>
	Output 1.2: A national strategy for electric mobility, i	Support the Ministry of Infrastructure and Trans	Contribute with data, review the draft and final	Lead the strategy development, provide data, re

## Global Environment Facility (GEF) Operations

	including gender sensitive business development in the transport sector is developed and submitted for adoption.	port in coordinating the strategy development, hire the expert, disburse funds, report to UNEP	version, participate in meetings and workshops	view the draft and final version, participate in meetings and workshops
	Output 1.3: Key stakeholders from public and private sector are trained in the Global Electric Mobility Programme activities (national and regional workshops, trainings and thematic working groups).	Select the participants (coordinated with the UNEP Sustainable Mobility Unit - SMU) and based on the inputs of other PSC members	Propose relevant staff to participate in training events	Propose relevant staff to participate in training events
<b>Component 2</b>	Output 2.1: A comprehensive feasibility study and implementation plan for electric moto-taxi demonstration including a low-carbon charging scheme, and a data collection framework are developed along with the reporting and analytical framework.	Lead the study development, hire international and local expertise, disburse funds for experts, prepare the call for proposals for the e-moto and charging demo together with Sustainable Transport Africa (STA) and UNEP SMU, report to UNEP	Provide data for charging and power sector integration specific sections of the study, participate in meetings, review the draft study	Contribute to the terms of references for experts, lead content specific work, provide data, participate in meetings, review the draft study
	Output 2.2: Demonstration vehicles and charging equipment are procured, staff trained, the demonstration project is implemented, monitored and data are collected, analysed and disseminated.	Prepare procurement together with STA and UNEP SMU, oversee the demonstration, lead the development of the demo summary report hire international and local expertise, disburse funds for experts, report to UNEP	Support the demonstration implementation, support the charging site selection provide data for charging and power sector integration specific sections of the summary report, participate in meetings, review the draft demo summary	Contribute to the terms of references for experts, lead content specific work of the summary report, lead demonstration data analysis, provide data, participate in meetings, review the draft demo summary report
<b>Component 3</b>	Output 3.1: Fiscal policies and regulatory schemes are developed to incentivize the uptake of electric mobility.	Lead the overall task of policy development, hire international and local expertise, disburse funds for experts, coordinate with Ministries of PSC, report to UNEP	Lead the development of power sector regulation and technical standards for e-mobility, coordinate with Ministry of Economy and Finance on fiscal policies, provide data, participate in meetings, review the draft policies, provide political support for policy adoption	Lead the development of vehicle import regulation, lead the development of necessary amendments to vehicle registration, support the development of technical standards for e-mobility, coordinate with Ministry of Economy and Finance on fiscal policies, provide data, participate in meetings, review the draft policies, provide political support for policy adoption

	Output 3.2: An e-mobility business roundtable including private sector and financial institutions is established to develop financial schemes and concepts for e-mobility upscaling	Lead the overall organization of the business roundtable, organize meeting venue, coordinate with members of the PSC and in particular with Ministry of Trade, Industry, Private Sector Development and Local Consumption, hire international and local expertise, disburse funds for experts, coordinate, report to UNEP	Support Ministry of Environment and Forestry Resources with the organization of the business roundtable, participate in the roundtables, review the synthesis report	Support Ministry of Environment and Forestry Resources with the organization of the business roundtable, lead the outreach to private sector and finance, participate in the roundtables, review the synthesis report
<b>Component 4</b>	Output 4.1: A study to integrate renewable power for electric vehicle recharging is carried out.	Lead the overall study development, hire international expertise, disburse funds for expert, coordinate with Ministries of PSC, report to UNEP	Contribute to the terms of references for experts, lead content specific work of the renewable power integration study, provide data, participate in meetings, review the draft study, lead outreach to renewable power projects and in particular the Blitta project and the Project CIZO, lead outreach to AfDB and World Bank on renewable power and power transmission and distribution projects	Support study development, provide transport sector data
	Output 4.2: A scheme for collection, re-use, recycling and sound disposal of used electric vehicle batteries is developed and submitted for adoption.	Lead the overall study development, lead the content specific work, support coordination with ECOWAS, provide political support to adopt legislation, hire international expertise, disburse funds for expert, coordinate with Ministries of PSC, report to UNEP	/	/

Each of the 3 Ministries listed above has appointed a dedicated Focal Point for this project, as stipulated in a memorandum prepared by the Ministry of Environment and Forestry Resources (refer to Annex K of the CEO Endorsement Document).

Component 1: Institutionalization of low-carbon electric mobility

*Outcome 1: The government adopts a strategy for the promotion of low-carbon electric mobility by establishing a coordinated institutional framework.*

Component 1 primarily targets coordination, planning and capacity barriers as identified under the section on root causes and barriers. More specifically, component 1 addresses the alignment on interest of various ministries to improve public transportation, the uptake of clean and efficient vehicles, the creation of government revenues and the provision of electric energy.

An e-mobility coordination body comprising stakeholders from the Ministry of Environment and Forestry Resources, the Ministry of Mines and Energy, the Ministry of Transport and Infrastructure, the Ministry of Economy and Finance, the Ministry of Trade, Industry, Private Sector Development and Local Consumption, the Ministry of Urban Development and Housing and representatives from the city of Lomé will be established. This e-mobility coordination body will initially be based on the Project Steering Committee (PSC) and is expected to be transformed into a permanent body towards the end of year three (3) of the project.

The coordination body will be responsible to align interests of the various Ministries with respect to: 1) Meeting the needs of creating tax revenues with the objective to incentivize the e-mobility market; 2) Alignment of electrification targets and renewable power integration with e-mobility power demand projections; 3) Development of technical guidelines and standards aligned with the power-sector and transport sector regulation in Togo; and 4) Development of national e-mobility targets in coordination with local authorities such as the city of Lomé.

Under the guidance of the e-mobility coordination body and with support through the Global Electric Mobility Programme, its African Support and Investment Platform as well as local and international expertise, a gender sensitive national strategy for the introduction and up-scaling of e-mobility in Togo will be developed. For the 2&3 wheeler sector, the strategy can build on the targets set in this project, including the electrification of 1% of all newly registered motorcycles in 2025, increasing to 30% by 2030, 50 % by 2040 and finally 100% by 2050. The strategy will cover the potential electrification of all vehicle modes in Togo, albeit with an emphasis on electric motorcycles (including 3wheelers). The strategy will expand on the options to locally assemble / manufacture electric motorcycles, and what framework needs to be created for this. This is also to ensure that the transition comes with the required support from EV industry, notably with regards to spare parts.

Relevant stakeholders from the government, private sector, and academia will be trained on e-mobility through the events carried out under the Africa Support and Investment Platform. The schedule of the will training will follow a curriculum, starting with general aspects of electric mobility and will then gradually focus on detailed issues with regards to the introduction of electric moto-taxis as well as the various options of charging them.

#### **Outputs:**

Output 1.1: An inter-sectorial electric mobility coordination body is established.

The coordination body includes stakeholders from all relevant ministries, and is co-chaired by the Ministry of Transport and Infrastructure, the Ministry of Mines and Energy and the Ministry of Environment and Forestry Resources. The coordination body will initially be formed by the Project Steering Committee. Towards the end of year 3 of the project execution, all necessary agreements to formalize the national e-mobility coordination body will be established and the set-up of this coordination body will be formally announced. The coordination body will also nominate an e-mobility coordinator located within a Ministry (yet to be defined).

The coordination body will ensure that policies developed under the various ministries are aligned. This includes for example plans, policies and regulations developed under Ministry of Mines and Energy with regards to supply of power, tariffication, the ability of independent power producers to sell electricity to the grids, which needs to be harmonized with power demand from e-mobility and the need to install charging infrastructure. It furthermore includes alignment of taxation, which is under the responsibility of the Ministry of Economy and Finance with the targets for e-mobility set in the strategy. Last but not least, regulation with regards to battery re-use, recycling and disposal needs to be aligned with these targets as well.

D 1.1.1 An inter-ministerial workshop to kick-off the project and to draft mandate and workplan of the Project Steering Committee is held and a workshop report is delivered.

D 1.1.2 Quarterly coordination body meetings are carried out and annual summary reports are issued.

D 1.1.3 Government notification to establish the national e-mobility coordination body as a strategic, national, multi-stakeholder steering committee on e-mobility received

D.1.1.4 Report compiling all the best practices and lessons learned based on studies / reports produced as part of the e-mobility project in Togo (to be shared with the Global E-mobility Programme)

Output 1.2 A national strategy for electric mobility, including gender sensitive business development in the transport sector is developed and submitted for adoption.

The national strategy will be the guiding document, which sets the targets and milestones. Gender aspects will be incorporated in data collection and analysis (for example through the reporting of female holders of driving licenses). The strategy will also contain a chapter focusing on gender inclusive business development, i.e. how women can be encouraged to play a more substantive role in the public transport sector value chain in Togo.

The different stakeholders involved in the project will also be meeting as part of the 3 ad-hoc Technical Working Groups (TWG) to discuss the preparation of the national e-mobility strategy: the TWG on e-mobility technology; the TWG on e-mobility business models and finance ; and the TWG on e-mobility policy. The 3 TWGs are further described in the section "6. Institutional Arrangements and Coordination" and also in Annex K of the CEO Endorsement document.

D 1.2.1 A workshop to discuss scope, objective and milestones of the national e-mobility strategy is held and a workshop report is delivered.

D 1.2.2 Transport and energy sector data including vehicle fleet and current policy frameworks is refined and gender aspects consolidated.

D 1.2.3 A national gender-sensitive e-mobility strategy outlining clear e-mobility market targets and identifying milestones and targets to close policy and funding gaps, is developed with input from all relevant stakeholders and circulated for review.

D 1.2.4 The final national gender-sensitive e-mobility strategy is presented in a workshop

D 1.2.5 Final national gender sensitive e-mobility strategy is submitted for adoption.

Output 1.3: Key stakeholders from public and private sector are trained in the Global Electric Mobility Programme activities (national and regional workshops and trainings).

Relevant stakeholders from government, private sector stakeholders, and academia participate in global events as agreed with the Project Management Unit. The participants will include decision-makers and/or operational staff as targeted by the platform events.

The training events will aim at 1.) developing a community of practice to exchange lessons learnt among all e-mobility projects in the region on demonstration project design and implementation, data collection and analysis, business model etc.; to 2.) train project stakeholders on technical, financial and operational aspects of e-mobility and in particular electric 2&3 wheelers and their charging infrastructure, and 3.) to prepare for scale-up and replication of the demonstration project through dedicated market place events bringing together project leads, electric vehicle suppliers and financiers. The training events will contribute to develop the capacity needed within the relevant Ministries, the City of Lomé, public and private sector transport operators, and the local power utility CET, among others yet to be identified, to implemented the milestones and targets set in the national strategy.

D 1.3.1 Participation in three Africa Platform / Community of Practice events (+ 1 report for each event)

D 1.3.2 Participation in three electric mobility / electric 2&3 wheeler training events (+ 1 report for each event)

D 1.3.3 Participation in two financing / marketplace events (+ 1 report for each event)

D 1.3.4 Participation in one e-mobility replication event (+ 1 report for each event)

#### Component 2: Short term barrier removal through low-carbon e-moto-taxi demonstration and charging development

*Outcome 2: Demonstrations provide evidence of technical, financial and environmental sustainability to government and transport companies to plan for scale-up of low-carbon electric mobility.*

Component 2 addresses awareness, capacity and technology barriers as identified under the section on root causes and barriers above. More specifically, the demonstration project will show the technical, operational and financial viability of electric mobility and therefore address concerns with regards to technologic maturity and costs of e-mobility.

This component will carry out a demonstration project piloting up to 25 electric moto-taxis as part of an existing commercial conventional moto-taxi fleet. The objective of this component is to develop and communicate a clear business case for the use of electric moto-taxis as part of moto-taxis fleets or individually owned by drivers. The e-moto-taxi demonstration project will provide the data and experience to plan for upscaling the electric vehicle market in Togo, focused on electric motorcycles but not limited to 2 wheelers, also addressing the introduction of other electric light duty vehicles such as electric 3 wheelers, which will be demonstrated in Sierra Leone as part of the GEF 7 Global Electric Mobility Programme at the same time. Building on similar projects in Kenya and Uganda, the demonstration project will provide information about:

- Suitable e-motorcycle technology with regards to vehicle type (e.g. scooter vs motorcycle, placing of the electric engine), engine power, battery range, charging system and patterns, durability, etc., based on requirements needed in the Togolese market
- Business model with regards to operation and maintenance costs of e-motorcycles in Togo
- Viable charging systems especially focusing at the advantages and disadvantages of battery swapping versus overnight charging
- The integration of renewable power in electric 2&3 wheeler charging systems

Togo is part of the replication component (work package 4 and 5, managed by UNEP) of the EC SOLUTIONSplus project.

Under this component, experiences from EC SOLUTIONSplus demonstration projects will be replicated in up to 10 replication projects. Therefore, small grants will be tendered through a competitive process to local innovators to develop technical or business solutions for e-mobility applications. The call for proposals and the tendering process will follow procedures in line with Togolese and EU requirements. In case of the Togo e-mobility project, the small grant will be used to develop and operate an innovative charging system. Part of the grant can be used for procurement of equipment. The maximum grant amount equals EUR 50,000 (around USD 55,000 to 60,000).

Key aspects of the demonstration implementation are as follows:

- **Feasibility study & implementation plan:** A detailed feasibility study will be prepared to define technical, operational and financial aspects of the e-motorcycle demonstration. The feasibility study also contains comparative analysis to identify the ideal modality for e-motorcycle battery charging focusing at battery swapping versus overnight charging, and taking into account factors such as stability of the power supply and carbon footprint of the power used for e-motorcycle charging. The feasibility analysis also investigates the need to partner with local enterprises to host the charging stations (for example at petrol stations). The implementation plan defines all roles and responsibilities during the implementation of the demonstration project. The implementation plan furthermore prepares the call for proposals for the e-motorcycle demonstration and the charging system operator.
- **Financing:** 1.) The GEF funding will finance the price differential between electric motorcycles and conventional motorcycles (for up to 25 units). Fleet operators interested in participating in the demonstration project can apply for the subsidy through a competitive process. The executing agency, with the support of the UNEP SM Unit the non-government, non-for-profit organization Sustainable Transport Africa<sup>[18]</sup>, will manage the selection and disbursement process. With the help of the GEF funding, the motorcycle fleet operator will be able to purchase e-motorcycles at the price of conventional ones. 2.) In addition to the above, UNEP will organize for a call of proposals for the small grant leveraged through EC SOLUTIONSplus to support the development and operation of e-motorcycle charging stations. The selection and disbursement process will be managed directly by UNEP SMU, with the support of Sustainable Transport Africa.
- **Procurement:** With the help of the financial support provided by the GEF and UNEP (through the SOLUTIONplus project), the taxi fleet and charging system operators will be able to purchase e-motorcycles and charging equipment. Spare parts for the demonstration motorcycles will be provided through the project. Through the support of the Global Electric Mobility Programme, the private sector partners will be supported in technical and operational questions to minimize the technological risks associated with a novel technology like electric motorcycles. The financing provided by the GEF to the motorcycle operator includes additional funds to cover the purchase of spare parts to be delivered with the demonstration motorcycles (as required). The funds targeted to cover incremental costs for up to 25 e-motorcycles as well as to support procurement, assembly and testing of charging equipment will be received by Ministry of Environment, and will be channeled to the identified private sector stakeholders through Sustainable Transport Africa<sup>[19]</sup>.
- **E-motorcycle fleet & charging system operation:** The demonstration project including electric motorcycles and battery charging / swapping will be running for at least 12 months. The taxi fleet operator/ride -hailing app provider, selected to collaborate under this project, will be required to have his own mobile phone-based data collection system that can be used to collect the data (data set collected to be defined in the feasibility study). The fleet operator will be responsible for providing technical support to his individual drivers. The charging system operator will monitor key data (data set collected to be defined in the feasibility study) of the charging station. Agreed datasets will be shared with the local and international partners responsible for analysis.
  - **Demonstration analysis and dissemination:** All data collected will be shared with the partner responsible for data analysis and dissemination (preferably a local university). A comprehensive demonstration report investigating technical, operational and financial aspects will be developed. Based on the demonstration recommendations are developed covering 1.) technical specifications of e-motorcycles and charging equipment, 2.) providing insights for charging system operation and business models covering the different options with regards to battery swapping versus overnight charging to the extent these two operation models have been tested as part of the demonstration project.

Outputs:

Output 2.1: A comprehensive feasibility study and implementation plan for electric moto-taxi demonstration and charging, and a data collection framework are developed along with the reporting and analytical framework.

The development of the feasibility study will include international expertise on the design and implementation of e-motorcycle project. The International E-mobility Technology Expert will work together with a National E-mobility Technology Expert for e-mobility and the power sector. In addition, a local university will be included, which will accompany the data collection and analysis of the e-motorcycle demonstration project. One possible option could be the African School of Architecture and Urbanism (EAMAU) in Lomé, which with the support from CODATU<sup>[20]</sup> (Cooperation for urban mobility in the developing world, a French association with international vocation, member of the EC SOLUTIONSplus consortium), is providing the course "Sustainable transport and mobility in African cities"<sup>[21]</sup> since 2017.

Sustainable Transport Africa, with support from UNEP and in coordination with Ministry of Environment and Forestry Resources, the Ministry of Mines and Energy and the Ministry of Infrastructure will organize for the call for proposals for the selection of the candidates to receive financial support through the project.

D 2.1.1 Detailed terms of reference are developed to hire a team of experts (including an international e-mobility expert, a national e-mobility expert, Sustainable Transport Africa and a local university) to develop the feasibility study & implementation plan

D 2.1.2 The detailed feasibility study (including technical specifications) & implementation plan for the e-mobility and charging demonstration is developed

D 2.1.3 The feasibility study and implementation plan is presented during a workshop

D 2.1.4 Private sector partners to implement the demonstration project are selected through a competitive process led by Sustainable Transport Africa (report on the bidding and selection process issued)

Output 2.2: Demonstration vehicles and charging equipment are procured, the demonstration project is implemented, monitored and data are collected, analysed, and recommendations for technical specifications of the e-motorcycle and the charging equipment and operation are developed

The disbursement of the subsidies for the demonstration vehicles and the charging equipment will be through Sustainable Transport Africa, which receives the funds from the UNEP Sustainable Mobility Unit (SMU). The UNEP SMU will be responsible for the call for proposals, selection of the candidates and disbursement of the resources for the purchase of the charging equipment, which is funded through the EC SOLUTIONSplus project.

The demonstration project will run for at least 12 months. During and after the demonstration project, the demonstration vehicles and the charging equipment will be the property of the enterprises receiving the financial support. By participating in the call for proposals and receiving the subsidies, the selected companies bindingly agree that they will implement the demonstration project as outlined in the implementation plan and that they will take full responsibility for the operation and maintenance of the demo vehicles and equipment, including insurance. The demo operators will share all data as jointly defined in the implementation plan, and a comprehensive report containing technical, operational and financial data will be developed together with the international and local experts and the local university.

Based on the demonstration project, technical specifications including information on 1.) vehicle power, speed and range, 2.) battery capacity and technical specs, 3.) vehicle and drivetrain design; 4.) charging operation (overnight versus swapping) 5.) charging station design and options for standardisation ; 5.) vehicle operation and maintenance plans (among other information yet to be defined as part of the feasibility study and implementation plan) for e-mobility upscaling will developed. The information contained in the technical specifications will inform the work on regulations and standards carried out as part of component 3. The information will furthermore inform the development of the financing scheme carried out as part of component 3. The information on the technical design, operation and financial performance of the charging station(s) will also inform the study on renewable power integration (component 4), which will also cover the use of electric 2&3 wheelers in rural areas in combination with charging station coupled to minigrids.

D 2.2.1 Procurement and delivery in Togo of electric motorcycles, based on the initial specifications established in the feasibility study (D 2.1.2), with support of Sustainable Transport Africa and UNEP SMU

D 2.2.2 Procurement and delivery in Togo of charging equipment, based on specifications established in D 2.1.2, with support of Sustainable Transport Africa and UNEP SMU

D 2.2.3 Training of e-motorcycle drivers and charging equipment operators

D 2.2.4 Implementation of the demonstration project as detailed in the implementation plan and collection and analysis of data with the support of the local university (data set and analysis report issued)

D 2.2.5 A technical report summarizing the results of the demonstration project is developed including recommendations for technical specifications for e-motorcycles and charging equipment and operation for upscaling

D 2.2.6 The results of the demonstration are presented in a workshop

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**Component 3: Preparing for scale-up and replication of low-carbon electric mobility**

*Outcome 3: Government creates conditions for removing existing barriers by drafting regulatory reforms and financial mechanisms for adoption of e-mobility in the country.*

Component 3 targets the removal of fiscal and regulatory barriers for the uptake of e-mobility in Togo. It furthermore addresses the absence of targeted financial products which prevent innovative e-mobility solutions from access to adequate financing in Togo. It will build on the results of the demonstration project under component 2.

This component focuses on developing the regulatory, fiscal and local policy framework to incentivize the large-scale introduction of electric mobility on Togo. While the focus is on the introduction of electric fleet vehicles such as e-motorcycles, it is not limited to these modes but will also develop measures applicable to the import and registration of energy-efficient and clean passenger cars and buses. It will build on the work carried out under the Global Fuel Economy Initiative (GFEI) project in Togo. It is preferential to develop technology-neutral policy measures, but specific incentives to bring forward the electrification of the transport sector are not excluded. This component will investigate the inclusion of measures to better prepare the Togolese power sector for independent power producers. Synergies with projects to advance the electrification of rural parts of Togo will be explored, in particular with Project CIZO, which is partially funded by the African Development Bank (AFDB).

As part of this component, e-mobility entrepreneurs and local and international financing institutions will be brought together as part of a private sector and financing round table for e-mobility projects to prepare the development of targeted financing for e-mobility investments such as fleet vehicles, charging station and EV assembly / manufacturing. Based on the input received through the round table discussions, concrete financing proposals will be developed for at least 2 business models (including mobility services, charging and assembly / manufacturing). The business roundtables will also be used to communicate the results of the demonstration project to entrepreneurs and financing institutions.

**Outputs:**

Output 3.1: Fiscal policies and regulatory schemes are developed to incentivize the uptake of electric mobility.

Based on the gaps identified in the national e-mobility strategy developed under component 1, and with the support of the Global Programme materials, at least three policy proposals are developed and submitted for adoption. These proposals include 1) A reform of vehicle import taxation and regulation (including registration) to incentivize the purchase and import of energy-efficient and clean vehicles e.g. containing clear regulations for the import of electric and incorporating a reasonable level of import tax waivers, and combined age and emission standard limits for the import of used vehicles and vehicles; 2) Regulation to allow the operation of EV charging stations as a service and to combine the use of grid and off-grid (renewable) electricity, seeking to support legislation on the integration of independent power producers in the Togolese power market

Key partners in the development of policy proposals will be the respective line ministries such as the Ministry of Transport and Infrastructure (vehicle registration), the Ministry of Mines and Energy (regulation of the power sector), the Ministry of Economy and Finance (taxation, with Togolese Revenue Authority as its public administrative establishment), and the Ministry of Trade, Industry, Private Sector Development and Local Consumption (import regulations). The PSC / national e-mobility coordination body will play a key role in involving relevant partners and ministries in the process of developing and reviewing the policy proposals. The development of policy proposals will be managed by the Chief Technical Advisor (CTA). International Policy, Business and Strategy expert will lead the technical development of the policy proposals with input from the line ministries and the CTA. The policy proposals will be reviewed by the PSC / national e-mobility coordination body with the participation of relevant non-PSC members.

D 3.1.1 A draft proposal to reform vehicle import taxation and regulation is developed

D 3.1.2 A draft proposal to reform vehicle registration is developed

D 3.1.3 A draft proposal of power sector regulations is developed

D 3.1.4 A package of policy proposals is circulated for review and presented at a workshop

D 3.1.5 A consolidated package of policy proposals is presented is submitted for adoption.



Output 3.2: An e-mobility business roundtable including private sector and financial institutions is established to develop financial schemes and concepts for e-mobility upscaling

Based on the success of the demonstration project, and with the support of the Global Programme and the Africa Regional Support and Investment Platform (e.g. through the market place events) a private sector and finance roundtable for e-mobility upscaling including private sector stakeholders (such as mobility service providers, drivers association, e-vehicle assembler and/or manufacturers, EV charging service providers, mini-grid operators) and financial institutions interested in financing e-mobility projects including international development finance locally present in Togo (such as BOAD, Banque Ouest Africaine de Developpement, AfDB) and local banks (such as CORIS Bank) will be initiated. The participation of representatives of the Ministry of Agriculture as well as representatives of local freight service providers currently using motorcycles to transport agricultural goods from producers to markets will also be considered.

The objective of the roundtable, which will take place three times over the duration of the project, is to bring together entrepreneurs and financial institutions to discuss e-mobility business models and to evaluate options of developing targeted financial support for the upscaling of e-mobility in fleets, the development of EV charging services and for supporting local assembly and manufacturing of electric vehicles (including retrofitting). Therefore, private sector stakeholders will be asked to each present their business models for discussion at the round tables. As an example, these new business models could follow a scheme recently developed between GOZEM and CORIS bank, whereby the bank has access to GOZEM's digital mobility service application to monitor the individual moto-taxi drivers economic performance, which in turn enables the bank to issue financial products to the drivers at preferential conditions. The roundtable will culminate in a synthesis report summarizing the most promising business models. Together with the support of national and international expertise, initial drafts for targeted financial products to make these business models and opportunities viable will be developed. These draft proposals will be brought to the attention of the participating financial institutions for further development and adoption whenever possible. The synthesis report will be discussed and disseminated through a financing workshop. In addition, based on the discussed business opportunities and business models, this component aims at selecting the two most promising business models for further development into two concrete project concepts, which will be submitted to the targeted financing institution.

D 3.2.1 Private sector e-mobility stakeholders and locally present international and national financing institutions interested in financing e-mobility upscaling projects in Togo are identified (detailed list with contact details issued)

D 3.2.2 Three private sector and finance e-mobility roundtables are carried out (1 report issued per roundtable)

D 3.2.3 A synthesis report outlining the needs for targeted finance and initial schemes for respective financing products and mechanisms is developed and presented during a workshop.

D 3.2.4 Two e-mobility upscaling project concepts are prepared and submitted to the targeted financing institution

#### **Component 4: Long-term environmental sustainability of low-carbon electric mobility**

*Outcome 4: Long term sustainability of low carbon electric mobility is ensured by government institutions*

Component 4 addresses concerns with regards to environmental sustainability and adequate provision of clean power.

This component targets the development of initial strategies to ensure environmental sustainability of the introduction of electric mobility in Togo. It focuses on two main areas: 1) The collection, re-use, and preparation of used electric vehicle batteries; and 2) The integration of renewable power for charging electric vehicles.

As part of the Global Programme it is envisaged to closely collaborate with the Economic Community of West African States (ECOWAS) of which Togo is a part of, to develop initial regulation for collection of used EV batteries for re-use, recycling and safe disposal at the sub-regional level. It is therefore anticipated that the task to develop such an initial framework can be shared with Cote d'Ivoire and Sierra Leone, which both have developed country projects under the GEF 7 Global Electric Mobility Programme, and which have both outputs similar to output 4.2 of the Togo project.

With regards to renewable power integration, this component will investigate the opportunities of using solar power for 2&3 wheeler battery charging. This study is therefore closely linked to the feasibility study and implementation plan for the e-motorcycle demonstration developed under output 2.1. While the feasibility study is focusing on the integration of solar power in the charging demonstration from technical, operational and financial perspectives focussing on the micro perspective related to the specific demonstration charging system, this study is looking at the integration of renewable power from a national perspective, aligning power

supply with e-mobility upscaling scenarios therefore also linking to the national strategy developed under output 1.2.

The study will focus on the potential integration of solar charging not only in urban or peri-urban environments, where access to grid electricity can be assumed, and the integration of solar power is flexible to cover only parts of the required electricity (subject to detailed analysis to determine the optimal share of solar power in order to minimize the cost of the system), but is also investigating the integration of electric 2&3 wheelers in rural areas in combination with minigrids.

This output therefore seeks for close collaboration with the CIZO project to investigate the impact of electric 2&3 wheelers on mini and micro grids power demand, utilization rates and potential new business models for mini and micro grid operators.

The lessons learnt from the e-motorcycle and charging demo in Lomé will provide very useful insights on e-motorcycle charging, and if possible battery swapping applications, which seem to be very suitable for use of e-motorcycles in rural areas. The UNEP Sustainable Mobility Unit (SMU) is currently implementing e-motorcycle demos in Kenya, with part of total demonstration fleet (50 e-motorcycles) being tested in Kisii County, Kenya, with the local partner Powerhive<sup>[22]</sup>, which is running minigrids and which wants to further explore the combination of e-mobility and decentralized rural power generation. From an operational and business perspective, minigrid operators are most likely ideal providers of battery swapping services since:

- Rural minigrids are often operated in remote areas with limited access to conventional transport fuels which can be an additional argument for electric 2&3 wheelers;
- Additional power demand from electrified 2&3 wheelers could add load to minigrids enhancing their utilization rates or increasing their scale both leading to enhanced profitability;
- Minigrid operators are generating power and hence battery swapping services can be provided without any additional margins on power purchase
- A "fleet" of swapping batteries can be used to balance the minigrid / provide additional services to the grid
- The batteries rented to the vehicle operators can be used to provide additional off-grid services;
- Electric motorcycles sold to the customer without battery are already cheaper than conventional motorcycles today.
- Based on a critical fleet of e-2&3 wheelers, charged batteries rented to the EV operators could come at significantly lower costs compared to the equivalent of gasoline
- Battery swapping systems in remote areas are likely to be less prone to incompatibility issues which are to be expected in the early phase of battery swapping market uptake and are therefore an ideal place for testing purposes.

The renewable power integration study will investigate above mentioned points in more detail, also building on similar projects in Sierra Leone and Burundi, to better understand implications of early battery swapping schemes on interoperability. It will provide the information needed with regards to power demand and possible decentralised supply for the upscaling of the electric 2&3 wheeler market across Togo, including both urban and rural areas.

#### Outputs:

Output 4.1: A study to integrate renewable power for electric vehicle recharging is carried out.

D 4.1.1 An International Charging & Renewable Energy integration and Battery expert is hired based on TORs including clear timelines and deliverables

D 4.1.2 A draft study to integrate renewable power for electric vehicle recharging with a focus on rural applications and mini-grid integration is developed, circulated for review and presented at a workshop

D 4.1.3 The study to integrate renewable power for electric vehicle recharging is finalized and disseminated to all local stakeholders and the Global Programme knowledge management focal point.

Output 4.2 A scheme for collection, re-use, recycling and sound disposal of used electric vehicle batteries is developed and submitted for adoption.

After reaching the end of their lifespan, EV batteries can be still reused in other less-demanding environments, for instance as stationary energy storage devices. In any case, initial regulation needs to be developed for the collection of EV batteries which are not suitable for use in transport applications anymore. Similarly, once second life of used EV batteries is depleted, the end-of-life batteries need to be collected for recycling and / or safe disposal. It is desirable to develop such regulation at the subregional level, in form of directives which can then be transformed in national law. It will be evaluated during project implementation to what extent similar outputs within the e-mobility projects in Sierra Leone and Cote d'Ivoire can be bundled to develop such initial regulation at the level of the ECOWAS.

D 4.2.1 Together with the GEF 7 E-Mobility projects in Sierra Leone and Cote d'Ivoire, a coordinated approach to develop battery second and end-of-life regulation at the level of the ECOWAS is evaluated

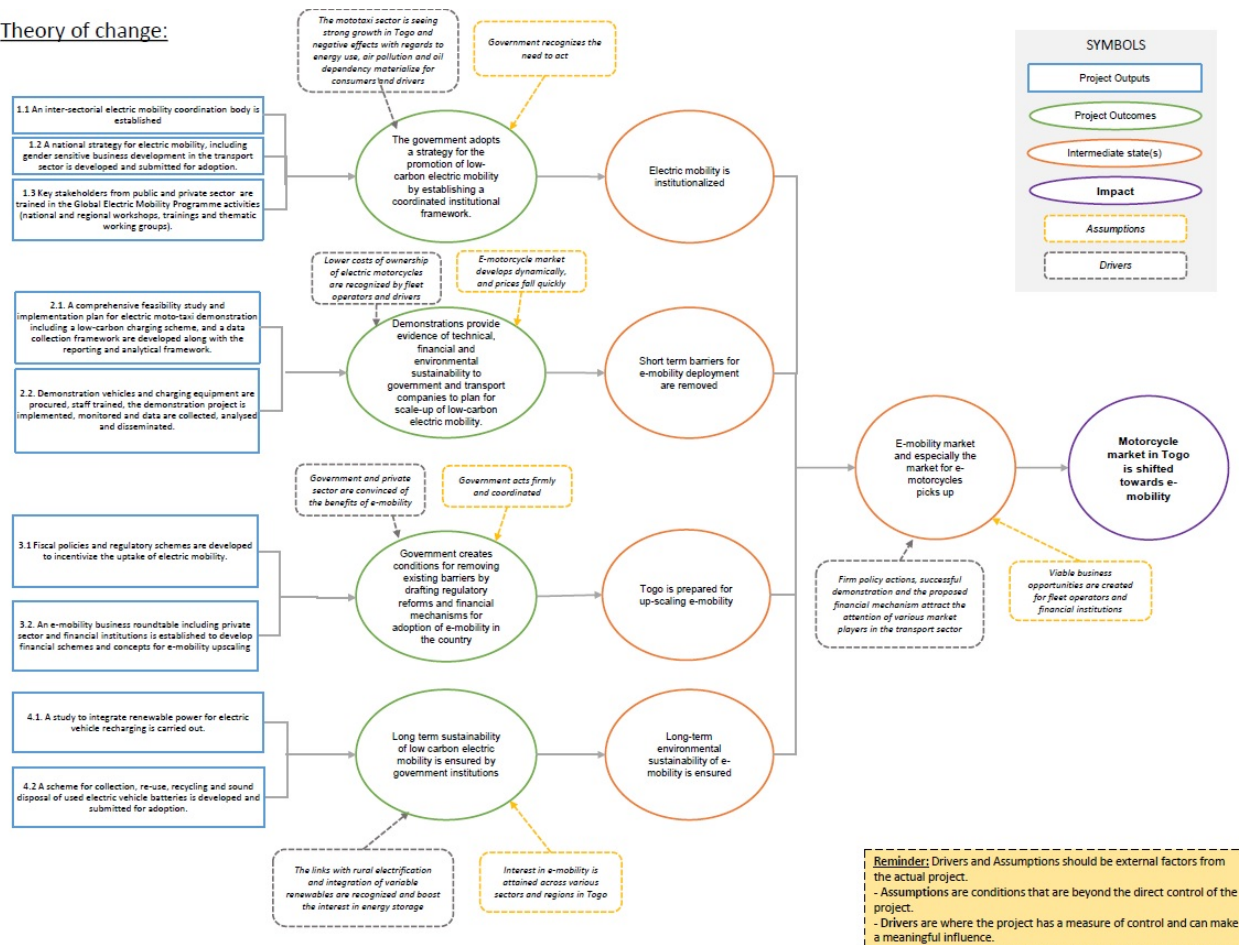
D 4.2.2 A draft scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries is developed, circulated for review, and presented at a workshop;

D 4.2.3 The scheme for reuse, and collection for recycling and sound disposal of used electric vehicle batteries is finalized and disseminated to all local stakeholders and the Global Programme knowledge management focal point.

### Theory of Change

Below is the overall project's Theory of Change (ToC). The ToC provides a visual representation of the project complete intervention logic. Through institutionalisation of e-mobility (e-mobility coordination body and strategy, outputs 1.1 and 1.2) and capacity building (output 1.3), in combination with on-the-ground experience with e-mobility through demonstration of electric moto-taxis (outputs 2.1 and 2.2), the basis will be laid for informed policy making (output 3.1) and the development of financial schemes and e-mobility concepts (output 3.2) to prepare for the upscaling of e-mobility in Togo. Preparing the long-term sustainability of e-mobility through the development of ways to integrate higher shares of renewable power for e-vehicle recharging and to line out possibilities to combine the use of electric 2&3 wheeler with off-grid charging solutions (output 4.1) and the development of an initial scheme for the collection of used EV batteries for re-use, recycling and safe disposal (output 4.2) ensure a holistic approach to introduce e-mobility in Togo.

**Theory of change:**



**4) Alignment with GEF Focal Area and/or Impact Program strategies**

This Programme is aligned with Objective 1 of the Climate Change Focal Area to “Promote innovation and technology transfer for sustainable energy break-throughs”, through CCM 1-2 - Promote innovation and technology transfer for sustainable energy breakthroughs for electric drive technologies and electric mobility.

**5) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing**

The GEF is covering incremental costs of barrier removal, in particular the costs of:

- Building capacity, raising awareness, identifying policy gaps;
- Developing strategies and studies to upscale the e-moto-taxi market in Togo;
- Developing technical specifications to buy the right e-moto-taxis;

- Develop a financing mechanism to overcome the higher upfront cost of e-moto-taxis;
- Developing the policy framework for the large-scale introduction of e-mobility, and in particular e-moto-taxis;
- Developing a strategy to integrate the use of renewable power for e-vehicle charging and;
- Developing an initial scheme for the re-use and collection of used EV batteries.

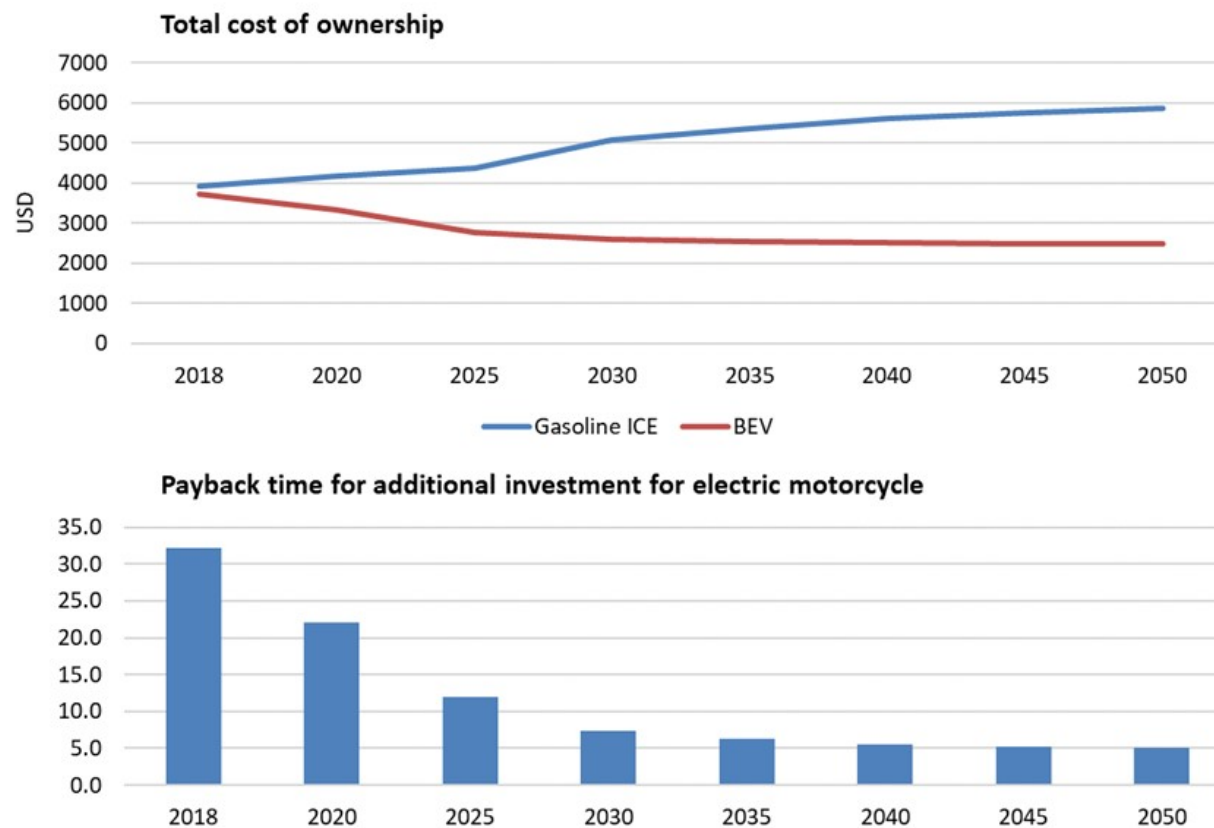


Figure 6 Total cost of ownership and payback time of electric motorcycles compared to conventional motorcycles

Already today, total costs of ownership for an electric motorcycle used as a taxi are lower compared to the conventional motorcycle and payback time for additional investment **without any tax benefits or financial instruments** is below 2 years<sup>[23]</sup>.

The GEF intervention is geared towards reducing payback time of electric motorcycles to below 6 months, by introducing preferential tax rates and a financial mechanism to provide loans to consumers for purchase of electric motorcycles at lower interest rates compared to the commercial rates of 25% and more, as well as longer pay-back times (e.g. 24 months instead of 12).

The intervention of the project will lead to a de-risking of investments, both for the financier to scale-up the market and for the consumer.

In addition, the project is supported by the global project. The global knowledge management component and the regional platform approach seek to bundle demand in the region and thus reduce the incremental costs (i.e. we are seeking a cost-effective way of minimizing the incremental costs):

- Generic tools are produced at global level, disseminated through regional support and investment platforms and adapted to the needs in the country at the country level – thus return on investment for development of tools and methodologies is maximized;
- Investment risk for demand side – bundling demand for e-vehicles for demonstration in a certain region can lead to lower vehicle prices;
- Technology risk for supply side – through adequate training of vehicle operators and exchange between numerous projects, the industry is less likely to face misuse of technology.

Without the intervention of the GEF, local consumers will not be able to front the higher purchase price, which will ultimately stall the introduction of electric motorcycles in the country. This in turn will lead to the influx of cheaper and polluting conventional motorcycles into the market, which is growing at high annual rates.

In addition to the above stated, UNEP as the Implementing Agency of the project has several advantages to cost-effectively implementing the project in Togo: 1.) UNEP is leading the Global E-Mobility Project, including the Africa Support and Investment Platform; 2.) Has a track record of project implementation in Togo; 3.) Has a track record of implementing e-mobility projects in low and middle-income countries around the world; and 4.) Has a broad network to industry, finance and academia partners on the topic of e-mobility.

#### **6) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)**

The projected CO<sub>2</sub> emissions reductions are purely based on the benefits which will stem from the introduction of electric moto-taxis in Togo. The reason for this is that most of the outputs of the project are geared towards the introduction and scale-up of the e-moto-taxi market. In addition to this, benefits from the introduction of electric buses as well as electric passenger cars are assumed to materialize in the future, as a result of the project interventions to incentivize the uptake for e-mobility in all transport sectors. Nonetheless, for the sake of simplicity and transparency, only direct and indirect emission reductions from e-moto-taxis are accounted for.

It is estimated that in 2017 motorcycles were responsible for about a third of all transport related CO<sub>2</sub> emissions. In the baseline scenario, it is projected that the motorcycle fleet in Togo will double in size from about 210,000 vehicles today to about 400,000 in the next ten years, and to triple to about 600,000 in 2050. CO<sub>2</sub> emissions from motorcycles are estimated to grow by 45% until 2030 and to more than double by 2050. This growth of CO<sub>2</sub> emissions goes hand in hand with a growth in air pollutants, especially since pollutant emissions of new and used motorcycles in Togo are not regulated.

Under the alternative scenario, total sales and stock of motorcycles in Togo are identical with the baseline scenario. It is assumed that the institutionalization of electric mobility, the short term barrier as well as the preparation for scale-up of the e-mobility market and in particular the development of a fiscal and regulatory framework as well as the introduction of a financial mechanism will trigger a substantial shift towards the use of electric motorcycles in Togo. It will lead to the sales of about 1,000 electric motorcycles by 2025, increasing to 30% of the market by 2030 and a complete switch to electric motorcycles by 2050. Projections of the motorcycle stock and sales, as well as energy use and emissions by technology are shown in Figure 7.

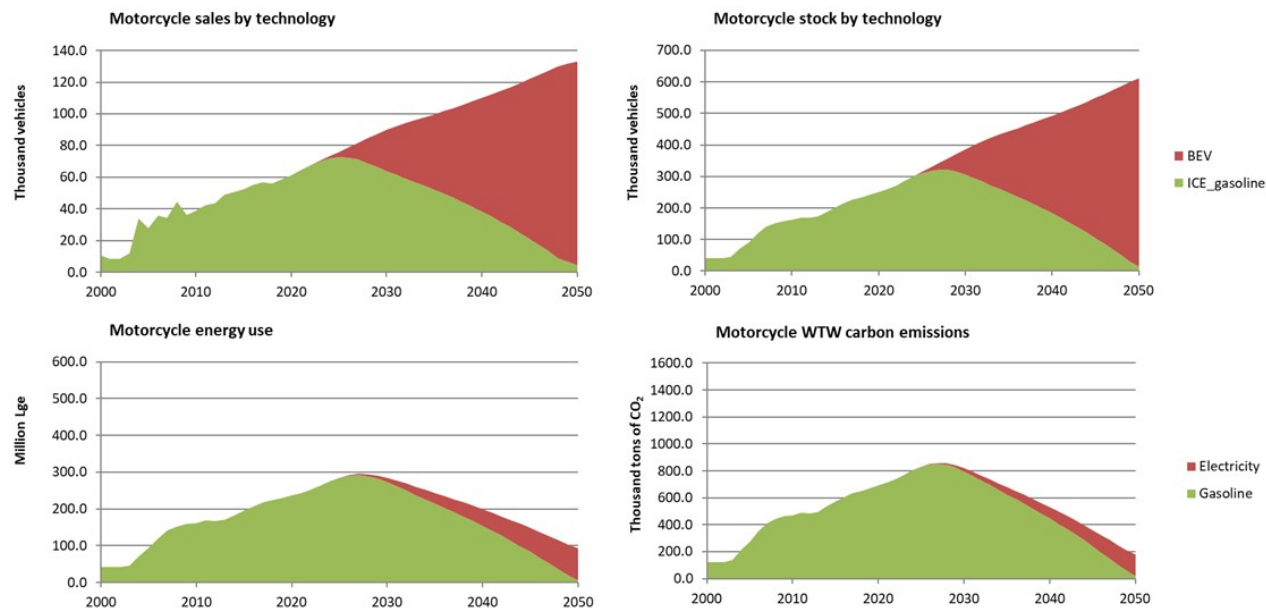


Figure 7 Motorcycle sales, stock, energy use and carbon emissions under the alternative scenario

A top-down CO<sub>2</sub> mitigation projection carried out for this project to estimate potential CO<sub>2</sub> savings accruing from the demonstration and large scale market introduction of electric moto-taxis. Therefore, top-down emission reductions based on the national motorcycle market and following an ambitious e-motorcycle market penetration scenario are calculated. Based on the national top-down scenario, and following the technology share scenario for e-motorcycles on total new motorcycle registration as outlined above (e-motorcycles: 1% of all newly registered motorcycles in 2025, increasing to 30% by 2030, 50 % by 2040 and finally 100% by 2050), annual CO<sub>2</sub> emission savings account for: 12 ktCO<sub>2</sub> by 2025, 185 ktCO<sub>2</sub> by 2030 and 1,300 ktCO<sub>2</sub> by 2050. Cumulative CO<sub>2</sub> emissions savings reach 19 ktCO<sub>2</sub> by 2025, 500 ktCO<sub>2</sub> by 2030 and 15,000 ktCO<sub>2</sub> by 2050.

<b>Total topdown emission reduction potential 2021 to 2036, tCO2</b>	<b>2,230,816</b>
Thereof	
Total direct emission mitigation from demonstration, tCO2	305
Total secondary direct emission mitigation, tCO2	133,831
Total indirect emission mitigation, tCO2	312,272
<b>Total project related emissions reductions, tCO2</b>	<b>446,407</b>

Off this total emission reduction potential identified by the top-down analysis of the entire Togolese motorcycle sector until the year 2050, only a portion will be achieved through the interventions of the project. Direct emission reductions from demonstration account for approximately 305 tCO<sub>2</sub>. Total secondary direct and indirect emission reductions leveraged through upscaling and replication and the introduction of regulatory and fiscal policies account for approximately 446,000 tCO<sub>2</sub>, based on a Level I causality factor of 20%.

Total GHG emission reductions attributable to the project thus account for 446 ktCO<sub>2</sub> for the time frame 2021 to 2036.

## 7) Innovativeness, sustainability and potential for scaling up

### Innovativeness:

This project is innovative from various angles: 1.) It promotes a new and innovative clean and low carbon transport technology; 2.) It promotes the integration of low carbon power and energy storage; 3.) It promotes the deployment of innovative business models for e-moto-taxi operation and charging (e.g. battery swapping); 4.) It promotes innovative financing of electric vehicles by accessing climate change mitigation funding within the transport sector; and 5.) It promotes environmental sustainability by tackling the issue of collection of used EV batteries for re-use, recycling or safe disposal.

The use of e-motorcycles has the potential to couple the transport sector with the power sector in Togo. This is of particular interest since e-motorcycle batteries have a manageable capacity of about 3.5 to 5 kWh. These batteries can therefore be charged with solar kits or through mini-grid applications, which makes the technology a very good match with the objective to substantially increase the rate of electrification in Togo through the Project CIZO. Charging of e-motorcycle batteries using solar power can be very simple and cheap. Since the batteries need direct current (DC) and the solar panels produce DC power, there is no need for costly inverters. The controller to manage the quality of the power delivered to charge the batteries is a simple and cheap device. Hence the introduction of e-motorcycles can trigger developments whereby the e-motorcycle battery could also be used for other applications within and environment that is already suited to use DC power, as consequence of using solar kits for power generation promoted by Project CIZO. There is hence a great potential, which will need to be explored during project implementation for innovative application of the e-motorcycle power storage capacity.

The demonstration project implemented by private sector partner(s) and supported by the project eventually includes the introduction of a battery swapping system. This is a highly innovative business model, whereby the ownership of the battery is separated from the owner of the electric motorcycle. In doing so, the investment cost for the motorcycle is much reduced. It will be part of the project to introduce schemes to manage various risks such as 1.) the risk of the battery owner that the battery will be mis-used and charged without permission; 2.) the risk of the motorcycle owner that the battery swapping company defaults and the motorcycle without a battery cannot be operated; 3.) the still existing technology risk for both the vehicle operator and the battery swapping operator with regards to performance and lifetime of the battery and vehicle technology. Schemes to manage these risks will include technology as well as financial technological (e.g. insurance, guarantees, etc.) options, which will be developed as part of the project as well as the Global Programme Thematic Working groups on electric LDVs and Charging, Infrastructure, Batteries, and Renewable Power Integration.

### Environmental Sustainability

The project has two outputs dedicated to environmental sustainability: 1.) The development of an initial scheme to collect used EV batteries for re-use, recycling and safe disposal; and 2.) The integration of renewable sources of power generation for charging electric vehicles in Togo.

Both outputs ensure that the issue of potentially hazardous waste is tackled right from the beginning of the introduction of EVs in Togo and that the long-term sustainability with regards to truly zero- or low-carbon transportation is planned.

### Sustainability of market development after the project:

The project will be closely linked to the Africa Support and Investment Platform. Through this platform it is envisaged that the project leads to the un-locking of resources to fund a financial mechanism to upscale the market of electric moto-taxis in Togo. The Africa Support and Investment Platform will be operational beyond the lifetime of the Togo e-mobility project and is anticipated to be the leading marketplace in Africa where potential project concepts meet potential financiers and potential technology suppliers. It is hence anticipated that the GEF Togo E-Mobility project will lay the ground for a transformational shift towards electric mobility in Togo. This is based on the removal of market barriers outlined above, namely the built-up of capacity, the introduction of the technology to the Togolese market, the introduction of an adequate policy framework, and the provision of business models and financial schemes.

It is the aim of the project to create an understanding that the use of electric motorcycles as moto-taxis is the most economical option and that it will increase the revenue for drivers. Together with the adoption and deployment of an adequate financial mechanism, which provides access to low-interest loans (i.e. with interest rates below 10% and longer payback time of 12 or 18 months) to potential e-motorcycle fleets and individual drivers, the market will move by itself towards the large-scale adoption of e-motorcycles.



Potential for scaling-up:

Under a scenario whereby import duty for e-motorcycles would be reduced to half of the tax burden of conventional motorcycles (~48% based on price), adequate technology would be available at USD 1,500 before any taxes (compared to about USD 800 for a conventional motorcycle) and would have a life-time of 5 years, a financial mechanism to fund the introduction of 1,000 electric motorcycles in Togo would need to have funding of about 1.8 to 2 million USD (assuming down-payment of USD 300, 10% interest rate p.a. and a payback-time of 12 months). Under such a case and based on Togolese data for annual driving, fuel costs etc. the total cost of ownership over 5 years of the e-motorcycle would be about 40% lower compared to the conventional motorcycle, hence being a very good value proposition for the e-moto-taxi driver.

[1] IEA Fuel Combustion Highlights 2019, IEA 2019

[2] Togo Energy Support and Investment Project, Report No: PAD2304, World Bank 2017

[3] Togo Infrastructure and Urban Development Project, Report No PAD2414, World Bank 2018

[4] <http://www.codatu.org/actualites/focus-bus-acquisitions-and-donations-the-sotral-experience-in-lome-togo/> accessed 2019

[5] [https://www.rtb.be/info/monde/detail\\_motos-taxis-au-togo-la-survie-comme-moteur?id=10035487](https://www.rtb.be/info/monde/detail_motos-taxis-au-togo-la-survie-comme-moteur?id=10035487)

[6] Earning a living, but at what price? Being a motorcycle taxi driver in a Sub-Saharan African city, Diaz Olvera et al, Journal of Transport Geography 2015. This source cites values which estimate the amount of moto-taxis in Togo at 66,000 in 2006 and 90,000 in 2011. These values are somewhat in line with our projections based on new vehicle registration data from GFEI 2019.

[7] Ibid.

[8] <https://gozem.co/en/>

[9] <https://taxietogo.com/>

[10] <https://www.togofirst.com/fr/transport/0812-6942-partenariat-entre-gozem-et-coris-bank-pour-financer-l-acquisition-de-motos-taxis-au-profit-des-zemidjans>

[11] <https://motorhino.dk/about-us>

[12] Vehicle Type-Approval and Road Worthiness Test in Togo, Road Transport Sector Reform in Togo

The Competitiveness of Logistics Services Programme Financed by the World Bank, 2018

[13] Togo Energy Sector Policy Review - Review of the Electricity Sub-Sector, Report No: ACS499, AFTG2, World Bank, June 2013

[14] Togo Infrastructure and Urban Development Project, Report No PAD2414, World Bank 2018

[15] Road Transport Sector Reform in Togo - The Competitiveness of Logistics Services Programme Financed by the World Bank, Report No: PAD1828, World Bank 2017

[16] <https://africa-energy-portal.org/news/togo-board-finances-blittas-solar-power-plant-eu107-million>

[17] Togo Energy Support and Investment Project, Report No: PAD2304, World Bank 2017

[18] <https://www.sustainabletransportafrica.org/>

[19] <https://www.sustainabletransportafrica.org/>

[20] <https://www.codatu.org/>

[21] <http://www.codatu.org/partenaire/eamau-ecole-africaine-des-metiers-de-larchitecture-et-de-lurbanisme/>

[22] <https://powerhive.com/>

[23] Cost: EV USD 2,500 falling to USD 1,800 in 2025 and USD 1,600 in 2030 versus USD 800 for ICE; annual mileage 23,000km, depreciated over 3 years, financing including a 30% down payment, 20% interest rate and 12 months payback time for both EC and ICE. Annual mileage based on 80km per day for 6 days a week and 48 months a year, annual maintenance cost: EV USD 300, ICE USD 600.

## 1b. Project Map and Coordinates

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





Demonstration sites	Latitude	Longitude
Lomé, Togo	6.130443	1.232279

**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

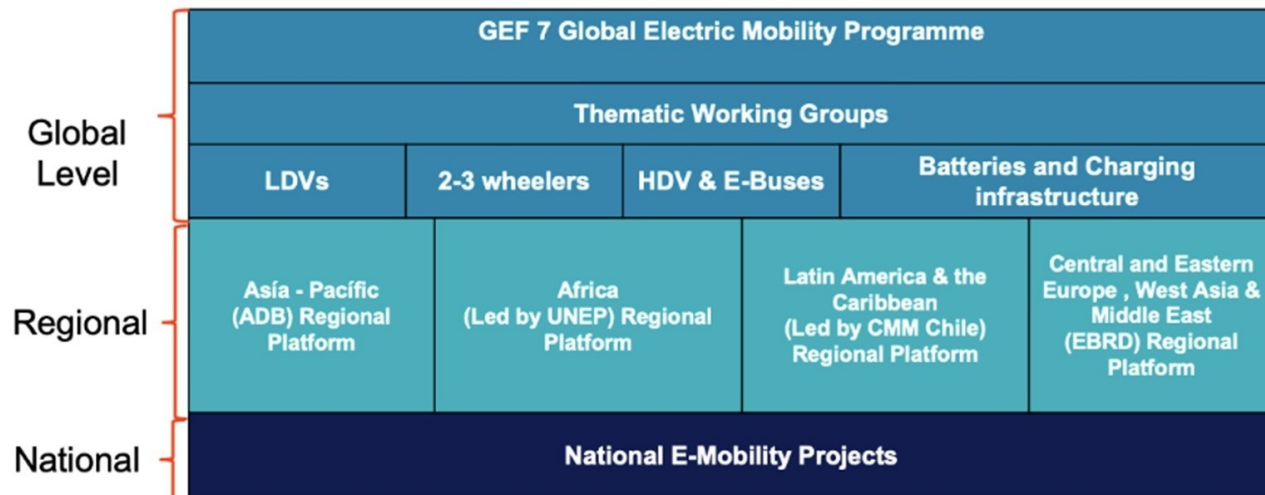
The Global Programme has put in place the monitoring framework below to track progress both globally and at the level of the country child projects. 12 indicators have been designed for this purpose: 6 relying on global level information (highlighted in blue) and 6 relying on country level information (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 energy savings (MJ)											
Indicator C: Number of direct beneficiaries											
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		
<b>Outcome 1</b> Knowledge products are generated to support policy making and investment decision-making through four global thematic working groups			<b>Outcome 2</b> Conditions are created for market expansion and investment in electric mobility through support and investment platforms			<b>Outcome 3</b> Conditions are created at country and city level for the introduction of electric mobility demonstration projects, and wider uptake of electric mobility			<b>Outcome 4</b> 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.		
<b>Indicator 1.1</b> # of knowledge products developed by the four thematic working groups and used by the Support and Investment platforms in their training and outreach activities			<b>Indicator 2.1</b> # of countries using services and knowledge products offered by the Support and Investment Platform			<b>Indicator 3.1</b> # of countries with an improved institutional framework and a strategy to promote the uptake of low-carbon electric mobility			<b>Indicator 4.1</b> # of countries generating and sharing best practices and other lessons learned on low-carbon electric mobility with the global programme		
Baseline: 0	Mid-point target: 10	End-point target: at least 25	Baseline: 0	Mid-point target: At least 25% of the GEF-approved Country Child Projects	End-point target: At least 85% of the GEF-approved Country Child Projects	Baseline: 0	Mid-point target: -	End-point target: At least 85% of the GEF-approved Country Child Projects	Baseline: 0	Mid-point target: -	End-point target: At least 85% of the GEF-approved Country Child Projects
			<b>Indicator 2.2</b> # of US\$ leveraged to scale-up low-carbon electric mobility through the support and investment platforms			<b>Indicator 3.2</b> # of countries with nationally generated evidence of the technical, financial and/or environmental benefits of low-carbon electric mobility			<b>Indicator 4.2</b> # of e-mobility knowledge products refined based on evidence coming from the country projects		
			Baseline: US\$ 0	Mid-point target: -	End-point target: US\$ 140 million	Baseline: 0	Mid-point target: -	End-point target: At least 85% of the GEF-approved Country Child Projects	Baseline: 0	Mid-point target: -	End-point target: at least 8
			<b>Indicator 2.3</b> # number of e-mobility scale-up and / or replication concepts facilitated as a result of the match-making			<b>Indicator 3.3</b> # of countries that have improved preparedness to accelerate market transformation towards low-carbon electric mobility			<b>Indicator 4.3</b> # of non-e-mobility programme countries committing to actively promote the uptake of low-carbon e-mobility		
			Baseline: 0	Mid-point target: 2	End-point target: At least 10	Baseline: 0	Mid-point target: -	End-point target: At least 85% of the GEF-approved Country Child Projects	Baseline: 0	Mid-point target: -	End-point target: 10
			<b>Indicator 2.4</b> # of financial institutions / development banks (national/regional) that have been engaged through the Global Programme and are actively supporting e-mobility projects			<b>Indicator 3.4</b> # of countries with measures in place to ensure the long-term environmental sustainability of low-carbon electric mobility					
			Baseline: 4 (ADB, EBRD, DBSA, World Bank)	Mid-point target: -	End-point target: 12 (+8)	Baseline: 0	Mid-point target: -	End-point target: At least 85% of the GEF-approved Country Child Projects			

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, the Ministry of Environment and Forestry Resources 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.



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:

- The creation of a community of practice for the GEF 7 regional countries;
- Facilitation of knowledge transfer between countries, and regions, especially those with common characteristics like SIDS;
- The creation of thematic groups in light-duty vehicles (LDVs), 2-3 wheelers, and buses at regional level;
- A marketplace between countries, technology providers and financial institutions;
- Help desk for technical assistance to GEF 7 countries;
- Personalized assistance from international experts in electric mobility;
- 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

### Please provide the Stakeholder Engagement Plan or equivalent assessment.

An overview of the key stakeholders to be involved in the project is provided in Table 5. Stakeholders are categorized into four groups: 1) Government, 2) Private sector, and 3) Finance and 4) Civil Society Organizations. Key government stakeholders include the Ministries, which will be part of the Project Steering Committee as well as a larger group of Ministries that will be part of the E-mobility coordination body. The ministries unified in the coordination body will have the political power to drive the necessary regulatory and fiscal reforms to incentivize the introduction of e-mobility and in particular electric moto-taxis in Togo.

Key private sector stakeholders include the mobility service app and taxi fleet provider GOZEM, the mobility service app and, taxi fleet operator and e-motorcycle manufacturer Taxietogo (Motorhino), and a few petrol stations operators (which are yet to be confirmed), which are potential hosts for e-motorcycle charging and/or battery swapping stations.

During the stakeholder consultation visit to Togo in November 2019, the West African Development (BOAD) expressed interest in financing e-mobility projects, especially once electric vehicles have been successfully demonstrated. BOAD also mentioned an interest in supporting work on business models and finance schemes. In addition, BOAD also expressed interest in participating in the Africa Support and Investment hub events.

To bring stakeholders together to support the project development process, the first stakeholder consultation workshop took place on 6 November 2019 in Lomé with a total of 34 participants including representatives from government, including the Ministry of Environment, Sustainable Development and Nature Protection, the Ministry of Transport and Infrastructure the Ministry of Trade, Industry, Private Sector Development and Local Consumption. The Lome Municipal Bus Operating Company (SOTRAL), Togo Utility CEET, and Drivers Union were also represented. The potential benefits of the introduction of electric mobility in Togo were well recognised by all the participants. The different stakeholders also provided inputs into the existing initiatives ongoing in the country that would allow for synergies with the introduction of e-mobility in Togo.

The stakeholder validation workshop was held virtually on 4 March 2021 with a total of 18 participants including the representatives of the Ministry of Environment and Forestry Resources, the Department of Road and Rail Transport (Ministry of Transport and Infrastructure), the Ministry of Mines and Energy. Additional bilateral consultations were also undertaken with GOZEM and Taxietogo (Motorhino), the two mototaxis fleet operators. The different participants stressed the importance of the coordination between the three key ministries (i.e. Ministry of Environment and Forestry Resources; Ministry of Transport and Infrastructure; Ministry of Mines and Energy) to enhance the ownership the project. It was also suggested that national Togolese consultants / experts should be involved in the project's implementation to ensure sustainability of the results after project completion.

Table 5 Key stakeholders and Engagement Plan

Stakeholder ma in group	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Government	MINISTERE DE L'ENVIRONNEMENT ET DES RESSOURCES FORESTIERES - Ministère de l'Environnement et des Ressources Forestières - Ministry of Environment and Forestry Resources	Implemented the Togo Cleaner Fuels and Vehicles project under the Global Fuel Economy Initiative, Executing Agency of a number of climate change related international donor projects, member of the Inter-ministerial Steering Committee of the World Bank Infrastructure and Urban Development Project	Executing Agency, Member of project steering committee, Member of e-mobility coordination body, co-finance partner.  Components 1-4, all outputs. Hosts PMU, receives project funding
Government	MINISTERE DES INFRASTRUCTURES ET DES TRANSPORTS - Ministry of Transport and Infrastructure	Member of the Inter-ministerial Steering Committee of the World Bank Infrastructure and Urban Development Project,  WB TA co-finance to policy development	Member of project steering committee, member of e-mobility coordination body, co-finance partner.  Components 1-3



		Department of Road and Rail Transport (Direction Des Transports Routiers Et Ferroviaires)	Outputs: 1.1; 1.2; 1.3; 2.1; 2.2; 3.1; 3.2
Government	Department of Road and Rail Transport (Direction Des Transports Routiers Et Ferroviaires)	Under the Ministry of Infrastructure and Transport.  Responsible for testing and licensing all vehicles and drivers, and for traffic management  Manages vehicle registration and licensing database	To provide technical inputs, data, and information on the current policy framework, especially with regards to vehicle registration and testing
Government	MINISTERE DES MINES ET DE L'ENERGIE - Ministry of Mines and Energy	Chairs the PSC of the World Bank Energy Sector Support and Investment Project  WB TA co-finance to policy development	Member of project steering committee, Member of e-mobility coordination body, co-finance partner.  Components 1-4  Outputs: 1.1; 1.2; 1.3; 2.1; 2.2; 3.2; 4.2
Government	MINISTERE DU COMMERCE, DE L'INDUSTRIE, DU DEVELOPPEMENT DU SECTEUR PRIVE ET DE LA PROMOTION DE LA CONSOMMATION LOCALE - Ministry of Trade, Industry, Private Sector Development and Local Consumption	Responsible for job creation and consumption	Member of e-mobility coordination body  Components 1 and 3  Outputs: 1.1; 1.2; 1.3; 3.2
Government	MINISTERE DE L'ECONOMIE DES FINANCES - Ministry of Economy and Finance	Member of the Inter-ministerial Steering Committee of the World Bank Infrastructure and Urban Development Project	Member of the PSC, member of e-mobility coordination body  Components 1 and 3  Outputs: 1.1; 1.2; 1.3; 3.1
Government	MINISTRE DE L'URBANISME, DE L'HABITAT ET DU CADRE DE VIE - Ministry of Urban Development and Housing	Implementing Agency for the World Bank Infrastructure and Urban Development Project  WB TA co-finance to policy development	Member of e-mobility coordination body  Components 1 and 3  Outputs: 1.1; 1.2; 1.3; 3.1
Government	Ministry of Social Action, Women Promotion and Lit	Ministry in charge of gender mainstreaming and women empowerment	Support the CTA in the preparation of the Gender Representation

	women Promotion and Literacy	ing and women empowerment.	ng the Gender representation Guidelines document and in implementing the Gender Action Plan  Components 1 2 and 3 Outputs: 1.1; 1.2; 1.3; 2.2; 3.2
Academia	African School of Architecture and Urbanism (EAMAU)	With the support of CODATU (Cooperation for urban mobility in the developing world, French association with international vocation), EAMAU is offering the Master Studies "Sustainable Transport and Mobility in African Cities"	Support on data collection and analysis  Component 2, Outputs 2.1, 2.2 Component 4, Output 4.1
Private Sector	GOZEM	Currently has a basis of 4,000 drivers in Togo and Benin, and 600,000 subscribed clients <sup>[1]</sup> mototaxis. Provides app platform for moto-taxi ride hailing. Interested in operating charging / swapping stations. Has a cooperation with the local bank Coris for preferential moto taxi finance	Private sector stakeholder for e-moto-taxi demonstration project  Components 1 - 4 Outputs: 1.1; 1.2; 1.3; 2.1, 2.2, 3.1, 3.2, 4.2
Private Sector	Motorhino / Taxietogo	Taxietogo currently has a basis of 20 drivers in Togo. Provides app platform for moto-taxi ride hailing. Operates 5 electric motorcycles assembled by the mother company Motorhino. Interested in operating charging / swapping stations	Private sector stakeholder for e-moto-taxi demonstration project  Components 1 - 4 Outputs: 1.1; 1.2; 1.3; 2.1, 2.2, 3.1, 3.2, 4.2
Private Sector	Total	Expressed interest in hosting EV charging stations	Possible private sector stakeholder for the e-moto-taxi demonstration project,  Component 2 Output 2.1 and 2.2
Private Sector	CAP	Expressed interest in hosting EV charging stations	Possible private sector stakeholder for the e-moto-taxi demonstration project,  Component 2 Output 2.1 and 2.2
Finance	BANQUE OUEST- AFRICAINE DE DEVELOPPEMENT - West African Development	Multilateral development bank with headquarters in Lomé	Possible finance partner to support the development of the financial mechanism for the intr

	International Development Bank		Production of e-moto-taxis in Togo  Component 3 Output 3.2
Private Sector	COMPAGNIE ELECTRIQUE ENERGETIQUE DU TOGO (CEET) - Togo Utility	Hosts the PIU of the World Bank Energy Sector Support and Investment Project	Knowledge partner for power sector regulation  Component 2-4 Output 2.1, 2.2, 3.1, 4.2
Civil society	UNION DES SYNDICATS DES CONDUCTEURS DU TOGO - Drivers Union Togo		Knowledge partner for e-moto-taxi operation  Component 1-3 Output 1.3, 2.1, 2.2, 3.2
Finance	African Development Bank AfDB	Financier for the Project CIZO	Potential synergies to explore with renewable mini and micro grid solutions and e-mobility financing  Component 3-4 Output 3.2, 4.2
Finance	Agence Francaise de Development (AFD)	Financier of a solar lighting project in Togo	Potential synergies to explore with renewable power street lighting project  Component 3-4 Output 3.2, 4.2
Finance	Coris Bank International Togo	Financing partner of GOZEM for moto-taxi loans	Potential local financing partner  Component 3 Output 3.2
GEF Agency	UNEP Climate Mitigation Unit	Implementing Agency of the Togo project and Lead Implementing Agency of the Global E-mobility Programme.	Overall project oversight Financial and substantive reporting Disbursement of funds
International Organization	UNEP Sustainable Mobility Programme	Lead Executing Agency of the Global E-mobility Programme	Co-financing partner implementing the project

Organization	Unit (SMU)	mobility project. Technical support unit involved in more than 40 e-mobility projects in low and middle income countries	Channeling funds from the EC SOLUTIONSplus project to provide seed funding to local innovators, UNEP SMU is providing targeted technical support to Components 1, 2, 3 & 4
NGO	Sustainable Transport Africa	Supported the implementation of e-mobility and clean vehicles and fuels project in Africa	STA is supporting the competitive process to identify the private sector partners for the demo project(s) and supports the procurement of demo vehicles.
Government	Economic Community of West African States (ECOWAS)	Supranational body with the mandate to develop directives, e.g. on environmental regulation in West Africa. ECOWAS with the support of UNEP SMU has recently approved regulation which obliges the sales of fuel with no more than 50 ppm sulphur in ECOWAS countries from 2022 onwards.	ECOWAS is potentially providing support to component 4
Government	SOTRAL	Public Bus operator in Lomé	SOTRAL will be involved in the discussion with regards to e-mobility strategy, component 1.

[1] <https://www.jeuneafrique.com/mag/1094330/economie/vtc-qui-simposera-comme-le-uber-togolais/>

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.

Various means for project stakeholder inclusion exist. Relevant government stakeholders / ministries will be engaged through the PSC and the national e-mobility coordination body meetings. Furthermore, government partners will participate in the training events of the Global Programme.

The project envisages the establishment of 3 thematic working groups, which will be supervised by the project steering committee. These three thematic working groups (TWGs) are:

1. TWG on e-mobility technology – private sector partners for demo implementation, including vehicle and charging operators, the local university, representatives from operational level of the Ministry of Transport and Infrastructure and the Ministry of Mines and Energy will be members;
2. TWG on e-mobility business models and finance – private sector partners, international and local financial institutions (e.g. BOAD, Coris Bank, AfDB) will be part of the TWG to support the development and improvement of business models, the development of an initial concept for a financial mechanism and to select business models presented in Output 3.2 for finance concept development;
3. TWG on e-mobility policy – the ministries which are part of the e-mobility coordination body will (Ministry of Environment and Forestry, Ministry of Infrastructure and Transport, Ministry of Mines and Energy, Ministry of Economy and Finance, under the leadership of the Ministry of Environment and Forestry Resources work on the policy proposals to reform the regulatory and fiscal scheme for importation and registration of electric vehicles in order to incentivize the uptake of e-mobility whilst not compromising the overall tax revenue of the Republic of Togo.

The main objective of the TWGs is to coordinate the processes of providing input (data, background information, legislative texts etc.) to the various activities (such as the development of the strategy, the feasibility study and implementation plan for the demo projects, the technical summary reports, the policy proposals, including transport, energy and fiscal, as well as the environmental sustainability studies on batteries and renewable power integration), and to organize the respective review processes. The TWGs will meet at least 3 times per year, virtually or in person. Organization of the TWGs lies with the PMU.

**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 assessment.

#### Gender analysis:

Togo is one of the countries with a very young population, the average age is around 19.4 years. Large differences between women and men with respect to access to education and employment can be observed in Togo. According to UNFPA, literacy is very different between women and men of different age groups. While about 90% of males aged 15 to 24 can read, this holds true for only 77% of young women. While most women and men went to primary school, differences in education are significant for secondary and tertiary education. More than 50% of men visited a secondary school, this is true for only 28% of women. When it comes to tertiary education, women are much less represented, accounting for only 40% of the percentage share of male persons benefitting from tertiary education. This imbalance is then reflected in rates of unemployment among women. Rates are on average at least 20% higher than for men. In addition, the share of vulnerably employed persons (People who are 'own-account' and 'contributing family' workers are classified as vulnerably employed by the ILO). Total fertility is still very high. In 2017, each woman in Togo gave birth to about 4.3 children.

The Gender Development Index is 0.822, which places Togo in group 5; group 5 comprises countries with low equality in Human Development Index achievements between women and men (absolute deviation from gender parity of more than 10 percent). The Gender Inequality Index is 0.573, which ranks Togo 145th of 162 countries (for 27 of the 189 countries the Gender Inequality Index has not been determined). In the Global Gender Gap Report 2020, the Global Gender Gap Index is 0.615, which ranks Togo 140th of 153 countries for which the Global Gender Gap Index has been determined.<sup>[1]</sup> Based on this, the project has taken into consideration the low ranking of Togo in terms of gender equality, when setting its gender mainstreaming targets in the Gender Action Plan and in the Direct Beneficiary Core Indicator, to avoid creating unrealistic and overambitious expectations.

Since moto-taxis are among the cheapest option to travel in Togo, women are using moto-taxis very frequently. It is believed that more than 50% of the passengers using moto-taxis in Togo are women. In their 2012 publication "Motorbike taxis in the "transport crisis" of West and Central African cities"<sup>[2]</sup>, Diaz et al classify the users of 2&3 wheelers in West Africa in the following categories: 1.) exclusive users (70% of users) belong to households that own a motorized two-wheeler which is available to them permanently; 2.) related users (10%) also belong to the households that own a motorized two-wheeler, but either it is not available to them at all or it is available only occasionally, and 3.) deprived users (20 %) belong to households without a motorized two-wheeler and their only access to one is via their personal or occupational contacts. They conclude that "Related users and deprived users constitute a population which includes more women, which has a lower level of education and includes fewer employed persons than the exclusive users. Their access to a motorized two-wheeler is limited, but it nevertheless allows them to travel more than residents with no access to one at all, e.g. 70% more than public transport users. They are more frequent passengers on two-wheelers, even though they drive for 40% (in the case of related users) and 30 % (in the case of deprived users) of their trips. For them, the motorized two-wheeler is a mode they use when the opportunity presents itself, particularly for social trips."

Research shows that women are in general more vulnerable to bad air quality than men. Therefore, shifting the large fleet of cheap and polluting conventional motorcycles to clean and efficient electric motorcycles is a means to improve the health situation of women in Togo. This is especially true for women selling goods on the road-side, who are nowadays very much affected by exhaust fumes of smoking and oil-burning moto-taxis.

Improving the quality of the service of moto-taxis, for example through the use of an app, which also provides the ability to rate the trip, can improve the safety of women. In addition, since the price of the trip is not a matter of negotiations, additional sources of inequalities can be prevented. Needs of women will be taken into account when it comes to the design of technical specifications for the electric motorcycles to upscale the market. This can include for example handle-bars which provide the option to hold on to the motorcycle without touching the driver.

Improving access to finance for women can also be addressed as part of the project activities. Since the project aims at developing a financial mechanism for the purchase of electric motorcycles for use as moto-taxi, a component might address the use of e-motorcycles in businesses of women for women. This could be particularly interesting for the rural areas of Togo where electric motorcycles could be used for the transport of agricultural and other goods to and from markets. It can be part of the design of such a financial mechanism to set aside a portion of the funds for women's cooperatives in the rural parts of Togo.

Last but not least, the work on the "National strategy for electric mobility and integrated public transportation in Togo" will collect and analyse gender-specific indicators on the use of public transportation in Togo, with a focus on the capital Lomé. This shall include gendered estimates on vehicle ridership for various modes such as moto-taxis, taxis, public buses, and private vehicles. The gendered data will help to design a strategy for electric mobility and integrated public transportation in Togo, which caters to the needs of women.

#### Gender Action Plan:

The Chief Technical Advisor (CTA) will be responsible for implementing and monitoring the Gender Action Plan. The concrete activities and means of verification to achieve the above, as well as responsible parties of the Gender Action Plan, are summarized in the following table:

Project Components / Outputs	Objectives	Activities	Target <sup>[3]</sup> / Means of Verification	Responsibility
Overall Project Management	Promote women representation in participatory and decision-making processes and empowerment of women	Prepare a 2-pager guideline on gender representation document for all participatory and decision-making bodies and capacity building measures of the project. The guidelines provide measures to ensure a balanced representation of women in these bodies. The guidelines are prepared in collaboration with the Ministry of Social Action, Women Promotion and Literacy and are disseminated to the members organizations of the project steering committee / inter-sectorial e-mobility coordination body.	Gender Representation Guidelines document drafted and issued by the end of Month 3	CTA with support from the Ministry of Social Action, Women Promotion and Literacy
	Monitor women's participation in project meetings, trainings, and workshops	Develop an attendance sheet template to collect gender-disaggregated participants data, to be used in all project meetings events.	Attendance sheet template prepared and made ready for use by the end of Month 2	CTA
	Mainstream gender into progress reporting	Report on the project's gender mainstreaming activities in each progress and Project Implementation (PIR) report.	2 reports per year (1 progress report and 1 PIR)	PMU
Component 1 Output 1.1	Ensure women's representation in project bodies	Based on the Gender Representation Guidelines, encourage member entities of the national coordination body to appoint women as their representatives.	The national coordination body has appointed at least 1 female member (gender-disaggregated attendance sheets)	PMU
Component 1 Output 1.2	Ensure that the national strategy for electric mobility mainstreams gender aspects	The national strategy to promote low-carbon e-mobility in Togo will include a gender analysis and action plan to mainstream gender perspectives from the onset of the development process. Gender-related action items will be included in the draft national e-mobility strategy.	1 <sup>st</sup> draft of gender-sensitive national strategy (deliverable 1.2.4) prepared by Month 16.  Final gender-sensitive national strategy (deliverable 1.2.5) prepared by Month 24.	PMU together with the International Policy, Business and Strategy expert
Component 1 Output 1.3	Encourage female participation in regional / international events	Based on the Gender Representation Guidelines, participation of women in regional/international events, meetings and trainings will be promoted actively	In total, at least 15 of the participants attending the different project consultation meetings / workshops	PMU / CTA

		vely. The agencies or institutions that will be invited to participate will be encouraged to nominate women to participate in the events.	ops / events organized as part of the project are women.  (gender disaggregated at tendance sheets)	
<b>Component 2 Output 2.2</b>	Assess the ratio of women using the demonstration assets (e-moto-taxis)	As part of the monitoring and data collection under Output 2.2, the project will also monitor the use of the demonstration e-moto-taxis by gender.	The final report on the demonstration results (deliverable 2.2.4) includes the statistics on the use of the e-moto-taxis, disaggregated by gender – by Month 27.	PMU together with the International / National E-Mobility Technology experts and the Local university
<b>Component 3 Output 3.2</b>	Encourage female participation in the business roundtables	Based on the Gender Representation Guidelines, participation of women in the 4 business roundtables will be promoted actively. The agencies or institutions that will be invited to participate will be encouraged to nominate women to participate in the events.	At least 10% of participants attending the roundtables are women.  (gender disaggregated at tendance sheets)	PMU / CTA
<b>All Components</b>	Promote women participation in project consultation meetings / workshops.	The participation of women will be encouraged in all project consultation meetings and workshops outlined in the Workplan (refer Annex L for more details)	In total, at least 15 of the participants attending the different project consultation meetings / workshops / events organized as part of the project are women.  (gender disaggregated at tendance sheets)	PMU / CTA

[1] Human Development Report 2020

[2] Motorbike taxis in the "transport crisis" of West and Central African cities, EchoGéo, 2012, <http://journals.openedition.org/echogeo/13080>

[3] As explained in the Gender analysis above, the project has taken into consideration the very low ranking of Togo in terms of gender equality when setting its gender mainstreaming targets in the Gender Action Plan, to avoid creating unrealistic and overambitious expectations

**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;**

**Improving women's participation and decision making** Yes

**Generating socio-economic benefits or services or women**

**Will the project's results framework or logical framework include gender-sensitive indicators?**

Yes





#### 4. Private sector engagement

##### Elaborate on private sector engagement in the project, if any

Private sector involvement plays a crucial role in the Togo e-mobility project. First and foremost, private sector will implement the demonstration fleet of up to 25 electric motorcycles. Similarly, private sector will demonstrate the charging operations. Private sector will be addressed during the e-mobility roundtable (Component 3) seeking to developed financing concepts for the most promising business models (including assembly and manufacturing)

Last but not least, the project also aims at developing a strategy to link renewable power generation with e-mobility (Component 4). This can be particularly interesting in combination with the project CIZO, which aims at increasing the rate of electrification through the deployment of solar micro and mini-grid solutions, which will be developed and operated by private sector. The use of electric motorcycles might open a new dimension to these projects and might add a new stream of revenues linked to the use of solar power and battery storage.

More specifically, a number of private sector partners have already been identified to play a role in the Togo E-Mobility Project:

- GOZEM, mobility service provider
- Motorhino / Taxietogo, e-motorcycle manufacturer and mobility service provider
- Total, fuel retailer, potentially hosting e-mototaxi charging / battery swapping stations
- Cap, fuel retailer, potentially hosting e-mototaxi charging / battery swapping stations
- Coris Bank International Togo, local commercial bank

In addition to this, a number of private sector partners involved in the Global Programme and / or the EC SOLUTIONSplus project could be interested in supporting activities in Togo:

- Opibus, EV manufacturing, assembling, retrofitting enterprise
- TAILG, e-motorcycle manufacturer
- FIER e-mobility research and business developing company

## 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):

Risk description	Main categories	Risk level rating	Risk Mitigation Strategy and Safeguards	By Whom / When?
The growing demand from electric vehicles destabilizes the power supply	Technical / Economic	Moderate	Introduction of e-mobility in Togo starts with electric motorcycles, which have a moderate power consumption and scale-up of e-motorcycle market strategy will align with expansion of renewable power generation capacity outlined in the Togo 2030 Electrification Strategy	Ministry of Mines and Energy, Compagnie Electrique Energetique du Togo (CEET) - Togo Utility Years 1-4
Leadership change: change in leadership and priorities in the government	Political / Institutional	Low	Togo has re-elected the President in February 2020, who will be in power for a term of 5 years and a new government has been appointed in October 2020.	Electric mobility coordination body, Government of Togo Years 1-4
Conflicting interests making it impossible to find consensus or required compromises that render the strategy and action plan too vague.	Political / Institutional	Moderate	The inter-sectorial electric mobility coordination body brings together all relevant ministries on a regular basis to discuss the e-mobility project and align interests. The project is lead by Ministry of Environment and Forestry Resources with support from Ministry of Mines and Energy and Ministry of Infrastructure and Transport which are all aligned with their wish to introduce and scale up e-mobility in Togo.	Electric mobility coordination body, Government of Togo Years 1-4
Private sector partners do not have the capacity to implement the demonstration project	Capacity	Low	The identified private sector partners are present in multiple countries in West Africa and Europe and have shown capacity to manage motorcycle fleets and e-motorcycle manufacturing.	Private sector partners, UNEP SMU and the Africa Support and Investment Platform of the Global E-Mobility Programme Years 1 to 3
Lack of availability of spare parts for e-motorcycles	Technical	Low	It is the aim of the project to increase the offer for electric motorcycles in Togo, including the provision of spares and the ability to maintain these vehicles. The project in Togo will build on the experience gained in similar projects in Kenya, Uganda and Rwanda, where considerable potential for e-motorcycle and e-3wheeler import, assembly, manufacturing and operation is already existing.	Private sector fleet operators, e-motorcycle manufacturers, UNEP SMU and the Africa Support and Investment Platform Years 3 to 4

Higher upfront cost of electric vehicles may pose a barrier to implementation and scale up of activities	Economic	Moderate	The project aims at the development of a financial scheme to lower the burden of higher upfront costs and to make the lower total cost of ownership accessible to e-motorcycle operators.	Private sector stakeholders, UNEP SMU and the Africa Support and Investment Platform Years 2 to 4
Objection or low commitment from industry and lack of interest or participation from market players/private sector.	Political / Economic	Moderate	The Global Programme works together with motorcycle manufacturers to create an understanding of the market size and requirements of electric motorcycles in Africa.	UNEP SMU and the Africa Support and Investment, private sector stakeholders, years 1 to 4
Insufficient and incomparable systems for tracking results	Capacity / Technical	Low	The project is part of a Global Programme which has tracking systems in place and which provides technical support to build the necessary capacity in the country.	CTA, UNEPP SMU and the Africa Support and Investment Platform, years 1-4
Time lag of results: Major results of the project may not be seen before the end of the project period.	Political	Substantial	The by far highest share of the GHG and energy use reductions will materialize after the project time-frame based on the policies, business models and financial mechanisms developed/introduced.	Electric mobility coordination body, year 4 and post-project
Lack of linkages with available funding/financing for EVs fleets.	Financial	Low	Multilateral financing institutions and development banks are closely involved through the Global Programme or stated already interest in engaging with-mobility in Togo, such as e.g. the West African Development Bank (BOAD).	Electric mobility coordination body in consultation with the financial sector, Africa Support and Investment Platform, years 2 to 4
Inadequacy of the exit strategy and lack of ownership of the program after the end of the GEF funded activities and inability to source resources to continue the program's activities in the medium/long term	Political / Financial	Low	The project addresses upscaling and replication through introduction of business roundtable events which are envisaged to lead to the development of an initial proposal for a financing scheme which will be brought to the attention of financier of through the Africa Support and Investment Platform led by UNEP SMU. The project furthermore envisages the submission of two concepts for e-mobility upscaling to financial institutions.	Electric mobility coordination body, Government of Togo, financial institutions, Africa Support and Investment, years 3-4.
Higher electricity use might lead to higher emissions, e.g. from HFO powerplants	Environmental	Low	The carbon footprint of the power mix in Togo is already very low and investment pipelines exist to expand the integration of additional renewable power generation capacity	Ministry of Mines and Energy, Compagnie Electrique Energetique du Togo (CEET) - Togo Utility, years 1-4

Materials from EVs (e.g. from batteries) might generate environmental pollution	Environmental	Substantial	Recycling and tracking of these materials will be integrated into the scheme to be developed as part of Output 4.2.	Ministry of Environment and Forestry Resources, UNEP SMU with ECOWAS, years 3-4
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### Climate Risk Screening

(i) How will the project's objectives or outputs be affected by climate risks over the period 2020 to 2050, and have the impact of these risks been addressed adequately?

Togo is located in West Africa on the Atlantic coast of the Gulf of Guinea. Togo's climate varies from tropical to savanna. Average rainfall varies between 800 and 1,400 mm, with an average temperature of 27°C to 28°C. Southern Togo is humid and the northern part of the country has higher temperature fluctuations. Analysis of climate change for Togo foresees accelerated coastal erosion (50km of coastline subject to erosion), deforestation, increased storms, and lower average annual rainfall. The average temperature is expected to increase by 0.5 to 1.0 degree Celsius over the next 30 years with increased incidences of extreme weather events including droughts and flash floods. Regional and seasonal precipitation patterns are expected to change rapidly. Climate risk assessment for Togo in the context of the electric mobility project is as follows:

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#### 1. Hazards

According to UNFCCC (2015), from 1961 to 2012 a marked rise in temperatures was observed, as well as a drop in precipitation and the number of rainy days. In the past two decades, strong floods have affected nearly one-third of the population in Togo. Between 1925 and 1992, Togo endured 60 flood events that caused major damage to infrastructure, as well as significant loss of life, according to the World Bank. The following flooding events have accelerated erosion and deteriorated the health of the arable land resources. At the same time, droughts are happening more frequently.

#### 2. Vulnerability and exposure

Based on the above analysis, and according to the World Bank<sup>[1]</sup>, Togo's key vulnerabilities to climate change are directly related to the changes in temperature and precipitation:

- "Between 1925 and 1992, Togo endured 60 flood events that caused major damage to infrastructure, as well as significant loss of life. The successive flooding has leached essential nutrients from topsoils, accelerated erosion, and degraded the quality of the arable land.
- Drought events occur most frequently in the Kara and Savannah regions, where each year temperatures reach above 40°C. Over the past 60 years, Togo has experienced three major droughts (between 1942-1943, 1976-1977, and 1982-1983) leading to severe famines."<sup>[2]</sup>

In the context of the project, the primary risks stem from changes in precipitation, leading to extremely high rainfall and droughts. Both have a moderate to low potential to affect the project's outcomes and outputs. Heavy rainfalls can lead to flooding and landslides, damaging electric vehicle charging infrastructure, power grid infrastructure, and general road infrastructure. Due to more frequent flooding events an increasing number of power supply outages can be anticipated which can affect the economic viability of charging infrastructure. Increased temperatures pose a risk of damaging the equipment and can affect vehicle performance.

#### 3. Measures to manage the risk:

The main climate change risks in Togo are<sup>[3]</sup> (1) flooding risks for charging infrastructure due to increased frequency and intensity of heavy rainfall events, (2) impacts of violent winds on charging infrastructure and demonstration vehicles, and (3) impacts of rising temperature and heat waves on charging infrastructure and vehicles and battery performance.

It is envisaged that flood, storm, and heat risks will not have major impacts on the project's activities as long as mitigation measures are in place for siting of charging infrastructure and selection of appropriate technologies (vehicles, batteries, and charging equipment). Mitigation measures will be incorporated in the project design when (a) selecting the location for charging stations, and (b) selecting the charging equipment, based on the climate risks identified above. Furthermore, pilot drivers and operators will be trained as part of the driving safety protocol on safe usage of electric vehicles and charging equipment.

*(ii) Has the sensitivity to climate change, and its impacts, been assessed?*

The flooding and wind risks will be taken into consideration to prevent potential damages when choosing the location for the pilot infrastructure from flooding and extreme winds. Addressing the heat risks should be addressed by selecting adequate heat-resistant technologies.

*(iii) Have resilience practices and measures to address projected climate risks and impacts been considered? How will these be dealt with?*

The overall goal of the project is on building climate resilience by reducing the country's dependence on fossil fuel imports through the uptake of electric vehicles. Thus, the project is directly contributing to the overall climate resilience of Togo.

*(iv) What technical and institutional capacity, and information, will be needed to address climate risks and resilience enhancement measures?*

Technical capacity to address climate risk needs to include the knowledge to assess flooding history of certain locations where charging infrastructure is planned to be installed. The technical design of the solar panel and vehicle charging installations will need to be in accordance with the latest building codes, to ensure resilience to extreme weather events (primarily extreme wind speeds, see discussion above). Regulations for charging stations will also need to be in accordance with such codes.

Institutional capacity should be able to receive detailed information about the reliability of power supply for selected EV charger locations. Operators of and institutions operating the vehicle charging installations will need the capacity to understand how to operate the systems during and after extreme weather events, especially in the event of power disruptions.

### **Covid-19 risk analysis**

The COVID-19 pandemic has the potential to affect the project in the following ways:

#### **Challenges and risks**

*Reduced motor-taxi operations.* The responses to COVID-19, ranging from social distancing, teleworking to lockdowns have significant demand and supply implications for transport services in Togo. Firstly, users will have to change their mobility needs to reduce their footprints or to save money due to reduced income. Secondly, moto-taxi drivers and operators could suffer reduced profits, and hence adopting new technologies such as electric vehicles might not be their priority. This would have a negative impact on the delivery of the project's outputs, potentially hampering the wider adoption of electric moto-taxis in Lomé.

*Lockdowns and movement restrictions.* Mobility restrictions and the need for social distancing would make it difficult to hold physical events that have traditionally benefited from physical meetings, such as workshops, meetings, training, and consultations.

*Changes in government priorities.* With the national focus on addressing the pandemic and its impact on the national economy, commitment to electric mobility might be impacted. Financial incentives such as favourable import taxes or exemptions for EVs and charging equipment might not gain enough political support.

### Mitigation measures

*Reduced taxi and minibus operations:* If the pandemic continues to hamper the implementation of the project activities with lockdowns and travel restrictions, especially Component 2 which is planned to take place in 2021 and 2022, the PMU will re-evaluate the project work plan to reschedule field activities. Additional health and safety protocols for the drivers will need to be put in place to minimize the risks of spread. Where possible, the capacity development components of the project, also in collaboration with the Ministry of Transport and Infrastructure, could be used to support the development of pandemic response protocols/roadmaps for transport operators.

*Lockdowns and movement restrictions:* In the event of travel and mobility restrictions due to official social distancing measures, events will be rescheduled or held online.

*Changes in government priorities:* Project activities requiring the government's endorsement of laws and decrees are to take place primarily for the project's second and third year. If the pandemic continues to require the attention of decision-makers, such project activities will be rescheduled for the project's third year.

### Opportunities

*Increased awareness about urban air quality:* Since the project makes direct contributions to improving urban air quality through a reduction of air pollutants from internal combustion engine cars on urban roads, the project can build on this growing global movement towards cleaner urban air. It should be ensured that this leads to not only better awareness among the public and decision-makers but also to concrete actions.

*Budget savings from virtual meetings:* It is envisaged that many of the project's events would have to be held virtually. Budget savings made from the unused traveling and venue costs could be reallocated to more substantive activities, which would be decided depending on project needs.

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[1] <https://climateknowledgeportal.worldbank.org/country/togo/vulnerability>.

[2] Ibid Ibid

[3] Climate Change Risk Profile: West Africa (USAID, 2018)

## 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 arrangements:

This project is funded by the GEF and co-financed by: Ministry of Environment and Forestry Resources; Ministry of Infrastructure and Transport; Ministry of Mines and Energy and UNEP. UNEP, through its Climate Mitigation Unit, will be acting as the GEF Implementing Agency. The Ministry of Environment and Forestry Resources will be the Executing Agency.

In addition, the project will be executed with the support of Ministry of Mines and Energy and Ministry of Infrastructure and Transport, which roles and responsibilities are detailed in a dedicated Table in Annex K.

The main project bodies are the following:

A **Project Steering Committee (PSC)** will be established to provide overall guidance and oversee the progress and performance of the project as well as to enhance and optimize the coordination and contribution with various project partners. The PSC will be chaired by the National Project Director (NPD) and will convene 3 or 4 times per year. The Steering Committee will initially include: Ministry of Environment, and Forestry Resources; Ministry of Infrastructure and Transport; Ministry of Mines and Energy, UNEP, Ministry of Economy and Finance, Ministry of Urban Development and Housing and the Ministry of Trade, Industry, Private Sector Development and Local Consumption. Additional stakeholders will be invited as required and including SOTRAL, CEET, the Municipality of Lomé, representative of the mototaxi driver's union, among other yet to be identified. The national e-mobility coordination body, which will remain operational beyond the implementation time of the project, will be established on the basis of the PSC in Year 3 of the project implementation period.

A **Project Management Unit (PMU)** will be established within the Ministry of Environment and Forestry Resources to manage day-to-day operation of the project. The PMU will be headed by the National Project Director (NPD) and will include the Chief Technical Advisor (CTA). The Ministry of Mines and Energy and the Ministry of Infrastructure and Transport will support the Ministry of Environment and Forestry Resources with the execution of the project.

The Ministry of Environment and Forestry Resources as well as the Togo GEF OFF have requested for the UNEP Sustainable Mobility Unit (SMU) (which is also the Lead Executing Agency of the Global E-mobility child project) to provide **targeted technical support**<sup>[1]</sup> to the project across all 4 components (see GEF Operational Focal Point letter in Annex N-2). Particularly, the UNEP SMU will use the services of Sustainable Transport Africa (STA) to transfer the funds associated with work on output 2.1 and 2.2. STA will support the implementation of the demonstration project, and will carry out tasks such as organizing the call for proposals to identify private sector partners for the demonstration project and disbursing the e-motorcycle subsidy. STA will work closely with the UNEP SMU and the Ministry of Environment and Forestry Resources on all procurement aspects related to component 2. A detailed budget for the UNEP SMU and STA targeted technical support is provided in Annex K.

Ad-hoc **Technical Working Groups (TWG)** will be formed to facilitate the implementation of the project components. The TWG will meet regularly during project implementation to work inter alia on the following topics:

1. TWG on e-mobility technology – private sector partners for demo implementation, including vehicle and charging operators, the local university, representatives from operational level of the Ministry of Transport and Infrastructure and the Ministry of Mines and Energy will be members;
2. TWG on e-mobility business models and finance – private sector partners, international and local financial institutions (e.g. BOAD, Coris Bank, AfDB) will be part of the TWG to support the development and improvement of business models, the development of an initial concept for a financial mechanism and to select business models presented in Output 3.2 for finance concept development;
3. TWG on e-mobility policy – the ministries which are part of the e-mobility coordination body will (Ministry of Environment and Forestry Resources, Ministry of Infrastructure and Transport, Ministry of Mines and Energy, Ministry of Economy and Finance, under the leadership of the Ministry of Environment and Forestry Resources work on the policy proposals to reform the regulatory and fiscal scheme for importation and registration of electric vehicles in order to incentivize the uptake of e-mobility whilst not compromising the overall tax revenue of the Republic of Togo.

Below is an organigram of the project's implementation arrangements:



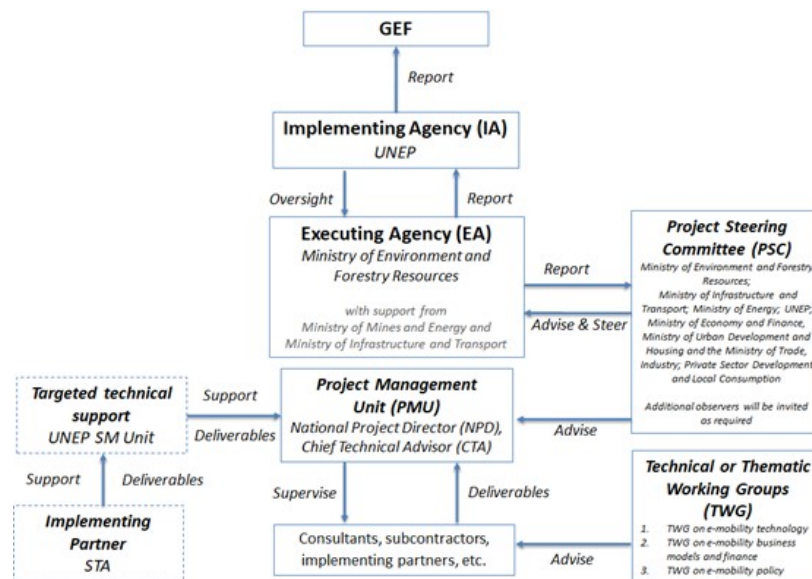


Figure 8 Project implementation structure

#### Coordination with other initiatives:

The project will coordinate with:

1. The World Bank Infrastructure and Urban Development Project<sup>[2]</sup>
2. The World Bank Togo - Trade and Logistic Services Competitiveness Project<sup>[3]</sup>
3. The Project CIZO to increase the access to clean power in Togo;
4. The Cleaner Vehicles and Fuels in Togo project under the Global Fuel Economy Initiative (GFEI);
5. The AFD funded Solar Road Lightning Project.
6. CODATU activities

As outlined in the co-finance letter provided by Ministry of Infrastructure and Transport, the GEF project foresees close collaboration with the two World Bank projects, both in terms of capacity building and technical assistance for policy development (component 1, output 1.3 and component 3, output 3.1).

Collaboration with project CIZO would cover several areas, including coordination, technology, business models and finance. The GEF project will reach out to private sector stakeholders once project starts implementation to inform them about the objectives of the project and to seek for collaboration, especially for output 4.2, but also to participate in the discussion organized by the e-mobility business roundtables (output 3.2).

The data collected and analysed as part of the GFEI project will mark the starting point for further analysis, which is part of the e-mobility strategy development under output 1.2.

CODATU is active in Togo and has been supporting the Master Programme "Transport and Sustainable Mobility in African cities" in partnership with EAMAU (African Crafts School of Architecture and Urbanism) and CNAM for several years now. This university programme would be well positioned to support with local data collection (component 2, output 2.1 and 2.2) and analysis and could also help with linking to other local transport professionals and experts.

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[1] The UNEP SMU does not intend to hire a consultant to provide the targeted technical support requested by Togo, but rather it will draw upon time and travel of its team members, which have broad bandwidth of competencies and expertise on various aspects of e-mobility, from national strategy development, policy development, feasibility assessment, demonstrations, renewable energy integration, to battery life cycle management, etc. Indeed, no single consultant has the expertise to cover all these areas of work alone. In addition, the SMU team members that will be supporting this project will work together with the Ministry of Environment and Forestry Resources (the Executing Agency) to help build their capacity, in particular with regards to the procurement of EV and spare parts.

[2] Togo Infrastructure and Urban Development Project, Report No PAD2414, World Bank 2018

[3] Road Transport Sector Reform in Togo - The Competitiveness of Logistics Services Programme Financed by the World Bank, Report No: PAD1828, World Bank 2017

## 7. Consistency with National Priorities

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

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

Nationally Determined Contributions (NDC):

Unconditional Mitigation Contribution:

Under the business-as-usual (BAU) scenario (accounting for the implementation of already programmed measures), the overall reduction rate in 2030 would be 11.14% compared with Togo's total 2030 emissions based on the baseline year (2010). This reduction in emissions is attributed to the implementation of sectoral work.

Conditional Mitigation Contribution

The conditional target for additional GHG emissions reduction, according to the most ambitious scenario, is estimated at 20% compared to the dynamic BAU. The conditional target for the total reduction would therefore be 31.14% in 2030, compared to the projections if no measures were to be applied.

GHG mitigation measures and options

Togo's GHG mitigation measures focus on three priority sectors: energy; agriculture; and land use, land use change and forestry). In the energy sector, Togo pertains to the promotion of households to use biomass and solar electricity. In terms of road transport, the planned actions aim to reduce the consumption of fossil fuels in Togo by 20% over the course of the period under review by improving the road system, promoting the use of public transport, reducing the average age of imported vehicles (to 5-7 years) and promoting active modes of transport (bicycles, walking, bike paths).

Current transport and energy-related policies and strategies:

1. The Declaration of General Governmental Policy on the Restructuring of the Transport Sector of 29 May 1996 made operational in 2013 through the definition of the National Strategy for the Development of Transport in Togo.

Action to be taken: Revision of current national transport policy; adoption and application of the measures within the national strategy, especially the sections limiting the age and setting standards for the quality of imported used vehicles

2. The Togo 2030 Electrification Strategy

UNDAF

The GEF project contributes to the following objectives defined in the strategic UNDAF document 2019 to 2023:

- Increase employment and entrepreneurship among young people and women to benefit from decent employment opportunities in the agriculture, industry and service sectors, in particular outcome ii - the strengthening of technical and operational capacities of groups of economic interest for the development of value chains in the fields of agriculture, industry and services;
- Increase the resilience of the population of the areas vulnerable to climate change and disaster risks by promoting equitable access to a decent living environment and to natural resources and sustainable energy, in particular outcome ii - promote increased access for households in rural areas and peri-urban areas with renewable energies and alternative technologies to improve their well-being.

Sustainable Development Goals



The project contributes to SDG:

Goal	Goals and targets
SDG 3 – Ensure healthy lives and promote well-being for all at all ages	3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
SDG 11 – Make cities and human settlements inclusive, safe, resilient and sustainable	11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
	11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management
SDG 13 – Take urgent action to combat climate change and its impacts	13.2 Integrate climate change measures into national policies, strategies and planning

The project is aligned with the focus areas identified in the “Country programme document for Togo (2019-2023)”, which are: (a) enhancing governance to improve citizen participation; (b) promoting inclusive growth and access to basic services; and (c) strengthening sustainable natural resource management and resilience to climate change.

## 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.**

The Togo project is part of the Global Programme on Electric Mobility. It will actively participate in the Global Programme's global and regional activities through its Component 1, for example by participating and contributing to the knowledge exchange in the Africa Regional Support and Investment Platforms, which will be hosted by UNEP, and the relevant global working groups, as well as by providing insights and knowledge.

All the knowledge products and lessons learned will be shared at three levels – at the country level (through the inter-sectorial electric mobility coordination body), in the Global Thematic Working Groups of the Global e-mobility Programme and in the Africa Regional Support and Investment Platform.

On the global level, results and knowledge products of the Togo project will be made accessible through the Global E-Mobility Programme Online Toolbox. The Global Programme website will showcase the Togo project and report on progress. The Global Programme will also disseminate results of the Togo project through social media, whenever relevant.

Since UNEP is hosting the Africa Support and Investment Platform, close linkages will be made between this project and the Regional Support and Investment Platform. Also, through that platform, the Togo project will benefit from lessons learnt and experience gained from other GEF-funded projects in the region, such as the GEF E-Mobility Projects in Côte d'Ivoire, Sierra Leone, Burundi, Seychelles, South Africa and Madagascar.

The Ministry of Environment and Forestry Resources will be responsible for knowledge management as part of their duties as the GEF Executing Agency. The Ministry of Environment and Forestry Resources and the Chief Technical Advisor (CTA) will ensure that all knowledge products developed under the project will be shared with the Global Programme and in particular the IEA (for the global data repository) and UNEP (for dissemination through the Africa Support and Investment Platform).

The deliverables and approaches of the project's knowledge management activities will contribute to the successful implementation of the project as well as the sustainability and scaling up of the project impact. The tools developed, best practices collected and knowledge generated by the project will continue to be available to countries and cities even after the project as UNEP will continue supporting the African Regional Support and Investment Platform so that these can continue to take the lead in supporting a shift to electric mobility in their respective regions.

Numerous parts of the Togo project are contributing to the generation of knowledge and the gathering of data, which will then be used to develop studies, policy proposals, business models, and financing schemes. The respective deliverables are:

Outputs	Knowledge products produced by the project (deliverables)	Indicative timeline	Indicative Budget (US\$)
<b>Component 1</b>			
Output 1.1	D 1.1.4 Report compiling all the best practices and lessons learned based on studies / reports produced as part of the e-mobility project in Togo (to be shared with the Global E-mobility Programme)	Month 42	≈3,000

Output 1.2	D 1.2.2 Transport and energy sector data including vehicle fleet and current policy frameworks is refined and gender aspects consolidated.	Month 9	≈15,000
	D 1.2.3 A national gender sensitive e-mobility strategy outlining clear e-mobility market targets and identifying milestones and targets to close policy and funding gaps, is developed with input from all relevant stakeholders and circulated for review.	Month 18	
	D 1.2.4 The final national gender-sensitive e-mobility strategy is presented in a workshop	Month 19	
<b>Component 2</b>			
Output 2.1	D 2.1.2 The detailed feasibility study (including technical specifications) & implementation plan for the e-mobility and charging demonstration is developed and presented during a workshop	Month 7	≈16,000
Output 2.2.	D 2.2.4 Implementation of the demonstration project as detailed in the implementation plan and collection and analysis of data with the support of the local university (data set and analysis report issued)	Month 25	≈17,000
	D 2.2.5 A technical report summarizing the results of the demonstration project is developed including recommendations for technical specifications for e-motorcycles and charging equipment and operation for upscaling	Month 28	
<b>Component 3</b>			
Output 3.1	D 3.1.1 A draft proposal to reform vehicle import taxation and regulation is developed	Month 22	≈15,000
	D 3.1.2 A draft proposal to reform vehicle registration is developed	Month 22	
	D 3.1.3 A draft proposal of power sector regulations is developed	Month 22	
	D 3.1.5 A consolidated package of policy proposals is presented at a workshop and submitted for adoption.	Month 36	
Output 3.2	D 3.2.3 A synthesis report outlining the needs for targeted finance and initial schemes for respective financing products and mechanisms is developed and presented during a workshop.	Month 29	≈15,000
	D 3.2.4 Two e-mobility upscaling project concepts are prepared and submitted to the targeted financing institution	Month 36	
<b>Component 4</b>			
Output 4.1	D 4.1.2 A draft study to integrate renewable power for electric vehicle recharging with a focus on rural applications and minigrid integration is developed, circulated for review and presented at a workshop	Month 27	≈10,000
	D 4.1.3 The study to integrate renewable power for electric vehicle recharging is finalized and disseminated to all local stakeholders and the Global Programme knowledge management focal point.	Month 34	

Output 4.2	D 4.2.1 A draft scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries is developed, circulated for review, and presented at a workshop	Month 12	≈9,000
	D 4.2.2 A draft scheme for re-use, and collection for recycling and sound disposal of used electric vehicle batteries is developed, circulated for review, and presented at a workshop	Month 27	
	D 4.2.3 The scheme for reuse, and collection for recycling and sound disposal of used electric vehicle batteries is finalized and disseminated to all local stakeholders and the Global Programme knowledge management focal point.	Month 34	

The total budget for knowledge generation and management is estimated to be approximately USD 100,000.



## 9. Monitoring and Evaluation

### Describe the budgeted M and E plan

Monitoring and Evaluation (M&E) activities and related costs are presented in the costed M&E Plan (Annex J) and are fully integrated in the overall project budget.

The project will comply with UNEP standard monitoring, reporting and evaluation procedures. Reporting requirements and templates are an integral part of the legal instrument to be signed by the Executing Agency and the Implementing Agency

The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Annex A includes SMART indicators for each expected outcome as well as end-of-project targets. These indicators along with the key deliverables and benchmarks included in Annex L will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification to track the indicators are summarized in Annex A.

The M&E plan will be reviewed and revised as necessary during the project Inception Workshop (IW) to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and evaluation. Indicators and their means of verification may also be fine-tuned at the inception workshop. General project monitoring is the responsibility of the Project Management Unit (PMU) but other project partners could have responsibilities in collecting specific information to track the indicators. It is the responsibility of the Chief Technical Advisor to inform UNEP of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

The project Steering Committee (PSC) will receive periodic reports on progress and will make recommendations to UNEP/UNEP concerning the need to revise any aspects of the Results Framework or the M&E Plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility of the UNEP Task Manager. The UNEP Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

Project supervision will take an adaptive management approach. The UNEP Task Manager will develop a project Supervision Plan at the inception of the project, which will be communicated to the Project Management Unit and the project partners during the Inception Workshop. The emphasis of the Task Manager's supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring.

Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by the Project Management Unit, the project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The PIR will be completed by the Chief Technical Advisor and ratings will be provided by UNEP's Task Manager. The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR. UNEP's Task Manager will have the responsibility of verifying the PIR and submitting it to the GEF. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.

Since this is a Medium-Size Project (MSP) of less than 4 years of duration, no Mid-Term Evaluation (MTE) will be undertaken. However, if the project is rated as being at risk or if deemed needed by the Task Manager, he/she may decide to conduct an optional Mid-Term Review (MTR). This review will include all parameters recommended by the GEF Evaluation Office for Terminal Evaluations (TE) and will verify information gathered through the GEF tracking tools, as relevant. The review will be carried out using a participatory approach whereby parties that may benefit or be affected by the project will be consulted. Such parties were identified during the stakeholder analysis (see section 2 above). Members of the project Steering Committee could be interviewed as part of the MTR process and the Chief Technical Advisor will develop a management response to the review recommendations along with an implementation plan. Results of the MTR will be presented to the Project Steering Committee. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented.

In-line with the with UNEP Evaluation Policy and the GEF Evaluation requirements, the project will be subject to an independent Terminal Evaluation. The Evaluation Office will be responsible for the Terminal Evaluation (TE) and will liaise with the project manager throughout the process.

The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. The project performance will be assessed against standard evaluation criteria using a six-point rating scheme. It will have two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP staff and implementing partners. The direct costs of the evaluation will be charged against the project evaluation budget. The TE will typically be initiated after the project's operational completion. If a follow-on phase of the project is envisaged, the timing of the evaluation will be discussed with the Evaluation Office to feed into the submission of the follow-on proposal.

The draft TE report will be sent by the Evaluation Office to project stakeholders for comment. Formal comments on the report will be shared by the Evaluation Office in an open and transparent manner. The final determination of project ratings will be made by the Evaluation Office when the report is finalised.

The evaluation report will be publicly disclosed and will be followed by a recommendation compliance process. The evaluation recommendations will be entered into a Recommendations Implementation Plan template by the Evaluation Office. Formal submission of the completed Recommendations Implementation Plan by the project manager is required within one month of its delivery to the project team. The Evaluation Office will monitor compliance with this plan every six months for a total period of 12 months from the finalisation of the Recommendations Implementation Plan..

The GEF Core Indicator Worksheet is attached as Annex F. It will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above, the optional MTR and TE will verify the information of the tracking tool.

The direct costs of reviews and evaluations will be charged against the project evaluation budget. A summary of M&E activities envisaged is provided below and in Annex J. The GEF contribution for this project's M&E activities is US\$ 30,300.

M&E Activity	Description	Responsible Parties	Timeframe	Indicative budget (USD)
Inception Workshop (IW)	Report prepared following the IW; which includes: - A detailed workplan and budget for the first year of project implementation, - An overview of the workplan for subsequent years, divided per component, output and activities. - A detailed description of the roles and responsibilities of all project partners - A detailed description of the PMU and PSC, including an organization chart - Updated Procurement Plan and a M&E Plan, Gender Action Plan - Minutes of the Inception Workshop	Execution: CTA  Support:	1 report to be prepared following the IW, to be shared with participants 4 weeks after the IW (latest)	GEF: \$US 300 for catering only  (Venue to be co-financed by the Ministry of Environment and Forestry Resources)
Steering Committee Meeting	Prepare minutes for every Steering Committee Meeting.	Execution: CTA  Support:	At least 3 or 4 per year  Minutes to be submitted 1 week following each PSC meeting	GEF: \$US 0  Venue and catering co-financed by the Ministry of Environment and Forestry Resources
Half-yearly progress report	Part of UNEP/UNEP requirements for project monitoring. - Narrative of the activities undertaken during the considered semester	Execution: CTA  Support: PMU	Two (2) half-yearly progress reports for any given year, submitted by J	GEF: as part of CTA budget

	<p>uring the considered semester</p> <ul style="list-style-type: none"> <li>- Analyzes project implementation progress over the reporting period;</li> <li>- Describes constraints experienced in the progress towards results and the reasons.</li> </ul>		<p>uly 31 and January 31 (latest)</p>	
Quarterly expenditure reports	Detailed expenditure reports (in excel) broken down per project component and budget line, with explanations and justification of any change	<p>Execution: CTA and Financial Officer</p> <p>Support: PMU</p>	<p>Four (4) quarterly expenditure reports for any given year, submitted by January 31, April 30, July 31 and October 31 (latest)</p>	<p>GEF: as part of CTA budget</p>
Project Implementation Review (PIR)	<p>Analyzes project performance over the reporting period. Describes constraints experienced in the progress towards results and the reasons. Draws lessons and makes clear recommendations for future orientation in addressing the key problems in the lack of progress.</p> <p>The PIRs shall be documented with the evidence of the achievement of end-of-project targets (as appendices).</p>	<p>Execution: CTA and TM</p> <p>Support: PMU</p>	<p>1 report to be prepared on an annual basis, to be submitted by 15 July latest</p>	<p>GEF: as part of CTA budget</p>
Annual Inventory of Non-expendable equipment	Report with the complete and accurate records of non-expendable equipment purchased with GEF project funds	<p>Execution: CTA</p> <p>Support: PMU</p>	<p>1 report per year as at 31 December, to be submitted by 31 January latest</p>	<p>GEF: as part of CTA budget</p>
Co-financing Report	Report on co-financing (cash and/or in-kind) fulfilled contributions from all project partners that provided co-finance letters.	<p>Execution: CTA</p> <p>Support: co-finance partners</p>	<p>1 annual report from each co-finance partner, and 1 consolidated report, to be submitted by 31 July latest</p>	<p>GEF: as part of CTA budget</p>
Medium-Term Review (MTR) <i>optional</i>	<p>The purpose of the MTR is to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. It will verify information gathered through t</p>	<p>Execution: Independent Evaluator / TM</p> <p>Support: CTA, PMU</p>	<p>At mid-point of project implementation if deemed needed by the Task Manager</p>	<p>GEF: US\$ 10,000</p>

	will verify information gathered through the GEF tracking tools.			
Final Report	<p>The project team will draft and submit a Project Final Report, with other docs (such as the evidence to document the achievement of end-of-project targets).</p> <p>Comprehensive report summarizing all outputs, achievements, lessons learned, objectives met or not achieved structures and systems implemented, etc. Lays out recommendations for any further steps to be taken to ensure the sustainability and replication of project outcomes.</p>	<p>Execution: CTA</p> <p>Support: PMU</p>	Final report to be submitted no later than three (3) months after the technical completion date	GEF: as part of CTA budget
Terminal Evaluation (TE)	<p>Further review the topics covered in the mid-term evaluation.</p> <p>Looks at the impacts and sustainability of the results, including the contribution to capacity development and the achievement of global environmental goals.</p>	<p>Execution: Independent Evaluator / TM</p> <p>Support: CTA, PMU</p>	Can be initiated within six (6) months prior to the project's technical completion date	GEF: US\$ 20,000
<b>TOTAL M&amp;E COST</b>		<b>GEF: US\$ 30,300</b>		

**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)?**

In conjunction with the substantial CO<sub>2</sub> emission reductions, a significant reduction of the emissions of air pollutants such as NO<sub>x</sub>, SO<sub>x</sub>, PM and CO will be achieved in urban areas, as electric vehicles will not generate any such pollutant emissions locally. Thus, the project will also contribute to improved urban air quality, better human health and reduced related deaths in Togo.

In addition, the project will contribute to significant cost reductions resulting from reduced expenditures on fuel imports. Therefore, the project is also expected to improve energy security within Togo, since the share of local energy resources used in the transport sector will grow and dependency on imported fuels will decrease. Since petroleum fuel price volatility is partly buffered through taxation in Tog, the project also reduces the volatility in tax income.

This project will focus on batteries used for electric vehicles, including issues with respect to the re-use, recycling and safe disposal of used EV batteries under Component 4. Thus, the project not only looks into the mitigation of GHG and air pollutant emissions but also anticipates emerging environmental issues stemming from a large-scale market introduction of electric vehicles and seeks to develop strategies and policies to mitigate the associated risks.

This project will carry out study on the options to link-up with better integration of variable renewable power in grids for electric vehicle recharging. To that end, the project may result in additional GHG emissions reduction stemming from the possible enabling role of electric mobility for the up-scaled integration of variable renewable power.

Currently, electric vehicles numbers are still modest, and, with the exception of China, are concentrated in OECD countries. However, there is significant demand from other countries to start introducing electric mobility and be part of the global introduction and shift to electric mobility. Given the environmental and economic benefits, there is a large potential to bring EVs to all markets around the world. In terms of economic benefits, the introduction of electric vehicles in Togo also opens a pathway to increased industrialization, since the lower complexity of EVs might provide the leeway to locate vehicle manufacturing and assembling to parts of the world where this has not occurred to date. As such the growth in electric vehicles is predicted to be a major driver for the creation of "green jobs". Early involvement of developing countries in the electrification of the global vehicle fleet will facilitate these countries to develop manufacturing and assembling opportunities.

**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
Low			

**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.

This is likely a low risk project. However, the components 2 and 3 would require vigilant attention on potential safeguard issues and project's potential impact to the marginalized and vulnerable people.

UNEP ESSF guiding principles-- resilience and sustainability; human rights, gender equality and women empowerment, accountability and leave no one behind--are still applicable for low risk projects. Project level grievance mechanism (if the government does not have such venue) should be established for any complaints to be handled swiftly at the project level.

**Supporting Documents**

Upload available ESS supporting documents.

Title	Module	Submitted
EM Togo_SRIF_2021.03.29	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 Objective	Objective level Indicators	Baseline	Mid-Point Target (if applicable)	End of project Target	Means of Verification	Assumptions & Risks	UN Environment MTS reference
Mitigate GHG emissions by accelerating the introduction of electric mobility in Togo through the development of a policy framework, capacity building and demonstration of electric motorcycles to prepare for upscaling and replication.	Indicator A: Direct and Indirect Greenhouse Gas Emissions Mitigated (metric tons of CO2e) over the period 2021-2030	Baseline A: 0	Mid-point target A: N/A	End-of-project Target A: Direct: 134,135 tCO2e Indirect: 312,272 tCO2e (by year 2030)	Calculation based on UNEP Embod calculator (SMU)	Assumption: Adoption of policies and introduction of financial mechanism by the Government of Togo - Objection or low commitment from industry and lack of interest / participation from market players/private sector	UNEP MTS 2018-2021  Climate Change Objective: Countries increasingly transition to low-emission economic development and enhance their adaptation and resilience to climate change
	Indicator B: Number of direct beneficiaries of the project, disaggregated by gender upscaling and replication.	Baseline B: 0	Mid-point target B: N/A	End-of-project Target B: Women: 515 Men: 824 Total: 1,341	Attendance sheets from the child project and the Global Electric Mobility Programme - Monitoring (the number of unique passengers eviced by the demonstration vehicles)	- Higher upfront cost of electric vehicles may pose a barrier to implementation and scale up of activities - Leadership change: change in leadership and priorities in the government - Time lag of results: Major results of the project may not be seen before the end of the project period.	
Project Outcomes	Outcome level Indicators	Baseline	Mid-Point Target (if applicable)	End of project Target	Means of Verification	Assumptions & Risks	MTS Expected Accomplishment
Outcome 1: The government adopts a strategy for the promotion of low-carbon electric mobility by establishing a coordinated institutional framework.	Indicator 1.1: A national inter-sectoral coordination body to support and promote the uptake of low-carbon e-mobility in Togo is established, formalized and operational.	Baseline 1.1: No	Mid-point target 1.1: The national coordination body is established and includes all key institutions. It has formulated shared goals and defined roles & responsibilities of all members.	End-of-project target 1.1: Yes - The coordination body remains operational and has agreed on post-project plan to promote e-mobility. - The national coordination body has at least 1 female member.	- Review of the body's activities (meeting summary reports) - Reports of the coordination body's quarterly meetings - Gender-disaggregated participation lists - Written agreement of cooperation	Assumption: There is a political climate to expand ongoing national initiatives for the increase of energy efficiency in transport to e-mobility. - Reports of the coordination body's quarterly meetings - Objection / low commitment from industry & lack of interest / participation from market players/private sector - Leadership change: change in leadership and priorities in the government	Expected Accomplishment (b): Countries increasingly adopt and/or implement low greenhouse gas emission development strategies and invest in clean technologies
	Indicator 1.2: The government of Togo endorses a gender sensitive national strategy to promote low-carbon electric mobility	Baseline 1.2: No	Mid-point target 1.2: The respective Ministries are discussing the draft strategy.	End-of-project target 1.2: Yes	- Public announcements by the government and/or respective Ministries - Public availability of the strategy - The strategy contains a chapter / section on gender mainstreaming - Government gazette and other publications	Assumption: There is a political climate to expand ongoing national initiatives for the increase of energy efficiency in transport to e-mobility. - Conflicting interests making it impossible to find consensus or required compromises that render the strategy and action plan too vague. - Objection / low commitment from industry & lack of interest / participation from market players/private sector - Leadership change: change in leadership and priorities in the government	
	Indicator 1.3: # of reports on best practices and lessons learned on low carbon electric mobility shared with the global e-mobility programme	Baseline 1.3: 0	Mid-point target 1.3: n.a.	End-of-project target 1.3: 1	- Lessons learned and best practices report produced by the CTA and the national coordination body (deliverable 1.1.5)	Assumption: The project properly disseminates and communicates the results of the demo project and the findings / reports / studies from the other components - Time lag of results: Major results of the project may not be seen before the end of the project period.	
Outcome 2: Demonstrations provide evidence of technical, financial and environmental sustainability to government and transport companies to plan for scale-up of low-carbon electric mobility	Indicator 2.1: # of transport companies making investments in e-motorcycles based on the evidence generated through the demonstration project	Baseline 2.1: 0	Mid-point target 2.1: The demonstration e-motorcycles have been procured and a monitoring plan for the collection of data is established	End-of-project target 2.1: At least 1 transport company	- Expression of Interest or Letter of Intent signed by the transport company / mobility provider / investor	Assumption: The project properly disseminates and communicates the results of the demo project - Lack of linkages with available funding/financing for EVs fleets. - Private sector partners do not have the capacity to implement the demonstration project - Low commitment from industry & lack of interest from market players/private sector - Higher upfront cost of EVs may be a barrier to implementation / scale up of activities - Inadequacy of the ext strategy & lack of ownership after the end of the GEF funded activities and inability to source resources to continue the program's activities in the medium/long term	Expected Accomplishment (b): Countries increasingly adopt and/or implement low greenhouse gas emission development strategies and invest in clean technologies
	Indicator 3.1: # of policies to incentivize the uptake of electric mobility submitted for adoption by the government	Baseline 3.1: 0	Mid-point target 3.1: 3 draft policies	End-of-project target 3.1: 3 policies submitted for adoption	- Government gazette and other publications - Policy package document including: + A reform on vehicle import taxation and regulation + A reform on vehicle registration + A reform of power sector regulations	Assumption: There is a political climate to expand ongoing national initiatives for the increase of energy efficiency in transport to e-mobility. - Conflicting interests making it impossible to find consensus or required compromises that render the strategy and action plan too vague. - Objection / low commitment from industry & lack of interest / participation from market players/private sector - Leadership change: change in leadership and priorities in the government	
Outcome 3: Government creates conditions for removing existing barriers by drafting regulatory reforms and financial mechanisms for adoption of e-mobility in the country.	Indicator 3.2: # of financing concepts for e-mobility replication and / or upscaling in Togo submitted to financial institutions for approval	Baseline 3.2: 0	Mid-point target 3.2: N/A	End-of-project target 3.2: 2 e-mobility concepts submitted for approval	- E-mobility concept notes - Acknowledgment of submission from the financial institution	Assumption: The project properly disseminates and communicates the results of the demo project - Lack of linkages with available funding/financing for EVs fleets. - Objection or low commitment from industry and lack of interest / participation from market players/private sector	Expected Accomplishment (b): Countries increasingly adopt and/or implement low greenhouse gas emission development strategies and invest in clean technologies
	Indicator 4.1: The study on e-mobility and renewable power integration in Togo is approved by the e-mobility coordination body members, including the Ministry of Energy	Baseline 4.1: No	Mid-point target 4.1: N/A	End-of-project target 4.1: Yes	- Government gazette and other publications - Study report on integration of renewable power for electric vehicle recharging - Minutes of the coordination body meeting approving the report	Assumption: There is a favourable political climate to expand ongoing national initiatives for the increase of renewable energy production and linking it with the transport sector. - The growing demand from electric vehicles destabilizes the power supply - Conflicting interests making it impossible to find consensus or required compromises that render the study and action plan too vague.	
Outcome 4: Long term sustainability of low carbon electric mobility is ensured by government institutions	Indicator 4.2: An initial scheme for re-use, recycling and sound disposal of used electric vehicle batteries is endorsed by the Ministry of Environment	Baseline 4.2: No	Mid-point target 4.2: N/A	End-of-project target 4.2: Yes	- Government gazette and other publications - Scheme for re-use, recycling and sound disposal of used batteries document	Assumption: The Ministry of Environment and the government mobilize the resources to take up the recommendations of the scheme and coordinate with ECOWAS - Interest by e-waste collection companies to collect and treat of used EV batteries - Sufficient capacity in the waste management sector to enable the re-use of used batteries - Materials from EVs (e.g. from batteries) might generate environmental pollution	Expected Accomplishment (b): Countries increasingly adopt and/or implement low greenhouse gas emission development strategies and invest in clean technologies

**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 separate pdf files which include all responses to the GEF's reviews:

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

The responses to STAP comments may be found below:

UNEP replies to STAP screening:

<b>Part I: Project Information</b>	
<b>GEF ID</b>	10114
<b>Project Title</b>	Global Program to Assist Countries with Shift to Electric Mobility
<b>Date of Screening</b>	27-May-19
<b>STAP member Screener</b>	Saleem H. Ali
<b>STAP secretariat screener</b>	Sunday Leonard
<b>STAP Overall Assessment</b>	Concur

STAP comments	UNEP replies
<p>The e-mobility program has been developed based on a set of 17 child projects, as well as synergies with the EC Solutions Plus program. Partnership with the International Energy Agency gives the proposal a high level of rigor in terms of metrics of energy costing and efficiency measurement criteria. The proposal is also supported by relevant studies from applicable development agencies.</p> <p>The public-private partnership aspect of the project is convincing and likely to deliver the overall desired impact - if well implemented.</p> <p><u>Comment 1:</u> Key barriers to the scaling of e-mobility have been recognized in the child projects. However, there are also some system factors around e-mobility that deserve attention, and which should be highlighted as barriers to upscaling. The material needs of e-mobility infrastructure in terms of the availability of battery storage technology, and the link between the price of key metal components needs to be specified more clearly. The project has set up a “batteries working group” to assure a reliable supply of batteries through recycling and criticality assessments, but how such a working group would ensure supply is not clearly articulated. The proposal notes a connection with the Global Battery Alliance of the World Economic Forum which will help to avoid redundancies and build a wide private sector alliance. The project proponents should also monitor the Roland Berger “E-Mobility” Index in terms of key lessons from countries that have achieved high rankings in this index. The Australian government has also set up a new Cooperative Research Centre on Batteries which could be an important resource.</p> <p><u>Comment 2:</u> Clearly the E-mobility program has positive interactions with the Sustainable Cities Impact Program because much of the high-density implementation and climate benefits of e-mobility would be realized in an urban context. There needs to be good coordination</p>	<p><u>Reply 1:</u> The project recognizes the issues around provision of raw materials for battery production. Nonetheless, it is not the focus of the project to ensure availability of these materials and subsequent battery supply. It seems to be understood that availability of resources such as lithium, cobalt, nickel and copper and their transformation into reserves (classification based on IEA Global Electric Vehicle Outlook [GEVO] 2019) is not constrained by the natural resource base but rather by the pace of investment to un-tap these resources (see IEA GEVO 2019). The project seeks for acceleration of EV demand, and therefore acceleration of demand for batteries. It is believed that such an accelerated demand will lead to the necessary investment in battery production capacity and hence the provision of raw materials.</p> <p>Nonetheless, the project will put focus on the development of regulation and schemes for collection of used EV batteries for re-use, recycling and safe disposal, mainly through the International Energy Agency (IEA) led Global Thematic Working Group on “Charging infrastructure, grid integration, low-carbon power supply and batteries”. The project aims at facilitating re-use and recycling of used EV batteries through “design for recyclability” of EV batteries to ensure that a trajectory leading to some sort of circular economy can be taken in the future. Development of adequate policies will play a major role in the stipulation of high recycling rates to ease pressure on raw material demand and to increase sustainability of e-mobility as a whole. This also includes the development of guidelines and agreements with regards to the social and environmental standards for the sourcing of these materials. Private sector alliances such as the mentioned Global Battery Alliance of the World Economic Forum can help with the facilitation of such agreements and will be included in the design of the relevant operational parts of the Global Child Project. Similarly, literature and indices such as the mentioned Roland Berger “E-Mobility” Index will be included to the extent possible within the work of the relevant Working Groups. It needs to be noted that the Basel and Stockholm Convention Regional Centre for the Asia and Pacific Region in China (BCRC-SCRC China, hosted by the School of Environment of Tsinghua University) will be part of the GEF Global E-Mobility Programme. The Basel Convention regulates the international trade of waste, which might play a key role in the area of used EV battery recycling since large scale battery recycling is likely to depend on international shipping of used EV batteries and / or battery components.</p> <p><u>Reply 2:</u> For countries that have both an e-mobility and a Sustainable Cities project (i.e. India, etc.) close coordination will be undertaken during project</p>



<p>ation between the two programs.</p> <p><u>Comment 3:</u> A core challenge will be to ensure that the source of electricity for the e-mobility platform is low carbon to maximize the GHG reduction benefit. All calculations for GHG emissions (cars, buses versus trains etc.) need to be evaluated in terms of life-cycle analysis methodologies to ensure full systems-wide GHG benefits and ensure that impacts are internalized.</p>	<p><u>Reply 2:</u> For countries that have both an e-mobility and a sustainable cities project (e.g. India, etc.), close coordination will be undertaken during project implementation to ensure synergies. Whenever the sustainable cities projects organize events/workshops on urban mobility, the e-mobility project team / proponents will be invited to participate.</p> <p><u>Reply 3:</u> GHG emission saving potentials for all Country Child Projects are evaluated based on 1.) the current local carbon footprint of grid electricity; and 2.) prospects to reduce the average carbon footprint of grid electricity based on commitments and pledges to mitigate climate change. Many of the low and middle-income countries included in the Global E-Mobility Programme already have power mixes based on high shares of low carbon electricity such as hydro, wind, solar PV and nuclear power. This is true for many of the Country Child Projects in Latin America, Africa, Eastern Europe and West Asia. For Country Child Projects with relatively high grid emission factors such as India, most of the SIDS, Indonesia, South Africa, etc. projects have been designed in a way to ensure that sufficient amount of low carbon power will be integrated in the electricity mix used to power the demonstration vehicles to yield net climate benefits. As a general “rule of thumb” a carbon footprint threshold for grid electricity of around 800 to 900 gCO<sub>2</sub>/kWh is assumed to mark the line above which additional measures are necessary to reach net reductions of greenhouse gas emissions. Compared to alternative, technology based transport GHG mitigation measures such as the large scale use of biofuels as well as the use of potentially low carbon fuels such as hydrogen and synthetic fuels, it is believed that the direct use of electricity constitutes the most efficient means of decarbonizing transportation, alongside implementation of “avoid” (avoid transport demand) and “shift” measures (shift transport demand to more efficient means of mass transport as well as non-motorized transport). It is therefore necessary to introduce e-mobility now, in order to be prepared for upscaling once mitigation targets in the relatively low-abatement cost power sector have been achieved.</p>
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STAP comments	UNEP replies
<p><u>Comment 4:</u> The program will generate both climate mitigation and air pollution reduction benefits. If possible, the expected health benefits from air pollution reduction (for example, premature death prevention and Disability-Adjusted Life Years - DALYs) should be estimated during project development. This will provide a more detailed information on the environmental and socio-economic benefits from the GEF's investment.</p> <p><u>Comment 5:</u> There is detailed evidence of multi-stakeholder engagement, particularly for training programs, and other activities which connect with the OECD's multi-stakeholder engagement processes. It would be helpful to acknowledge that e-mobility has implications for “energy justice”, because growth of this sector has largely been in high-income markets, especially for electric cars.</p>	<p><u>Reply 4:</u> The air pollution reduction and associated expected health benefits will not be measured/quantified by the projects through GEF funding. However, if the countries wish to undertake these estimates, they will be welcome to do it through co-finance contributions.</p> <p><u>Reply 5:</u> E-mobility has the potential to increase energy justice and to support the development of local value chains. While petroleum-based fuels are imported in most of the Country Child Projects, electricity is generated locally, with the potential to include high shares of locally generated renewable power. Introduction and up-scaling of e-mobility has therefore the potential to increase energy security and to hedge against the price volatility of the global petroleum fuel market. In many of the Country Child Projects, consumer prices of petroleum fuels are regulated by government and price spikes in the global supply chain has immediate effects on countries budgets. Total cost of ownership of electric vehicles, in particular when used in fleets such as public transportation fleets (buses, taxis, 2&amp;3 wheelers taxis) are already lower than for conventional vehicles today in many of the Country Child Projects. The large-scale introduction of EVs in such fleets can therefore lead to better economics of public transport services, which in turn can lead to better service and lower cost of transportation for the end consumer. In addition, the provision of e-mobility applications such as electric 2&amp;3 wheelers in least developed countries can tap synergies with rural electrification based on renewable micro and mini-grids (e.g. based on solar PV &amp; electricity storage). Last but not least, the relatively less complex nature of electric vehicles can lead to the creation of green jobs in the local assembly and manufacturing of EVs, notably electric 2&amp;3 wheelers.</p>

<p><u>Comment 6:</u> STAP recommends that project proponents review the following study: Sovacool, B. K., Kester, J., Noel, L. &amp; de Rubens, G. Z. Energy Injustice and Nordic Electric Mobility: Inequality, Elitism, and Externalities in the Electrification of Vehicle-to-Grid (V2G) Transport. Ecological Economics 157, 205–217 (2019).</p> <p><u>Comment 7:</u> E-vehicle technology is rapidly evolving: it will be important therefore to keep track of and incorporate innovations in the field. University partners in academia would be recommended in this regard. A few key academic partners are noted such as University of California Davis and Technical University of Denmark. These institutions and others should be involved in the M&amp;E program.</p> <p><u>Comment 8:</u> A recent study which may be helpful in considering some of the pitfalls of e-mobility is also referenced below: Onat, N. C., Kucukvar, M., Aboushaqrah, N. N. M. &amp; Jabbar, R. How sustainable is electric mobility? A comprehensive sustainability assessment approach for the case of Qatar. Applied Energy 250, 461–477 (2019).</p>	<p><u>Reply 6:</u> We take note of this recommendation. This will be shared with project proponents and the global thematic working groups.</p> <p><u>Reply 7:</u> The GEF Global E-Mobility Programme will be implemented in close collaboration with the European Commission funded Solutions Plus project. The Solutions Plus project, which started implementation in January 2020, and which has a total budget of about 18 million EUR, is targeting e-mobility demonstration projects in 9 low and middle-income cities world-wide, and includes replication activities of these demonstration projects in a number of additional cities and countries. UNEP is responsible for the development of replication projects in 8 cities worldwide. It has been agreed that EC Solution Plus funds will be included in 5 GEF Country Child Projects (around 60k to 80k USD per replication project) to procure charging equipment and to provide targeted support to local innovators with the installation and operation of this equipment. Similar to UNEP, DTU is a consortium member of the EC Solution Plus project and is mainly responsible for impact assessment and data collection and analysis of the project. UNEP will make sure that impact assessment and data collection and analysis will be closely coordinated between the GEF E-mobility Programme and the EC Solution Plus project and that all tools and materials as well as project outcomes and lessons learnt will be shared between both projects. In fact, the GEF and the EC Solutions Plus project target the joint and complementary development of tools, training materials, and events.</p> <p>Academic partners may also include the University of California, Davis, which is a long-standing partner in UNEP's Global Fuel Economy Initiative (GFEI) through the Sustainable Transportation Energy Pathways Program directed by Lew Fulton.</p> <p><u>Reply 8:</u> We take note of this recommendation. This will be shared with project proponents and the global thematic working groups.</p>
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Part I: Project Information	What STAP looks for	Response	UNEP replies
<b>B. Indicative Project Description Summary</b>			
Project Objective	Is the objective clearly defined, and consistently related to the problem diagnosis?	Yes – the program has a very clearly defined objective of electric mobility.	
Project components	A brief description of the planned activities. Do these support the project's objectives?	Yes, the outcomes support the objectives.	
Outcomes	A description of the expected short-term and medium-term effects of an intervention.	These are defined in detail and referenced through a theory of change. Global environmental benefits of carbon mitigation are noted with key assumptions about the source of energy.	
	Do the planned outcomes encompass important global environmental benefits/adaptation benefits?		
	Are the global environmental benefits/adaptation		

	Are the global environmental benefits/adaptation benefits likely to be generated?		
Outputs	A description of the products and services which are expected to result from the project. Is the sum of the outputs likely to contribute to the outcomes?	Yes, there is a clear linkage between outputs and outcomes made through the theory of change materials provided.	
Part II: Project justification	A simple narrative explaining the project's logic, i.e. a theory of change.		
<b>1. Project description. Briefly describe:</b>			
1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description)	Is the problem statement well-defined?	Yes – detailed review of the material from the perspective of development agencies provided. However, academic literature review is not provided.	
	Are the barriers and threats well described, and substantiated by data and references?		
	For multiple focal area projects: does the problem statement and analysis identify the drivers of environmental degradation which need to be addressed through multiple focal areas; and is the objective well-defined, and can it only be supported by integrating two, or more focal areas objectives or programs?		
2) the baseline scenario or any associated baseline projects	Is the baseline identified clearly?	Yes, baseline of current programs for countries provided as well as the relationship with EC Solutions plus program.	
	Does it provide a feasible basis for quantifying the project's benefits?		
	Is the baseline sufficiently robust to support the incremental (additional cost) reasoning for the project?		
	For multiple focal area projects:		
	are the multiple baseline analyses presented (supported by data and references), and the multiple benefits specified, including the proposed indicators;		
	are the lessons learned from similar or related past GEF and non-GEF interventions described; and how did these lessons inform the design of this project?		
3) the proposed alternative scenario with a brief description of expected outcomes and components of the project	What is the theory of change?	Good presentation of theory of change material in Figure 6.	
	What is the sequence of events (required or expected) that will lead to the desired outcomes?		
	What is the set of linked activities, outputs, and outcomes to address the project's objectives?		
	Are the mechanisms of change plausible, and is there a well-informed identification of the underlying assumptions?		
	Is there a recognition of what adaptations may be required during project implementation to respond		

	Are incremental activities required during project implementation to respond to changing conditions in pursuit of the targeted outcomes?		
5) incremental/additional cost reasoning and expected contributions from the baseline, the GEF trust fund, LDCF, SCCF, and co-financing	GEF trust fund: will the proposed incremental activities lead to the delivery of global environmental benefits?	Yes – very detailed cost reasoning and partnerships provided.	
	LDCF/SCCF: will the proposed incremental activities lead to adaptation which reduces vulnerability, builds adaptive capacity, and increases resilience to climate change?		
6) global environmental benefits (GEF trust fund) and/or adaptation benefits (LDCF/SCCF)	Are the benefits truly global environmental benefits, and are they measurable?	Yes – electric mobility if implemented with low carbon energy source has clear global environmental benefits.	
	Is the scale of projected benefits both plausible and compelling in relation to the proposed investment?		
	Are the global environmental benefits explicitly defined?		
	Are indicators, or methodologies, provided to demonstrate how the global environmental benefits will be measured and monitored during project implementation?		
	What activities will be implemented to increase the project's resilience to climate change?		
7) innovative, sustainability and potential for scaling-up	Is the project innovative, for example, in its design, method of financing, technology, business model, policy, monitoring and evaluation, or learning?	The PFD has a short section on innovation (Section 7 on page 68) which largely focuses on the inherent innovation of e-mobility infrastructure as a new technology. Perhaps the most significant innovations in the GEF program itself would be the financing arrangements that are being proposed through a variety of public-private partnerships that are being proposed, building on the vast experience of the International Energy Agency. Regarding STAP's guidelines on innovation in projects, the wide range of examples provided of innovative start-ups that emanate from the EC's Solutions Plus program are also appropriate. These should be further analysed to ascertain the level of actual success they are having (refer to section starting on page 36 and the table which starts on page 37).	
	Is there a clearly-articulated vision of how the innovation will be scaled-up, for example, over time, across geographies, among institutional actors?		
	Will incremental adaptation be required, or more fundamental transformational change to achieve long term sustainability?		
1b. Project Map and Coordinates. Please provide geo-referenced information and map where the project interventions will take place.			
2. Stakeholders. Select the stakeholders that have participated in consultations during	Have all the key relevant stakeholders been identified to cover the complexity of the problem, and project	The energy justice aspect of this program should be closely monitored as e-mobility uptake continues to favor higher income households	Please refer to our response to the energy justice comment in the 1 <sup>st</sup> section above (reply 5).

<p>ing the project identification phase: Indigenous people and local communities; Civil society organizations; Private sector entities. If none of the above, please explain why. In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.</p>	<p>ect implementation barriers?</p>	<p>eholds</p>	
	<p>What are the stakeholders' roles, and how will their combined roles contribute to robust project design, to achieving global environmental outcomes, and to lessons learned and knowledge?</p>		
<p>3. Gender Equality and Women's Empowerment. Please briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis). Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? Yes/no/ tbd. If possible, indicate in which results area(s) the project is expected to contribute to gender equality: access to and control over resources; participation and decision-making; and/or economic benefits or services. Will the project's results framework or logical framework include gender-sensitive indicators? yes/no /tbd</p>	<p>Have gender differentiated risks and opportunities been identified, and were preliminary response measures described that would address these differences?</p>	<p>Gender sensitivity analysis and action plans built into program. The uptake of electric motorcycles disproportionately by men for cultural reasons is noted as a useful example.</p>	<p>All country child projects as well as the global child project include a gender analysis and a gender action plan (in PART II section 3. Gender Equality and Women's Empowerment of the CEO Endorsement Document) to mainstream gender during project implementation.</p>
	<p>Do gender considerations hinder full participation of an important stakeholder group (or groups)? If so, how will these obstacles be addressed?</p>		
<p>5. Risks. Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design</p>	<p>Are the identified risks valid and comprehensive? Are the risks specifically for things outside the project's control?</p>	<p>A wide variety of risks have been identified specially with reference to critical supply chains.</p>	
	<p>Are there social and environmental risks which could affect the project?</p>		
	<p>For climate risk, and climate resilience measures:</p>		
	<p>How will the project's objectives or outputs be affected by climate risks over the period 2020 to 2050, and have the impact of these risks been addressed adequately?</p>		
	<p>Has the sensitivity to climate change, and its impacts, been assessed?</p>		

	<p>Have resilience practices and measures to address projected climate risks and impacts been considered?</p> <p>How will these be dealt with?</p>		
	<p>What technical and institutional capacity, and information, will be needed to address climate risks and resilience enhancement measures?</p>		
6. Coordination. Outline the coordination with other relevant GEF-financed and other related initiatives	Are the project proponents tapping into relevant knowledge and learning generated by other projects, including GEF projects?	Figure 9 presents a good organizational framework for coordinating the project across multiple agencies and private partners.	
	Is there adequate recognition of previous projects and the learning derived from them?		
	Have specific lessons learned from previous projects been cited?		
	How have these lessons informed the project's formulation?		
	Is there an adequate mechanism to feed the lessons learned from earlier projects into this project, and to share lessons learned from it into future projects?		
8. Knowledge management. Outline the "Knowledge Management Approach" for the project, and how it will contribute to the project's overall impact, including plans to learn from relevant projects, initiatives and evaluations.	What overall approach will be taken, and what knowledge management indicators and metrics will be used?	University partnerships could be better leveraged for knowledge management. Clearer role delineation of university and research partners would be a positive development.	Please refer to our response in relation to UCD and DTU in the 1 <sup>st</sup> section above (reply 7).
	What plans are proposed for sharing, disseminating and scaling-up results, lessons and experience?		
STAP advisory response	Brief explanation of advisory response and action proposed		
1. Concur	STAP acknowledges that on scientific or technical grounds the concept has merit. The proponent is invited to approach STAP for advice at any time during the development of the project brief prior to submission for CEO endorsement.		
	* In cases where the STAP acknowledges the project has merit on scientific and technical grounds, the STAP will recognize this in the screen by stating that "STAP is satisfied with the scientific and technical quality of the proposal and encourages the proponent to develop it with same rigor. At any time during the development of the project, the proponent is invited to approach STAP to consult on the design."		

2. Minor issues to be considered during project design	STAP has identified specific scientific /technical suggestions or opportunities that should be discussed with the project proponent as early as possible during development of the project brief. The proponent may wish to:		
	(i) Open a dialogue with STAP regarding the technical and/or scientific issues raised;		
	(ii) Set a review point at an early stage during project development, and possibly agreeing to terms of reference for an independent expert to be appointed to conduct this review.		
	The proponent should provide a report of the action agreed and taken, at the time of submission of the full project brief for CEO endorsement.		
3. Major issues to be considered during project design	STAP proposes significant improvements or has concerns on the grounds of specified major scientific/technical methodological issues, barriers, or omissions in the project concept. If STAP provides this advisory response, a full explanation would also be provided. The proponent is strongly encouraged to:		
	(i) Open a dialogue with STAP regarding the technical and/or scientific issues raised; (ii) Set a review point at an early stage during project development including an independent expert as required. The proponent should provide a report of the action agreed and taken, at the time of submission of the full project brief for CEO endorsement.		

The responses to Council comments may be found below:

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**UNEP responses to GEF Council comments on the  
Global Programme to Support Countries with the Shift to Electric Mobility (GEFID 10114)**

v 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 COVID-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 be 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<sub>2</sub>O from both mobile (e.g. trucks and cars) and stationary (e.g. coal power stations) emission sources[2]. 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<sub>2</sub>O) 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-à-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.

**v 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).

**v 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).

**v 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.

**v 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.

v Comment by James Woodsome, International Economist, Office 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](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/noroutyouanner-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.

v Comment by Lauren Céline Naville Gisnås, 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.

[1] Harvard University: "COVID-19 PM2.5, A national study on long-term exposure to air pollution and COVID-19 mortality in the United States", available at: <https://projects.iq.harvard.edu/covid-pm>

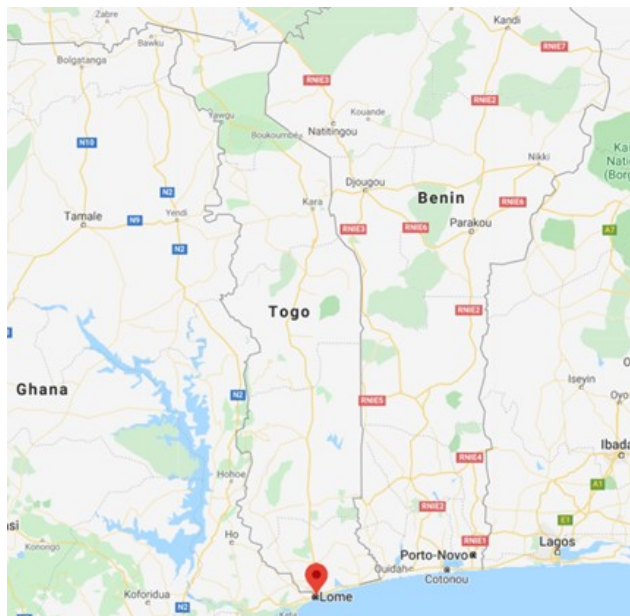
[2] Yaron Ogen, 2020, "Assessing nitrogen dioxide (NO2) levels as a contributing factor to coronavirus (COVID-19) fatality", Science of The Total Environment, available at: <https://www.sciencedirect.com/science/article/pii/S0048969720321215>

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

PPG Grant Approved at PIF: US\$ 35,000			
<i>Project Preparation Activities Implemented</i>	<i>GETF/LDCF/SCCF Amount (US\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent to date</i>	<i>Amount Committed</i>
GEF project consultant	6,000	6,000	0
UNEP Sustainable Mobility Unit expert	24,068	24,824	0
UNEP Sustainable Mobility Unit travel	4,932	2,226	1,950
-			
<b>Total</b>	<b>35,000</b>	<b>33,050</b>	<b>1,950</b>

#### ANNEX D: Project Map(s) and Coordinates

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



Demonstration sites	Latitude	Longitude
Lomé, Togo	6 130443	1.232279

## ANNEX E: Project Budget Table

Please attach a project budget table.

Expenditure category & detailed description	Component 1	Component 2	Component 3	Component 4	Sub-total	M&E	PMC	Total	Responsible entity
<b>Grants/ Sub-grants</b>	<b>0</b>	<b>62,500</b>	<b>0</b>	<b>2,000</b>	<b>64,500</b>	<b>0</b>	<b>0</b>	<b>64,500</b>	
International procurement support (STA)	0	56,500	0	0	56,500	0	0	56,500	UNEP SMU
Data collection and analysis support (local university)	0	6,000	0	2,000	8,000	0	0	8,000	MEFR
<b>Contractual Services – Company</b>	<b>4,500</b>	<b>6,400</b>	<b>4,600</b>	<b>1,600</b>	<b>17,100</b>	<b>30,300</b>	<b>8,000</b>	<b>55,400</b>	
Venue and catering services for workshops and events	4,500	6,400	4,600	1,600	17,100	300	0	17,400	MEFR
Mid-Term Review (optional)	0	0	0	0	0	10,000	0	10,000	UNEP Evaluation Office
Terminal Evaluation	0	0	0	0	0	20,000	0	20,000	UNEP Evaluation Office
Independent financial audits	0	0	0	0	0	0	8,000	8,000	MEFR
<b>International Consultants</b>	<b>19,500</b>	<b>48,500</b>	<b>44,500</b>	<b>41,500</b>	<b>154,000</b>	<b>0</b>	<b>0</b>	<b>154,000</b>	
International Policy, Business and Strategy expert	16,500	0	38,500	0	55,000	0	0	55,000	MEFR
International E-mobility Technical Support (UNEP SM Unit)	3,000	4,500	6,000	3,000	16,500	0	0	16,500	UNEP SMU
International E-Mobility Technology expert	0	44,000	0	0	44,000	0	0	44,000	MEFR
International Charging & Renewable Energy integration and Battery expert	0	0	0	38,500	38,500	0	0	38,500	MEFR
<b>Local Consultants</b>	<b>0</b>	<b>9,000</b>	<b>12,000</b>	<b>0</b>	<b>21,000</b>	<b>0</b>	<b>0</b>	<b>21,000</b>	
National E-Mobility Technology Expert	0	9,000	12,000	0	21,000	0	0	21,000	MEFR
<b>Salary and benefits / Staff costs</b>	<b>18,500</b>	<b>11,000</b>	<b>8,500</b>	<b>3,000</b>	<b>41,000</b>	<b>0</b>	<b>27,000</b>	<b>68,000</b>	
Chief Technical Advisor	18,500	11,000	8,500	3,000	41,000	0	27,000	68,000	MEFR
<b>Travel</b>	<b>39,500</b>	<b>12,200</b>	<b>5,800</b>	<b>2,800</b>	<b>60,300</b>	<b>0</b>	<b>0</b>	<b>60,300</b>	
Travel for the International Policy, Business and Strategy expert	4,400	0	4,400	0	8,800	0	0	8,800	MEFR
Travel for the International E-mobility Technical Support (UNEP SM Unit)	2,300	2,300	0	0	4,600	0	0	4,600	UNEP SMU
Travel to attend Africa Support & Investment Platform events	23,000	0	0	0	23,000	0	0	23,000	MEFR
Travel to attend E-Mobility Global Programme events (DSA only)	1,800	0	0	0	1,800	0	0	1,800	MEFR
Travel for the International E-Mobility Technology expert	0	9,900	0	0	9,900	0	0	9,900	MEFR
Travel for the International Charging & Renewable Energy integration and Battery expert	0	0	0	2,200	2,200	0	0	2,200	MEFR
Project Steering Committee meetings (travel allowance)	2,000	0	0	0	2,000	0	0	2,000	MEFR
Technical Working Group Meetings (travel allowance)	6,000	0	0	0	6,000	0	0	6,000	MEFR
National Policy Development Support Meetings (travel allowance)	0	0	1,400	600	2,000	0	0	2,000	MEFR
<b>Other operating costs</b>	<b>0</b>	<b>516</b>	<b>0</b>	<b>0</b>	<b>516</b>	<b>0</b>	<b>0</b>	<b>516</b>	
Informaterials	0	516	0	0	516	0	0	516	MEFR
<b>Grand Total</b>	<b>82,000</b>	<b>150,116</b>	<b>75,400</b>	<b>50,900</b>	<b>358,416</b>	<b>30,300</b>	<b>35,000</b>	<b>423,716</b>	

## ANNEX F: (For NGI only) Termsheet

**Instructions.** Please submit a 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 Agency 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

