



Accelerating the introduction of low-emission and climate-resilient electric mobility in Grenada

Part I: Project Information

Name of Parent Program

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

GEF ID

10629

Project Type

MSP

Type of Trust Fund

GET

CBIT/NGI

CBIT No

NGI No

Project Title

Accelerating the introduction of low-emission and climate-resilient electric mobility in Grenada

Countries

Grenada

Agency(ies)

UNEP

Other Executing Partner(s)

Ministry of Finance, Planning, Economic Development and Physical Development

Executing Partner Type

Government

GEF Focal Area

Climate Change

Taxonomy

Learning, Capacity, Knowledge and Research, Sustainable Urban Systems and Transport, Climate Change Mitigation, Climate Change, Focal Areas, Strengthen institutional capacity and decision-making, Influencing models, Transform policy and regulatory environments, Demonstrate innovative approaches, Education, Communications, Stakeholders, Public Campaigns, Awareness Raising, Behavior change, Participation, Type of Engagement, Information Dissemination, Consultation, Capital providers, Private Sector, Financial intermediaries and market facilitators, Large corporations, SMEs, Individuals/Entrepreneurs, Trade Unions and Workers Unions, Civil Society, Non-Governmental Organization, Community Based Organization, Academia, Access to benefits and services, Gender results areas, Gender Equality, Beneficiaries, Gender Mainstreaming, Women groups, Innovation, Capacity Development

Sector

Transport/Urban

Rio Markers

Climate Change Mitigation

Climate Change Mitigation 2

Climate Change Adaptation

Climate Change Adaptation 1

Submission Date

2/16/2022

Expected Implementation Start

9/1/2022

Expected Completion Date

8/31/2025

Duration

36 Months

Agency Fee(\$)

94,583.00

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	1,050,917.00	6,138,793.00
Total Project Cost(\$)			1,050,917.00	6,138,793.00

B. Project description summary

Project Objective

Accelerate the introduction of low-carbon electric mobility in Grenada, leading to reduced national fossil fuel consumption, greenhouse gas emissions and air pollution.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
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Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
1. Institutionalization of electric mobility	Technical Assistance	1. The Grenada government enhances coordination, capacity, planning and its strategic vision for accelerating the introduction of low-carbon electric mobility	<p>1.1. A national electric mobility coordination unit is established for enhancing the coordination of national decision-makers</p> <p>1.2. A national 2050 low-carbon and climate-resilient sustainable transport strategy is submitted for adoption by the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation</p> <p>1.3. A national transport data system is established within the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation</p> <p>1.4. Public and</p>	GET	439,563.00	1,638,793.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
2. Short-term barrier removal through electric mobility and charging station pilots	Investment	2. Grenadian public fleet operators start using electric vehicles for their operations	<p>2.1. The viability of minimum 6 electric vehicles for public sector fleets is demonstrated to key country stakeholders</p> <p>2.2. The effectiveness of electric vehicle charging infrastructure, including through connection to grid-interactive solar photovoltaic installations, is demonstrated to key country stakeholders</p>	GET	273,800.00	3,250,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
3. Preparation for the scale-up of electric mobility	Technical Assistance	3. The government takes action towards implementing an enabling environment for facilitating the adoption of electric mobility at scale	<p>3.1. Regulations on road vehicles and fuel quality are submitted for adoption by the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation</p> <p>3.2. A structured and time-adjusted import fiscal regime for electric vehicles is submitted for adoption by the Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy</p>	GET	181,738.00	500,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
4. Long-term environmental sustainability of electric mobility	Technical Assistance	4. The Government of Grenada takes actions towards implementing a regulatory framework for ensuring the environmental sustainability of low-carbon electric mobility	4.1. Proposals for updating the National Solid Waste Management Strategy and amending the Waste Management Act to address electric vehicle end-of-life and battery reuse are submitted for adoption by the Ministry of Climate Resilience, The Environment, Forestry, Fisheries and Disaster Management	GET	29,778.00	150,000.00
5. Monitoring and Evaluation	Technical Assistance	5. Project is effectively monitored and evaluated	5.1. Monitoring and evaluation products are delivered (see section 9)	GET	30,500.00	
Sub Total (\$)					955,379.00	5,538,793.00
Project Management Cost (PMC)						
				GET	95,538.00	600,000.00
				Sub Total(\$)	95,538.00	600,000.00
Total Project Cost(\$)					1,050,917.00	6,138,793.00

Please provide justification

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 Finance, Economic Development, Physical Development, Public Utilities and Energy	In-kind	Recurrent expenditures	200,000.00
Recipient Country Government	Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy	Public Investment	Investment mobilized	400,000.00
Recipient Country Government	Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy	Loans	Investment mobilized	3,200,000.00
Recipient Country Government	Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy	Grant	Investment mobilized	1,500,000.00
Recipient Country Government	Ministry of Infrastructure Development, Public Utilities, Transport and Implementation	In-kind	Recurrent expenditures	200,000.00
Recipient Country Government	Grenada National Training Agency	In-kind	Recurrent expenditures	438,793.00
Recipient Country Government	Grenada Solid Waste Management Authority	In-kind	Recurrent expenditures	200,000.00
Total Co-Financing(\$)				6,138,793.00

Describe how any "Investment Mobilized" was identified

Investment mobilized was identified through discussions with the Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy. In particular, discussions and co-creation of the project together with this ministry led it to allocating funds in the national budget for covering the cost of new vehicle purchases for the GEF project pilots. The GEF project will cover the incremental cost of these vehicles to ensure they are electric (refer to output 2.1 for a detailed description). Discussions with the Ministry also led to the identification of mobilized investments that will contribute to ensuring the uptake of low-carbon electric mobility, through a loan of the United Arab Emirates-Caribbean Renewable Energy Fund for a solar photovoltaic (PV) hybrid battery storage plant in Limlair, Carriacou, and a Green Climate Fund grant for accelerating the uptake of geothermal and other renewable energies.

Detailed descriptions of each co-financing commitment can be found in annex I-2. The co-financing letters are in annex N.

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

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNEP	GET	Grenada	Climate Change	CC STAR Allocation	1,050,917	94,583	1,145,500.00
Total Grant Resources(\$)					1,050,917.00	94,583.00	1,145,500.00

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount (\$)

50,000

PPG Agency Fee (\$)

4,500

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNEP	GET	Grenada	Climate Change	CC STAR Allocation	50,000	4,500	54,500.00
Total Project Costs(\$)					50,000.00	4,500.00	54,500.00

Core Indicators

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)	0	73715	0	0
Expected metric tons of CO ₂ e (indirect)	0	171758	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 ₂ e (direct)				
Expected metric tons of CO ₂ 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 ₂ e (direct)		73,715		
Expected metric tons of CO ₂ e (indirect)		171,758		
Anticipated start year of accounting		2022		
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)		7,233,964,408		

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

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
Solar Photovoltaic		0.01		
select				

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		470		
Male		650		
Total	0	1120	0	0

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

? **Indicator 6. Refer to Annex L for the methodology used; ? Indicator 11. Direct beneficiaries are defined as all individuals estimated to received targeted support (i.e. direct assistance) from the project. The number of beneficiaries is estimated based on the expected participation in workshops and planned capacity building activities (Component 1), as well as direct users of the deployed pilot projects. Additional beneficiaries will be all future users of the charging stations procured with the demonstration pilot and the enhanced regulatory framework and incentives for electric vehicles in the future (Component 3 and 4). Disaggregation of beneficiaries by gender was estimated taking into account the best available data on the gender composition for the country (Grenada's Population and Housing Census 2011). It also takes into account the fact that the transport sector is heavily male dominated.**

Part II. Project Justification

1a. Project Description

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

1.1 Global environmental problem

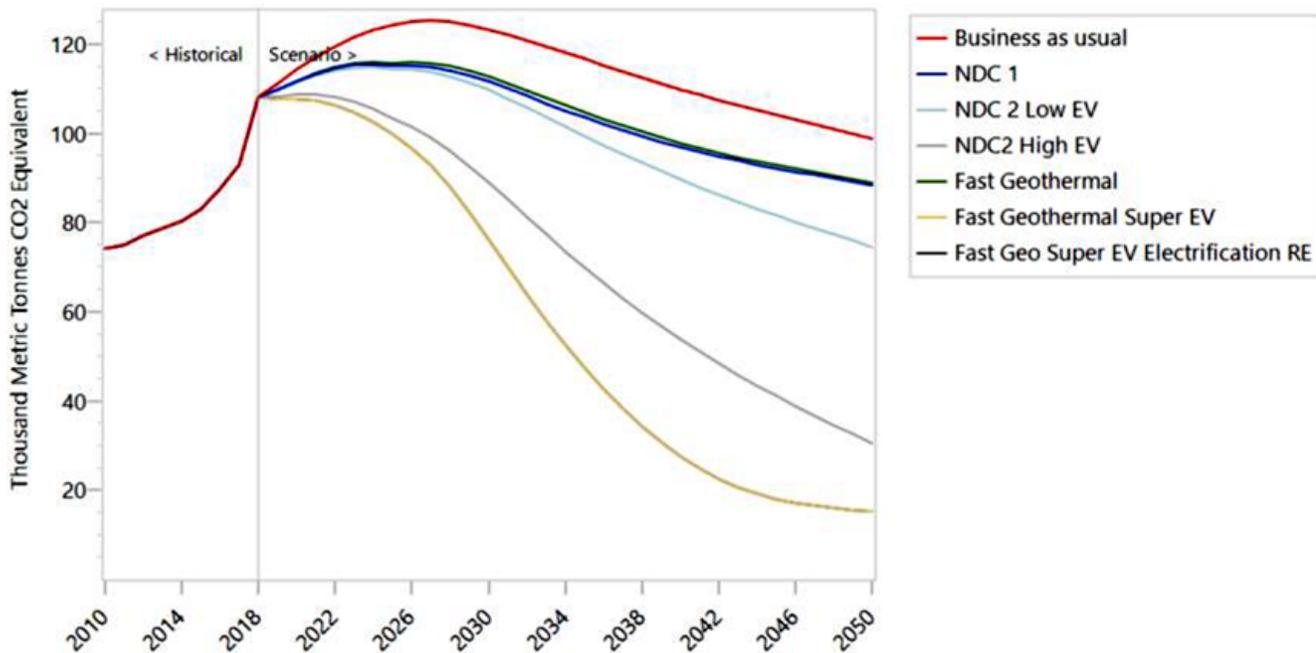
A global transition to low- and zero-emission mobility is essential to meet international climate commitments, such as the Paris Agreement. The transport sector is currently responsible for approximately one quarter of energy-related carbon dioxide (CO₂) emissions,[1]¹ and this is expected to grow to one-third by 2050. In addition, the transport sector is a leading contributor to short-lived climate pollution, including that caused by nitrogen oxide (NO_x), sulphur oxide (SO_x) and particle matter (PM).

In Grenada, 29% of national greenhouse gas (GHG) emissions are due to the transport sector, and the sector's emissions increased by 21% between 2000 and 2014. This is primarily due to road transport, which consists primarily of old inefficient internal combustion engine vehicles running on low quality fossil fuels. Based on recent trends, emissions from this sector are projected to continue to grow: the vehicle stock in Grenada has increased by almost 50% since 2010, from just under 26,000 private and commercial vehicles to approximately 38,000 in 2019. Over the same period, the number of vehicles per capita has increased from 244 vehicles per thousand inhabitants to 349.[2]² Cars are among the top five imported goods in Grenada.[3]³ Figure 1 below highlights that recent historical emissions from the transport sector have been growing exponentially. If recent trends in vehicle ownership are maintained, Grenada will almost double its vehicle fleet by 2030, which in turn will lead to an increase of approximately 40% of GHG emissions (from approximately 75,000 tCO₂e in 2010 compared to over 120,000 tCO₂e in 2030) from the road transport sector (from a 2010 baseline).[4]⁴

Although the country currently generates electricity through the burning of fossil fuels, with a grid emission factor of 0.634 tCO₂/MWh,[5]⁵ it has set ambitious targets to decarbonize its power sector in its nationally determined contribution (NDC) and is starting to take steps to achieve this (see baseline

section). Complementary to such efforts, there is a need to decarbonize the transport sector to enable Grenada to achieve its NDC targets, contribute to the Paris Agreement, and generate global environmental benefits. The following diagram highlights the projected contribution of different combinations of low-emission transport and energy sectors to supporting national GHG emission reductions (for a detailed description of this diagram refer to the baseline section).

Figure 1: Projections of GHG emissions from Grenada's road transport sector to the year 2050



Source: Climate Analytics (2021): Assessment Report to Inform Mitigation Potential of Grenada's Updated NDC for 2020, p. 23

1.2 Barriers and root causes of the global environmental problem

While Grenada has identified the need to decarbonize its transport sector for achieving global environmental benefits and also national and local social and environmental benefits, it has not managed to take significant steps in that direction. The country is at the very beginning of the technology adoption curve for electric vehicles, having less than a dozen electric vehicles in circulation and less than 30 chargers installed across the island. The four main barriers and their root causes impeding the transition to low-carbon electric mobility are here forth described.

Barrier 1: A weak institutional framework results in uncoordinated action for promoting low-carbon electric mobility

a) *Lack of coordination and consultation on promoting low-carbon electric mobility*

In recent years Grenada has taken a series of steps to facilitate greater coordination of its transport sector and its energy sector. However, it is yet to establish governmental coordination between the two sectors, which is key for ensuring a controlled adoption of a technology that impacts on both. On the transport sector, in 2021 Grenada established a Grenadian Transport Commission (GTC), tasked with coordinating the sector, including as related to a modernization and organization of its atomized and informal public transport sector. In the energy sector, recent changes in the legislation (in particular the 2016 Public Utilities Regulatory Commission (PURC) Act and 2016 Electricity Supply Act), as well as the nationalising of Grenada Electric Services Ltd. (GRENLEC) in 2021, were undertaken to ensure that this primary power producer will undertake investments which are aligned with the country's decarbonization priorities.[6]⁶ Previously, the privately owned electric company did not share the Grenada government's vision of restructuring the electricity sector and making significant investments in renewable energy. This situation weakened the trust and collaborative work between stakeholders.[7]⁷ Grenada has a liberalised electricity market where independent power producers (IPPs) are generally allowed to operate. However, the market entry of IPPs (except for a few interconnections with GRENLEC customers that own small-scale solar PV plants) has failed in the past due to the previously existing legal structure and the lack of a supporting regulatory framework.[8]⁸

A lack of stakeholder engagement is also affecting the adoption of electric mobility. The implementation of the GTC was considered a significant step by government towards the development of the transport sector in Grenada. However, members of the National Bus Association (NBA)[9]⁹ expressed disappointment that they were not given a seat on the commission's board.[10]¹⁰ This highlights that there are opportunities to enhance the engagement of the local community in the socio-technological transition to electric mobility, moving beyond governmental-centralized one-way communication.

b) *Lack of inclusive long-term planning on electric mobility*

There is also a lack of inclusive long-term planning for the introduction of low-carbon electric mobility, including with regards to the required charging infrastructure and accompanying deployment of renewable energy. While Grenada has set ambitious long-term NDC targets, these have not yet been translated into specific short- and mid-term targets and a roadmap of actions to decarbonise the transport and electricity sectors. This has resulted in the absence of a clear long-term political signal in these sectors, creating uncertainty for the private sector and consequently delaying the uptake of low-emission technologies, including mature technologies such as photovoltaic solar plants. Electricity

generation in Grenada remains reliant on fossil fuels, with actions to increase the share of renewable energy not yet being implemented at rates needed to meet national targets. Such are also not coordinated with an overarching deployment strategy for EVs and the associated charging infrastructure, with such a strategy not existing. A sufficient number of charging stations is a prerequisite for EV diffusion. The currently low number of charging networks in Grenada has been recognised as a limiting factor for consumers to buy EVs.[11]¹¹ This makes it clear that Grenada also needs a long-term strategy with targets for EV charging infrastructure associated with the expansion of renewable energy capacity connected to the national grid. For owners or prospective buyers of EVs, a key piece of consumer information is the location and availability of public charging infrastructure. As there is currently no charging availability map in Grenada showing the charging stations already installed for e-vehicles, it is not possible to provide the general public with real-time information on whether the network of existing charging points has been expanded or whether certain charging points are available for use.

c) *Lack of transport sector data and mechanisms for related data collection.*

Infringing on addressing the previous barrier is a lack of transport sector data and mechanisms for related data collection and analysis. Policymakers do not have access to compiled local data for developing evidence-based policies and regulations that promote and incentivise the use of electric vehicles as substitutes for conventional vehicles. Public transport system and traffic data (such as number of passengers transported, fare collection, system costs and overall economic performance of the public transport system) is atomised and captured by different institutions, with no centralized system for bringing data together in one place. As a corollary, the country lacks mechanisms for collecting additional data in the road transport sector. This negatively impacts on efforts to design, implement and monitor policies and regulations to promote sustainable mobility, including through electric vehicles. The lack of data also means that the country is unable to monitor GHG emissions from transport and observe the impact of mitigation measures in that sector.

d) *Lack of training, skills and knowledge on electric mobility.*

As a country at the very early stage of the technology adoption cycle for electric mobility, there is a significant lack of local capacity with regards to all aspects of the technology. During the project preparation grant phase, key capacities which are lacking and result in barriers to stimulating early technology adoption in Grenada were the following:

- i) Technical aspects of transport electrification. Government officials and fleet managers have a lack of knowledge on electric vehicle and charging infrastructure technology, safety aspects, and related operations and maintenance. This holds back policy and regulatory development and public and private fleet purchases;
 - ii) Financing transport fleet electrification. Government officials, Grenada Development bank officials, private banks (the Republic Bank and the Grenada Cooperative Bank), fleet
-

managers and large hotel owners have a lack of understanding of how to calculate the total cost of ownership of EVs versus ICEs, structure loans for EVs and develop related public and private procurement structures;

- iii) End-of-life management of electric vehicles and batteries. Government officials and waste management stakeholders have a lack of capacity to develop policies and regulations for ensuring effective EV end-of-life of the vehicle (ELV) management of electric vehicles and batteries, and incorporation into regional waste management value chains;

Additionally, there is a lack of local knowledge on the cost-effectiveness of renewable energy in Grenada. Detailed assessments on the capacity of the distribution grid to absorb solar photovoltaic (PV) based power at different locations and the needs for upgrading the grid are required.[12]¹² As a result, public and private stakeholders are unaware that renewable energy costs in the Caribbean continue to decline, and that renewable generation could increasingly become the default source of least-cost new power generation.

Barrier 2: Lack of confidence in and awareness of the benefits of electric vehicles

a) Lack of stakeholder awareness and confidence in low-emission electric mobility for serving the country's mobility needs

With essential an absence of electric vehicles in the country, there is a lack of local evidence on the technical reliability and performance of EVs for effectively replacing the services of conventional vehicles. Grenada has a hilly terrain and a high salinity climate. It is also annually affected by extreme weather events. In this context, government officials and the private sector (for instance, the tourism industry) are reluctant to make investments in a locally unproven technology, notwithstanding significant interest. As noted above, the number of vehicles in the country is less than a dozen, representing 0.03% of the fleet. Furthermore, these vehicles have not been used in highly visible and high usage functions. GRENLEC launched the first ever EV pilot project (of just two vehicles) in Grenada in 2015, however, the visibility of the pilot was limited. The pilot project provided initial insights into how electric vehicles can help improve fuel economy and lower fuel costs but did not demonstrate the social and environmental benefits associated with the adoption of electric vehicles to Grenadian citizens. In addition, to date the number of charging stations on the island has been too low to contribute to increasing the exposure of e-mobility among the general public. The lack of awareness and confidence in EVs, e-mobility infrastructure and in low-emission technologies and sustainable electricity generation for meeting Grenada's transportation needs bring policy- and decision-makers, private investors and civil society to believe that such a technology will not work in 'island conditions'. This results in a lack of investment, policies and incentives to promote low-carbon electric mobility. It also results in a lack of bottom- up pull from civil society and consumers for transitioning to these technologies.

Barrier 3: Lack of enabling environment for promoting low-emission technologies

a) Absence of regulation which incentivizes adoption of electric vehicles

While Grenada is taking significant steps to thoroughly update the regulations of its power sector (see the baseline section), it lacks a complete regulatory framework for incentivizing the uptake of electric vehicles by levelling the playing field with internal combustion engines. In 2020 it took its first steps in this direction: it introduced a ban on the importation of vehicles older than 10 years and through the Royal Grenada Police Force (RGPF) put a new system in place for the annual inspection of vehicles. Both of these measures are working to reduce the presence of old decrepit vehicles on the island's roads. However, the country has no vehicle emission standards and no fuel quality standards, both of which are key for reducing the importation of cheap and highly polluting used internal combustion engine (ICE) vehicles. Without these, electric vehicles will continue to be priced out of the local market. Furthermore, Grenada is yet to develop regulations on electric vehicles and their charging stations, important for ensuring the importation of high quality and safe technologies. This lack of legislation also generates uncertainty for investors and developers seeking to promote electric mobility. Furthermore, if such infrastructure is installed without legislation, it could damage the power generation and distribution system, block pedestrian pavements and increase congestion in urban areas.

b) Inadequate tax regimes for catalyzing early EV adoption

On 31 December 2020, the Government of Grenada implemented a 50% duty and tax concession on the importation of electric and hybrid vehicles in 2020.[13]¹³ While this is an important step forward, the EV upfront cost is still significantly higher than ICE vehicles. The current cost for a small passenger van EV in Grenada is still approximately 30% higher than a comparable ICE vehicle, even after applying the current tax deduction of up to 50%.[14]¹⁴ Furthermore, the total cost of ownership (TCO) of EVs in Grenada is still higher than those for ICE vehicles over an assessment period of 10 years due to the high CAPEX and the relatively high electricity cost. Part of the solution to reducing the upfront cost is to stimulate significant market demand for the technology, leading to increased producer competition and economies of scale. To stimulate this, there is a need to develop a tax regime that reduces the upfront cost of electric vehicles for early adopters, thus working to create a local EV market. This works hand in hand with the introduction of needed regulations, as described in 3a).

Barrier 4: Insufficient understanding of the environmental implications of electric vehicle adoption

a) Lack of policy and regulatory framework for managing EV end-of-life

In 2021 Grenada updated its National Solid Waste Management Strategy (NSWMS) to include consideration of vehicles and their components. This is a major step forward ? the dumping of derelict used vehicles on the roadside is unfortunately a common sight across the island. However, the new strategy does not consider electric vehicles and their components, particular batteries (although the strategy does consider other batteries), nor does the Waste Management Act #16 (2001), the related regulatory framework, consider such elements. Without a policy and regulatory framework that considers EVs, government actors, vehicle distributors and consumers are hesitant to promote the uptake of electric vehicles due to a lack of clarity as to vehicle disposal responsibilities. Updating the strategy (e.g. to include a chapter on EVs and their components) and amending the Act would be major steps forward in providing such regulatory clarity. As a small island, Grenada does not have sufficient market size for processing recycled waste or stimulating reuse of parts at scale, thus key elements of such updates would include consideration of ways to incorporate such waste into regional value chains and promote extended producer responsibility. Consideration would also need to be given to the promotion of reuse of EV batteries to fulfil other island needs. Establishing such a policy and regulatory framework, as well as providing regulatory certainty for EV stakeholders, would also reduce the negative impacts resulting from improper disposal, including on terrestrial, marine and other aquatic ecosystems, and, by extension, on human livelihood.

b) *Lack of institutional and private sector capacity in managing EV end-of-life*

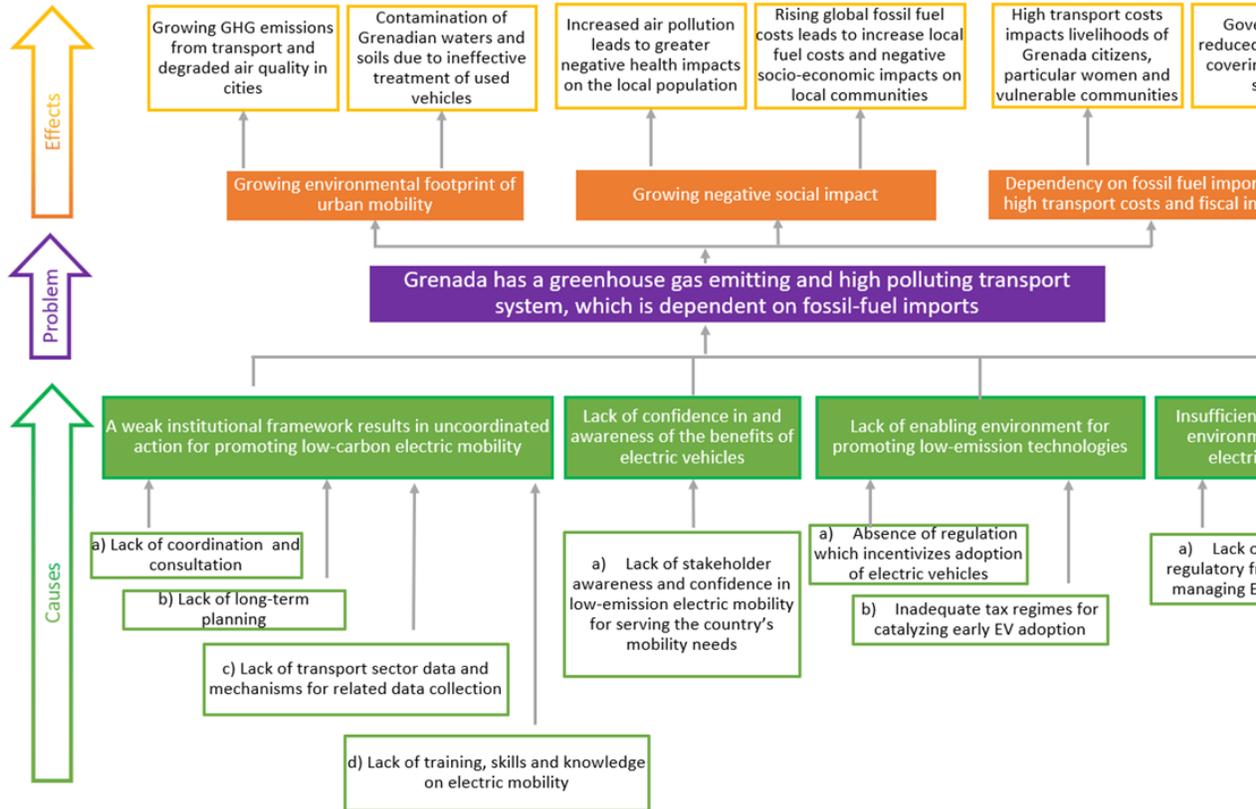
Accompanying the lack of regulatory clarity is a lack of capacity of waste management stakeholders to promote responsible waste management of electric vehicles at their end of life. The Ministry of Climate Resilience, The Environment, Forestry, Fisheries and Disaster Management, which holds the mandate for waste management, as well as the Grenada Solid Waste Management Authority (GSWMA), the lead thematic governmental agency, do not have institutional or human resource experience or knowledge on effective waste management of electric vehicles and their components. Knowledge of EVs in general is low, as demonstrated by the fact that the National Solid Waste Management Strategy was updated in 2021 but without consideration of electric vehicles and their components. Without greater knowledge on regulations, methodologies and processes for waste management of EVs, the country will not be able to effectively update and implement the NSWMS and the Waste Management Act to this purpose. In addition, with only a minute presence of electric vehicles on the island, and with none of these approaching end of life, private sector waste management companies and related stakeholders have little knowledge and no local experiences on how to implement their solid waste management operations in a way that facilitates safe and effective EV end-of-life management. Such capacity is needed to ensure that future practices conform with revised solid waste management policies and regulations, ultimately leading to an environmentally safe management of disposed vehicles that currently sit abandoned on Grenada's streets.

1.3 Problem tree

The following diagram summarises the aforementioned barriers and root causes in a problem tree.

Figure 2: Problem tree

Problem Tree



2) Baseline scenario and associated baseline projects

This section presents the project's baseline scenario and associated baseline projects. It starts by providing an overview of the national GHG emissions profile. Following this the energy sector is described, with a particular focus on electricity generation and supply. The transport sector in Grenada is then considered, followed by an overview of existing strategies, plans and other future activities in both sectors.

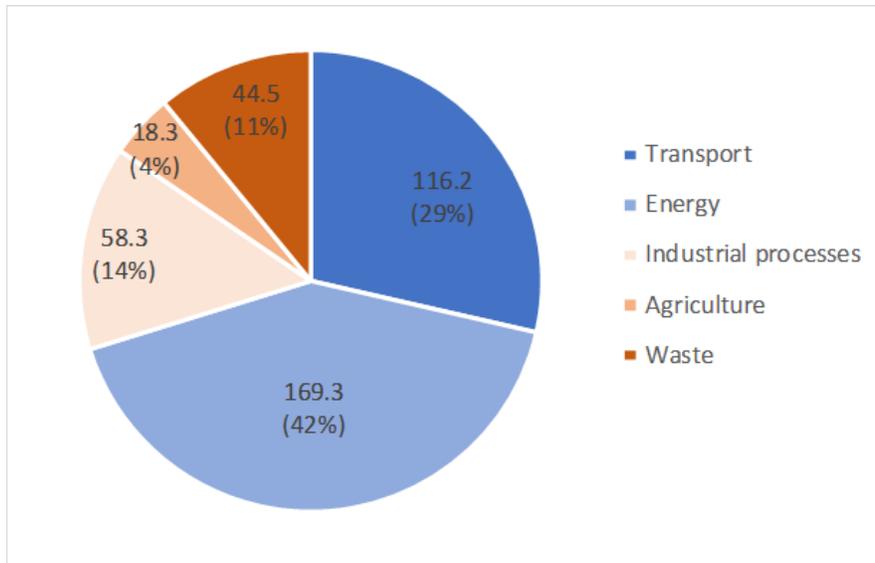
2.1 Emissions profile

In 2014, total greenhouse gas (GHG) emissions for Grenada were estimated at 407,000 tonnes in CO₂ equivalent (tCO₂e), and 70% of the emissions were due to energy production and consumption (including transport). Grenada's annual GHG emissions increased by 49% between 2000 and 2014, with most of this coming from the energy industries (54% of the increase). Of the energy sub-sectors, power and heat generation and road transport account for 38% and 21% of the increase respectively.^{[15]¹⁵} It should be noted that these increases have occurred even though the overall population has remained essentially stable, highlighting an increasing emission-intensity per capita.

The global environmental impact of Grenada's transport sector is significant. The sector is the second largest consumer of imported fossil fuels for combustion, after electricity generation, accounting for over 29% of the overall GHG emissions (see

Figure 3 below).^{[16]¹⁶} Besides GHG emissions, the combustion of low quality diesel and petrol fuels is creating local air pollution, including the emission of nitrous oxides (NO_x) and particle matter (PM). Such impacts are compounded by a vehicle fleet dominated by aged gasoline vehicles, which causes high PM contamination and noise pollution negatively impacting Grenada's primary economic activity: tourism.^{[17]¹⁷}

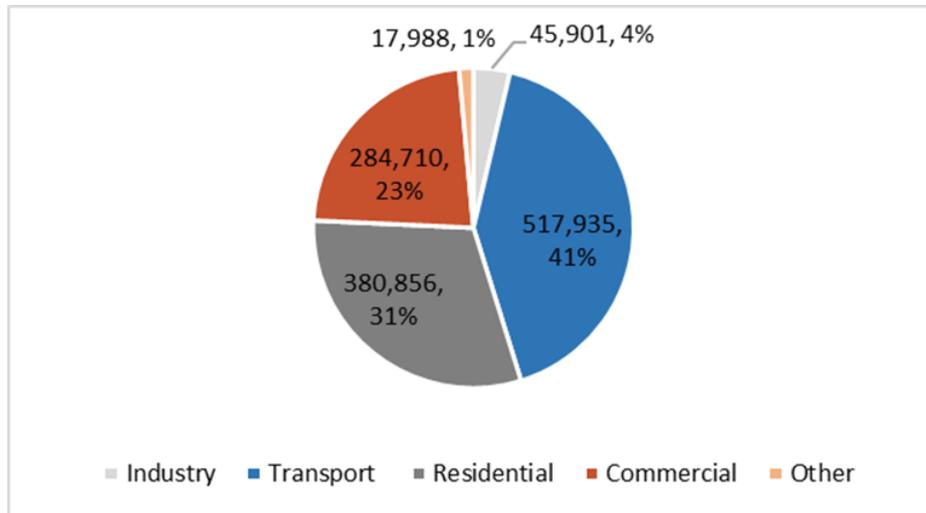
Figure 3: Grenada GHG emissions per sector in 2014 (in thousand tCO₂e)



Adapted from Government of Grenada (2017): Second National Communication to the United Nations Framework Convention on Climate Change (UNFCCC), pp. 58, 74-75.

In 2013, Grenada's production of primary energy was limited to approximately 113,200 megawatt hours (MWh) of combustible renewables and waste (CR&W) and 1,550 MWh of solar energy.[18]¹⁸ According to IDB (2015), most of the energy, about 93%, was imported in the form of oil products. In 2013, the island state imported a total of 1,612,737 MWh. About 41% of oil products (663,703 MWh) were used to generate electricity. The total losses in generation, distribution and transmission amounted to 480,099 MWh (72% of total oil imported for power generation), whereas 183,602 MWh (11% of total fossil fuel imports) were intended for final consumption in the electricity sector. In total, final consumption of Grenada in the year 2013 stood at 1,247,390 MWh of which 949,034 MWh (76%) were oil products, 183,604 MWh (15%) were consumed in the form of electricity and 113,202 MWh (9%) were CR&W.[19]¹⁹ As Grenada has no indigenous oil production, the aforementioned illustrates that Grenada heavily relies on imported fossil fuels (diesel, gasoline, and liquefied petroleum gas) to meet its energy needs. Figure 4 below shows the final consumption by sector for the year 2013.

Figure 4: Fuel use by sector (in MWh), Grenada, 2013



Adapted from IDB (2015): Challenges and Opportunities for the Energy Sector in the Eastern Caribbean ? Grenada Energy Dossier, p. 7.

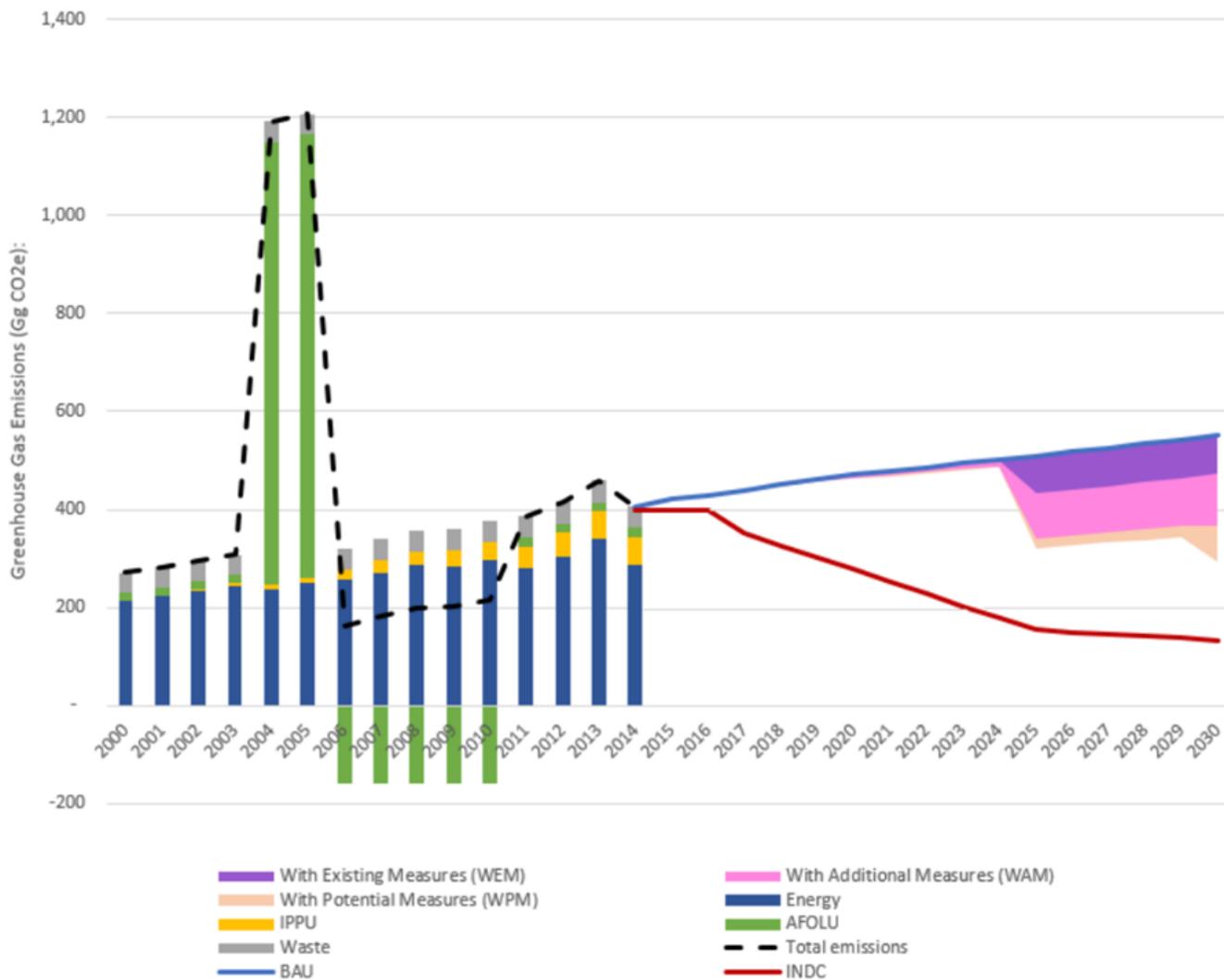
In 2018, nearly 99% of total electricity was generated by imported petroleum products.^{[20]²⁰} As a result, Grenada is currently a relatively high per capita emitter of GHGs for its electricity generation. According to IGES's 'List of Grid Emission Factors', the combined margin (CM) grid emission factors for the three Grenadian islands, Grenada, Carriacou and Petite Martinique (CDM Standardised Baseline valid from 2016 to 2019), amount to 0.634, 0.675 and 0.89 tCO₂/MWh respectively.^{[21]²¹} For the inventory year 2014, Grenada's GHG emissions were estimated at 3.8 tCO₂e annual per capita.^{[22]²²} A comparison of the fossil CO₂ emissions per capita across Eastern Caribbean islands (with a population size ranging from 70,000 to 300,000 inhabitants) showed that per capita emissions in Grenada were higher than those of most other islands. In 2016, Grenada had the second highest per capita CO₂ emissions at 5.03 tonnes, just behind Barbados at 5.63 tonnes. The overdependence on imported fossil fuels exposes Grenada to vulnerabilities associated with global oil price fluctuations.^{[23]²³} The electricity price incorporates a fuel charge '50% of the electricity tariff' which passes on the fuel costs to consumers, in turn hindering economic growth potential and national balance accounts.^{[24]²⁴} Studies indicate the need to double energy consumption in the period comprised between 2015 and 2027 to catch up with development needs.^{[25]²⁵} Unless aggressive efficiency measures are put in place, a substantial expansion of generation capacity will be required to meet future demand.

The 'business as usual' (BAU) baseline scenario, which is part of Grenada's Second National Communication (SNC) 2017 report, suggests that energy demand will increase steadily until 2030 due to the projected GDP growth.[26]²⁶ According to the *'Assessment Report to Inform Mitigation Potential of Grenada's Updated Nationally Determined Contributions (NDC) for 2020'*, Grenada's GDP is assumed to grow at a rate of 2.5% annually with no significant changes in economic structure.[27]²⁷ This would result in an increase in GHG emissions of approximately 2% per year (leading to total emissions ranging from 550,000 to 600,000 tCO₂e in 2030) if no appropriate mitigation actions were put in place. The baseline emissions projections from the SNC 2017 report are consistent with the calculations from the recently published assessment report for Grenada's second NDC.

The SNC 2017 report further notes that increased GHG emissions from domestic transport was driven mainly by increased use of vehicles, due to economic growth and increased social desire and affordability of mobility. It highlighted that without mitigation measures such emissions are expected to rise further into the future, accompanying the increasing GDP.[28]²⁸

Figure 5 below shows emissions projections to 2030 representing BAU emissions, and emissions under three scenarios (With Existing Measures (WEM), With Additional Measures (WAM), and With Potential Measures (WPM)) compared to Grenada's NDC target.

Figure 5: Emissions projections to 2030 representing BAU emissions, and emissions under three scenarios (WEM, WAM, and WPM) compared to Grenada's first NDC target



Source: Government of Grenada (2017): Second National Communication to the United Nations Framework Convention on Climate Change (UNFCCC), p. 272.

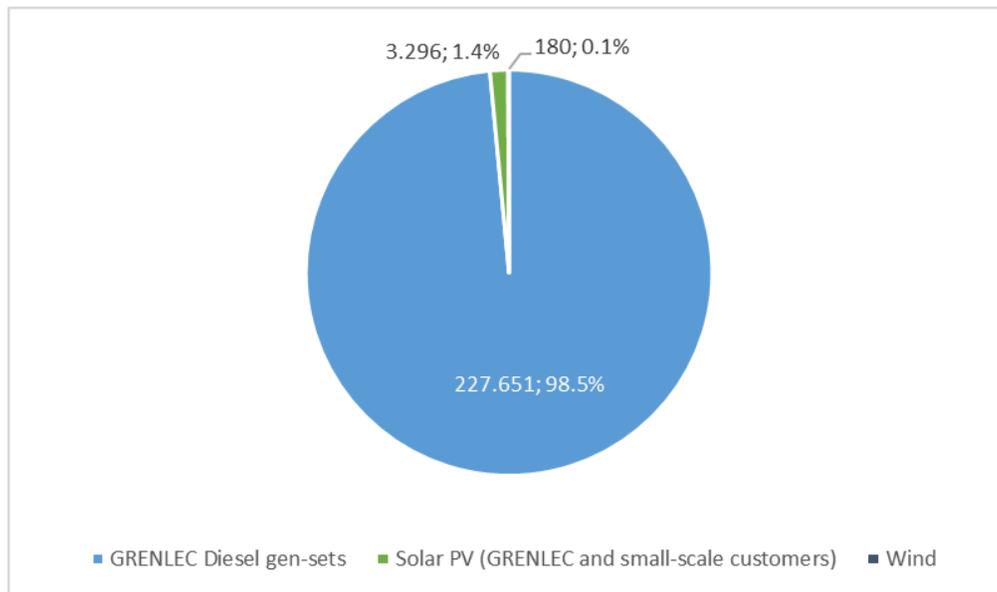
2.2 The energy sector

An overview of the sector

Currently, Grenada relies almost entirely on fossil fuel imports to cover its energy demands. At the moment, almost 99% of the country's electricity demand is supplied by diesel generation by Grenada Electricity Services Ltd (GRENLEC). In 2018, the total installed renewable energy capacity in Grenada amounted to approximately 2.4 MW, which was 4.8% of the total installed generation capacity. 97% of this installed renewable energy capacity were grid-connected solar PV plants (2.36 MW), and 3% were wind turbines (0.08 MW). Approximately 1.5 MW of the installed solar PV capacity is owned by private individuals (GRENLEC customers) and the remaining 0.86 MW belongs to GRENLEC

itself.[29]²⁹ The generation shares were almost equally divided between customers and the utility. In 2018, 1,615 MWh were generated by GRENLEC-owned solar PV plants compared to 1,681 MWh that were generated by privately-owned solar PV systems.[30]³⁰ The remaining 227,651 MWh were generated by GRENLEC's diesel-fired generator sets. Figure 6 below shows the electricity generation mix in Grenada in the year 2018 (the total electricity generation amounted to 231,127 MWh). The current electricity supply has a high GHG emission intensity of around 591 kg of CO₂/MWh consumed.[31]³¹ See annex Q for further baseline information about GRENLEC.

Figure 6: Electricity generation mix (in MWh), Grenada, 2018



Adapted from GRENLEC (2019): Annual Report 2018, p. 69.

The following table provides a summary of the key data of Grenada's power sector.

Table 1: Overview of Grenada's electricity sector

Total installed capacity[32] ³²	54.8 megawatts (MW) (2018)
Total installed renewable energy (MW)	2.4 MW (2018)
Peak Demand	32 MW (2018) = 58% of total installed capacity
Total Generation	231,127 MWh (2018)

Renewable energy as % of total installed generating capacity	4.8% (2018)	
Transmission and distribution losses	7.3% (2018)	
Electrification rate	>99.5%	
Combined margin (CM) grid emission factors for the three Grenadian islands	0.634 (Grenada), 0.675 (Carriacou) and 0.89 (Petite Martinique) tCO ₂ /MWh[33] ³³	
Baseline projections for energy demand (and associated GHG emissions)	291,000 MWh by 2030 (172,000 tCO ₂ e)	
Average Electricity Tariffs (US\$/kWh) as of February 2021	Domestic	US\$ 0.28
	Commercial	US\$ 0.30
	Industrial	US\$ 0.25

Adapted from GRENLEC (2019): Annual Report 2018, pp. 4, 14-18, 69; GRENLEC (2021): Current rates and changes in fuel charge; NREL (2015): Energy Transition Initiative, Island Energy Snapshot - Grenada, p. 2; Government of Grenada (2017): Second National Communication to the United Nations Framework Convention on Climate Change (UNFCCC), p. 276; and IGES (2021): List of Grid Emission Factors - Version: 10.10 - February 2021.

Grenada has a fully integrated electricity system and access to electricity is guaranteed on the whole island. The maximum demand in 2018 was approximately 32 MW or 58% of a total capacity of 54.8 MW[34]³⁴ that was available that year in Grenada and its sister islands Carriacou and Petite Martinique.[35]³⁵ This installed capacity is sufficient to meet the current domestic energy demand; however, the peak demand is expected to double by 2028 (see

Table 1 above).[36]³⁶ Doubling the generating capacity to meet this demand by using imported fossil fuels would have an adverse impact on Grenada's environment and economy, and also contribute to global warming. This paves the way for increasing the role of renewable energy in the energy mix in the country to meet future energy demands in a sustainable way. Renewable energy needs to play a critical role in supporting Grenada to meet its required energy demand, as well as reducing its dependence on imported fossil fuels, while at the same time reducing the oil import bill and increasing energy security.[37]³⁷ However, integrating high shares of variable renewable energies in small islands power sectors is challenging since managing alignment of supply and demand cannot be supported by geographical coverage or integration in regional power transmission systems. Power storage, for example in a fleet of EVs combined with vehicle to grid applications can be a future approach to balancing the power grid in small island systems.

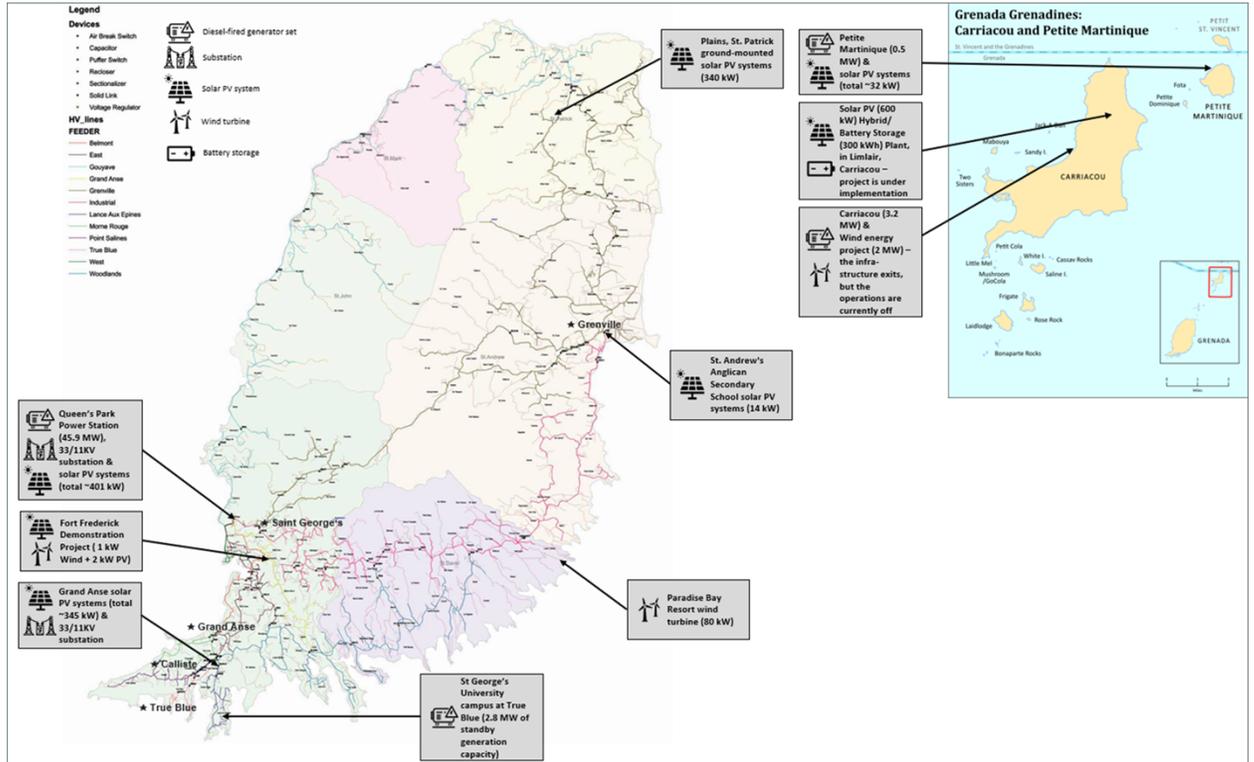
The demand for electricity in the Organisation of Eastern Caribbean States (OECS) member states has been steadily increasing (3-4% per year), primarily driven by the commercial and residential sectors.[38]³⁸ In 2018, the electricity consumption of Grenada's commercial sector as percentage of total consumption amounted to 56% leaving approximately 39% to the residential sector and 5% to the industrial sector.[39]³⁹ For the commercial sector, GRENLEC recorded a 3.2% increase in average annual consumption per customer in 2018.[40]⁴⁰ It is likely that this trend will continue in the near future.

The residential sector is also expected to see growth in electricity demand over the next few years. As Grenadians seek to improve their quality of life, their demand for electricity and modern energy services is increasing at a rate of 3-4% per annum.[41]⁴¹ Over the past 20 years, electricity production in Grenada has sharply increased, with total generation growing by more than 110% from circa 110,000 MWh in 1998 to 231,127 MWh in 2018.[42]⁴² Dependency on diesel-generated electricity results in high GHG emissions from the electricity generation sub-sector, with it being responsible for about 32% of total GHG emissions in 2014.[43]⁴³ Baseline projections for energy demand suggest demand for electricity will reach 291,000 MWh by 2030 (with associated emissions of 172,000 tCO₂e). Furthermore, the baseline projections show that the share of emissions coming from the electricity generation sub-sector is likely to remain above 30% of the total GHG emissions in 2030. Unless energy efficiency measures are implemented, this will represent a doubling of electricity demand by 2027 from a 2000 baseline.[44]⁴⁴

Grenada has a relatively reliable electricity supply compared to many of its neighbouring countries. About 99.5% of households in Grenada are connected to the national grid.[45]⁴⁵ In 2010, the combined duration of blackouts per customer in Grenada was 364 minutes and there was an average of seven power supply interruptions per customer. During that year, there were no brownouts.[46]⁴⁶ While fossil fuel-based power generation remains inherently inefficient, GRENLEC has made improvements to prevent losses in the distribution and transmission of electricity. The company has managed to achieve

significant reductions in electricity losses over the past few years, from around 14% in 2008 to 7.3% in 2018.[47]⁴⁷

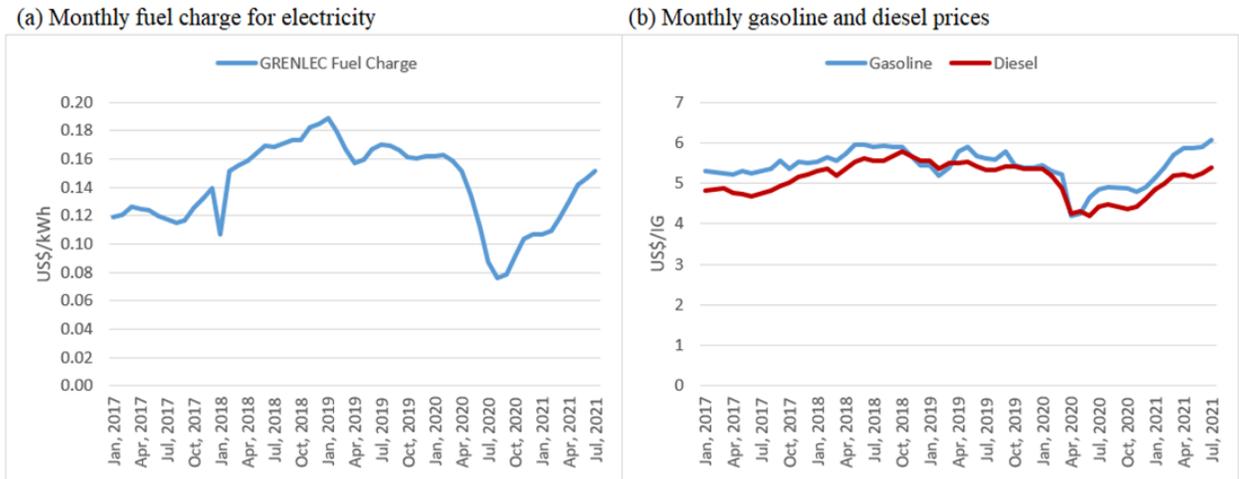
Figure 7: Outline of Grenada's power transmission and distribution grid and the different power generation plants (as of 2018)



Sources: Own elaboration adapted from IRENA (2012): *Renewables Readiness Assessment: Grenada*, pp. 32-33; Flores, A.; Peralta, L. (2020): *The enhancement of resilience to disasters and climate change in the Caribbean through the modernization of the energy sector*, p. 57; and GRENLEC (n.d.): *Renewable Energy Projects*. URL: <https://grenlec.com/renewable-energy-projects/>.

One of the most important factors affecting the vulnerability of Grenada's energy sector is the volatile oil prices on the international market. The high dependence on imported fossil fuels not only leads to high capital outflows, but also dictates the price of energy on the local market. The total electricity tariff in Grenada is composed of a non-fuel charge, a fuel charge, and value-added tax (VAT). The fuel charge component of the electricity price and the prices for diesel and gasoline for transport on the local market are shown in Figure 8 (a) and (b), respectively.[48]⁴⁸

Figure 8: Trends of prices for electricity, gasoline and diesel on Grenada's local market



Sources: NOW Grenada (2017-2021): Press releases on gas price developments. URL: <https://www.nowgrenada.com/tag/diesel> & GRENLEC (2021): Rates and Fees - 5-year Fuel Charge History. URL: <https://grenlec.com/customers/ratesandfees/>.

The graphs show large fluctuations in the prices of energy services and commodities in Grenada.[49]⁴⁹ The average tariff of the fuel component for electricity was about US\$ 0.12 in early 2017, increased to US\$ 0.19 in January 2019, and was trending downwards again to a low of US\$ 0.08 in August 2020. Since then it has increased continuously ? the tariff in July 2021 amounted to US\$ 0.15. Considering data for diesel and gasoline at the pump, the average price for these services between 2017 and 2021 ranged from US\$ 4.2 per gallon to US\$ 6.05 per gallon for gasoline and US\$ 4.2 per gallon and US\$ 5.77 per gallon for diesel.[50]⁵⁰ The most recent petroleum product prices that were published on the website of the Grenadian news portal ?NOW Grenada? in July 2021 amounted to: Gasoline, diesel and kerosine cost US\$ 6.05, US\$ 5.38 and US\$ 3.32 per imperial gallon (IG) respectively.[51]⁵¹ The average electricity tariffs in Grenada (including fuel charge) for the domestic, commercial and

industrial sectors amounted to US\$ 0.28, US\$ 0.30 and US\$ 0.25 per kWh respectively, in February 2021.

Renewable energy potential

Several documents (e.g. IDB, 2015 and IRENA, 2012) highlight the renewable energy potential and prospects for the use of renewable energy in Grenada. IRENA (2012) in particular is one of the most comprehensive readiness analyses for the island that has been conducted. In this context, in 2012 the country set an ambitious NDC target of a 100% share of renewable energy in electricity generation and transport by 2030.[52]⁵² To achieve such a target, the country aims to draw on its significant overall renewable energy potential of approximately 120.5 MW.[53]⁵³ Solar, wind and geothermal energy are the most significant options for greening the country's energy sector:[54]⁵⁴

- ? Wind. The estimated wind energy potential is 20 MW. To date, GRENLEC has evaluated the feasibility of wind farms at five sites on the main island and two on Carriacou. For Petite Martinique a wind-diesel hybrid project has been discussed;
- ? Geothermal. Geothermal studies show a potential of at least 50 MW base load capacity; two 20 MW geothermal projects are in the planning stage. Grenada is also part of a Green Climate Fund (GCF) project on geothermal (see information in following sections);
- ? Solar. Solar PV has high potential in Grenada, as the country's global horizontal irradiation exceeds 5 kWh/square meter per day. The estimated solar PV potential approximately amounts to 25 to 50 MW;[55]⁵⁵
- ? Hydropower. The Government of Grenada also expects to harness local small-scale hydropower potential to an amount of 0.5 MW.[56]⁵⁶

According to IDB (2020), the average levelized costs of electricity (LCOE) of utility-scale solar PV plants and wind energy in the Caribbean region are both estimated to be US\$0.11 per kWh.[57]⁵⁷ To put this in perspective, the current fuel charge in Grenada is approximately 0.15 US\$/kWh[58]⁵⁸ and IRENA's global weighted average levelized cost of energy (LCOE) in 2019 was 0.07 US\$/kWh for solar PV and 0.05 US\$/kWh for onshore wind.[59]⁵⁹ In other words, between 2015 and 2020, utility-scale solar PV plants and wind turbines reached 'grid parity' in Grenada, as these two renewable energy

technologies are now able to generate electricity at a LCOE that is less than or equal to the price of power from the electricity grid operated by GRENLEC.

To encourage the development of distributed, grid-connected renewable energy, GRENLEC adopted an interconnection policy in 2007 that allowed up to 1% of peak demand to be met by renewable energy. During this pilot phase, GRENLEC implemented a net metering system that allowed renewable energy-based generators to receive credit for the electricity they generated at the full retail rate, which was about EC\$ 1.00 (US\$ 0.37).^[60]⁶⁰ This programme ended in 2011 with 52 customers subscribed to the programme with a capacity of 300 kW of interconnected renewable energy systems. A new standard offer^[61]⁶¹ was released in which a net billing arrangement was introduced, whereby GRENLEC would pay the avoided cost of fuel for all electricity delivered to the grid.^[62]⁶² This switch made PV installation less attractive and significantly slowed market growth, especially for residential generators. In 2012, GRENLEC moved to phase two of its interconnection policy, allowing an additional 500 kW of distributed renewable energy to be connected to the grid. In addition to net billing, GRENLEC introduced a flexible billing option. Under net billing, customers were guaranteed a price of EC\$ 0.45 (US\$ 0.17) per kW for a period of ten years, while under the flexible billing option the tariff was adjusted annually based on the average avoided fuel costs of the previous year.^[63]⁶³ The voluntary interconnection programme continued in phase three and four until today. The policy revision of 2018 specified a maximum total capacity of 1 MW with a per-installation limit of 30 kW for private suppliers and 100 kW for commercial entities.^[64]⁶⁴ In 2021, the variable buying rate per kilowatt hour for renewable energy supplied by customers to GRENLEC amounts to US\$ 0.09. These rates are also based on the average avoided fuel costs in the prior year.^[65]⁶⁵

It is anticipated that Grenada's existing power grid will be able to accommodate a total of 15 MW of intermittent renewable energy sources.^[66]⁶⁶ However, detailed assessments of the capacity of the power distribution grid to absorb renewable energy based power at different locations and the needs for upgradation of the grid in Grenada still need to be conducted.^[67]⁶⁷ At the moment, there are no significant grid-tied (zero-emission) electricity storage systems installed in the country. Such storage facilities, e.g., pump storage, batteries etc., need to be implemented in parallel with the expansion of renewables, in particular, if a high share of intermitted generation systems are connected to the grid and old diesel plants are decommissioned in the future.

Despite and several projects that were planned in the past, in recent years the uptake of renewable energy sources in Grenada has not accelerated as much as planned by the government and GRENLEC.^[68]⁶⁸ One of the main reasons for this was the privatisation of the island's utility company in 1994. Through a competitive bidding process, 50% of GRENLEC's shares were awarded to WRB Enterprises, a privately owned U.S. company. Following the privatisation, government entities retained a 21% stake in the utility, with the remaining shares held by employees, private citizens, and other local and regional shareholders.^[69]⁶⁹ The private investors did not share Grenada government's vision of restructuring the electricity sector and making significant investments in renewable energy. This situation weakened the trust and collaborative work between the stakeholders.^[70]⁷⁰ As a result, the Carriacou wind energy project^[71]⁷¹ supported by the European Union was cancelled, and the construction of geothermal plants^[72]⁷² supported by the governments of New Zealand and Japan is currently stuck in the development stage.^[73]⁷³ However, in January 2021 the Government of Grenada nationalized GRENLEC, so that it can now steer the energy transition to meet its ambitious NDC targets with the support of a fully integrated state-owned utility. The Carriacou wind and other renewable projects are now moving forward (see following section). See Annex Q for further background information on GRENLEC and its nationalization.

New renewable energy projects

In February 2021 the Government of Grenada announced the construction of a solar PV battery hybrid plant on the Island of Carriacou, which will be financed by the United Arab Emirates-Caribbean Renewable Energy Fund (UAE-CREF). The plant will have a production capacity of 600 kW and a storage capacity of 300 kWh,^[74]⁷⁴ which will make it the largest renewable energy plant in Grenada.

In June 2021, it was announced that the Government of Grenada continues to explore the possibility of geothermal energy in the country. With its medium enthalpy resources^[75]⁷⁵ at the area of Mount St. Catherine, Grenada has a considerable geothermal energy potential. In 2016, the Japanese International Cooperation Agency (JICA) released a data report on geothermal in Grenada. In July 2017, initial work on environmental aspects to potential geothermal development was done. A contract was awarded in 2019 to a British consultancy on "Environmental and Social Impact Assessment ? Grenada Geothermal Energy Development ? Exploratory Test Drilling Phase?". A scoping report published in 2019, pointed to two potential development sites namely Tricolor, in Mt Reuil, St Patrick, in the foothills of Mt. St

Catherine and Florida/Pleasance, up behind Gouyave in St John, again fairly close to Mt. St Catherine. The scoping report was commissioned by the Government of Grenada and paid for by the Governments of New Zealand and Japan. This scoping report included a pre-feasibility assessment, environmental and social preliminary scoping exercise, and a preliminary drilling plan which was produced in 2016.[76]⁷⁶

The current activities to promote geothermal energy in Grenada by the Government of New Zealand and Japan are closely linked to the GCF project 'Sustainable Energy Facility for the Eastern Caribbean (FP020)', that is supporting geothermal energy development and renewable energy frameworks in the Eastern Caribbean. The project was approved in October 2016 and is under implementation since August 2019. The envisaged completion date is August 2027. The project is implemented in Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Dominica and Grenada. So far, project funds from the Inter-American Development Bank (IADB) and the Caribbean Development Bank (CDB) grants have financed three environmental and social impact assessments (ESIA) for different stages of the geothermal developments in Saint Vincent, in Saint Kitts and in Grenada. To date, project implementation focused mostly on Saint Vincent and Grenadines, where project funds were used to start exploratory drilling activities, and on Dominica, where the project supports the restoration of transmission and distribution (T&D) lines that were damaged after Hurricane Maria in 2017 and are key for geothermal developments. In its first stage ('pre-investment?'), the project will also provide US\$ 1,500,000 in funding for exploration and production drilling in the form of contingent grants for Grenada.[77]⁷⁷ In addition, Grenada has prioritized in its GCF country programme a project for the construction of a 15 MW geothermal plant. Work on the concept note is ongoing.[78]⁷⁸

In addition, in 2020 one of the country's existing diesel gensets failed and in October 2020 an emergency diesel generator was deployed. While the country recently purchased a new diesel generator to replace the failed unit, it has also sought the support of UNEP to develop a response plan for retrofitting its entire diesel-based power capacity with renewable energy sources. This work is currently being undertaken and will include high-level scenario modelling, recommendations for retrofitting, a list of identified investors and financial partners willing to engage in Grenada's energy transition plan, a high-level energy transition roadmap, and a developed proposal of an international renewable-based tender.

In future, further replacements of existing diesel gen-sets and additions of renewable energies to the national grid will be needed to meet the NDC target. At the moment it is estimated that approximately half of Grenada's installed capacity has a remaining operational lifetime of 5 years and needs to be

replaced.[79]⁷⁹ Hence, it is estimated that investment in renewable energy of 50 to 100 MW will be needed within the decade. Through the nationalisation of GRENLEC and new regulations on renewable power generation, the country is starting to align its energy sector with its ambitious NDC target. However, a detailed energy roadmap and implementation plan, which builds upon the high-level documents prepared in 2021 by UNEOP, on how the renewable energy target will be reached and which investments by the utility are needed is still missing. For further information on planned renewable energy investments, refer to section 2.4 below.

2.3 The transport sector

Available data and statistics on the transport sector and vehicle stock in Grenada are currently limited. Data on registrations of new and used vehicle by year, vehicle category and fuel type are collected by Central Statistical Office and Inland Revenue Division. However, further characteristics such as segment, make and model series as well as motorisation, fuel efficiency and CO₂ emissions etc. are not recorded / published from new registrations. Hence, the data does not allow evaluating the vehicle stock in detail (the project will support enhancing the data basis by introducing a national transport data system under output 1.3).

Transport sector emissions

In Grenada, the transport sector is the second largest energy consuming sector after power generation, as it is dependent on imported transport fuels such as gasoline and diesel. The demand for road passenger transportation in Grenada is driven by the locations where people are living. Currently, 35% of the population of Grenada lives in urban surroundings (approximately 39,600 people in 2019) and 65% lives in rural areas, increasing the need for transportation.[80]⁸⁰ The road transport sector contributes significantly to Grenada's national GHG emissions, reaching approximately 106,000 tCO₂e (which is 26% of total national GHG emissions) in 2014.[81]⁸¹

Vehicle numbers

Grenada's road fleet has experienced significant growth in recent years, with all sectors of the transport sector showing an annual growth rate of 5% to 6% over the last two decades.

Table 2 below provides an overview of the estimated road transport sector fleet composition in Grenada in the year 2019, categorised by vehicle type, weight, fuel type and operation. The total number of vehicles amounts currently around 38,000 vehicles.

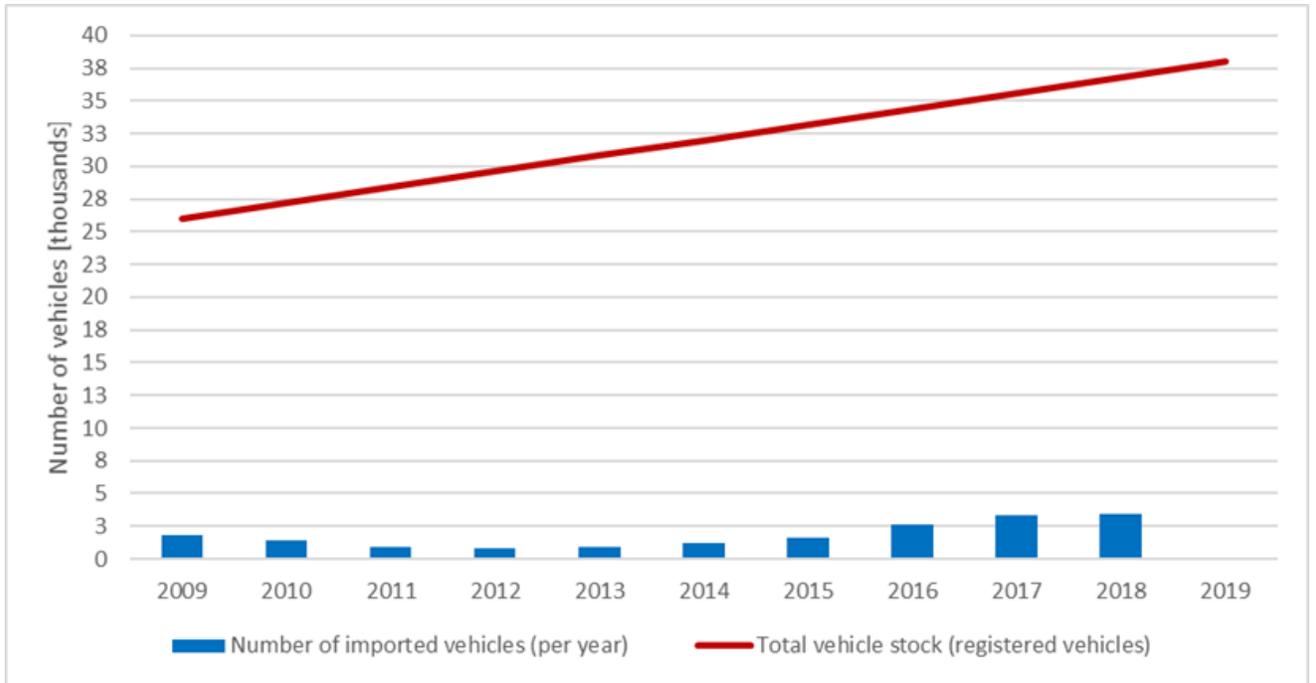
Table 2: Estimated road transport sector fleet composition in the year 2019

Category	Weight	Fuel type	Operation	Quantity	% of total
Motorcycles	Light	Gasoline	Private passenger	2,827	7%
Private vehicles ^[82] ⁸²	Light	Mostly gasoline	Private passenger	28,073	74%
Light-duty vehicles ^[83] ⁸³	Light	Gasoline/Diesel	Products and services / Public passenger	2,578	7%
Heavy-duty vehicles ^[84] ⁸⁴	Heavy	Mostly diesel	Products and services	2,025	5%
Buses	Light and heavy	Mostly diesel	Public passenger	1,906	5%
Other	n/a	n/a	n/a	590	2%
			Total fleet	38,000	

Adapted from Climate Analytics (2021): Assessment Report to Inform Mitigation Potential of Grenada's Updated NDC for 2020, p. 14 and Government of Grenada (n.d.): Transport Statistics.^[85]⁸⁵

The vehicle stock in Grenada has increased by almost 50% since 2010, from just under 26,000 private and commercial vehicles to approximately 38,000 in 2019. Over the same period, the number of vehicles per capita has increased from 244 vehicles per thousand inhabitants to 349.^[86]⁸⁶ Cars are among the top five imported goods in Grenada and are widely available for purchase.^[87]⁸⁷ The vehicle fleet in Grenada is dominated by aged gasoline vehicles, while diesel-powered vehicles make up only a small fraction of the fleet.^[88]⁸⁸ Figure 9 shows the estimated numbers of registered and imported motor vehicles (both new and used) in Grenada between 2009 and 2019.

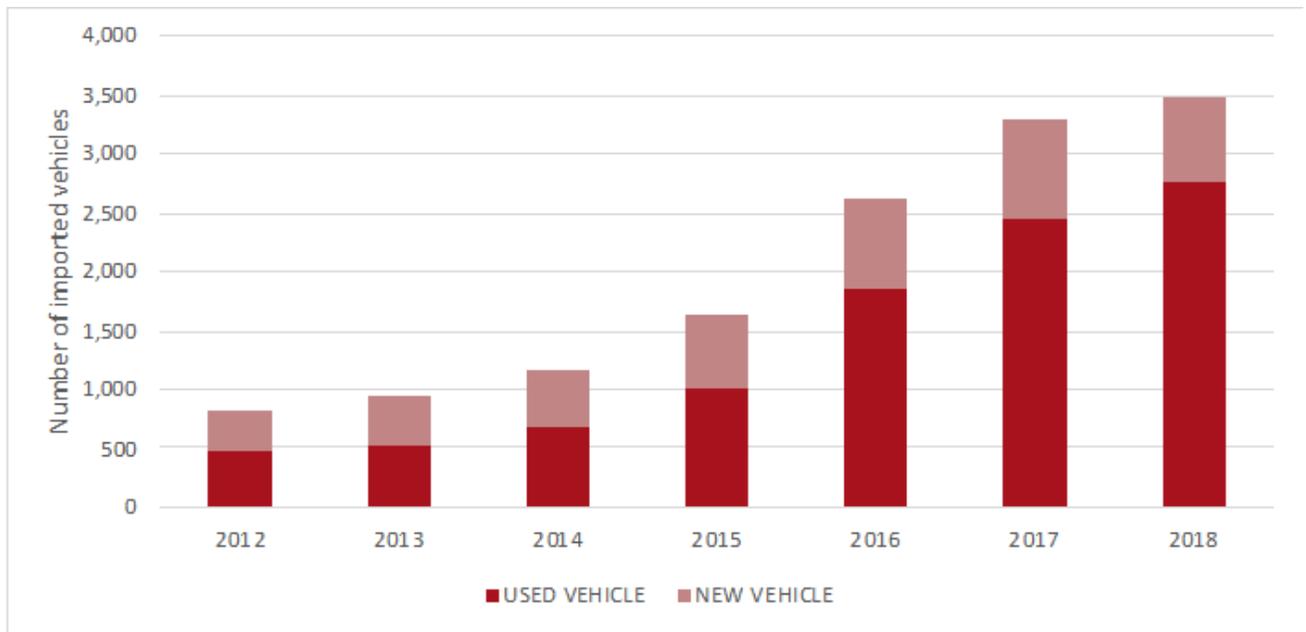
Figure 9: Total vehicle stock and annual vehicle imports (both new and used) in Grenada (2009 - 2019)



Adapted from Central Statistical Office and Inland Revenue Division (2018): Motor Vehicle Data, personal communication; and Government of Grenada (2011): THE NATIONAL ENERGY POLICY OF GRENADA - A Low Carbon Development Strategy For Grenada, Carriacou and Petite Martinique, p. 21.

Of the total number of vehicles that were imported between 2012 and 2018, approximately 70% were used and 30% were new vehicles, as shown in Figure 10.

Figure 10: Imported motor vehicles (new and used) in Grenada (2012 - 2018)



Adapted from Central Statistical Office and Inland Revenue Division (2018): Motor Vehicle Data, personal communication.

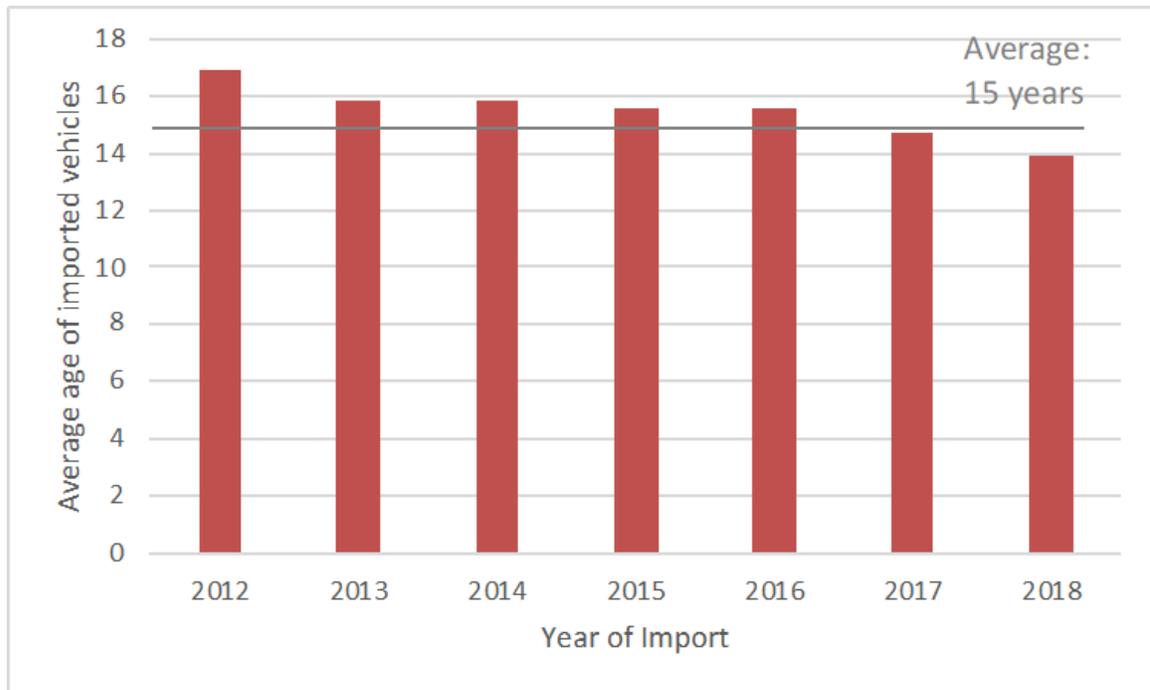
Based on the data available in the end of 2020, the average age of second-hand vehicles that were imported to Grenada between 2012 and 2018 was estimated at 15 years.^{[89]⁸⁹}

Figure 11 shows the average age of imported vehicles in the period 2012 to 2018. From the statistics, it can be observed that most imported vehicles in that period were built between 1999 and 2009.^{[90]⁹⁰}

The government has now taken measures to address this, recently introducing legislation which restricts the maximum age of vehicles to 10 years (see below for further details). Furthermore, the lack of vehicle emission standards (see Table 5 below) and almost no technical restrictions on vehicles in the past (except for inspections before registration^{[91]⁹¹} and environmental levies on vehicles depending on age or tonnage) ^{[92]⁹²} also explain the large number of old and heavy vehicles that are existing on Grenada's roads nowadays. The technical restrictions on vehicles changed in 2020, when the Royal Grenada Police Force (RGPF) put a new system for the annual inspection of vehicles in place. The new system requires motor vehicle licenses to be renewed on an annual basis. To obtain a new vehicle license, car owners have to get their vehicles checked first by a reputable mechanic to ensure that it is functioning and road worthy. Subsequently, a license fee (which depends on the size of

the vehicle) and an inspection fee need to be paid to the Inland Revenue Division and then the vehicle has to get checked by local officials as well.^{[93]⁹³ [94]⁹⁴}

Figure 11: Average age of imported vehicles in the period 2012 ? 2018



Adapted from Central Statistical Office and Inland Revenue Division (2018): Customs and Excise Motor Vehicle Imports 2012 ? 2018, personal communication

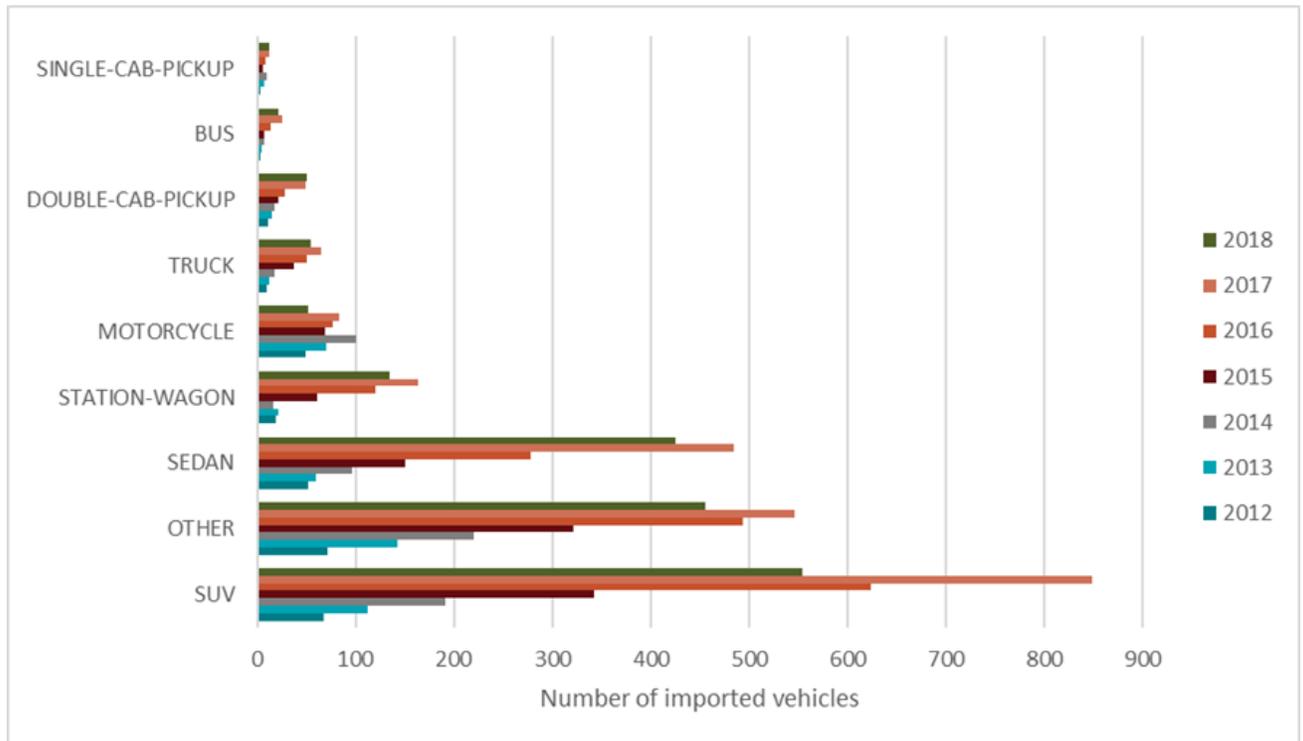
In recent years (2015 ? 2018), Grenada has imported approximately 1,500 to 3,500 vehicles each year, with used sport utility vehicles (SUVs) constituting 30-40% of the imports.^{[95]⁹⁵}

According to statistics from the Government of Grenada, a total of 3,283 vehicles were added to the existing fleet in 2017. About 78% of the registered vehicles that year were passenger cars: SUVs alone represented a share of about 47% of the total vehicle registrations. The rest of the registrations in 2017 consisted of 273 light duty vehicles (mostly vans), 75 heavy duty vehicles (trucks and other heavy equipment), 139 buses and 231 motorcycles.^{[96]⁹⁶}

Most of the used cars coming into Grenada are imported directly from Japan because of the left-hand traffic system.^{[97]⁹⁷}

The fact that Grenada has left-hand traffic could be a limiting factor in the future when it comes to the importation of electric vehicles from abroad. Figure 12 below shows the number of imported vehicles by type and import year.

Figure 12: Number of imported vehicles by type and year



Adapted from Central Statistical Office and Inland Revenue Division (2018): Customs and Excise Motor Vehicle Imports 2012 ? 2018, personal communication.

Financing of vehicles

In Grenada, new and used vehicles are purchased from local dealers, with second-hand vehicles also bought directly from previous owners. Some buyers prefer to import their vehicles themselves (mainly from Japan, the United Kingdom, and the United States). Vehicles can be paid for in cash, but funding through bank and credit union loans is the most common option. Taxi and bus operators, which operate individually, also use these payment methods to purchase their vehicles. The Grenada Development Bank (GDB) offers transportation loans at interest rates starting at 8.5% p.a.^{[98]⁹⁸} All other banks^{[99]⁹⁹} operating locally (and most credit unions)^{[100]¹⁰⁰} offer motor vehicle loans at rates close to or the same as what is being offered by GDB. Outside of preferential interest rates, some credit unions also support or handle the procurement of vehicles from Japan. Some financial institutions also partner with dealers to provide special interest rates to customers who purchase specific makes and models. In order to buy and import a vehicle from overseas, one has to browse vehicles from online suppliers and select a preference (car make and model). Once selected, one is provided with an invoice that is used to secure

a loan (meeting the financial institution criteria such as minimum year and mileage). Subsequently, the funds are wired to the supplier and a timeline is given for shipping and delivery. Once the vehicle is at the port, usually a broker facilitates the bureaucratic clearing process. Afterwards, one can begin driving immediately. There are no specific credit mechanisms for electric vehicles, with the Grenada Development Bank noting during project preparation that it and local banks lack capacity to understand how to structure loans and create loan templates for private consumption of such vehicles.

Tax regime

The current tax regime, according to which consumers must pay in some cases more than 100% of the purchase price in customs duties on imported cars,^{[101]¹⁰¹} is a major reason why Grenadians import old (and hence more affordable) cars from developed countries such as Japan. The duty on importing *new* cars to Grenada is around 60%, and on *used* cars that are one to four years old is 127%. Duties on cars older than 5 years are 158% of the cost, insurance and freight (CIF) landed value. The duties in Grenada are compounded. For a new passenger van (minibus) with an engine displacement of 2001cc to 3000cc, one would have to pay the following duties:

- ? Cost, Insurance, Freight (CIF): is the total cost to get a car to the Grenada port;
- ? Common External Tariff (CET): is 15% of the CIF price;
- ? Environmental Levy (EL):^{[102]¹⁰²} ^{[103]¹⁰³} is 2% of the CIF price;
- ? Customs Service Charge (CSC): is 6% of the CIF price;
- ? Excise Tax: is 7.5%, and is calculated on CIF + CET + EL + CSC added together;
- ? VAT: is then calculated as 15% of all these other taxes (CIF + CET + EL + CSC + Excise).^{[104]¹⁰⁴}, ^{[105]¹⁰⁵}

Although at first glance it seems cheaper to import a new car to Grenada - due to lower percentage share of duties and taxes in the CIF landed value - most people on the island can only afford an older used car. The main reason why private importation is often heavily centred on old and inexpensive second-hand vehicles from overseas is that for many Grenadian citizens this is the only way to obtain transportation at a manageable cost. Used cars are still far more affordable than new cars, although the total purchase cost of used vehicles is significantly increased by adding shipping costs (which can be several times the purchase price of the car) and a higher percentage share of Grenadian government

taxes and duties.[106]¹⁰⁶ Furthermore, as will be noted below, Grenada's public transport system is atomised and ineffective, resulting in greater consumption and use of individual private vehicles.

At the end of 2020, the government finalised plans to introduce a ban on the importation of vehicles older than 10 years, while simultaneously implementing a 50% duty and tax concession on the importation of electric and hybrid vehicles. The initiative announced in the 2020 budget became effective on December 31, 2020 (see further discussion below).[107]¹⁰⁷

Upfront and total costs of vehicles

The following table summarises an estimate of the total upfront cost of a new vehicle in Grenada. The cost for an ICE vehicle is compared to a new similar EV (small passenger van) with and without applying the current tax deduction of up to 50% for EVs. As can be seen in the sample calculation the current upfront cost for an EV in Grenada is still significantly higher, approximately 30% more compared to ICE vehicles, even after reduction of tax and duties.

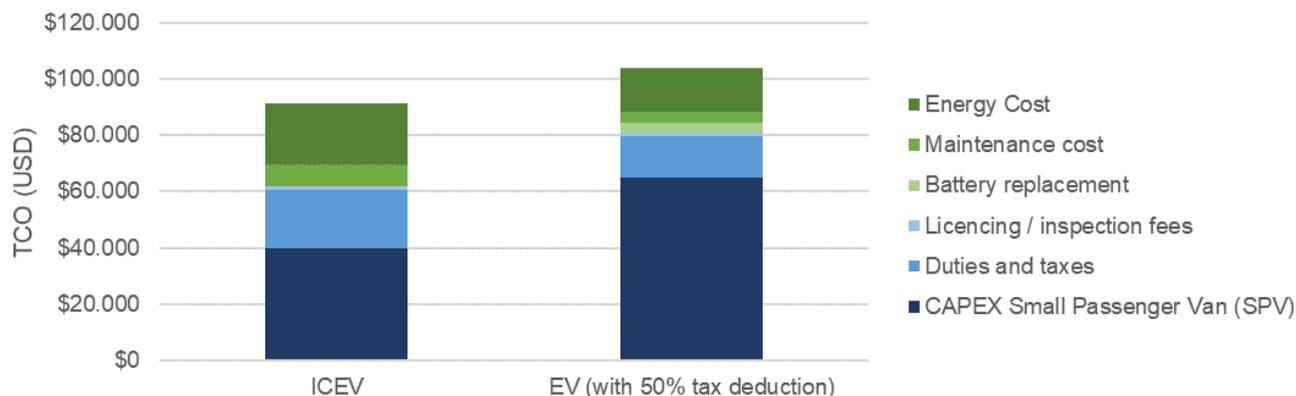
Table 3: Upfront cost comparison of a new ICE vehicle vs a new EV

	ICE	EV	EV (50% tax)
	e.g., Toyota HiAce	e.g., Toyota ProAce Verso Electric / Opel Zafira / Peugeot e-Traveller	
Cost, Insurance, Freight (CIF)	\$ 40,000	\$ 64,800	\$ 64,800
Common External Tariff (CET)	\$6,000	\$9,720	\$4,860
Environmental Levy (EL)	\$800	\$1,296	-
Customs Service Charge (CSC)	\$2,400	\$3,888	\$1,944
Excise Tax (ET)	\$3,690	\$5,978	\$2,685
VAT	\$7,934	\$12,852	\$5,572
Overall duties and taxes	\$20,824	\$33,734	\$15,061
% of the CIF price	52%	52%	23%
Total upfront cost	\$60,824	\$98,534	\$79,861

Source: Own calculation based on government data.[108]¹⁰⁸

If the total costs of ownership (TCO) are compared, the TCO of EVs in Grenada is still higher than those for ICE vehicles over an assessment period of 10 years primarily due to the high CAPEX. See the following figure comparing the TCO for a small passenger van (such as Toyota HiAce vs. Toyota ProAce Verso Electric / Opel Zafira / Peugeot e-Traveller).

Figure 13: Comparison of TCO for ICE vehicle and EVs



Source: Own comparison. Note: 10 years assessment period, travel distance 20,000 km/a, 2020 cost and duties. ICE fuel consumption 8.8 l/100km, EV energy consumption 25 kWh/100km. Fuel costs 1.18 USD/l (2021)^[109] increasing to 1.29 USD/l (2030); electricity cost 0.30 USD/kWh (2021)^[110] increasing to 0.33 USD/kWh (2030). 50% tax/duty deduction applied for EVs.

Maintenance assumed to be possible in Grenada; battery replacement after 8 years. Assuming the utilisation of public chargers; private charger installations would add additional costs (CAPEX of ca. USD 5,000).

Public transportation

Public transportation in Grenada is atomised and mostly provided by private services or individuals. Public buses are usually privately-owned passenger vans that seat up to 12 to 20 people. While most of these passenger vans run on fixed routes, drivers also often drop off passengers at any other point off the beaten track for a surcharge. System indicators, such as number of passengers transported, fare collection, system costs and overall economic performance of the public transport system are limited and in some cases unknown. This results in a precarious and atomised system, and in addition there is little to no access to capital financing to enable future improvements. Modal shift to buses, through an enhanced service (low-carbon buses, fixed bus (vans) stops and timetables) would have a significant impact in reducing GHG emissions. The Bus Drivers Association represents drivers with regards to policies, regulations and government interaction. The taxi system has a similar structure to the bus

(vans) system, with vehicles generally owned by their drivers. The National Taxi Association which represents taxis operating across the island.

The COVID-19 pandemic had a considerable impact on Grenada's public transport system. In 2020, bus operators received support from the government to help them to cope with the economic impact of the pandemic. In total, the government has spent approximately US\$ 740,000 on cushioning bus operations through direct stimulus support and sanitisation in response to COVID-19.[111]¹¹¹ From March to June 2020, restrictions were put in place on the number of persons being transported in buses and taxis. According to COVID-19 regulation for the public transport sector, which was introduced as part of the government's health and safety measures to help curbing the spread of the virus, bus operators were only allowed to carry up to eight passengers per vehicle (representing more than a 50% cut in the number of passengers per trip). This led to significant financial losses in the sector.[112]¹¹² See Annex Q for further information on the public transport sector.

Transport in the tourism sector

Road transportation has always been an integral part of Grenada's tourism industry: it links tourists with their accommodations and tourist attractions all over the main island. It is estimated that about 300 ? 400 minibuses operate between the Maurice Bishop International Airport (GND) and St. George's.[113]¹¹³ Also rental cars are popular means of transport for the island's visitors. Rental cars are available with rates of US\$ 50-75 per day. With a valid license from their home country, visitors qualify for a temporary Grenada license. These can be obtained from any police station for a fee of US\$ 11.[114]¹¹⁴ There are at least five major car rental agencies in Grenada that offer tourists a variety of vehicles including executive cars, medium-sized cars, SUVs, jeeps, minivans and even small trucks.[115]¹¹⁵

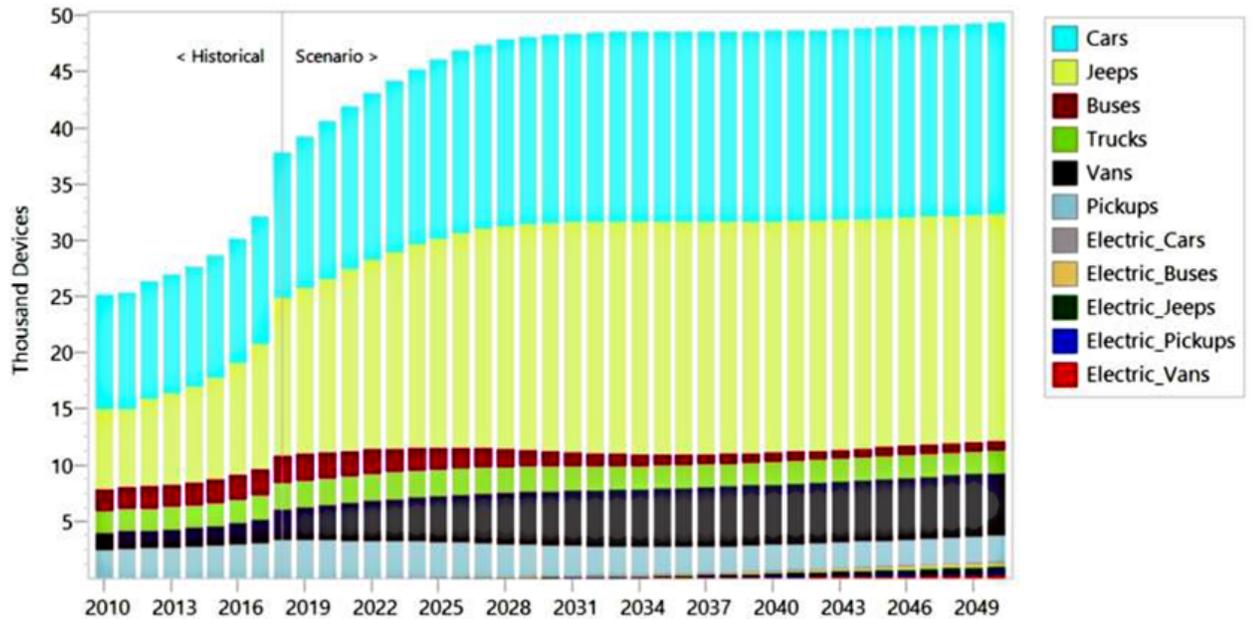
Climate and environmental impact and scenarios of road transportation

The importing of used cars from developed countries, and the growing fleet size, results in a fleet that increases its GHG emissions each year. Since annual sales of vehicles represent only a small fraction of the total vehicle fleet, and current trends in vehicle sales tend to replicate the existing stock, the efficiency of the total vehicle stock changes only very slowly, and the resulting emissions change only slowly as well.[116]¹¹⁶

As the fleet's high emission factors and energy consumption represent a significant environmental, economic and social problem, the situation is exacerbated when taking into account the fleet's historical and the projected growth rates. In addition to the considerable fuel consumption and the significant amount of GHG generated by the transport sector, combusting fossil fuels cause local pollution and noise, which have a negative impact on the health of the population. There is currently also no legislation in place for regulating the maximum concentration levels of the main components of air pollution: particle matter (PM), tropospheric ozone (O₃), nitrogen oxides (NO_x), sulphur dioxide (SO₂), and carbon dioxide (CO₂).^[117]¹¹⁷ This scenario and the lack of standards for vehicle emissions make local air quality a problem that should not be underestimated in Grenada (for more information on the particulate matter air pollution in Grenada, please refer to the '10. Benefits' section). Besides the fact that unleaded gasoline was introduced in Grenada in 1998,^[118]¹¹⁸ there are currently no fuel quality standards in place.^[119]¹¹⁹ The only available data on fossil fuel pre-tax subsidies (consumption in all sectors and production) in Grenada shows that the subsidies increased from US\$ 4.07 million in 2013 to US\$ 4.49 million in 2017 (which equals about 0.4% of Grenada's total GDP in that year).^[120]¹²⁰

Figure 14 and Figure 15 show Grenada's projected vehicle fleet and greenhouse gas emissions until 2050 under BAU conditions and under six alternative scenarios. These are the results of the modelling of Grenada's energy system within the framework of the Climate Analytics (2021) *Assessment report to inform mitigation potential of Grenada's updated NDC for 2020*. If recent trends in vehicle ownership are maintained, Grenada will almost double its vehicle fleet by 2030, which in turn will lead to an increase of approximately 40% of GHG emissions (from approximately 75,000 tCO₂e in 2010 compared to over 120,000 tCO₂e in 2030) from the road transport sector (from a 2010 baseline).^[121]¹²¹

Figure 14: Road transport fleet projections to the year 2050 (BAU scenario, all vintages)



Source: Climate Analytics (2021): Assessment Report to Inform Mitigation Potential of Grenada's Updated NDC for 2020, p. 21

The impact on emissions of the adoption of electric vehicles heavily depends on the penetration of renewable energy in the national grid. With a grid dominated by diesel, the impact of replacing a Toyota Corolla (the average vehicle in the fleet) with a Chevrolet Bolt (the assumed electric vehicle model) is estimated to achieve an estimated 5% reduction in emissions. However, when paired with generation from renewable energy sources, mobility becomes much lower in carbon.^{[122]¹²²}

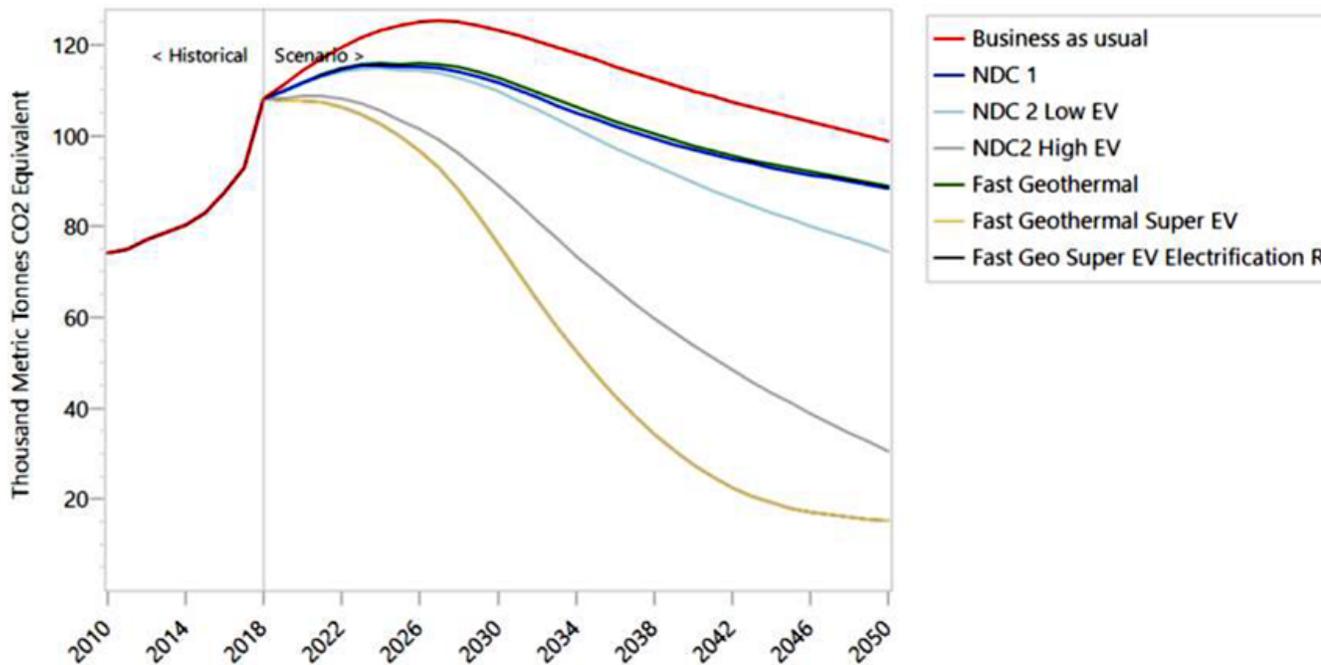
For the projections of GHG emissions from Grenada's road transport sector (Figure 15), the adoption of electric vehicles is assumed in different scenarios:

- ? ?Business as usual? and ?NDC 1? - there is no significant adoption of EVs;
- ? ?NDC 2 Low EV? - 50% of vehicles sold by 2050 are electric;
- ? ?NDC 2 High EV? - 100% of vehicles sold by 2050 are electric;
- ? ?Fast Geothermal Super EV?;^{[123]¹²³}

? ?Fast Geo Super EV Electrification RE?[124]¹²⁴ - 100% of vehicles sold by 2030 are electric.

According to the modelling results, under the ?NDC 2 Low EV? pathway, the road transport sector emissions could be reduced by approximately 10% in 2030 compared to the BAU scenario. In the ?NDC 2 High? scenario the emission reduction potential is higher with approximately 25% in 2030 (compared to BAU emissions). In the NDC 2 scenario, a majority of the power generated still comes from the island?s remaining thermal plants (the Queens Park 4 and Queens Park 5 generators are not expected to be retired until 2031). A transformation in how electricity is generated occurs if 15 MW of geothermal capacity is brought online before 2030. If this occurs in conjunction with the improvements in energy efficiency, renewable energy is estimated to produce 98% of electricity generated, with geothermal producing 65% of the total electricity generated. The ?Fast Geothermal Super EV? scenario adds 15 MW of geothermal energy to the energy mix. This, in connection with a 100% EV share in new vehicles sales, would lead to significant emissions reductions of circa 40% in 2030 (which would mean that emissions were brought down to 2010 levels again).

Figure 15: Projections of GHG emissions from Grenada's road transport sector to the year 2050 (representing BAU emissions and emissions under six scenarios)



Source: Climate Analytics (2021): Assessment Report to Inform Mitigation Potential of Grenada?s Updated NDC for 2020, p. 23

In addition to the environmental problems caused by the road transport fleet, transport infrastructure in Grenada shows clear signs of saturation and congestion. While the country's vehicle count has now grown in the tens of thousands, the design and width of the roads in Grenada remained the same. This issue leads to serious bottleneck traffic jams and congestion, creating impatience, delay and speeding to make up for the lost time.[125]¹²⁵ Grenada has an extensive road network that extends for 1,124 km (902 km paved and 225 km unpaved road).[126]¹²⁶ All areas of the island can be reached from the capital St. George's in less than two hours.[127]¹²⁷

First steps towards of electric mobility

Grenada is currently at the incipient stage of introducing electric vehicles into the country: there are currently just a dozen electric vehicles in Grenada and consumer demand for these vehicles is minimal.[128]¹²⁸ Furthermore, the country has extremely limited supporting infrastructure. As of July 2021, a total of 22 charging points for e-vehicles have been installed on the main island of Grenada (10 of these charging points were installed by GRENLEC and the other 12 by Green Power Grenada).

Electric vehicles are currently significantly more expensive than ICE vehicles. The Manufacturer's Suggested Retail Price (MSRP)[129]¹²⁹ of a 2020 Chevy Bolt, the battery electric vehicle (BEV), is US\$ 37,495, while the MSRP of a 2020 Toyota Corolla (one of Grenada's most popular vehicle models) with a conventional internal combustion engine (ICE) is US\$ 19,825. Some share of these costs results from the higher upfront cost of battery electric vehicles but are saved over time, as operating costs are lower. Currently, at a minimum, some form of low or no-cost financing program would be needed in Grenada to avoid passing the full cost of the transition on to consumers.[130]¹³⁰

The importation of used EVs (for instance, with an age restriction of two or three years) could further accelerate the mobility turnaround in Caribbean island states (such as Grenada), as local experience with sourcing used cars from overseas is already strong and, moreover, used EVs (such as the Nissan Leaf from Japan) with low mileage can be purchased for as little as US\$ 17,000 to US\$ 20,000.[131]¹³¹ A good example for a Caribbean country that already put in place regulatory and economic incentives for the import of used EVs is Trinidad and Tobago (T&T). Effective January 1, 2022, T&T removed all custom duties, motor vehicle tax and value-added tax on the importation of battery-powered electric vehicles with an age limit on imported used battery-powered electric vehicles of two years.[132]¹³²

This is a clear sign that there are already initial efforts to scale-up the market for second-hand EVs in the Caribbean region.

In September 2015, Grenada's licensed electric utility (GRENLEC) launched the country's first government-sponsored electric vehicle (EV) pilot program. The pilot project aimed to test the energy efficiency, range, cost savings, road performance and environmental benefits of electric vehicles in Grenada compared to conventional internal combustion engine (ICE) vehicles.[133]¹³³ For demonstration and evaluation purposes, GRENLEC acquired two Nissan LEAFs (one is used by the company's CEO and the other one is a shared car)[134]¹³⁴ and a Nissan E-NV200 Rapid Plus 5-seat van, which replaced a gasoline-powered vehicle that was previously used for courier service in GRENLEC's fleet.[135]¹³⁵ As part of the pilot project, two wall chargers were installed at GRENLEC's facilities and four card-activated (RFID) smart double outlet chargers for public use (see Figure 16 below) were located strategically across the main island of Grenada.

Figure 16: Public EV charging station installed by GRENLEC



Source: Government of Grenada (2015): Screenshots of YouTube video "GRENLEC's Electric Car?".

URL: <https://www.youtube.com/watch?v=7IkNrLXqvKA>.

In the future, GRENLEC plans to install additional public charging stations in select areas based on the needs of prospective EV owners.[136]¹³⁶ In the first six months of the GRENLEC pilot, the vehicles averaged 2.4 litres per 100 km after traveling a combined 15,923 km in Grenada – this equals 6.24 km/kWh, which is better than the consumption of most EVs that are available nowadays.[137]¹³⁷ The

electric vehicles averaged a 43% reduction in fuel cost compared to their combustion engine counterparts for similar daily usage. Furthermore, in the first six months of the pilot the vehicles consumed a total of 2,550 kWh at a cost of US\$ 1,081, which represents total savings of US\$ 828 in fuel costs. Due to the larger size of the van, the latter consumed more energy than the sedans.^[138]¹³⁸ To summarise, the costs to drive 160 km in an all-electric Nissan LEAF are approximately US\$ 26 compared to a comparable gasoline-powered car where the costs are estimated to be US\$ 45. This comparison is based on the average fuel prices from September 2015 through February 2016 in Grenada. According to the information available, no maintenance costs have been incurred so far for the EVs.^[139]¹³⁹ GHG reductions from the pilot project were not accurately documented.

GRENLEC's pilot project was the first step in the direction of e-mobility implementation in Grenada. While the pilot showed that the selected EVs are more efficient than conventional ICE vehicles in terms of operating costs, maintenance and performance;^[140]¹⁴⁰ it needs to be recognised that it was a small test under specific conditions. One of the vehicles was used only by the GRENLEC CEO, while the other two were only used on a limited basis for selected operations of the, at the time privately-owned, electric company. Data was not made publicly available. The vehicles were not used on a regular basis in publicly-visible areas and did not generate awareness of the viability of electric vehicles among public decision-makers and the general public.

In 2021, a newly founded company Green Power entered the EV market in Grenada. Besides the GRENLEC pilot project, Green Power is the first private company that installs and operates an electric vehicle charging network in the country.^[141]¹⁴¹ So far, the company has installed 12 charging points across the island.^[142]¹⁴² The charging stations were installed at private customers' premises (e.g., hotels, restaurants, etc.), but are open to the public. Most of these charging stations are located in the tourist centre in the southwest of Grenada. Up to now, Green Power's charging network does not extend to public areas (e.g., parking lots). Green Power plans to install 60 charging points across the island by the end of 2021 and 200 charging points by 2022.^[143]¹⁴³ The equipment for the charging stations is procured from China. The company's business model comprises not only charging services for EVs, but also a rental car fleet of currently six EVs (Nissan Leaf and BMW i3).^[144]¹⁴⁴ Customers can use a smartphone app to get access to renting cars and charging services (for both rented and private EVs). Green Power pays a portion of the revenue recovered for the charging services directly to

the owners of premises where the charging stations are installed and, subsequently, the owners pay to GRENLEC.[145]¹⁴⁵

In Grenada, private hotel owners have also taken first steps towards e-mobility. For example, one hotel owner bought an electric van with 8 seats, which is charged with the hotel's own solar PV cells. The e-van is used for airport transfers and other transport services for his guests. During the stakeholder engagement process for this project, it became clear that sustainable business practices are essential for a large part of the hotel owners in Grenada ? due to an increasing expectation from tourists to have an environmentally-sound vacation. Thus, the hotel sector in general has interest in e-mobility.[146]¹⁴⁶ Some hotel owners asserted that they would buy an EV directly if EVs and the associated charging infrastructure were more readily available in the Grenadian vehicle market. This effort shows the increasing willingness from the country's main economic sector to contribute to the adoption of renewable energy and e-mobility.[147]¹⁴⁷ However, more recently this enthusiasm has been dampened by the impacts of COVID-19, which severely affected the tourism sector over the last 18 months.[148]¹⁴⁸

In addition, an electric vehicle was purchased within the context of the GCF Enhanced Direct Access (EDA) readiness project.[149]¹⁴⁹ The EDA project is not an electric mobility project or a project which has a significant electric mobility or transport focus. However, one charge station[150]¹⁵⁰ has been purchased for charging the EV at the Ministerial Complex, Sir Eric Matthew Gairy Botanical Gardens, Tanteen, in St. George's. The project is also looking into the use of solar panels for the charge station.

2.4 Institutional and policy framework

Key plans and strategies

To address the business-as-usual scenario for its electricity generation and transport sub-sectors, Grenada has begun to introduce a series of ambitious targets and policy measures.

The Prime Minister of Grenada launched the "Grenada Vision 2030" at a UN conference in June 2012, which sets the ambitious target that by 2030, 100% of Grenada's primary energy demand for electricity generation and for transport will be provided by renewable energy sources.[151]¹⁵¹ The Grenada Vision

2030 consists of four major projects, three focused on development of utility scale generation from geothermal, wind and waste-to-energy sources, and one on distributed solar. They are expected to require relatively little capital investment, given the small size of the economy and energy demand.[152]¹⁵²

Aligned with this target, in 2015, Grenada submitted its Intended Nationally Determined Contributions (INDC), which was later passed and adopted as its first NDC. The covered sectors were electricity, transport, waste and forestry and the base year was 2010. The country committed to reducing its greenhouse gas emissions by 30% of 2010 levels by 2025, with an indicative reduction target of 40% of 2010 by 2030. Additionally, in the "additional information" section of the 2015 NDC, Grenada identified a series of actions that were intended to support the NDC's achievement.[153]¹⁵³ These include:

1. Electricity[154]¹⁵⁴
 - a. 30% emissions reduction through electricity production by 2025 with 10% from renewables and 20% from energy efficiency measures;
 - b. 20 MWh of electricity from renewable sources: 10 MW from solar, 15 MW from geothermal and 2 MW from wind;[155]¹⁵⁵
 - c. Energy efficiency through retrofitting of all buildings (20% reduction), establishment of policies for energy efficiency building codes for all building sectors (30% reduction) and implementation of energy efficiency in hotels (20% reduction).
2. Transport[156]¹⁵⁶
 - a. 20% emissions reduction by 2025 through the introduction of biofuel blends, implementation of gasoline and diesel taxes and fuel efficiency standards for vehicles.

In 2020, Grenada submitted its second NDC. In this document it confirmed its indicative ambitious NDC 2030 target of 40% GHG emissions reductions below 2010 levels submitted in the 2016 NDC, which is conditional on external funding, technical support, and enhancing capacity.[157]¹⁵⁷ Grenada's second NDC is now expanded to more sectors and more inclusive in terms of that the government tries to engage the whole society in the process. The 2016 NDC presented an indicative economy-wide target by 2030 that the 2020 NDC adopted as the updated 2030 formal target. Hence, the 2020 NDC

now includes the economy-wide absolute 2030 target to reduce emissions by 40% compared to 2010 emission levels.[158]¹⁵⁸ The country aims to reduce GHG emissions primarily through measures in the energy (e.g., domestic transportation), forestry, waste, and cooling sectors.

As mentioned above, vehicle sales have increased more significantly than projected since the first NDC. As a result, the measures proposed in the first NDC for the transport sector (introduction of gasoline taxes, biofuel blends, and fuel efficiency standards) will be insufficient to achieve the 20% reductions anticipated from this sector by 2025, much less to achieve further reductions by 2030.[159]¹⁵⁹ While Grenada's mitigation target is a base year target and is not measured against future projections, unforeseen factors such as the one mentioned above will make it very difficult for the country to achieve the targets set in 2016.

Another key public strategic document is Grenada's overarching national plan, its "National Sustainable Development Plan (NSDP)." The NSDP was completed in 2019 and is the anchor for Grenada's development agenda and priorities for the period 2020-2035. It provides strategic direction to steer the tri-island country toward achieving its "Vision 2035"[160]¹⁶⁰. The strategic focus of the NSDP 2020-2035 rests on the three sustainable development pillars; the society, the economy, and the environment. Included in its eight flagship priorities are priorities related to promoting low-carbon and climate resilient electric mobility:

- ? Outcome #4 ? Broad-based, Inclusive, and Sustainable Economic Growth and Transformation;
- ? Outcome #6 ? Modern Climate-and-Disaster-Resilient Infrastructure;
- ? Outcome #7 ? Climate Resilience and Hazard Risk Reduction; and
- ? Outcome #8 ? Energy Security and Efficiency.[161]¹⁶¹

Moreover, Grenada prepared a National Climate Change Policy and Action Plan 2017-2021 (NCCPAP) through which it committed to promote and incentivize renewable energy and energy efficiency in the electricity, transport and waste sectors.[162]¹⁶² In the NCCPAP document it is mentioned that in order to further stimulate private investments in renewable energies and energy efficient technologies, the Government of Grenada need to grant VAT and CET (CARICOM External Tariff) exemptions on such technologies.[163]¹⁶³ Grenada completed its Second National

Communication on Climate Change in 2017, which informed on mitigation measures in the transportation sector, such as fuel tax, vehicle standards, public transport promotion and promotion of hybrid and electric vehicles.[164]¹⁶⁴

Key institutions

Among government institutions, there are several different agencies involved in activities that impact the environment. Eight of them (five government departments and three statutory bodies) are directly involved in environmental management activities on a daily basis. The current approach to environmental management in Grenada is sectoral in nature. The **Ministry of Climate Resilience, The Environment, Forestry, Fisheries & Disaster Management** has the primary responsibility for the environment along with some twenty agencies, inclusive of government departments, non-governmental organisations (NGOs) and statutory bodies.[165]¹⁶⁵

The **Ministry of Infrastructure Development, Public Utilities, Transport and Implementation** has the overall responsibility for Grenada's transport sector (including the road transportation sub-sector). This includes the responsibility for national transport and safety policy and transport system management.[166]¹⁶⁶ In 2020, the Road Traffic (Amendment) Bill established the **Grenada Transport Commission (GTC)** as a Body Corporate and successor of the Grenada Transport Board. The 7-member board of the GTC is appointed to serve for 3 years in the first instance and according to the legislation the representatives must be the: the Commissioner of Police or his or her designate; the Permanent Secretary with responsibility for Transport; one senior representative of the Ministry with responsibility for road infrastructure with expertise in engineering; and one person with knowledge and experience in management of transport and traffic policy; and 3 persons with knowledge and experience in other matters including insurance; and law. The members of the GTC shall advise the Prime Minister of Grenada on licence duties and fees in respect of motor and other vehicles, the coordination of all forms of passenger and goods transport, road safety, the regulation and control of traffic, and regulating road transport.[167]¹⁶⁷ While the establishment of the GTC is an important step forward in regulating the transport sector, there is no coordination between transport and energy authorities on the promotion of electric mobility. With little experience with electric mobility, such officials lack capacity on how to structure policies, regulations and incentives for electric mobility.

The institutional energy sector in Grenada is managed by the **Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy** through the Energy Division. The ministry is responsible for overall energy policy, legislation and regulations for the import and sale of petroleum products, while the Energy Division is responsible for energy and electricity markets. The

Energy Division leads the development and implementation of renewable energy (RE) policy and the promotion of RE technologies. The Grenada Bureau of Standards (GDBS) is the agency responsible for providing standards and certification to ensure that good quality RE systems enter the market. The Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy is also responsible for a variety of items that play an important role in the decision-making processes in Grenada's transportation sector. These areas include economic planning, budgeting, debt management, economic policy formulation, resource mobilisation, cash management, tax administration, procurement and energy.^[168]¹⁶⁸ The **Ministry of Climate Resilience, The Environment, Forestry, Fisheries & Disaster Management** is also involved in the planning and implementation of renewable energy resources and is the mandated ministry for solid waste management.^[169]¹⁶⁹

The energy sector is governed by the Electricity Supply Act (Act #19 of 2016) and the **Public Utilities Regulatory Commission (PURC) Act** (Act # 20 of 2016). The new PURC Act established the PURC and entrusted it with the task to regulate **the Grenada Electricity Services Ltd.** (GRENLEC). Essentially, PURC's functions are to set and review tariffs charged by utilities companies and to determine complaints made by consumers against these companies.^[170]¹⁷⁰

Energy policy and regulation

Within the scope of USAID's Caribbean Clean Energy Program (CARCEP), the Government of Grenada has received support in the development of a grid code. In 2017 and 2018, CARCEP made significant progress on the Grenada Grid Code drafting process, a collaborative effort that brought significant benefit to the Grenada electricity system by creating clear guidance for grid operation to all sector stakeholders. CARCEP played the lead role in designing the architecture and in drafting the substantive provisions of a comprehensive code appropriate for Grenada's small island system, working to increase intermittent renewable energy generation capacity. The comprehensive code has undergone a review in public stakeholder workshops and by the Ministry and GRENLEC working group.^[171]¹⁷¹

In February 2021, the PURC announced that the process of establishing the new electricity sector regulations is well underway and that a series of draft regulations are currently being reviewed and discussed together with key stakeholders and the public. It is expected that these documents will be finalised in early 2022 so that they can form the new regulatory framework for Grenada's electricity sub-sector.^[172]¹⁷²These draft regulations are:

- ? Draft Regulation on Rules and Procedures for applying for Licenses and Permits;
-

- ? Draft regulation on Tariff Setting Methodology;
- ? Draft Generation Expansion Planning and Competitive Procurement Regulations;
- ? Draft Generation License ? GRENLEC;
- ? Draft Network License ? GRENLEC;
- ? Draft Grenada Electricity Sector Grid Code ? Introduction Code;
- ? Draft Grenada Electricity Sector Grid Code ? Generation Code;
- ? Draft Grenada Electricity Sector Grid Code ? Transmission and Distribution Code;
- ? Draft Grenada Electricity Sector Grid Code ? Supply Code.

As of September 2021, the regulations on how renewable energy providers can interconnect with the existing grid and its operator, both technical and financially, are largely finalised. PURC is currently reviewing the final set of those instruments along with support from the World Bank and these should be adopted within the next few months.^[173]¹⁷³ Regulations for the EV sector are still missing, e.g. related to the connection and operation of charging stations connected to the national grid.^[174]¹⁷⁴

Grenada has a liberalised electricity market where independent power producers (IPPs) are generally allowed to operate. However, the market entry of IPPs (except for a few interconnections with GRENLEC customers that own small-scale solar PV plants) has so far failed due to the legal structure in place until 2016 and the regulatory framework which was not conducive in terms of integration of renewable energy power generation.^[175]¹⁷⁵ This is expected to change in the near future, since the Government of Grenada repurchased the majority shares in GRENLEC and because the new regulations for the country's electricity sector will be finalised very soon.

The first significant trend reversal could be observed when the Government of Grenada announced that the construction of the planned solar PV and battery hybrid power plant on the Island of Carriacou will commence shortly. A requirement for Grenada with regards to this project was that GRENLEC provides a commitment to interconnect the project to the grid in Carriacou. Despite the fact that the project will provide significant benefits to the electricity sector, and PURC issued a directive stating that once the technical specifications are met the project must be interconnected as provided for in law, the commitment was never given although requested since 2018. Following the government's recent repurchase of GRENLEC shares, the company has now provided definitive commitment to

interconnect the project.^[176]¹⁷⁶ This could be interpreted as a new start for the expansion of renewable energies in Grenada.

In addition to the aforementioned process of establishing new electricity sector regulations for Grenada, the PURC has launched two new renewable energy programmes, namely the 'Self-Generator Programme' and 'Small-Scale IPP Programme'. These programmes aim to encourage individuals to self-generate and to invest in grid-connected renewables respectively.

The 'Self-Generator Programme', which will initially run as a 12-month pilot, allows individuals to generate electricity primarily for their personal consumption (including vehicle charging at households and workplaces) and sell any excess to the grid with an initial permit granted for fifteen years. Permits can be renewed, modified or extended. The PURC will be shifting from the old method of net billing to a net metering arrangement (similar to GRENLEC's pilot programme in 2007) to benefit the customer.^[177]¹⁷⁷ With the old method, customers sold all the electricity that their renewable system produced for a low price to GRENLEC (network licensee). However, when they needed electricity, they bought it back from GRENLEC at a higher price than which it was previously sold. With the new method, customers will first be able to use their 'green energy' produced and then sell any excess to GRENLEC. Residential permit holders can generate 1.2 times of their current average annual kWh consumption. Non-residential (e.g., commercial premises with potential charging stations at parking lots at businesses and supermarkets etc.) permit holders can generate 0.6 times of their current average annual kWh consumption. In the first instance, the programme seeks to install up to 1 MW of electrical capacity from renewable resources.^[178]¹⁷⁸

In an effort to even further offset the energy produced by fossil fuels and get a higher renewable energy penetration into the system, the PURC has launched the 'Small-Scale IPP Programme'. Within the scope of this programme, the PURC is seeking IPPs with the ability, technical skills and capacity, and financial resources to construct, install and operate its own solar PV facility or any other form of renewable energy source with relevant guidance and oversight by the PURC and GRENLEC. The proposed distributed generation facilities shall be of fixed capacity sizes up to and including 200kW and result in a total accumulated capacity of 2 MW. The PURC is now inviting potential IPPs with specific generation projects to participate in a selective tender for a specified maximum generation capacity.^[179]¹⁷⁹ All proposed projects shall have a guaranteed lifetime of 25 years. If the duration of the generation license set by the PURC differs from these 25 years, then the duration of the generation license shall apply.^[180]¹⁸⁰

Table 4: Current state of policies and regulations on electricity generation in Grenada

Name	Type	Year and status	Description / objective
GRENLEC's voluntary Customer Renewable Energy Interconnection Programme	Economic incentive	2007 - present Implemented and active	In 2007 GRENLEC initiated a pilot project for 1:1 net metering that would accommodate 1% of its peak demand. This programme ended in 2011 with 52 customers subscribed to the programme with a capacity of 300 kW of interconnected RE. A new standard offer was then released in which a net billing arrangement was introduced, whereby GRENLEC would pay the avoided cost of fuel for all electricity delivered to the grid.
Electricity Supply Act (2016 ESA) and Public Utilities Regulatory Commission Act (2016 PURCA) (collectively the 2016 Acts)	Regulatory	2016 Implemented and active	This legislation was part of a restructuring of the electricity sector promised by the Government of Grenada consistently with its long-standing view that privatisation of GRENLEC had not proceeded optimally. The 2016 Acts shortened and narrowed GRENLEC's exclusive license on the generation of electricity and cut short any future license, cancelled its monopoly on permitting or refusing self-generators, abolished the statutory rate-setting mechanism, and replaced it with a more discretionary procedure before the PURC as well as eliminating GRENLEC's import duty and tax concessions. GRENLEC no longer had authorisation to harness potential wind and hydro power without making payment to the government.
New electricity sector regulations	Regulatory	2021 Under development	In February 2021, the PURC announced that the process of establishing the new electricity sector regulations is well underway and that a series of draft regulations are currently being reviewed and discussed together with key stakeholders and the public. These draft regulations are namely: Draft Regulation on Rules and Procedures for applying for Licenses and Permits, Draft regulation on Tariff Setting Methodology, Draft Generation Expansion Planning and Competitive Procurement Regulations, Draft Generation License - GRENLEC, Draft Network License - GRENLEC, Draft Grenada Electricity Sector Grid Code - Introduction Code, Draft Grenada Electricity Sector Grid Code - Generation Code, Draft Grenada Electricity Sector Grid Code - Transmission and Distribution Code, and Draft Grenada Electricity Sector Grid Code - Supply Code.

Name	Type	Year and status	Description / objective
PURC's 'Self-Generator Programme'	Regulatory / Economic incentive	2021 Implemented and active	The 'Self-Generator Programme', which will initially run as a 12-month pilot, allows individuals to generate electricity primarily for their personal consumption and sell any excess to the grid with an initial permit granted for fifteen years. Permits can be renewed, modified or extended. The PURC will be shifting from the old method of net billing to a net metering arrangement (similar to GRENLEC's pilot programme in 2007) to benefit the customer. In the first instance, the programme seeks to install up to 1 MW of electrical capacity from renewable resources.
PURC's 'Small-Scale IPP Programme'	Regulatory / Economic incentive	2021 Implemented and active	In an effort to offset the energy produced by fossil fuels and get a higher renewable energy penetration into the system, the PURC launched 'Small-Scale IPP Programme', that would allow investors to produce energy using systems in the 80, 100, 150, or even 200 kW scale for the sole purpose to sell the generated electricity to GRENLEC. People who are willing to invest in the energy market can develop a system and then all the energy that they generate from that system, they can sell to the utility at a feed-in tariff. Unlike the self-generator programme, in order to participate in the IPP, investors would have to come up with a business plan and show financial and technical viability. The total accumulated capacity of all newly installed systems is limited to 2 MW. All proposed projects shall have a guaranteed lifetime of 25 years.

Transport policy and regulation

Grenada does not have a long-term policy for planning the development of a sustainable and regulated public and private transport sector. Regulations on transport were described above in section 2.3. They are summarized in the following table.

Table 5: Current state of policies and regulations promoting electric mobility in Grenada

Name	Type	Year and status	Description / objective
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Name	Type	Year and status	Description / objective
Road Traffic (Amendment) Bill of 2020	Regulatory	2020 Implemented and active	Established the Grenada Transport Commission (GTC) as a Body Corporate and successor of the Grenada Transport Board. The members of the GTC ^[181] shall advise the Prime Minister of Grenada on licence duties and fees in respect of motor and other vehicles, the coordination of all forms of passenger and goods transport, road safety, the regulation and control of traffic, and regulating road transport.
New system for the annual inspection of vehicles	Regulatory	2020 Implemented and active	The new system requires motor vehicle licenses to be renewed on an annual basis. To obtain a new vehicle license, car owners have to get their vehicles checked by a reputable mechanic to ensure that it is functioning and road worthy. As of 2020, all vehicles must be routinely tested to ensure they meet Grenadian safety standards. Thereby, the Government of Grenada expects to reduce the number of old vehicles that are still in operation and are prone to damage.
Ban on importation of vehicles older than 10 years and a 50% duty and tax concession on the importation of electric and hybrid vehicles	Regulatory / Economic incentive	2020 Implemented and active	The government finalised plans to introduce a ban on the importation of vehicles older than 10 years, while simultaneously implementing a 50% duty and tax concession on the importation of electric and hybrid vehicles. The initiative announced in the 2020 budget became effective on December 31, 2020. The ban shall assist the Grenada Solid Waste Management Authority to manage derelict vehicles.
Vehicle emission standards	Regulatory	n/a	Currently, there are no vehicle emission standards in Grenada.
Fuel standards	Regulatory	n/a	Currently, there are no fuel standards in Grenada.
Legislation for regulating the maximum concentration levels of the main components of air pollution	Regulatory	n/a	There is currently no legislation in place for regulating the maximum concentration levels of the main components of air pollution: particle matter (PM), tropospheric ozone (O ₃), nitrogen oxides (NO _x), sulphur dioxide (SO ₂), and carbon dioxide (CO ₂).

Status of regulation on vehicle replacement and waste management

In Grenada, end-of-life vehicles (ELV) and waste electrical and electronic equipment (WEEE) are frequently disposed outside of the Grenada Solid Waste Management Authority (GSWMA) operations ? meaning that car owners abandon their run-down vehicles on the roadside.[182]¹⁸²

While this is illegal, as noted by the **Waste Management Act #16 of 2001**, the act has no specific regulations on the re-use, recycling and final disposal of vehicles (conventional or electric). Execution of solid waste management in Grenada is undertaken by the **Grenada Solid Waste Management Authority (GSWMA)** which was established by Grenada Solid Waste Management Authority Act of 1995. The GSWMA is charged with developing the solid waste management facilities and improving the coverage and effectiveness of solid waste storage, collection, treatment, and disposal facilities.[183]¹⁸³

Until 2021, Grenada did not have any ELV directives in place, for instance on putting the responsibility on producers for the financing of collection, recycling and responsible end-of-life disposal of WEEE, batteries, accumulators and vehicles. With the ban on importation of vehicles older than 10 years, and the incentives on importation of hybrid and EVs, the Government of Grenada is now undertaking steps to reduce the burden on the GSWMA to dispose of and manage the growing number of derelict vehicles that are abandoned alongside public roadways or transported to the landfill which is now close to full capacity.

As part of CDB's ?Integrated Solid Waste Management Project? in Grenada, a new National Solid Waste Management Strategy (NSWMS) has been developed.[184]¹⁸⁴ The final draft of the document was completed in July 2021. Objective 13 of the NSWMS is to establish a facility to treat derelict vehicles by 2025.[185]¹⁸⁵ The proposed measure that is related to this objective is ?Action 20: Improve the Management of Derelict Vehicles.?[186]¹⁸⁶ A levy is currently imposed on the importation of vehicles to regulate their disposal, but the GSWMA does not have a suitable facility to store and process derelict vehicles. To change this, the NSWMS proposes the following activities: (1) Develop and implement a public awareness campaign to inform the population about appropriate derelict vehicle management; (2) Complete a survey of how derelict vehicles are currently managed; and (3) implement an official facility to process derelict vehicles.[187]¹⁸⁷

The NSWMS does not directly mention how end-of-life management of electric vehicles or EV batteries will be handled in Grenada in the future. The ?Action 16: Implement Extended Producer Responsibility? of the NSWMS aims to introduce an extended producer responsibility (EPR) programme to cover certain categories of waste that are more problematic to manage. This would relieve the GSWMA of the economic and technical burden of managing these wastes. This approach can incentivise waste reduction at source, promote eco-design and provide collection and recycling infrastructure or appropriate disposal for the categories of materials collected. The activities suggested for the implementation of this action are: (1) establish (by agreement with industry and/or through legislation) industry-financed and managed EPR schemes for the collection, transportation and recycling/treatment/disposal of certain types of product-related waste; and (2) introduce in the legislation reporting obligations and collection targets for the waste under EPR schemes.[188]¹⁸⁸

All of the above will significantly contribute to accomplish the overarching Objective 1 of the NSWMS, which is to reach an 80% diversion rate by 2035.[189]¹⁸⁹

Table 6: Relevant policies and regulations related to solid waste management in Grenada

Name	Type	Year and status	Description / objective
Waste Management Act #16 of 2001	Regulatory	2001 Implemented and active	Solid waste management in Grenada is regulated under the Waste Management Act #16 of 2001. Due to its antiquity, the act has no specific regulations on the re-use, recycling and final disposal of vehicles (conventional or electric). Out of the Waste Management Act of 2001 has emerged the National Waste Management Strategy for Grenada (2003). Grenada has not yet adopted an integrated approach to waste management.

National Solid Waste Management Strategy (NSWMS) 2021	Regulatory	2021 Final draft, adoption pending	As part of CDB's Integrated Solid Waste Management Project in Grenada, a new National Solid Waste Management Strategy (NSWMS) has been developed. The final draft of the document was completed in July 2021. Once adopted, it will replace the existing National Waste Management Strategy (NWMS), which was already published in 2003. The new NSWMS proposes 19 objectives to be achieved through the implementation of 21 actions covering 86 activities. Objective 13 of the NSWMS is to establish a facility to treat derelict vehicles by 2025. The NSWMS does not directly mention how end-of-life management of electric vehicles or EV batteries will be handled in Grenada in the future. However, it can be assumed that EV battery reuse and recycling will also be covered under the NSWMS. Objective 16 of the strategy is to reach a minimum diversion rate of 80% for batteries and accumulators by 2030.
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2.5 On-going and planned projects

Table 7: Energy and e-mobility related on-going / planned project activities

Project Name	Implementing Agency	Description	Execution Period	Estimated budget, US\$	Relevance to project
Solar PV / battery hybrid project	United Arab Emirates - Caribbean Renewable Energy Fund (UAE-CREF)	Solar PV and battery hybrid project in Carriacou, Grenada. The plant will have a production capacity of 600 kW and a storage capacity of 300 kWh that could be increased based on the tender prices received. ^[190] 190	2021	3.2 million	Co-finance to the project related to investment in renewable energies, ensuring transition towards low-carbon e-mobility, including the pilot (Component 2)

Project Name	Implementing Agency	Description	Execution Period	Estimated budget, US\$	Relevance to project
GCF FP020: Sustainable Energy Facility for the Eastern Caribbean ^[191] ¹⁹¹	GCF, Inter-American Development Bank (IDB) (Accredited Entity) Clean Technology Fund (CTF), Japan International Cooperation Agency (JICA), United Kingdom Department for International Development (DFID), GEF, Caribbean Development Bank (CDB)	Facility to support geothermal energies and renewable energy frameworks in the Eastern Caribbean	Approved in 2016 - estimated completion 2027	32.14 million (amount corresponding to Grenada)	Co-finance to the project related to investment in renewable energies, allowing for scale-up and replication of low-carbon electric mobility (Component 3)
Road Transport Enhancement Project	CDB	The project road rehabilitation and upgrade project and a public transport improvement study.	September 2021 - Ongoing	No information available	Potential complementary work on public transport enhancements, linked to Component 1
Grenada - New Zealand Geothermal Partnership	CDB, Government of Grenada, Government of New Zealand	The Geothermal Support Partnership Framework aims at facilitating the exploration and eventual use of geothermal energy leading to a reduction in Grenada's carbon footprint and ultimately lower electricity prices. ^[192] ¹⁹²	2015 - Ongoing	3.5 million	Exploration of renewable energies, allowing for scale-up and replication of low-carbon electric mobility (Component 3).

Project Name	Implementing Agency	Description	Execution Period	Estimated budget, US\$	Relevance to project
Supporting the implementation of NDCs in the Caribbean ? transforming the energy and transport sectors towards a low-carbon and climate-resilient future - scoping mission[193] ¹⁹³	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH with funding from the Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety (BMU)	The project assisted participating countries in updating their NDC and included technology demonstration, capacity development and enabling frameworks for the diffusion of low-carbon technologies.	2018 ? 2020	0.5 million	Supports the further uptake of low-carbon technologies as envisaged under Component 3.
Enhancing Caribbean Civil Society's Access and Readiness for Climate Finance[194] ¹⁹⁴	GCF, Caribbean Natural Resources Institute (CANARI)	Enhance civil society's capacity, including knowledge, skills and organisational structures, and the enabling external institutions to improve access to climate financing and delivery of climate change adaptation and mitigation in the Caribbean.	Approved in 2019 - est. completion 2022	1.3 million (grant amount)	Supports the further uptake of low-carbon technologies as envisaged under Component 3.

Project Name	Implementing Agency	Description	Execution Period	Estimated budget, US\$	Relevance to project
Accelerating Grenada's DAE Modality For The Effective Implementation of the Country's Goal Towards A Small Smart State ^[195] ¹⁹⁵	GCF	The readiness support strengthens and diversifies the institutional setting for direct access and enables Grenada to become a "Smart Small State" by setting the country on a pathway to directly access concessional loans, guarantees, private equity, etc.	Approved in 2019 - Anticipated duration 18 months (grant agreement pending)	0.2 million (grant amount)	Supports the further uptake of low-carbon technologies as envisaged under Component 3 through long-term access to international finance.
Climate Resilient Cities: Grenada ^[196] ¹⁹⁶	GCF, New York University	The project focused on St. George and Grenville and included a comprehensive mitigation strategy and capacity building for green development.	Approved in 2018 - Anticipated duration 18 months (grant agreement pending)	0.6 million (grant amount)	Supports the institutional capacity development of low-carbon technologies as foreseen for the project under Component 1.

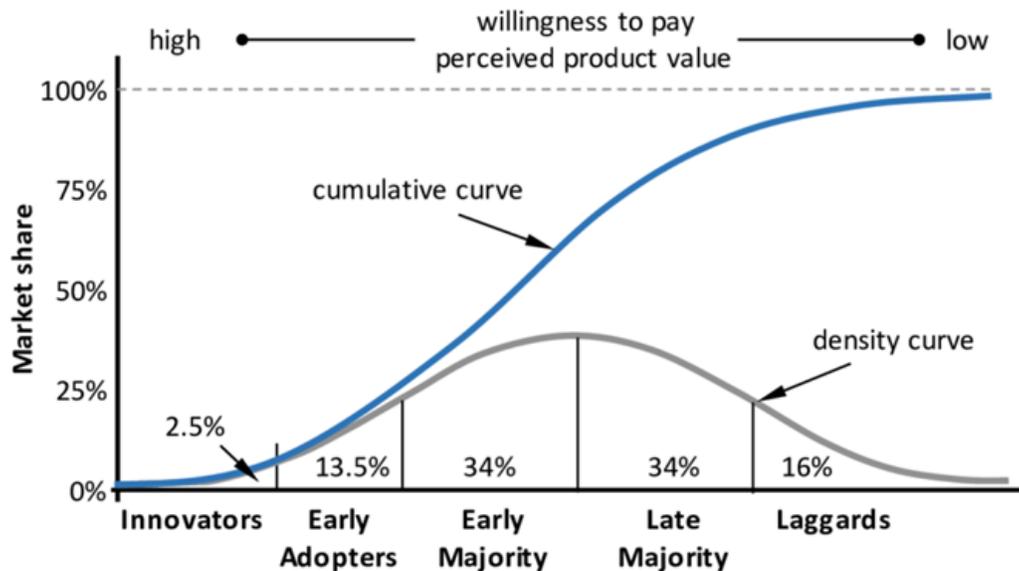
Project Name	Implementing Agency	Description	Execution Period	Estimated budget, US\$	Relevance to project
NDC Partnership Climate Action Enhancement Package (CAEP)	NDC Partnership and support partner	<p>In August 2019, Grenada finalized a Partnership Plan for NDC implementation, outlining immediate needs in key NDC sectors and aligning the Plan with its long-term Sustainable Development Vision, National Adaptation Plan, and the IMF Climate Change Policy Assessment. Grenada has taken a joint approach to NDC implementation and enhancement. The next step to begin implementation of the Partnership Plan is to gather partners' support.</p>	2019 - Ongoing	No information available	Supports the alignment of long-term national and sectoral targets, policies and the institutional capacity development of low-carbon technologies as foreseen for the project under Component 1.

Project Name	Implementing Agency	Description	Execution Period	Estimated budget, US\$	Relevance to project
	Global Green Growth Institute (GGGI)	In collaboration with the NDC Partnership and partners to the Climate Action Enhancement Package (CAEP), GGGI is supporting governments of Antigua and Barbuda, Grenada, and Saint Lucia in the enhancement and fast-tracking of Nationally Determined Contributions (NDCs).	2020 - ongoing	No information available	Supports the alignment of long-term national and sectoral targets, policies and the institutional capacity development of low-carbon technologies as foreseen for the project under Component 1.

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

This project aims to support Grenada in initiating a transition to low-carbon electric mobility. As the baseline highlighted, the country is at the very beginning of such a transition: electric mobility is unregulated, receives little financial incentives and is absent from Grenadian roads. Market share is essentially zero. With an almost complete absence of electric mobility, the country is at the beginning of the technology adoption lifecycle (see figure below). The project aims to address this situation by a series of actions that together will accelerate processes to introduce low-carbon electric mobility in the country. It seeks to do so by creating the enabling conditions for encouraging market entrance of ?innovators? and ?early adopters?, thus paving the way for a controlled, stable and comprehensive transition to low-carbon electric mobility.

Figure 17: The technology adoption life cycle



Source: Klingler, Anna-Lena. (2019) [197]¹⁹⁷

The project's **component 1** institutionalizes electric mobility in Grenada. It will support the country to create a governmental coordination mechanism between key governmental transport and energy actors, establish a long-term national strategy, develop a transport sector data mechanism, and build the capacity of key stakeholders on EV technical, financial and waste management aspects. It will also involve civil society in the transition through a community engagement plan, ensuring a just transition

to a decarbonized transport sector. As part of the strategy development, comprehensive electrification analyses will be undertaken to support the government with identification of priority investments for decarbonizing the energy sector and preparing the national grid for electric vehicle scale-up. In this way, Grenada will take steps to transform to a low-emission transport sector while at the same time avoiding increasing emissions that may occur due to increased electricity demand from electric vehicles.

Component 2 creates evidence amongst government, private sector and civil society stakeholders as to the technical, social and economic viability of electric vehicles in local conditions. With an absence of such vehicles in Grenada, local stakeholders are unsure as to whether the technology and its charging infrastructure can function in local conditions (hilly, high salt concentration in the air, etc.). This component will address this barrier by piloting EVs in government fleets (?innovators?), as a steppingstone for future scale-up in such fleets, as well as in the public transport and tourism sectors (?early adopters?).

Component 3 establishes the needed regulations and fiscal incentives. With regulation of the energy sector, including renewable energy, well advanced (see baseline section), this component focuses on levelling the playing field for electric vehicles through regulations and incentives which reduce the cost difference between EVs and internal combustion engine vehicles. Regulations will also be introduced to ensure quality and interoperability of charging infrastructure, so that such can be accessible and of utility for all EV brands and models (with focus on Japanese and European right hand drive models). Component 3 will also take action to promote the next level of adoption of electric mobility (?early adopters? and ?early majority?) through an attractive fiscal regime.

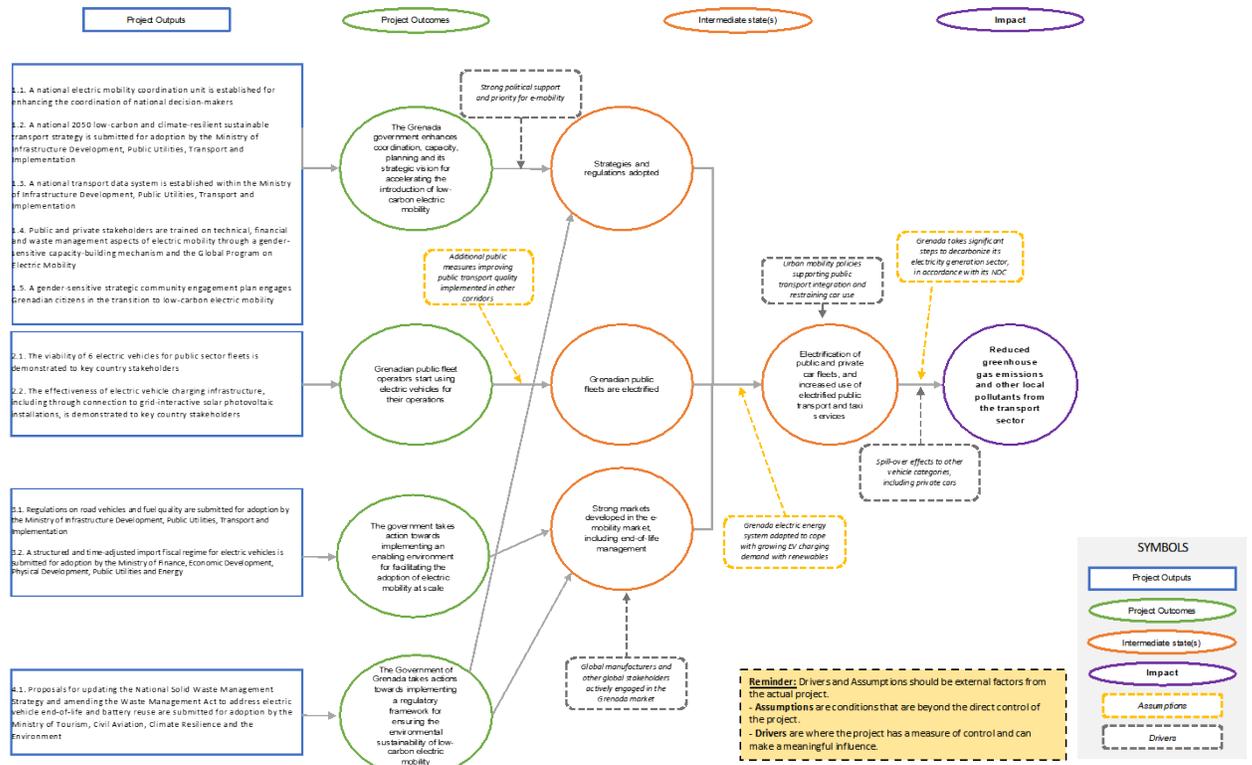
Component 4 ensures that the transition to electric mobility will not lead to negative local environmental impacts. It supports Grenada with updating national waste management policies and regulations to instruct electric vehicle and EV battery waste management, including as related to re-use, recycling and disposal.

The project is fully aligned with and seeks to support the achievement of Grenada's nationally determined contribution and Vision 2030. It also aims to accompany the country's steps to decarbonize its energy sector (see baseline) through the uptake of EVs which can serve to support load shifting and electricity storage. Both are necessary for decarbonizing the power sectors of small islands, as these have limited ability to use geographical variance of renewable power sources and are not connected to regional power grids. Combined with other national actions, successful execution of this GEF project will kick-start Grenada's transition to electric mobility and support it with achieving broader decarbonization objectives.

Theory of change

The following diagram indicates the theory of change for the project, consistent with the aforementioned description. The theory of change aims to address the problems described in section 1 (see the problem tree in that section) and build upon the baseline described in section 2.

Figure 18: Project theory of change



Component 1: Institutionalization of electric mobility

Component 1 institutionalizes action on low-carbon electric mobility through:

- ? The establishment of a government coordination mechanism;
- ? The development of a national long-term strategy that charts the deployment of electric vehicles at scale across the island and the scaling-up of renewable energy generation to accompany such vehicle deployment;
- ? The establishment of a government transport data system;
- ? The building of key stakeholder capacity through a capacity-building mechanism; and,
- ? Initiatives to engage the local community in such action, through broad consultation and engagement.

The component aims to address barriers 1(a), (b), (c), (d), 2(a) and 4(a) as described in the barriers and root causes section of this document (section 1b.1). The component builds upon co-financing of the Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy, the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation and the Grenada National Training Agency. This includes as related to mobilized investments that will contribute to ensuring the uptake of low-carbon electric mobility, through a loan of the United Arab Emirates-Caribbean Renewable Energy Fund for a solar photovoltaic (PV) hybrid battery storage plant in Limlair, Carriacou, and a Green Climate Fund grant for accelerating the uptake of geothermal and other renewable energies. Through the achievement of these outputs the component seeks to lead to a behavioural change of the government.

Outcome 1: The Grenada government enhances coordination, capacity, planning and its strategic vision for accelerating the introduction of low-carbon electric mobility.

Output 1.1: A national electric mobility coordination body unit is established for enhancing the coordination of national decision-makers.

Barrier addressed by the output (as described in section 1b.1): 1(a): Lack of coordination and consultation.

This output establishes a Grenada E-Mobility Unit (GEMU) as a national coordination body on electric mobility hosted within the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation and under the guidance by the Grenada Transport Commission (GTC). While the GTC focuses on transport, the GEMU will bring key actors from both the transport and energy sectors to ensure a coordinated scale-up of electric mobility that does not put undue pressure on the power

network or lead to net increases in greenhouse gas emissions. The GEMU will consist of representatives of the following institutions:

- ? Ministry of Infrastructure Development, Public Utilities, Transport and Implementation (GEMU chair and secretary);
- ? Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy;
- ? Ministry of Climate Resilience, The Environment, Forestry, Fisheries & Disaster Management;
- ? Ministry of Health, Social Security and International Business (including its Division of Gender and Family Affairs);
- ? Public Utilities Regulatory Commission (PURC);
- ? Grenada Electricity Services Ltd (GRENLEC);
- ? Grenada Solid Waste Management Authority (GSWMA).

While the unit will be governmental, it will ensure coordination and consultation with non-governmental stakeholders through two means. Firstly, one of the unit's four annual meetings will be an extended-stakeholder meeting, in which such stakeholders are given the opportunity to present their needs, experiences, ideas and concerns with regards to the roll-out of electric mobility. This will include dedicated sessions for:

- ? The public transport sector: including the National Bus Association (NBA), the National Taxi Association (NTA), passenger associations and gender groups;
- ? The tourism sector: including the Grenada Hotel and Tourism association (GHTA);
- ? The automobile sector: including car distributors, vehicle leasing companies, trade and worker unions, mechanics, and academia (led by the National Training Agency).

Non-governmental organizations may also be invited to observe other GEMU meetings as decided by the unit. Furthermore, GEMU will engage with stakeholders through execution of the local community engagement strategy (output 1.5).

The unit will serve to coordinate all government action on the scaling up of electric mobility, including all GEF project activities. GEMU will play a key role in reviewing and signing off on the project's outputs, including the sustainable transport strategy (output 1.2), training curricula (output 1.4), the project pilot's design (component 2), and the development of regulations and incentives (components 3 and 4). It will also play a key role in monitoring and evaluating the GEF project and other EV investments, to ensure alignment with the sustainable transport strategy, the NDC and other national plans and targets. Of low cost but of vital importance for ensuring a coordinated and efficient transition to electric mobility, the unit will hold a minimum four meetings per year and will continue post project

through its institutional embedding in the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation. The GEMU will strive to be gender balanced.

#	Deliverables
1.1.1	GEMU terms of reference, rules of procedure and 5-year workplan submitted for adoption by the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation
1.1.2	Minimum 8 meetings of the GEMU, with a minimum of 4 meetings a year once operational

Output 1.2: A national 2050 low-carbon and climate-resilient sustainable transport strategy is submitted for adoption by the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation

Barriers addressed by the output:

1(b): Lack of inclusive long-term planning.

1(c): Lack of training, skills and knowledge on electric mobility.

This output consists of a national 2050 gender-sensitive, low-carbon and climate resilient sustainable transport strategy. It will provide the Grenada Government with a strategic framework for facilitating the controlled introduction and deployment of electric vehicles in the country until 2050, to achieve its long-term target of decarbonising the transport sector. It goes beyond electric mobility to conceptualize a fully sustainable and low-emission transport system, with consideration of actions to promote modal shift from private vehicles to public transport, and increased use of non-motorized transport modes. The resulting strategy and supporting analysis documents (see below) will also enable the Government to update and increase the ambition of future NDCs through a clearer understanding of the energy and transport sectors and their potential for emission reduction. Aligned with the NDC and 2030 Vision, the strategy will include:

- ? An overall strategy document for achieving broad uptake of low-carbon electric mobility by 2050, including mission and vision and 2030, 2040 and 2050 targets aligned with the NDC;
- ? An implementation plan for the electricity generation sub-sector to achieve the strategy targets, including required policies and investments for increased renewable energy capacity and grid capabilities;
- ? An implementation plan for the transport sector to achieve the strategy targets, including required policies, identified investments and a charging network infrastructure map and plan;
- ? Key indicators for tracking progress on implementing the strategy (tracked through the data system of output 1.3);

- ? Social, environment and economic impact assessment of implementing the strategy and achieving its targets and identified measures for ensuring a just transition.

The strategy will be developed through an inclusive process, guided by project's community engagement plan (output 1.5). It will also build upon a series of fundamental reports that provide decision-makers with a comprehensive understanding of required measures and impacts of the transition:

1. *Fleet electrification feasibility analysis* (deliverable 1.2.1)

Primary recipient: Ministry of Infrastructure Development, Public Utilities, Transport and Implementation.

This will identify the socio- and techno-economic feasibility of electrification of different transport fleets. The analysis will include, inter alia, an economic assessment of the total cost of ownership (TCO) for internal combustion engine and electric vehicles of government fleets, public transport and tourism operators in SIDS, the Caribbean and particularly in Grenada. It will also establish the requirements of climate-resilient charging infrastructure and investment rollout for varying scenarios of electric mobility penetration to meet the NDC and other national targets. The analysis will focus on government fleets, public transport (buses and taxis) and the tourism sector but will also consider broader measures related to private vehicle electrification. It will identify the required national standards, regulations and communication protocols of charging infrastructure (to be regulated through output 3.1). It will further identify vehicle certification regulations used in different markets to guarantee vehicle safety, which will inform their elaboration under output 3.1. It will identify effective means to scale up electric mobility in the specific local conditions of an atomized local public transport sector. The development of the scenarios will build upon the country's NDC, national sustainable development plan, and its Vision 2035 (see section 2.4).

2. *Renewable energy generation capacity analysis* (deliverable 1.2.2)

Primary recipients: Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy; GRENLEC; PURC.

Based on the fleet electrification analysis, an analysis will be performed to identify the required future installed capacity of renewable power generation for Grenada to meet its NDC under varying scenarios of e-mobility penetration. The study will identify how existing planned and identified investments will support a greening of the power sector. It will then identify the capacity gap to meet projected demand increases in the future, as well as optimum locations and high-level technical requirements. Having determined the required capacity, a preliminary economic analysis estimating the required investment will be undertaken. This will also take into account, assess and identify how electric mobility may add flexibility to the national energy system. The analysis will then estimate the greenhouse gas mitigation effectiveness of vehicle electrification considering the entire country energy system. Recommendation will be provided to support the above identified primary recipients with investment planning and

resource mobilization. This analysis will build upon work of the World Bank and the PURC, which is developing regulations on how renewable energy providers can interconnect with the existing grid (see section 2.4), as well as that of UNEP, which is supporting Grenada to develop a response plan for retrofitting its entire diesel-based power capacity with renewable energy sources (see section 2.2).

3. Electricity distribution grid analysis (deliverable 1.2.3)

Primary recipients: Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy; GRENLEC; PURC.

This study will evaluate the power distribution grid's current state and future grid requirements to respond to fleet electrification and renewable energy additions identified in the two previous studies. Varying scenarios of low carbon electric vehicle and renewable energy penetration will be analysed against a business-as-usual scenario. Based on this, the study will identify required grid capacity in different parts of the country. It will also analyse the impact of different electric vehicle charging scenarios on the grid (not only as an overall power requirement). The analysis will focus on the stabilization and resilience of the grid, providing input into how to improve its current reliability and also how to ensure resilience against major climate events, such as hurricanes. The study will further evaluate the available load shifting capacity of the current grid. Based on the two previous studies, the study will identify additional ancillary capacity needed for grid frequency control and required grid distribution investment. The analysis will take into account future enhancements to stabilize the grid, such as weather forecasting system optimization to minimize the additional reserve capacity of dispatchable power in a high renewable penetration future, vehicle-to-grid integration and storage facilities. Results will highlight current system weaknesses and estimate required future investments. The study will also provide recommendations on amendments to the current regulatory framework that governs electricity distribution, if required, to promote further integration of renewable energy technologies and electric vehicle infrastructure. As part of the study, and building upon the two previous ones, a charging network infrastructure plan and map integrating renewable and climate resilient energy with electric vehicle charging facilities will be developed. This will be developed in collaboration with GRENLEC. The plan will consist of a concrete proposal on a national public charging network, to be implemented by GRENLEC with the support of national and international public and private investment. This analysis will build upon and coordinate with work that PURC is currently undertaking with the support of USAID's Caribbean Clean Energy Program (CARCEP) to establish new electricity sector regulations.

4. Gender-sensitive socio-economic analysis (deliverable 1.2.4)

Primary recipients: Ministry of Infrastructure Development, Public Utilities, Transport and Implementation; Ministry of Health, Social Security and International Business (including its Division of Gender and Family Affairs).

This analysis will identify the social-economic impact of low-carbon and climate-resilient electric mobility and provide recommendations to ensure a just transition. The integration of a low-carbon electric mobility in Grenada may have important socio-economic implications, such as impacts on

affordability and accessibility of transportation services for all citizens and especially economically vulnerable communities. Through this deliverable, a gender-sensitive analysis will be undertaken as to the potential socio-economic impacts on communities of the transition towards electric mobility, including consideration of different impacts on women and men and of economically vulnerable communities. This analysis will draw on the activities of the community engagement plan (output 1.5) to ensure consultation with all members of society. Through this study, key measures will be identified as part of the strategy for ensuring a just and gender-sensitive transition to a sustainable transport sector. This analysis will be undertaken building upon the country's national sustainable development plan and Vision 2035 (see section 2.4), particular the sustainable development pillar on 'the society'.

#	Deliverables
1.2.1	Fleet electrification feasibility analysis, comprising technical and economic alternatives for national fleet electrification under different scenarios
1.2.2	Renewable energy generation capacity analysis, addressing the implication of increased deployment of renewable power generation required for different scenarios of national fleet electrification
1.2.3	Electricity distribution grid analysis, identifying national grid requirements due to manage the incorporation of renewable energy and electric mobility infrastructure
1.2.4	Gender-sensitive socio-economic analysis, identifying the socio-economic impacts of a transition to low-carbon electric mobility and recommendations to ensure a just transition
1.2.5	Draft gender-sensitive national low-carbon and climate resilient sustainable mobility strategy, including identified investments and a charging network infrastructure map and plan
1.2.6	Two (2) multi-stakeholder consultation workshops on the strategy, including workshop reports
1.2.7	Final national 2050 low-carbon and climate-resilient sustainable transport strategy submitted for adoption by the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation
1.2.8	Technical assistance to support government adoption processes, including as needed stakeholder consultation and meetings
1.2.9	Minimum one (1) project concept developed for implementing part of the strategy with the support of regional and/or international financiers

Output 1.3: A national transport data system is established within the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation

Barrier addressed by the output: 1(c) Lack of transport sector data and mechanisms for related data collection.

A national web-based data system will be established and managed by the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation to facilitate the design of evidence-based and data-informed transport regulations and strategies. The system will also support the tracking of progress to implement the sustainable transport strategy (output 1.2). This output is aligned with Grenada's second NDC in which the country highlighted that *to ensure the future availability of quality, disaggregated, useable data, Grenada will continue efforts towards the development of a national data collection framework for long term collection and verification of data.*

The system will be incorporated into the national portal of the Grenadian government (www.gov.gd) and will house all existing transport data and information in one location. This will include information currently collected by the Ministry of Infrastructure Development, Transport & Implementation, the Central Statistical Office, the Inland Revenue Division and public transport associations (e.g., the National Bus Association and the National Taxi Association). Information will be dynamically updated and may include:

- ? Vehicle fleet information (total number of conventional and electric vehicles by class (bus, van, etc.), information on vehicle make and model, first year of registration, curb weight, engine displacement, power and tested fuel economy / CO₂ emissions, if available);
- ? New vehicle registrations (new and used imported vehicles, data on vehicle make and model, first year of registration, curb weight, engine displacement, power and tested fuel economy / CO₂ emissions if available);
- ? Electric vehicle model availability through domestic and regional dealerships;
- ? Charging infrastructure (type, location, etc.);
- ? Public transport statistics (where available: mileage of public transport, capacity, fleet size, routes, frequency, usage by gender, etc.);
- ? Transport strategies, policies and regulations;
- ? Fuel prices by type (gasoline, diesel, gas, electricity, etc.);
- ? Financial options for purchasing electric vehicles;
- ? Gender-sensitive training curricula and related capacity-building material (see output 1.4);
- ? Community consultation updates, notices of upcoming meetings, and communication material (see output 1.5);
- ? Data on electric vehicle fleet size, mileage and performance data (including estimate of GHG emission reductions) based on the pilot (output 2.1) and other electric vehicles in the country, in both real-time and periodic form;
- ? A dashboard for tracking the sustainable transport strategy through a series of indicators;
- ? Information on key projects and initiatives on sustainable transport;

- ? Experiences, good practices and lessons learned on electric mobility from other countries, shared through a connection to the global program platform.

Key activities to be undertaken in the design of the system, as part of deliverable 1.3.1, will include:

- ? Development of system functions to, inter alia, facilitate strategy tracking (output 1.2) and the development of plans, policies, regulations, standards and incentives related to electric mobility;
- ? Identification and proposal for incorporating the system into the national portal of the Grenadian Government;
- ? Identification of system users and responsible entities and the development of user and operation protocols;
- ? Identification of key data required (existing and not existing) and data owners;
- ? Identification of key indicators and development of an indicator platform for tracking the implementation of the output 1.2 strategy (against established baselines, etc.);
- ? Specification of necessary resources (human and physical assets, including hardware and software, databases, source codes, design documents as applicable). The system will be developed through open source programming and will be open source;
- ? Proposal including timeline for creating and operationalizing the system during the project lifetime;
- ? Elaboration of data quality control and quality assurance processes;
- ? Cost estimate for the system's annual operation and maintenance;
- ? Concrete stakeholder-consulted proposal on the sustainable financing and operation of the system post project;
- ? Identification of front-end and back-end platforms for stakeholder engagement on electric mobility to the general public (front-end) and supporting data analysis by government officials (back-end).

To ensure the system's sustainability post project, the output will abide by the key principle of ensuring the development of a relatively simple, low-maintenance and low-cost platform that can serve to enrich public policy processes and monitoring of the transport sector, and not create an additional financial or human resource demand on the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation. Ensuring this will lead to the development of database that responds to the Ministry's needs, leading to long-term sustainability through appreciation of the value the platform serves to ministry operations. Such a principle will be fundamental to the system's design.

#	Deliverables
1.3.1	Detailed design of the web-based national transport data system, based on international good practices and drawing on Global Program support
1.3.2	Detailed data collection plan, including identification and mapping of data suppliers (including owners of EVs), data supply periodicity, formats of supplied data (identifying any data conversion required by the system for data uploading), and detailed roadmap and strategy for the generation and collection of unavailable or uncollected data
1.3.3	Data sharing agreements for furnishing the system finalized between key data suppliers and the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation
1.3.4	National transport data system operationalized as per deliverable 1.3.1.
1.3.5	Protocols for post-project management of the system and data collection and analysis submitted for adoption by the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation.
1.3.6	Quarterly online reports on data aggregated and processed by the system shared with the GEMU (minimum 4 reports)
1.3.7	Two (2) training sessions for data suppliers and users of the system, including two (2) training reports

Output 1.4: Public and private stakeholders are trained on technical, financial and waste management aspects of electric mobility through a gender-sensitive capacity-building mechanism and the Global Program on Electric Mobility

Barriers addressed by the output:

1(d): Lack of training, skills and knowledge on electric mobility; and 4(b): The government and waste management companies lack capacity in managing ELVs.

This output builds the capacity of stakeholders on e-mobility in three priority areas as identified during the project preparation grant phase:

- iv) Technical aspects of transport electrification
 - i. *Focus:* Overview of electric vehicle and charging infrastructure technology, safety aspects, and related operations and maintenance;
 - ii. *Key stakeholders to be trained:* Government officials, fleet managers and operators (including as related to government fleets, public services, public transport and the hotel sector), mechanics, and safety operators (ambulance, police and fire);^[198]
 - iii. *Key inputs:* Deliverable 1.2.1 and inputs of the global program and its regional investment hub.
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- v) Financing transport fleet electrification
 - i. *Focus:* Total cost of ownership of EVs versus ICEs, EV loan templates for public and private local banks, private purchasing and public procurement structures, credit mechanisms;
 - ii. *Key stakeholders to be trained:* Government officials, Grenada Development Bank officials, private banks (e.g. the Republic Bank and the Grenada Cooperative Bank), fleet managers, large hotel owners;
 - iii. *Key inputs:* Deliverable 1.2.1 and inputs of the global program and its regional investment hub.

- vi) End-of-life management of electric vehicles and batteries
 - i. *Focus:* good practices on ELV management of electric vehicles and batteries, ELV management private sector business models, incorporation into waste management value chains;
 - ii. *Key stakeholders to be trained:* Government officials, Grenada Solid Waste Management Authority officials, waste management companies;
 - iii. *Key inputs:* Deliverable 4.4.1 and inputs of the global program.

The project will train these stakeholders through a partnership with the Grenada National Training Agency (NTA), a public agency created through a CARICOM mandate to award Caribbean vocational qualifications. The NTA will execute a gender-sensitive capacity-building mechanism for training key stakeholders on the aforementioned areas. The project will develop the curricula and bring in global experts, with the support of the global program, to train NTA trainers on the curricula. The NTA trainers, with the support of global experts, will then execute the training sessions for building the capacity of key stakeholders. By providing the training through the NTA and by building the capacity of local trainers, the project will ensure sustainability of capacity-building efforts post project.

It will be ensured that the training curricula and training processes are gender-sensitive, including through involving the Grenada Division of Gender and Family Affairs in the development of the training content and methodologies. The output will also build upon capacity activities provided through the UNEP Global Program on Electric Mobility. Global Program activities consist of opportunities to a limited number of key national stakeholders to build capacity on electric mobility aspects; this output will facilitate the training of a broader and deeper group of local stakeholders, building on global program inputs. Further information on Grenada's participation in global program activities is described in section 1d: Child Project.

#	Deliverables
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#	Deliverables
1.4.1	<p>Detailed design of the gender-sensitive e-mobility capacity-building mechanism, based on international good practices and designed in collaboration with the Grenada National Training Agency, including:</p> <ul style="list-style-type: none"> i) Mission, vision, goals and strategy of the mechanism ii) Three training modules, on (a) EV technical aspects, (b) EV financing, and (c) EV end-of-life management iii) Three ?train-the trainer? modules on the three topics of (ii) iv) All modules uploaded to the transport data system (output 1.3)
1.4.2	Memorandum of understanding with the Grenada National Training Agency for executing the capacity-building mechanism elaborated in 1.4.1
1.4.3	Three (3) ?Train-the-trainers? training sessions using the modules developed in D1.4.1(iii), including a report of the three sessions
1.4.4	Three (3) training sessions using the modules developed in D1.4.1(ii), including a report of the three sessions
1.4.5	<p>Participation of relevant stakeholders in events of the Latin America and the Caribbean platform of the Global Program on Electric Mobility, including:</p> <ul style="list-style-type: none"> ? LAC Platform / community-of-practice events ? Regional e-mobility trainings ? E-mobility marketplace events

Output 1.5: A gender-sensitive community engagement plan engages Grenadian citizens in the transition to low-carbon electric mobility

Barriers addressed by the output:

1(a): Lack of coordination and consultation; 1(b): Lack of inclusive long-term planning; 2(a): Lack of stakeholder awareness and confidence in low-emission technologies for meeting the country?s electricity generation and mobility needs.

This output aims to generate bottom-up civil society support and ensure a just transition to electric mobility through the implementation of a gender-sensitive community engagement plan. In this way, it will complement the national strategy (output 1.2) which focuses on generating top-down momentum. Engagement plan actions will engage the local community in project activities for ensuring that these, as well as those of other EV initiatives, take into account broad societal views and respond to society needs. The plan will also aim to build trust with non-government stakeholders from both civil society and the private sector to build local ownership of the transition. Effective and deep community engagement will be especially important for ensuring the successful development of the national strategy (output 1.2). Such engagement will also be crucial for the successful development and

adoption of regulations and fiscal incentives (outputs 3.1, 3.2 and 4.1) that support Grenada in transitioning to a low-carbon transport sector while leaving no one behind. In this sense, the engagement plan will play a key role in ensuring that such outputs facilitate a just transition and incorporate the views of all stakeholders, and especially those of vulnerable communities and women.

The engagement plan will consist of a series of activities including:

- ? Multi-stakeholder consultation workshops on the e-mobility strategy (output 1.2) and regulations and fiscal incentives (outputs 3.1, 3.2 and 4.1) (the workshops are deliverables of those outputs);
- ? Holding of surveys and preparation of community-led inputs for the development of the strategy, pilot, regulations and fiscal incentives;
- ? Community engagement webpage of the national transport data system (output 1.3);
- ? Social media and communication campaigns, online forums and other consultation activities;
- ? Three (3) policy briefs on the three topics covered in the capacity-building mechanism (output 1.4), uploaded to data system (output 1.3);
- ? Open door mechanism for sharing of ideas and concerns related to the transition to e-mobility. This shall also serve as a first point of contact for local stakeholders to express grievances if they feel they may be adversely affected by the GEF UNEP project.^[199]

Through execution of the engagement plan the project seeks to establish informal community groups that champion electric mobility post project as Grenada implements its national strategy and seeks to achieve its NDC. Communication activities of the plan will highlight the negative impacts of dependency on fossil fuel imports on the economy, health, and the environment. These will also highlight the social (particular for women), economic and environmental benefits of renewable power generation and electric vehicles, as well as promote women's participation in the transition. The engagement plan will focus also on the private sector, conveying the benefits and opportunities for the sector (for instance, with regards to the tourism sector and the privately operated public transport).

#	Deliverables
1.5.1	Design of the gender-sensitive community engagement plan
1.5.2	Community engagement plan execution, including open door grievance mechanism
1.5.3	Three (3) policy briefs on the three topics covered in the capacity-building mechanism (output 1.4), uploaded to data system (output 1.3)

#	Deliverables
1.5.4	Annual reports (minimum 2 in total) on community engagement uploaded to the data system and shared with the Global Program on Electric Mobility

Component 2: Short-term barrier removal through electric mobility and charging station pilots

This component will address barriers related to a lack of confidence and awareness of local actors as to the viability of low-carbon electric vehicles in local Grenadian geographical conditions. It will demonstrate 6 electric vehicles, financed jointly by the Grenadian government and the GEF project, and 12 EV charging stations, as well as a 10 kW_p solar photovoltaic plant for one of the stations. Through this pilot, it will generate, for the first time in the country, significant evidence and public data as to the technical, economic, environmental and social viability of electric vehicles in Grenada. Through the creation of this evidence and confidence, the pilot will serve as a key steppingstone to the introduction of electric vehicles at scale, generating political support and data for the elaboration of scale-up strategies (output 1.2) and regulations and incentives (component 3).

The component aims to address barrier 2(a) as described in the barriers and root causes section of this document (section 1b.1). The component builds upon co-financing of the Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy, and the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation. This includes a mobilized investment that will contribute to ensuring the uptake of low-carbon electric mobility, through a loan of the United Arab Emirates-Caribbean Renewable Energy Fund for a solar photovoltaic (PV) hybrid battery storage plant in Limlair, Carriacou. Through the achievement of these outputs the component seeks to lead to a behavioural change of the government and related government agencies.

Outcome 2: Grenadian public fleet operators start using electric vehicles for their operations.

Output 2.1: The viability of 6 electric vehicles for public sector fleets is demonstrated to key country stakeholders

Barrier addressed by the output: 2(a): Lack of stakeholder awareness and confidence in low-emission technologies for meeting the country's electricity generation and mobility needs.

This output will pilot electric vehicles in government fleets, incl. public services. Through these demonstrations, a critical mass of drivers and decision-makers will be convinced of the viability of electric vehicle in Grenada, thus stimulating demand and the scaling-up of the technology in the country. The pilots, which will be procured through the project and co-financed by the government, will also provide key information and experiences for scaling up public procurement of electric vehicles, including through output 1.2. (The pilot focuses on government fleets as these are concrete captured fleets in the country. As noted in the baseline, public transport is operated by individual private sector operators).

A. What and when

The Government of Grenada will operate a minimum of 6 electric vehicles in government public sector fleets (e.g. for public services) for a minimum of 12 months. The pilot will start in the project's second year and continue until the project's termination.

B. Who and how

The Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy, which is responsible for public procurement, has committed direct co-financing of USD \$ 400,000 for the purchasing of a minimum of 6 passenger vehicles. The project will cover the incremental cost to ensure all 6 vehicles are electric.^[200] The Ministry will directly procure the electric vehicles and transfer them to the following public institutions, which commit to using the pilot EVs to undertake daily repetitive tasks currently undertaken by internal combustion engine vehicles:

- o Grenada Postal Corporation (GPC). Will use a pilot electric vehicle(s) for delivering post and undertaking other postal services.
- o GRENLEC. Will use a pilot electric vehicle(s) for conducting electricity infrastructure service visits and maintenance.
- o Public Utility Regulatory Commission. Will use a pilot electric vehicle(s) for conducting utility inspections.
- o Grenada Transport Commission. Will use a pilot electric vehicle(s) for conducting inspections of transport-related infrastructure, incidents and services.

C. Additional details

? The detailed design of the pilot will be gender-sensitive, ensuring that the pilots can effectively facilitate the participation of women. The design (undertaken through deliverable 2.1.1) will also include:

- o Identification of participating public service operator requirements (i.e. GPC, GRENLEC, PURC and GTC) for high usage of vehicles;
 - o EV technical requirements for effective pilot operation;
 - o Charging station technical requirements for effective pilot operation;
 - o Safety and extreme weather pilot protocols for EVs and charging stations;
 - o Pilot monitoring and data collection methodology, including vehicle and charging station monitoring system requirements;
 - o Procurement specifications and guidelines for EVs and charging stations;
-

- o Contractual arrangements for public service operator participation in the pilots (responsible vehicle management and usage, collecting and sharing data, rotation of the EVs amongst multiple staff members, etc.).
- ? The use of the EVs (mileage) will be maximized through the use of a modern fleet management concept which ensures use of the vehicles by different staff members and avoids the use of each vehicle by just a single member, while respecting COVID-19 restrictions. This will ensure that the majority of drivers of these organizations gain confidence in the technology.
- ? The project will also cover maintenance costs for the pilot EVs.
- ? The EVs will be charged through project-funded charging stations (see output 2.2) located at the governmental fleet depots and parking lots, respectively.
- ? Once the pilot is completed the vehicles will remain with the co-financing partners.
- ? The participating governmental organizations commit to piloting these EVs in 'business-as-usual' operations and participating in the project's monitoring scheme (collecting and sharing pilot data - see below)
- ? The pilot vehicles will be monitored through individual vehicle GPS tracking and energy consumption recording equipment. Data will be recorded by the vehicle operators on a weekly basis (if not in real-time) and reported monthly to the GEMU. Data will include individual vehicle kilometres travelled and the energy consumption, supporting estimates of GHG and air pollutant emissions and energy usage. These will be compared with the performance of ICE fleet vehicles monitored over the same time period through vehicle logbooks on distance travelled and fuel consumption. Through the data management system developed under Output 1.3, pilot vehicle data will be processed and used in the development of public policies and regulations under other outputs (noting, however, that 6 pilot vehicles are a small sample size to serve a sole source of information for such outputs). Vehicle data will also be shared with civil society through output 1.5. Pilot annual performance reports will also be shared with the leaders of the GEF global program on electric mobility, to facilitate sharing of experiences and lessons learned with other participating countries.
- ? Data will also be collected on the operating costs of EVs, with identified savings shared with the Ministry for facilitating further EV public procurement, i.e. recording savings on fuel and maintenance to establish the pay-back period for EV fleets and using savings to expand the EV government fleets.

#	Deliverables
2.1.1	Gender-sensitive detailed pilot design (for outputs 2.1 and 2.2)
2.1.2	Procurement of 6 electric vehicles, based on 2.1.1 specifications
2.1.3	Procurement of vehicle GPS monitoring systems based on 2.1.1 specifications

#	Deliverables
2.1.4	Driver pilot protocol, operation and safety training
2.1.5	Executing of monitoring and evaluation methodology, including before and after driver questionnaires
2.1.6	Pilot execution
2.1.7	Pilot vehicle maintenance
2.1.8	Monthly operation reports on the pilot (EVs, chargers and solar PV), including on EV pilot performance and net environmental, social and economic benefits compared to fleet ICEs, uploaded to the data system
2.1.9	Annual summary reports on the pilot (EVs, chargers and solar PV), including on EV pilot performance and net environmental, social and economic benefits compared to fleet ICEs, uploaded to the data system and shared with the Global Program on Electric Mobility

Output 2.2: The effectiveness of electric vehicle charging infrastructure, including through connection to grid-interactive solar photovoltaic installations, is demonstrated to key country stakeholders

Barrier addressed by the output: 2(a): Lack of stakeholder awareness and confidence in low-emission technologies for meeting the country's electricity generation and mobility needs.

This output complements output 2.1 by building stakeholder confidence in electric vehicles through the provision of EV charging stations that fuel the project EV pilots. The output also serves to generate early governmental, electricity company and regulatory commission experiences in connecting charging stations to the electric grid, including those powered through grid-tied solar photovoltaic (PV) installations.

In total, 6 multi-standard charging stations will be installed and connected to the national electricity grid, with each having the ability to charge two EVs at the same time (i.e. a total of 12 charging points). The charging stations will be installed at locations as to facilitate the effective operation of the EV pilots. In this way, they will primarily be installed at the participating government entity fleet parking lots, thus ensuring that the EVs can be charged overnight and used through-out the day (and also boost charged during lunch-time). Some of the charging stations may also be installed in other locations if necessary to facilitate effective pilot operation. The exact locations will be determined during detailed pilot design (deliverable 2.1.1), however indicative locations are indicated in the diagrams below. All of the charging stations will also be available for use by the public (i.e. those located at government buildings will be located at the front of the building on the street).

In addition, one of the charging stations will be connected to a 10 kW_p grid-tied solar PV plant, which will facilitate EV charging through renewable sources when the sun is shining. In the absence of sunshine, the connected EV will be charged through the grid. This PV charging station will be installed in a highly-visible location, to create public awareness as to the benefits and utility of distributed renewable energy. It will also create technical experiences for GRENLEC and PURC on the behaviour of grid-tied renewable energy.[201]²⁰¹ The PV plant-charging station will also be assigned to the government agency which would have the most need for vehicle mobility in the event of a grid failure due to an extreme weather event. In this circumstance, the EV connected to this charging station would still be able to charge, irrespective of grid capability. The PV plant will be installed on a roof of an existing structure, once a climate-resilience analysis has been performed (see diagram below for indicative locations). In the case of GRENLEC, which already has installed PV on its premises, investigation will be made as to connecting one of the charging stations to this existing renewable energy infrastructure.

The charging stations and PV system will be installed, owned, operated and maintained by GRENLEC under a service contract with the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation.

#	Deliverables
2.2.1	Technical requirements of the solar PV plant and its infrastructure, and identification of its location (in alignment with deliverable 2.1.1.), including to ensure effective resilience to extreme weather events
2.2.2	Service contract for GRENLEC installation, operation (including favourable tariff for electricity charging rates), maintenance and data sharing related to the solar PV plant and the charging stations
2.2.3	Procurement and installation of twelve (12) electric vehicle charging points at six (6) charging stations (multi-standard stations capable of charging two vehicles at the same time), based on specifications established in 2.1.2.
2.2.4	Procurement and installation of one (1) 10 kW _p grid-interactive solar plant and it related infrastructure in conjunction with one (1) charging station based on specifications established in deliverable 2.2.1.

The following figures illustrate indicatively possible options (indicated in blue) for location of solar photovoltaic plant (to be confirmed through detailed design process during project execution) of the pilot.

Figure 19: Grenada Transport Commission (located at the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation)



Source: Adapted photo from NOW Grenada[202]²⁰²

Figure 20: Grenada Postal Corporation



Figure 21: GRENLEC existing PV installations over car shelter



Source: Adapted from <https://wrbenenergy.com/grenlec-completes-grenadas-largest-solar-project/>

Component 3: Preparation for the scale-up of electric mobility

Component 3 supports Grenada to create an enabling environment to catalyse a scaling-up of electric mobility building upon the successful implementation of components 1 and 2, through:

- ? The creation of regulations that reduce the cost differential between electric vehicles and internal combustion engine vehicles and also ensure high EV quality and charging station interoperability;
- ? The introduction of a fiscal regime that incentivizes the purchasing of electric vehicles.

The component aims to address barriers 3(a) and (b) as described in the barriers and root causes section of this document (section 1b.1). The component builds upon co-financing of the Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy, the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation and the Grenada Development Bank. This includes mobilized investments that will contribute to ensuring the uptake of low-carbon electric mobility, through a loan of the United Arab Emirates-Caribbean Renewable Energy Fund for a solar photovoltaic (PV) hybrid battery storage plant in Limlair, Carriacou, and a Green Climate Fund grant for accelerating the uptake of geothermal and other renewable energies. Through the achievement of these outputs the component seeks to lead to a behavioural change of the government.

Outcome 3: The government takes action towards implementing an enabling environment for facilitating the adoption of electric mobility at scale

Output 3.1: Regulations on road vehicles and fuel quality are submitted for adoption by the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation

Barrier addressed by the output: 3(a): Absence of regulation.

This output aims to reduce the incremental cost difference between conventional and electric vehicles through the regulation of imported vehicles and fuel quality. New regulations will be introduced with requirements on imported vehicle efficiency and emission standards (such regulations currently don't exist). Such regulations will phase out the importation of cheaper and older vehicles that don't comply with such standards, leading to a reduction in the cost differential with electric vehicles. Furthermore, the output will also create new regulations on electric vehicles and charging infrastructure, with a key focus placed on interoperability (for instance, to ensure that public chargers can be used by different car brands) and safety (quality control of vehicles and chargers). Regulations on charging infrastructure will cover minimum standards, technical specifications, technical approval and installation, as well as related grid integration and connection to solar-powered supplies.

Finally, the output will also support Grenada to regulate fuel quality. Currently the country doesn't regulate its fuel and it subsidizes it. While this leads to cheap prices, it also results in the importation of fuels with high sulphur content, with consequential negative health and environmental impacts. Regulating or increasing the stringency of fuel quality is a politically sensitive issue (as seen around the world, for instance the 'yellow-vests' in France), and thus the process to develop such fuel quality regulations will also take into account society needs and pressures through consideration of a just-transition to tighter regulations. The community engagement plan (output 1.5) will play a key role here and will serve to ensure that broad stakeholder consultation is undertaken on all legislative proposals.

This will take place to ensure that such proposals take into account their potential social impact, in particular on women and socially disadvantaged groups. These regulations will be developed in collaboration with key national actors, including PURC, GRENLEC and the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation. The output will draw on the support of the Global Program and its regional investment hub to identify regional and international good practices for such regulations. This will include drawing upon findings and good practices emanating from the GEF Global Fuel Economy Initiative (GFEI), which was led by UNEP with the support of the Centro Mario Molina (the host of the GEF-7 global program regional investment hub). This initiative had national projects in Belize, the Dominican Republic and Jamaica, and a regional meeting in which Grenada participated.[203]²⁰³

#	Deliverables
3.1.1	Report on regional and international good practices developed with the support of the Global Program and its regional investment hub, with a focus on SIDS, for regulating the importation of conventional and electric vehicles and regulating charging infrastructure, and recommendations for Grenada
3.1.2	One (1) consultation workshop on a proposal for regulating the importation of conventional and electric vehicles, and regulating charging infrastructure, including workshop report
3.1.3	Proposal for regulating the importation of vehicles presented for adoption by the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation, on: ? Internal combustion engine vehicles, including on vehicle energy efficiency and emissions; ? Electric vehicles, including licensing and technical inspection requirements.
3.1.4	Proposal for regulating electric vehicle charging infrastructure presented for adoption by the Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy
3.1.5	Report on regional and international good practices, with a focus on SIDS, for regulating fuel quality while ensuring a just transition, and recommendations for Grenada
3.1.6	One (1) consultation workshop on a proposal for regulating fuel quality through a just transition, including workshop report
3.1.7	Proposal for regulating fuel quality through a just transition presented for adoption by the Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy
3.1.8	Technical assistance to support government adoption processes, including as needed stakeholder consultation and meetings

Output 3.2: A structured and time-adjusted import fiscal regime for electric vehicles is submitted for adoption by the Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy

Barrier addressed by the output: 3(b): Inadequate financial incentives.

The output will strengthen fiscal incentives for purchasing new and used electric vehicles, leading to more rapid EV uptake and market development. Electric vehicles currently are subject to the common external tariff (CET), the customs service charge (CSC), the excise tax (ET) and the value-added tax (VAT), although all are applied on EVs with a 50% concession on normal rates. Electric vehicles are currently exempt from the environmental levy (EL). Notwithstanding the concession and exemption, the price of an EV is still 20-30% higher: section 2 gave an example of the cost differential for an EV van being approximately USD 19,000, with USD 15,000 of taxes still being applied to the EV (see Table 3).

This output aims address this differential through the development of a structured and time-adjusted import tax structure which facilitates rapid market development and uptake of electric vehicles without having a significant impact on public coffers. The proposal will be 'structured' in the sense that it will identify how to combine reduced rates of the four above taxes (and others identified) in a way that is feasible for the government. It will 'time-adjusted' in that it will function like a feed-in tariff: the reduced rates will slowly increase over time, as defined targets or dates are met. For instance increases in taxes could be triggered upon target quantities being reached or by calendar dates. For example, there could be a complete exemption of all taxes on EVs for three years, then in 2026 an increase to 20% of the total tax, and in 2030 to 50%, etc. Work will also be undertaken to explore other fiscal opportunities for reducing the cost differential, such as through reduced tariffs for electricity tariffs for EV charging and increased CET, CSC, VAT or EL tariffs on internal combustion engine vehicles.

This output builds upon the Grenada National Climate Change Policy and Action Plan 2017-2021 recommendation: *'in order to further stimulate private investments in renewable energies and energy efficient technologies the Government of Grenada needs to grant VAT and CET (CARICOM External Tariff) exemptions on such technologies.'* The output will align with the strategy developed in output 1.2. Project activities will draw on the support and investment platform for Latin America and the Caribbean of the Global Programme on Electric Mobility, in particular the help desk and the working group on light-duty vehicles.

#	Deliverables
3.2.1	Report on regional and international good practices developed with the support of the Global Program and its regional investment hub, with a focus on SIDS, for fiscal incentives and import tax structures for electric vehicles, including recommendations for Grenada
3.2.2	One (1) multi-stakeholder consultation workshop for developing a structured and time-adjusted tax proposal for accelerating the introduction of new and used electric vehicles, taking into account work on regulating vehicles and fuel quality in output 3.1

#	Deliverables
3.2.3	A structured and time-adjusted import tax proposal for electric vehicles presented for adoption by the Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy
3.2.4	Technical assistance to support the Ministry adoption process, including as needed stakeholder consultation and meetings

Component 4: Long-term environmental sustainability of electric mobility

Through Component 4, Grenada will implement actions to ensure that the introduction of electric vehicles does not lead to negative environmental impacts for the country. The project will focus on ensuring this by supporting Grenada to update its national solid waste management strategy and amend its waste management act to include consideration of electric vehicles and their batteries. The component aims to address barriers 4(a) as described in the barriers and root causes section of this document (section 1b.1). It builds upon co-financing of the Grenada Solid Waste Management Authority. Through the achievement of these outputs the component seeks to lead to a behavioural change of the government.

Outcome 4: The Government of Grenada takes actions towards implementing a regulatory framework for ensuring the environmental sustainability of low-carbon electric mobility

Output 4.1: Proposals for updating the National Solid Waste Management Strategy and amending the Waste Management Act to address electric vehicle end-of-life and battery reuse are submitted for adoption by the Ministry of Climate Resilience, The Environment, Forestry, Fisheries & Disaster Management

Barrier addressed by the output: 4(a): Lack of policy and regulatory framework for end-of-life vehicle (ELV) management.

The output will support Grenada to update its National Solid Waste Management Strategy and amend its Waste Management Act (2001) to include consideration of end-of-life management for electric vehicles and electric vehicle batteries. Such regulation will provide the private sector with the necessary guidance and opportunities for investing in such waste management. The output will build upon the strategy's recent update which included a focus for the first time on internal combustion engine vehicles, to also focus on electric vehicles. It will ensure consistency with the approach on ICE vehicles where relevant and differentiation with ICE vehicles on waste management procedures for materials and components present only in EVs. Due to the small scale of the Grenada's economy, the policy and regulatory changes will focus on ways to promote management (disposal and recycling) of EV parts through incorporation into regional waste management value chains. The global program may play a key support role here in connecting the Grenada national project with other projects in the region to build economy of scale for such an initiative. Updated policies and regulations will also govern the

extended responsibility of EV vehicle suppliers (with care taken to avoid this resulting in a private-sector imposed tariff on electric vehicles). Furthermore, they will provide instruction on second-use options for used EV batteries, for instance as distributed energy storage systems in remote locations and on subsidiary islands.

#	Deliverables
4.1.1	Report of regional and international good practices developed with the support of the Global Program and its regional investment hub, with a focus on SIDS, for regulating electric vehicle end-of-life and EV battery reuse, and recommendations for Grenada
4.1.2	One (1) consultation workshop for updating the National Solid Waste Management Strategy and amending the Waste Management Act for regulating electric vehicle end-of-life and EV battery reuse, including workshop report
4.1.3	Proposal to update the National Solid Waste Management Strategy for regulating electric vehicle end-of-life and EV battery reuse submitted for adoption by the Ministry of Climate Resilience, The Environment, Forestry, Fisheries & Disaster Management
4.1.4	Proposal to amend the Waste Management Act for regulating electric vehicle end-of-life and EV battery reuse submitted for adoption by the Ministry of Climate Resilience, The Environment, Forestry, Fisheries & Disaster Management
4.1.5	Technical assistance to support government adoption process, including where needed stakeholder consultation and validation workshops

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 CCM1-2 - 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

GEF funds will play a key role in supporting Grenada to sustainably overcome the barriers described in Section 1. Overall, the project is covering the incremental costs of barrier removal activities. The GEF funds will facilitate, mobilise and complement activities and investments envisaged by the project partners (various Departments of the Government, in charge of Transport, Energy, Finance, Climate Resilience and the Environment and Solid Waste Management, GRENLEC, PURC, car dealers and importers and private business). Currently, total cost of ownership (TCO) of electric vehicles privately and in fleets is not competitive in Grenada, in particular due to the high up-front investment for vehicle in general in the country and the related import duties. Although EV costs on a global scale are decreasing, these vehicles are not readily available in Grenada, limiting their affordability and hindering their procurement more than in other countries. It is estimated that the cost of a sedan electric car is about USD 30,000 in Grenada, while the cost of a similar ICE sedan car amount to USD 20,000 per car, resulting in a gap in the procurement cost of USD 10,000.

This and other barriers as well as identified root causes will not be adequately addressed without the proposed GEF project. Hence, the incremental costs of the project will comprise barrier removal activities including the developing of an adequate policy and regulation frameworks (including financial reform to incentivise EVs and facilitate permanent end-of-life management), the current cost gaps between EVs and regular ICE for the demonstration project and the cost of awareness and capacity building.

In particular the Components 2 and 3 will focus on the de-risking of new technologies in Grenada, which is part of the incremental costs to remove existing barriers removal. Removing existing barrier of high upfront cost and lack of confidence and experiences in EV technologies in the local context will attract (private) investment in the country and potentially allow for upscaling (e.g. GCF, development banks). Local expertise to handle specific requirements need to be gained, which can only be done through grants and local demonstrations.

In addition, the project is supported by the global programme and its programmatic approach. The regional coverage (including networking with the other projects in the Caribbean region, Antigua and Barbuda, Grenada and Jamaica, and with the rest of the Latin America and Caribbean region through a regional platform) is seeking to bundle demand in the region and thus reduce the incremental costs (i.e. a cost-effective way of minimizing the incremental costs, e.g. for vehicle procurement, capacity building, regional approach on end-of-life management approaches etc.):

- ? 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, importers and dealers and exchange between numerous projects, the industry is less likely to face misuse of technology.

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

GHG emission mitigation has been estimated by the UNEP Sustainable Mobility (SMU) Unit using its GHG emission reduction calculation model. Full details are provided in Annex L. Based on official gross domestic product (GDP) and population statistics (available until 2016 respectively), an approximate hypothesis has been established for future annual GDP and population growth.

The model estimates light-duty vehicle (LDV) and buses sales based on GDP per capita, with an elasticity of 1 until GDP per capita reaches USD 20,000, 0.7 until the GDP per capita reaches USD 30,000 and 0.3 afterwards.

In the baseline model, alternative vehicles technologies to LDV ICE are not considered to enter massively (>500 sales) to the country before 2031. The electric mobility scenario considers that the introduction of electric vehicles (EVs) will start with the 6 electric LDV provided by the project in 2022. Direct GHG emission reductions are considered only for the lifespan (14 years) of these vehicles provided by the project. An average LDV energy consumption of 0.18 kWh/km has been considered. As electricity in Grenada is mostly generated from diesel plants, an average emission factor for electricity generation of 0.591 kg CO₂/kWh has been included. This factor is expected to decrease to 0.47 by 2030 and by 0.35 by 2040, as a result of a complementary implementation of the renewable energy strategy.

As a result of the project, the country expects to increase the participation of electric vehicles (LDV) from 0% in 2022 to 15% in 2035, and electric buses from 0% in 2020 to 20% in 2040. The emissions

avoided by these vehicles are used for computing the indirect benefits of the project. Other indirect emission reductions are due to the sustainable transport strategy developed by the project, which is expected to induce modal change from car use to public transport after project completion.

Both, the secondary direct and indirect emissions reductions are estimated for a 14-year period after the beginning of the project. A causality factor of 100% is used to quantify the amount of the benefits obtained as a result of the project execution and its influences. This means that outputs of the project will overcome the barriers economic, technology and social barriers of the electric mobility in the country. The project GHG emission reductions and energy saving impacts are summarized in the table below.

GHG reductions and energy savings estimation for Grenada	
Project information	
? Project duration: 3 years. Starting in 4/2022 and ending in 4/2025	
? Time frame for indirect effects: 15 years. Starting in 2022 and ending in 2037. (Effects produced by policy developed during the project and coming scale-up projects)	
? Causality factor: 100 %	
Total project emissions reductions, tCO ₂	245,473
Direct emission mitigation from demonstration, tCO ₂	243
Secondary direct emission mitigation from policy, tCO ₂	73,472
Total indirect emission mitigation, tCO ₂	171,758
Total project energy savings, MJ	7,233,964,408
Energy savings from direct emission mitigation from demonstration, MJ	2,804,142
Energy savings from secondary direct emission mitigation from policy, MJ	904,281,196
Total energy savings from indirect emission mitigation from replication, MJ	6,326,879,070

7) Innovativeness, sustainability and potential for scaling up

Innovativeness

The project deliverables provide technical, financial-management and social innovations:

- ? **Technical innovation:** E-mobility is still incipient in Grenada, with only a handful of vehicles and limited knowledge and awareness among stakeholders and users. The project will introduce in the country EVs and charging technologies at a wider scale and will explore the use of EV in different services. In addition, the project will aim on a streamlined coupling of

the transport and electricity generation sector deploying an increased share of renewable energies. In this sense, the project will also pilot innovative solar PV grid-tied connections to electric vehicle charging stations.

- ? Environmental innovation: The introduction of an environmentally-friendly and commercially sustainable approach to ELV management is challenging in the current local context, as most of the manufactured products consumed in Grenada are imported; the project provides a unique opportunity to modernize the waste management sector also covering existing ICE vehicles, to be eventually expanded to other products, such as electronic appliances. The project will provide guidance to Grenada and lesson learned and success factors from other countries (such as Saint Lucia and Antigua and Barbuda in the region) heavily dependent on imports of manufactured products and to integrate small island countries in the global re-use and recycling chains associated to the expansion of e-mobility.
- ? Governance innovation: The project will require strong cooperation from the government's departments in charge of transportation, energy, climate change, and waste management, formalised through a coordination body and opened to the participation of private stakeholders and the civil society. This is innovative in the local context, particularly within the transportation sector, and will provide an opportunity to strengthen synergies within the government.

Sustainability

Several project deliverables are expected to ensure the sustainability of project outcomes:

- ? The creation of a national gender-sensitive strategy on low-carbon and climate-resilient electric mobility and a development plan will provide both a roadmap for government authorities and a clear signal and incentive for private stakeholders to invest and support the market development.
- ? Investment in e-mobility will be facilitated by the creation of financial (tax) incentives and regulatory reforms will help close the current upfront cost gap between electric and conventional vehicles, de-risking of the technology through capacity building and demonstrations.
- ? Policy, regulatory and fiscal reforms related to electric vehicles and related charging infrastructure along will ensure sustainability of efforts to transition to a low-emission transport sector.
- ? The enhanced coordination between relevant stakeholders and the multi-stakeholder consultation approach established by the project will help steer the implementation of the low-carbon and climate resilient e-mobility strategy, including expansion of EV in different submarkets such as tourism, taxis and buses. The e-mobility coordination body established under Component 1 (GEMU) will oversee the implementation of the low-carbon and climate resilient e-mobility strategy, in close coordination with the National Climate Change Committee.

? Finally, the creation and formalisation of a capacity building system which focuses on building the capacity of a local institution and its trainers will ensure that capacity, knowledge and experience is maintained in the country, irrespective of the trajectory of individual professionals.

Potential for scaling-up

The project focuses directly on scale-up through output 1.2: *A national 2050 low-carbon and climate-resilient sustainable transport strategy is submitted for adoption by the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation*. This output aims to support Grenada in advancing to the next stages of the technology adoption curve, by providing a vision, action plan and identified investments for decarbonizing the transport sector, building upon the positive experiences from the project pilots (output 2.1).

In addition, the fiscal reforms (output 3.2) will also play a key role in providing financial incentives for electric vehicle purchases in the medium- to long-term. Such reforms will go hand in hand with an adopted policy and regulatory framework (output 3.1, but also output 1.2), which lock-in a levelling of the playing field for electric vehicles.

It should also be noted these actions are aligned with the government's nationally determined contribution and 2030 national vision for the transport and electricity sectors, thus highlighting that the project's scale-up activities are aligned with political directives.

Furthermore, operators and managers of public and private fleets can be expected to become keenly interested in including EVs in their fleets, due to barrier removal provided by the project (EVs will be more easily available on the island, incentives, technological de-risking, capacity building) and the availability of financing incentives providing competitiveness with conventional cars. Considering the experience in other countries, the government exemplary role (through state-owned service entities and organisation) and the addressed public transport services in the electrification their fleets, this potential is deemed very high.

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https://laws.gov.gd/index.php?option=com_edocman&task=document.download&id=250&Itemid=205, p. 4

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[191] Source: <https://www.greenclimate.fund/document/sustainable-energy-facility-eastern-caribbean>

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[194] Source: <https://canari.org/csos-ready-for-climate-finance>

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[198] Currently there are only few mechanics in the country who are able to provide and maintenance and repair service for EV. The Grenadian Voice (2020): Electric cars in Grenada. URL: <https://thegrenadianvoice.com/electric-cars-in-grenada/>.

[199] In the event that such concerns are not resolved at the local level, such stakeholders will have access UNEP's Stakeholder Response Mechanism, operated through the Independent Office for Stakeholder Safeguard-related Response (IOSSR).

[200] It is estimated that the cost of an electric car will be USD 50,000, of which approximately USD 30,000 per car will be provided by the beneficiary (this is the cost of a similar ICE sedan car) and the remaining approximately USD 20,000 (i.e., the incremental cost) by the project.

[201] The existing grid has the capacity to absorb potential fluctuations from a 10kW_p PV installation.

[202] <https://www.nowgrenada.com/2021/09/ministry-of-labour-urges-public-to-email-to-minimise-transmission-of-covid-19/>

[203] <https://www.globalfueleconomy.org/blog/2018/december/regional-caribbean-meeting-on-fuel-economy-policies-held-in-jamaica>.

1b. Project Map and Coordinates

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

Grenada is comprised of three islands: Grenada, Carriacou and Petite Martinique. The project will take place in the first of these (with approximately 95% of the population), where the capital St. George's is located. The location of charging stations will be determined during project implementation. It is anticipated that the pilot demonstration activities will be located on Grenada. The exact locations of the pilots will be determined during project implementation.

Figure 22: Area of Project implementation



The coordinates of St. George's, the capital, are: Latitude: 12° 03' 23.18" N; Longitude: -61° 44' 54.56" W.

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		
Outcome 1 Knowledge products are generated to support policy making and investment decision-making through four global thematic working groups			Outcome 2 Conditions are created for market expansion and investment in electric mobility through support and investment platforms			Outcome 3 Conditions are created at country and city level for the introduction of electric mobility demonstration projects, and wider up take of electric mobility			Outcome 4 Projects and electric mobility markets are tracked, and key developments, best practices and other lessons learned are shared to promote wider uptake of electric mobility.		
Indicator 1.1 # of knowledge products developed by the four thematic working groups and used by the Support and Investment platforms in their training and outreach activities			Indicator 2.1 # of countries using services and knowledge products offered by the Support and Investment Platform			Indicator 3.1 # of countries with an improved institutional framework and a strategy to promote the uptake of low-carbon electric mobility			Indicator 4.1 # of countries generating and sharing best practices and other lessons learned on low-carbon electric mobility with the global programme		
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
			Indicator 2.2 # of US\$ leveraged to scale-up low-carbon electric mobility through the support and investment platforms			Indicator 3.2 # of countries with nationally generated evidence of the technical, financial and/or environmental benefits of low-carbon electric mobility			Indicator 4.2 # of e-mobility knowledge products refined based on evidence coming from the country projects		
			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
			Indicator 2.3 # number of e-mobility scale-up and / or replication concepts facilitated as a result of the match-making			Indicator 3.3 # of countries that have improved preparedness to accelerate market transformation towards low-carbon electric mobility			Indicator 4.3 # of non-e-mobility programme countries committing to actively promote the uptake of low-carbon e-mobility		
			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
			Indicator 2.4 # of financial institutions / development banks (national/regional) that have been engaged through the Global Programme and are actively supporting e-mobility projects			Indicator 3.4 # 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 Infrastructure Development, Public Utilities, Transport and Implementation 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 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.

•GLOBAL ENVIRONMENT FACILITY Project Preparation Grant (PPG) of the Project

?Accelerating the introduction of low-emission and climate-resilient electric mobility in Grenada?

(GEF ID: 10629)

Stakeholder Engagement Report

Author: Stefan Wehner, Lasse Ohlsen and Curllan Bhola

The screenshot shows a Microsoft Teams meeting in progress. The main content area displays a presentation slide from the UN Environment Programme. The slide title is "GEF 7 GLOBAL ELECTRIC MOBILITY PROGRAMME". The slide content includes a bullet point: "Introduction of the programme" and "Regional platform for Latin America and Caribbean". The presenter information at the bottom of the slide reads: "Veronica Ruiz Stannah", "Luis Felipe Quirama L.", and "13th October, 2020". The bottom of the screen shows a grid of participant avatars. On the right side, there is a "Participants" list with names and their status (e.g., "Guest", "Outside your organisation", "Leaving...").

Date: 25. November 2021

Objective and scope

UNEP as GEF and lead agency for the 'Accelerating the introduction of low-emission and climate-resilient electric mobility in Grenada' project developed the necessary documents under the Project Preparation Grant (PPG) for GEF CEO Endorsement. The project is prepared in cooperation with the Ministry of Finance, Planning, Economic Development and Physical Development and Ministry of Infrastructure Development, Public Utilities, Energy, Transport, and Implementation and aims at establishing a sustainable, low-emission transport system and will consist of the following four main components:

- ? Component 1: Institutionalization of low-carbon electric mobility
- ? Component 2: Short term barrier removal through low-carbon e-mobility demonstrations
- ? Component 3: Preparing for scale-up and replication of low-carbon electric mobility
- ? Component 4: Long-term environmental sustainability of low-carbon electric mobility

The stakeholder consultation for the project were supported and facilitated by the greenwerk. and UNEP. To ensure strong country ownership, and in line with the GEF guidelines on the implementation of the policy on stakeholder engagement and the GEF policy on gender equality, the development of the project during the PPG phase was undertaken in consultation and engagement with government, private sector, academia, civil society organizations and other relevant stakeholders ? in particular those who will benefit from and be directly involved in the implementation of the project (i.e. direct project beneficiaries) and those who may be impacted (positively or negatively) by the project. Stakeholder engagement and analysis was conducted in an inclusive and gender-responsive manner, so that the rights of women and men and their different structural barriers, knowledge, needs, roles and interests are recognized and addressed. A list of stakeholders has been prepared and is attached to this document as an annex. This PPG Stakeholder Engagement Report summarizes all stakeholder consultations held and lists the stakeholders consulted.

Stakeholder engagement

In order to ensure inclusive participation and consultation, the following stakeholders have been identified for consultation. The list includes the identified social groups that are associated with the project in different ways: those directly or indirectly engaged in the outcomes of project implementation; those directly or indirectly participating in the project, and those with a capacity to influence and decide on project implementation and outcomes.

In September, October and November 2020, the first round of several stakeholder consultations and engagement meetings for the project took place. On 13th October 2020 a National Inception Workshop was conducted, which was accompanied with several bilateral meetings. Due to the COVID-19 pandemic and travel bans the workshops and meetings were held virtually using MS Teams and Miro (virtual boards) to facilitate the discussion.

National Inception and Validation Workshop

The inception workshop brought together all key actors involved in the project preparation phase and implementation. At the workshop approx.. 60 people participated. It served the purpose of consulting with the relevant national counterparts, discuss the baseline situation, map the gaps and barriers, collect relevant country data, agree upon a project intervention logic (logframe and Annex A: results framework) aligned with the concept note and initial institutional arrangements for execution. The

discussion on potential co-finance contributions to the project was also be initiated during this workshop.

Meeting	Who?	Date, Time	Key topics and issues
Extended kick-off meeting of project And continuous bi-weekly meetings	<i>Project team:</i> Ministry of Infrastructure Development, Public Utilities, Energy, Transport, and Implementation; UNEP; Consultants	September 2020 through November 2021	
National inception workshop	Approx. 60 participants. See list of stakeholders	13th October, 2020	Presentation of the project and PPG
Validation workshop		January 2022	Validate the result of the PPG

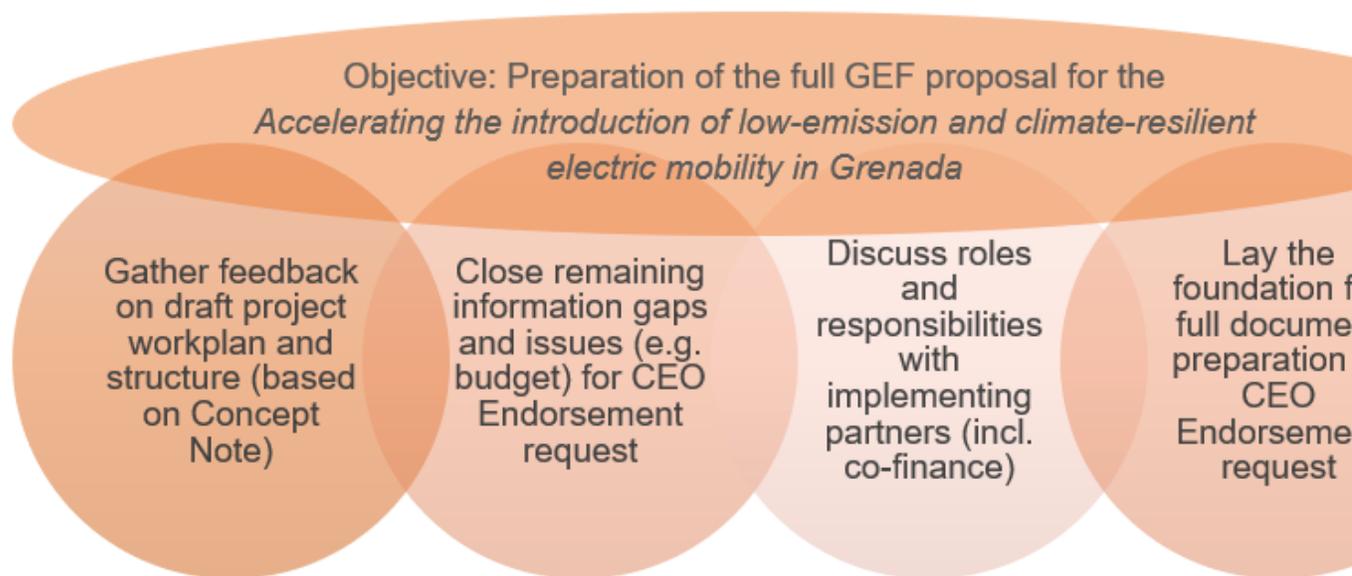
At the national inception workshop representatives from different stakeholder groups were invited and present, including Government / Ministries, statutory bodies, civil society and private sector, financial sector, academia and NGOs and civil society organizations (CSO). The workshop allowed for active participation in breakout groups (see agenda in the Appendix 1).

The agenda, minutes and presentations are attached as Appendix 1. The workshop has also been recorded.

Bilateral stakeholder meetings

Numerous interviews with relevant stakeholders identified have taken place during the PPG in order to identify their concerns and priorities and to integrate their know-how.

The bilateral meetings substantiate the discussions and helped defining individual roles and responsibilities. In additions, this helped to increase the individual ownership though onboarding the stakeholder to the project. The stakeholder consultation meetings were supported and facilitated by the greenwerk. and UNEP. The following objectives were addressed during the consultation in the context of the proposal:



The following table summarises the individual bilateral and group meeting with all relevant implementing stakeholders, incl.:

- Government and National Agencies: Ministry of Infrastructure Development, Public Utilities, Energy, Transport, and Implementation; Ministry of Finance, Planning, Economic Development and Physical Development (Operational GEF Focal Point); Ministry of Climate Resilience, The Environment, Forestry, Fisheries & Disaster; Grenada Solid Waste Management Authority (GSWMA); Grenada Transport Commission (GTC)
- Intergovernmental Organisations: UN Environment (UNEP), GIZ, Caribbean Development Bank (CDB)
- Local private sectors: Grenada Electricity Services Ltd. (GRENLEC), National Bus Association, National Taxi Association, National Hotel & Tourism Association, rental company (GreenPower)
- Financial sector: Grenada Development Bank (GDB)
- Academia: Grenada National Training Agency (NTA)
- NGOs and civil society organizations: NGOs and CSOs that participated in the inception workshop included: the Caribbean Youth Environment Network (CYEN), Grenada Education and Development Programme (GRENED), Grenada National Organisation of Women (GNOW), St Andrew’s Development Organisation (SADO), IAGDO - Inter Agency Group Of Development Organisations, Grenada Community Development Agency ? (GRENCODA), Friends of the Earth (FoE) Grenada North East Farmers Organization (NEFO), The Willie Redhead Foundation, Grenada Sustainable Development Trust Fund (GSDTF) and St. Patrick’s Environmental and Community Tourism Organization (SPECTO).

List of bilateral meetings

Institution	Potential role(s) related to e-mobility development and implementation	Topics to discuss / clarify / consult on	Date
Grenada Hotel and Tourism Association	Stakeholder group	Involvement of the tourism sector (e.g. fleet operators, hotels etc.)	2nd December 2020, 17th February 2021

Institution	Potential role(s) related to e-mobility development and implementation	Topics to discuss / clarify / consult on	Date
Ministry of Tourism, Civil Aviation, Climate Resilience and the Environment	Part of the steering committee	Endorsement of the project (letter required?) Involvement of the tourism sector (e.g. fleet operators, hotels etc.) Environmental / social aspects to be considered Strategy on civil aviation	08th February 2021
Public Utilities Regulatory Commission	Implementing Partner	Regulations on permissions / licensing of operating RE and e-mobility infrastructure: What is the status? Are implementer IPPs, or similar operators such as gas stations?	20 November 2020
Grenada Solid Waste Management Authority	Implementing Partner	Environmental / social aspects to be considered End of life management of cars and batteries	08th December 2020
Grenada Electricity Services Ltd. (GRENLEC)	Implementing Partner. As utility relevant for infrastructure, grid connection and electricity supply	Ongoing activities on E-Mobility and RE uptake; Barriers / solution for accelerated deployment of emobility infrastructure	20th November 2020
Grenada Development Bank (GDB)	Implementing Partner Stakeholder group	Barriers / solution for accelerated deployment of emobility	04th February 2021
Bus Drivers Association	Stakeholder group	Barriers / solution for accelerated deployment of emobility Appropriate incentives for private sector to invest in e-vehicles	24 November 2020
National Taxi Association	Stakeholder group	Barriers / solution for accelerated deployment of emobility Appropriate incentives for private sector to invest in e-vehicles	24th November 2020
National Climate Change Committee (NCCC)	Stakeholder group	Ongoing activities on E-Mobility and RE uptake; Barriers/solutions for accelerated deployment of e-mobility infrastructure and linkages to the NDC process	30th November 2020

Institution	Potential role(s) related to e-mobility development and implementation	Topics to discuss / clarify / consult on	Date
Grenada National Training Agency (NTA)	Implementing Partner Stakeholder group	Research on RE and Emobility solution? Capacity development / Awareness raising	24 th November 2020
Ministry of Finance - Inland Revenue Department	Implementing Partner	Financing Incentives	30 th November 2020
Ministry of Finance - Policy Unit	Implementing Partner	Enabling policies	20 th November 2020
Ministry of Health	Stakeholder group	Environmental / social aspects to be considered End of life management of cars and batteries	07 th December 2020

Due to the virtual consultation forced by travel restriction, videoconferencing tools supported by PPT presentations and virtual boards and flipcharts, were used for the consultation. Minutes of the meetings can be accessed [here](#). The information is also available upon request.

Main conclusion of the stakeholder consultation for the project

Project structure - Component and activities

During the consultation the draft activities under the 4 components were insensitively discussed. The project components and outputs have been refined based on consultations with key stakeholders.

As a result, some activities were amended or shifted between output and components, including the final design of the pilot.

Institutional arrangements

The coordination structure of the project as presented in the concept note was discussed and during the meetings together with the Ministry Infrastructure Development, Public Utilities, Energy, Transport, and Implementation and UNEP jointly revised.

Project budget and Co-finance

Budget allocation among components and partners were discussed and validated considering the underlying activities.

National Inception Workshop Summary

Minutes of Virtual National Inception Workshop

?Accelerating the introduction of low-emission and climate-resilient electric mobility in Grenada?
Project

Project	GLOBAL ENVIRONMENT FACILITY (GEF) Project Preparation Grant (PPG) of the ?Accelerating the introduction of low-emission and climate-resilient electric mobility in Grenada? Project under the Global Programme to Support Countries with the Shift to Electric Mobility (GEF ID: 10114)
Topic	Virtual National Inception Workshop
Date and time	Tuesday, 13 th October 2020, 10:00 ? 13:00h AST
Location	Virtual via MS Teams
Participants	See list of participants / invitees (information is available upon request)

Virtual National Inception Workshop

GLOBAL ENVIRONMENT FACILITY (GEF) Project Preparation Grant (PPG) of the
?Accelerating the introduction of low-emission and climate-resilient electric mobility in Grenada? Project under the Global Programme to Support Countries with the Shift to Electric Mobility (GEF ID: 10114)

Tuesday, 13th October 2020, at 10:00h AST

(Link for general session below)

Estimated time	Topic	Presenter
5 min	Welcome, Brief Introduction & House Keeping	<i>Mr. Alister A. Bain</i> , Moderator, Senior Project Manager, Department of Economic & Technical Corporation, Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy

15 min	Opening Session	<p><i>Dr. Kelvin Michael George</i>, Director Department of Economic and Technical Cooperation, Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy</p> <p><i>Vincent Sweeney</i>, Head, Caribbean Sub- Regional Office, United Nations Environment Programme (UNEP)</p> <p><i>Hon. Gregory Bowen</i>, Minister for Finance, Economic Development, Physical Development, Public Utilities and Energy</p>
10 min	Presentation of the GEF 7 Global Electric Mobility Program and introduction to electric mobility <ul style="list-style-type: none"> ? Introduction electric mobility in GEF7 ? Overview of the programme ? objective; structure; activities at global, regional and national level; countries included, partners included, and links with other programs 	<p><i>Luis Felipe</i>, UN Environment Programme, Sustainable Mobility Unit</p>
5 min	The GEF project preparation phase <ul style="list-style-type: none"> ? GEF project requirements ? Timelines 	<p><i>Ms. Camilla Piviali</i>, UN Environment Programme, GEF Implementing Agency</p>
15 min	GEF project intervention logic and structure <ul style="list-style-type: none"> ? Intervention logic: Envisaged impact, draft objectives, outcomes, outputs ? Addressed barriers/root causes ? Potential Implementation structure ? Planned stakeholder engagement activities 	<p><i>Mr. Stefan Wehner</i>, International GEF Consultant, the greenwerk.</p>

30 min	<p>Breakout session</p> <p><i><u>Breakout group 1:</u></i> Required institutional framework, capacity, coordination and planning: (Link Below)</p> <p><i><u>Breakout group 2:</u></i> Technical and economic challenges of e-vehicles in the local context: (Link Below)</p> <p><i><u>Breakout group 3:</u></i> Required policies, regulations and incentives for e-vehicle solutions: (Link Below)</p> <p><i><u>Breakout group 4:</u></i> Social and environmental challenges of e-vehicles in the local context: (Link Below)</p>	Participants join breakout groups
20 min	<p>Reporting in the plenary</p> <p>Next steps</p>	<p><i>Group representatives</i></p> <p><i>Dr. Kelvin Michael George, Director Department of Economic and Technical Cooperation, Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy</i></p>
5 min	Closing Remarks	<i>Sen. Hon. Norland Cox, Minister for Infrastructure Development, Transport and Implementation</i>

Guiding questions for the breakout group discussion:

Breakout group 1: Required institutional framework, capacity, coordination and planning

- ? What are currently main challenges related to institutional coordination and planning for the transport and energy sector?
- ? Would a centralised or intersectoral coordination body, e.g. a National Transportation Authority, support the planning?
 - o What should be main responsibilities of such a body related to e-mobility?
- ? Beside energy, transport and climate, which other sectors or social areas are relevant for a comprehensive coordination?

Breakout group 2: Technical and economic challenges of e-vehicles in the local context

- ? What are general challenges related to the practical operation of e-vehicles and related infrastructure (incl. renewable energy supply)?
 - o For instance, availability of vehicles, infrastructure, cost and benefits perception etc.
- ? What are specific challenges to be addressed for fleet operators, such as private / public passenger transport or freight transport operations etc.?
 - o For instance, high up-front cost, confidence in technology, maintenance etc.
- ? What are potential solutions to overcome these challenges?

Breakout group 3: Required policies, regulations and incentives for e-vehicle solutions

- ? Which transport policies and regulations need to be revised and/or introduced to effectively allow for deploying e-mobility solutions and accelerating the sector coupling with the renewable energy sector?
- ? Are there regulatory aspects that are currently preventing the market availability of electric vehicles and/or hindering essential market actors e.g. importers, dealers, repairers of electric vehicles, starting related business activities?
- ? What could be adequate (financial) incentives to promote public transport and car fleet operators to invest in e-mobility solution / e-vehicles?

Breakout group 4: Social and environmental challenges of e-vehicles in the local context

- ? What social aspects should be considered related to the operation of e-vehicles and related infrastructure (incl. renewable energy supply)?
 - o For instance, affordability, public space, quality of public transport, acceptance etc.
- ? What environmental considerations should be taken into account for the deployment of e-vehicles and related infrastructure (incl. renewable energy supply)?
 - o For instance, end-of-life vehicle management, battery use and waste management, required space for infrastructure, timely transition of the energy sector towards renewable energies etc.

A Summary of discussion and the breakout group discussions, and the presentations can be downloaded [here](#). The information is also available upon request.

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.

The Stakeholder Engagement Plan (SEP) is designed to ensure effective engagement of all relevant stakeholders throughout the project lifecycle in Grenada. This plan builds upon the interviews and workshops conducted during project preparation. The project will aim at maintaining fluid and two-way dialogue with the relevant national government institutions and agencies, the private sector, and civil society for national activities, as well as with local and international NGOs, the international community and other participating countries at the global programme level.

Legal requirements for public consultation in Grenada

For this project, public consultation will follow any relevant national guidelines and the GEF Guidelines[1], which require that all GEF-funded projects meet best international practice and specifically the requirements for stakeholder engagement and public consultations. The project stakeholder engagement activities will be robust, and disclosure of information will be made in order to promote better awareness and understanding of its strategies, policies and operations. During disclosure, the project will: (1) identify people or communities that are or could be affected by the project as well as other interested parties; (2) ensure that such stakeholders are appropriately engaged on environmental and social issues that could potentially affect them, through a process of information disclosure and meaningful consultation; and (3) maintain a constructive relationship with stakeholders on an on-going basis through meaningful engagement during project implementation. The stakeholder consultations will be an on-going process taking place during the project life and will ensure that stakeholders are informed about environmental and social consequences of the project implementation and ensure the opportunity for feedback.

Identification of stakeholders for engagement and methods of communication

In order to ensure inclusive participation and consultation, the following stakeholders have been identified for consultation. The list includes the identified social groups that are associated with the project in different ways: those directly or indirectly engaged in the outcomes of project implementation; those directly or indirectly participating in the project, and those with a capacity to influence and decide on project implementation and outcomes.

During its planning stage, the project has organised an inception workshop in October 2020 with approximately 50 participants from different institutions. Numerous interviews with relevant stakeholders identified have taken place during the PPG in order to identify their concerns and priorities and to integrate their know-how. As a result, the project is taking appropriate responsive measures throughout its lifespan to consolidate and maintain the wide current support built up during the planning stage. The existing activities already undertaken or envisaged by key stakeholders are identified in the table below. Based on this information, their potential contributions to the project components are also identified.

Table 8: Project Stakeholders

Stakeholder main group	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Government / Ministries	Ministry of Infrastructure Development, Public Utilities, Transport and Implementation	The Ministry of Infrastructure Development, Transport & Implementation is a multifaceted Government organization tasked with the responsible management of public infrastructure; regulatory and technical supervision of the construction industry, physical development, and other traditional communication services.	Support coordination and oversee the project and the regulatory reforms under Component 1 and 3. It will co-finance the Project Director.
	Grenada Transport Commission (GTC)	The newly established Grenada Transport Commission (GTC) is the successor of the Grenada Transport Board and is an advisory and regulatory body for transport and traffic; established under the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation.	Proposed lead technical executor, and host of the implementation unit under the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation
	Department of Economic and Technical Cooperation under the Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy	GEF Operational Focal Policy Unit within Ministry of Finance: Responsible for policy recommendation Inland Revenue Division (IRD) within the Ministry of Finance: The IRD is responsible for the administration of Inland Revenue laws and the collection of a wide range of taxes and licenses.	Fund management entity of the project. Co-financer of the project. It will provide technical expertise and support financial and regulatory reforms under Component 3, and coordination under Component 1.
	Department of Climate Resilience under the Ministry of Climate Resilience, The Environment, Forestry, Fisheries & Disaster Management	GEF Political Focal Point	Support coordination and reforms under Component 1, 3 and 4.

Stakeholder main group	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Government / Statutory bodies	Public Utilities Regulatory Commission (PURC)	PURC was established to regulate the utility sector and electricity market.	Key national implementing partner for Component 1 and 3. Participation in demonstration under Component 2.
	Grenada Electricity Services Ltd (GRENLEC)	GRENLEC is the fully state-owned integrated utility providing electricity in Grenada, Carriacou and Petite Martinique. GRENLEC has first experiences with EVs and corresponding infrastructure	Key national implementing partner. Deployment of public charging stations. Investment in renewable electricity generation. Participation in demonstration under Component 2. Contribution to Components 1 and 3.
	Grenada Solid Waste Management Authority (GSWMA)	The GSWMA is responsible for solid waste collection and disposal. This includes the disposal of vehicles.	Provide advice and support on policy and standards to the GSWMA (Component 4). GSWMA will help identify recycling companies that would benefit from battery reuse and recycle training programmes. Beneficiary of capacity building activities under Component 4.
	Grenada Postal Corporation (GPC)	The GPC provides postal services throughout Grenada on a commercial basis.	Participation in demonstration under Component 2.
Government, civil society and private sector	National Climate Change Committee (NCCC)	The NCCC acts as the main advisory body on climate change for the Government of Grenada.	Supporting steering the project aligned with national climate change agenda.

Stakeholder main group	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Private sector	National Bus Association (NBA)	The NBA represents Grenada's public transport drivers and operators.	Additional, awareness raising under Component 1 and 4 on EV technologies required.
National Taxi Association (NTA)	The NTA represents taxis operating across the island.	Awareness raising under Component 1 and 4 on EV technologies required.	
Grenada Hotel and Tourism association (GHTA)	The GHTA is tasked with being the representative private sector voice of the island's tourism sector. Procurement of cars and other vehicles for customers' services at selected hotels.	Awareness raising under Component 1 and 4 on EV technologies required.	
Rental companies, car dealers and importers	In 2021, the newly founded company Green Power (rental company) entered the EV market in Grenada. Besides the GRENLEC pilot project, Green Power is the first private company that installs and operates an electric vehicle charging network in the country. So far, the company has installed 12 charging points across the island. Green Power plans to install 60 charging points across the island by the end of 2021 and 200 charging points by 2022.	Awareness raising on EV technologies and manufacturers' deployment strategies. (Component 4). Promotion of national e-mobility network. (Component 3). Importing EV to Grenada.	
Financial sector	Local commercial banks, such as Republic Bank and Grenada Co-Operative Bank	Providing loans for purchasing conventional vehicles, but limited experiences and activities on EVs at the moment.	Vehicle loans to companies and transport operators. Participant in Output 1.2 (identification of investments for the long-term strategy).

Stakeholder main group	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
	Grenada Development Bank (GDB)	<p>The primary purpose of the Grenada Development Bank is to assist in the economic development of Grenada by providing financial and technical assistance in the areas of Agriculture, Fisheries, Tourism, Industry, Housing, Small Business Development and Human Resource Development.</p> <p>Limited activities on EVs at the moment. Transportation loans (interest rates as low as 8.5%) available for:</p> <ul style="list-style-type: none"> ? Trucks and other heavy duty transport vehicles. ? Vehicles for use in the distributive trade. ? Vehicles for technical and professional persons for use in the pursuit of their trade or profession. 	<p>Vehicle loans to companies and transport operators.</p> <p>Participant in Output 1.2 (identification of investments for the long-term strategy).</p>
	Insurance companies	Limited activities related EV at the moment	Participant in Output 1.2 (identification of investments for the long-term strategy).
Academia	National Training Agency	Limited activities related EV at the moment	<p>Involvement in professional training on e-mobility.</p> <p>Potential partner for the capacity building system developed under Output 1.4.</p>
NGOs and civil society organizations ^[2]	Caribbean Youth Environment Network (CYEN)	The CYEN is dedicated to improving the quality of life of Caribbean young people by facilitating their personal development and full involvement in all matters pertaining to the environment and sustainable development.	Invited to and consulted during awareness raising under Component 1 and 4 on EV technologies.

Stakeholder main group	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
	Grenada Education and Development Programme (GRENEDE)	GRENEDE is dedicated to youth empowerment, leadership and sustainable development. GRENEDE works to promote sustainable economic and social development by producing educated, socially engaged citizens and leaders, with an emphasis on the youth.	Invited to and consulted during awareness raising under Component 1 and 4 on EV technologies
	Grenada National Organisation of Women (GNOW)	GNOW is the umbrella NGO for the women of Grenada addressing the needs of all segments of the female population of Grenada and attracting national and international support for gender equality, gender equity, women's empowerment and involvement in development including economic, social and political dimensions.	Invited to and consulted during awareness raising under Component 1 and 4 on EV technologies, with particular focus on women empowering.
	St Andrew's Development Organisation (SADO)	SADO is dedicated to improving the quality of life of the people of the parish of St. Andrew. The activities of the organisation include projects in education, welfare, culture, sports, environment, recreation and public health.	Invited to and consulted during awareness raising under Component 1 and 4 on EV technologies
	IAGDO - Inter Agency Group Of Development Organisations	IAGDO is the umbrella grouping of development NGO's in Grenada with the purpose of providing a united and collaborative approach to community development.	Invited to and consulted during awareness raising under Component 1 and 4 on EV technologies

Stakeholder main group	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
	Grenada Community Development Agency ? (GRENCODA)	GRENCODA is committed to the development of Grenada's rural communities, including to provide guidance and support to rural individuals, families and communities to improve their quality of life by encouraging people's participation in community based initiatives, which will build self-reliance particularly among small farmers, low-income workers, women and youth.	Invited to and consulted during awareness raising under Component 1 and 4 on EV technologies, with particular focus on women empowering.
	Friends of the Earth (FoE) Grenada	FoE Grenada's main national campaigns concern land use (particularly in relation to tourism), coastal clean-up, sustainable agriculture, local sustainability and good governance, and campaigns against the shipment of nuclear and other toxic waste across the Caribbean.	Invited to and consulted during awareness raising under Component 1 and 4 on EV technologies

Identified stakeholders from government, academia and the private sector will be encouraged to join the regional meetings organized by the Global Programme. Through this participation they will share knowledge with other countries (especially other small island developing states), supporting them to benefit from the know-how generated nationally and through the global programme. Furthermore, the project will also draw on the experiences of other countries participating in the global programme, such as Antigua and Barbuda, Jamaica and Saint Lucia, who are more advanced in project development. This transferring of experiences and lessons learned between countries of the Caribbean will ensure efficient project development and implementation. It can also be explored the possibility of creating economies of scale with these countries that are also moving forward quickly on electric mobility.

[1] GEF (2014): Guidelines for the Implementation of the Public Involvement Policy.

URL: http://www.thegef.org/sites/default/files/council-meeting-documents/39_EN_GEF.C.47.Inf_.06_Guidelines_for_the_Implementation_of_the_Public_Involvement_Policy_4.pdf

[2] Additional NGOs and CSOs have been invited to the inception and validation workshop of the project during the PPG phase; these include: North East Farmers Organization (NEFO), The Willie

Redhead Foundation, Grenada Sustainable Development Trust Fund (GSDTF) and St. Patrick's Environmental and Community Tourism Organization (SPECTO)

Select what role civil society will play in the project:

Consulted only; Yes

Member of Advisory Body; Contractor; Yes

Co-financier;

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

Executor or co-executor;

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

3.1 Gender analysis

This analysis identifies and describes gender differences and gender differentiated impacts and risks.

3.1.1 Summary

Based on 2020 population and housing data estimates, women account for 49% of the total population in Grenada (113,094 people).[1] Since 1995, women have achieved one fifth of elected parliamentary seats in Grenada. As of the February 2013 national elections, women have achieved a critical mass of elected seats in the Lower House of Parliament (5 out of 15 or 33%). However, a critical mass is yet to be attained in the Senate as women only comprise 2 out of 13 appointed seats (15%).[2] Regarding the composition of boards in the public and private sectors and civil society in Grenada, it can be said that in 2015 all boards, except for the Child Protection Authority, were male-dominated ? this includes fields such as construction, energy and transport, which are key implementing sectors for the proposed project. Women have achieved an average of 25% representation on public sector boards and an average of 28% representation on private sector boards (including trade unions).[3] According to a recent survey by the International Labour Office (2017), the share of women managers at junior management, middle management, senior management, and top executive levels in Grenada amounted to 32%, 50%, 40% and 20% respectively.[4]

Historically, women have been relegated to the home or to tasks relating to the family and the household. Although they have gained access to better opportunities on the labour market, this progress has not been accompanied by greater shared responsibility for men in the home, and as a result, women

are still mainly responsible for domestic and care obligations in a large share of households.[5] In Grenada, more females are pursuing higher education and skills training than males.[6] [7] Yet women in Grenada are more likely than men to be unemployed. The 2013-2015 Labour Force Survey for Grenada revealed that the female unemployment rate is higher in Grenada than in Jamaica and other Caribbean countries. In 2013, 28% of females in Grenada's labour force were unemployed compared to 21% males. In Jamaica only 14% of the males and 7% of the females in the work force were unemployed in the same year. The numbers for St. Lucia lie in between: 25% of the females and 17% of the male labour force were unemployed in 2013.[8] The labour force participation for females in Grenada amounted to 69% compared to 75% for males in 2015.[9]

3.1.2 Impacts and risks

Men and women have different socio-economic roles and responsibilities, which are associated with different patterns of use, access and transport needs. In Grenada, women are the largest user group of public transport. Particularly female-headed households and children rely overwhelmingly on the public transport sector for work, school and other activities. Fewer women than men have their own private car. In 2005, vehicle ownership in Grenada was very low, with only 18% of the population, largely urban males, owning vehicles. A third more men than women owned vehicles.[10] This has an impact on their safety, as public transport stations are often poorly lit and waiting times in off-peak hours can be significant due to the informal nature of the public transport system. Grenada's tourism sector serves as a good example for this gender issue: women tend to be segregated in the lower income-earning occupations within the sector. They tend to work very long hours, including night work. Consequently, women's safety and security can be linked to the availability of transport, when they are returning home from working the night shift.[11] Sexual harassment and violence remain a pervasive challenge in Grenada. There is a high incidence of reported cases of violence against women and children in Grenada; of particular concern is the alarming number of reported cases of sexual assaults against females of various ages in communities around the country. In 2018, 265 offenses have been reported or detected.[12]

Specialty in using and maintaining EVs may impact on economic opportunities, especially in the mechanic field. EVs require less frequent mechanical maintenance than conventional vehicles, leading to reduced employment opportunities for persons like mechanics, predominately male and with limited formal training. As both public and private sectors begin to increasingly place a higher value on formal educational training, the academic limitations of these men place them at a high risk of unemployment and limited access to income outside of vehicular maintenance. This impact is not expected to be felt during the implementation of the aforementioned project due to the small demonstration of EVs which the project will introduce. However, by starting the advent of EVs on the Grenadian market, this project will contribute to a transition which could potentially result in loss in employment and access to income opportunities for the men in this field.[13]

3.1.3 Opportunities

The introduction of EV technologies can be transformative, serving as an opportunity to implement changes, so that EVs improve the mobility conditions of women (implementing vehicles in mobility services used by women), and to facilitate a more balanced access to transportation jobs (targeting driving, maintenance and fleet management training on women during project activities). By involving women effectively in project design and implementation, and ensuring that interventions are gender sensitive, the project may support the introduction of increased economic opportunities for women in the transport and electricity sectors and support a just-transition of the workforce from employment in existing high-emission sectors to low-emission ones.

It should be noted that gender information and data is limited in Grenada, and some of the information presented above is dated. Caution has been noted in drawing conclusions from the available material.

3.2 Gender action plan

3.2.1 Description

This gender action plan describes the gender responsive measures that will be implemented as part of the project to ensure the project is gender sensitive and promotes the empowerment of women in the transport sector. For a wholistic approach in project implementation, gender considerations have been incorporated into project outputs and activities rather than including isolated gender specific activities. Thus gender action plan consists of activities embedded in the project rather than a separate and parallel action plan. Notwithstanding this integration, the gender action plan will be tracked independently to ensure accountability, with the gender action plan's indicators detailed in the table below. The gender action plan focuses on activities described following.

In considering the above, the project's community engagement strategy (Output 1.5) will be developed and implemented in a way which facilitates the inclusion of public and private stakeholders involved in the deployment of the technology, with a particular focus on engaging economically vulnerable communities, such as single-parent women, rural communities, independent public transport drivers and trade unions. The process to develop the strategy will ensure all actors have an equal voice and express their concerns and uncertainties as well as engage effectively in the different activities of the project.

As part of its National Gender Equality Policy and Action Plan (GEPAP), the Government of Grenada has set itself the strategic objective to promote gender equality in policies and programmes related to disaster management, climate change, natural resource development, and building a 'green economy'.^[14] The GEPAP promotes gender equality and equity in education and training, so that men/boys and women/girls can attain their fullest potential and contribute to economic growth, poverty reduction and sustainable development. Furthermore, the GEPAP also seeks to ensure the equitable participation of men and women in communities in developing strategies and mechanisms for coping with and adapting to the adverse impacts of climate change, including assessing sectoral vulnerability,

strengthening institutional arrangements, and adopting energy efficiency strategies such as the use of renewable energy and cleaner technologies.[15]

In recent years, the Government of Grenada took measures to increase girls' and women's access to, retention in and completion of education, technical and vocational education and training (TVET) and skills development programmes. The programmes focus particularly on increased access to skills and training in new and emerging fields, especially STEM (science, technology, engineering and math) and digital fluency and literacy. Examples of these measures include a robotics competition that was held among girls in secondary schools, activities that were held to recognise and promote women and girls in refrigeration and air-conditioning, and hands-on computer training for women in the rural communities in basic and advanced information and communications technology (ICT).[16] With regards to the project, all activities related to capacity building (Outputs 1.4), will synergise with the strategic objectives contained in the GEPAP and will:

- ? Be designed as gender responsive training programmes which take into consideration the different learning methods of men and women.
- ? Employ a targeted approach for facilitating the participation of women in technical fields within the energy and transport sectors and the training opportunities. This will include partnering with women's organizations to reach out to females with relevant technical training.

Limited female participation in science, technology, engineering and mathematics fields is partly driven by cultural perceptions and gender stereotypes which tend to encourage women into administrative roles. Through its engagement strategy (Output 1.5), in addition to promoting its activities, the project will implement a gender-sensitive campaign promoting women to engage in technical fields.

In addition to the capacity building gender responsive programmes detailed above, the Government of Grenada has also geared activities aimed at reducing the gender gap in technical business sectors. As such, all activities related to the procurement of technology in Component 2 will synergise with existing gender activities and projects in developing procurement systems which incentivise private businesses to have a gender diverse technical field.

In the project pilots (output 2.1) the project will ensure that gender considerations are included in the design of the electric vehicle demonstrations. This aims to ensure that the pilots take into account the needs of women as they pilot the vehicles in the daily operations of the Grenada Transport Commission, GRENLEC, the Public Utilities Regulatory Commission and the Grenada Postal Corporation). In particular, at the request of the Grenadian government one of the pilot vehicles will focus on providing a social service for a vulnerable group to be determined during the project (senior citizens, people with disabilities). Furthermore, the pilot project will help to collect gender-specific data.

The Chief Technical Advisor will be responsible for implementing and monitoring the gender action plan. The CTA will semesterly report on progress to UNEP and to a e-mobility gender focal point in the Division of Gender and Family Affair which will oversee progress against the Gender Action Plan (GAP). This will be part of the CTA's terms of reference (see annex H). Gender actions and indicators are summarised in Table 9.

3.2.2 Indicators

Table 9: Gender action plan indicators

Indicator	Baseline	Mid-Term target	End of project target	Means of verification	Risks (see section 5)
Number of direct beneficiaries (disaggregated by gender)	0	Women: 50 Men: 50	Women: 470 Men: 650	Workshop reports, capacity-building reports, community engagement reports, pilot reports, and surveys of electric vehicle and charging station users	#4, #5
Indicator 1.1: # national gender-sensitive, low-carbon, climate resilient e-mobility strategy which includes gender-sensitive indicators adopted by the Government.	0 (no strategy exists)	Completed gender-sensitive socio-economic analysis, identifying the socio-economic impacts of a transition to low-carbon electric mobility and recommendations to ensure a just transition	1 (strategy completed)	Government records and project documents	#2, #3, #5, #7

Indicator	Baseline	Mid-Term target	End of project target	Means of verification	Risks (see section 5)
Indicator 1.2: # of gender-sensitive capacity-building mechanisms	0 (no mechanism exists)	Detailed design of the gender-sensitive e-mobility capacity-building mechanism, based on international good practices and designed in collaboration with the Grenada National Training Agency	1 gender-sensitive capacity-building mechanism created, with minimum 3 gender-sensitive modules	Government records and project documents	#2, #5
Indicator 1.3: # of gender-sensitive community engagement plans	0 (no engagement takes place)	Design of the gender-sensitive community engagement plan	1 gender-sensitive community engagement plan	Government records and project documents	#4, #5
Indicator 2.1: # of pilot usages that take into account the needs of women	0	Gender-sensitive detailed pilot design	Minimum 2 (of the minimum 4 usages through the 4 pilot institutions)	Government records and project documents	#2, #5

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- [1] CIA World Factbook (2020): Central America ? Grenada. URL: <https://www.cia.gov/the-world-factbook/countries/grenada/#people-and-society>
- [2] Caribbean Development Bank (CDB) (2014): Country Gender Assessment ? Grenada (final version), pp. 74-75. URL: <https://www.caribank.org/publications-and-resources/resource-library/gender-assessments/country-gender-assessment-grenada-2014>
- [3] *ibid.*, p. 75
- [4] International Labour Office (ILO): Women in business and management - Gaining momentum in the Caribbean, p. 18. URL: https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---act_emp/documents/publication/wcms_645810.pdf
- [5] Casas, M.; et al. (2019): Gender determinants in urban mobility policies in Latin America, p. 7. URL: https://repositorio.cepal.org/bitstream/handle/11362/44903/1/S1900405_en.pdf
- [6] McQueen, E. H. (n.d.): Gender Mainstreaming in National Plans in Grenada, p. 13. URL: https://www.cepal.org/sites/default/files/presentations/gender_mainstreaming_in_national_plans_in_grenada.pdf
- [7] "The female gross enrolment ratio in tertiary education in 2009 in Grenada amounted to 61% compared to the male gross enrolment ratio in tertiary education in the same year which was estimated at 45%.? Source: http://oasis.col.org/bitstream/handle/11599/904/2015_MacDonaldE_etal_Gender-Profile-Grenada.pdf?sequence=3&isAllowed=y
- [8] Government of Grenada (2015): Grenada Labour Force Survey 2013-2015, p. 23 URL: <https://www.finance.gd/images/LabourForceSurvey.pdf>
- [9] *ibid.*, p. 4
- [10] Lewis, P. (2010): Social Policies in Grenada, pp. 10-11. URL: <https://www.files.ethz.ch/isn/151858/SocPolGrenada.pdf>
- [11] Government of Grenada (2014): Gender Equality Policy and Action Plan, p. 62. URL: https://oig.cepal.org/sites/default/files/2014_gender-equality-policy-action-plan_grd.pdf
- [12] Overseas Security Advisory Council (OSAC): Barbados & Eastern Caribbean 2020 Crime & Safety Report. URL: <https://www.osac.gov/Country/Grenada/Content/Detail/Report/9adf46ca-ddc8-4721-a80d-1848e97f20c8>
- [13] Source: Minutes of Virtual National Inception Workshop - ?Accelerating the introduction of low-emission and climate-resilient electric mobility in Grenada? Project (October 2020)
- [14] Government of Grenada (2014): Gender Equality Policy and Action Plan, p. 103
- [15] *ibid.*, p. 14. & p. 103

[16] Government of Grenada (2019): GRENADA - Comprehensive National Review on Implementation of the Beijing Declaration and Platform for Action, pp. 44-63. URL: https://www.cepal.org/sites/default/files/informe_beijing25_grenada_final.pdf

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

A list of private sector stakeholders is presented in section 2 (**Table 8**). The private sector will engage in the project as follows:

? Component 1.

- o The private sector will participate in the development of the national strategy, through execution of the community engagement strategy and the coordination unit. The private sector's input into the strategy will ensure that it takes into account the needs of recipients and investors (such as the tourism industry and the banking sector) as well the needs of suppliers and service providers (such as vehicle distributors and mechanics).

- o The private sector, specifically the banking sector and entities of the waste management sector, will be recipients of training activities on financing of electric vehicles and effective EV waste management.

? Component 2

- o The private sector will provide the electric vehicles and the solar PV panels, in this way gaining experience in providing such equipment to the local market through local and regional supply chains. This experience will be valuable to such actors for understanding how to respond to greater demand as market-pull occurs due to the introduction of regulations and favourable tax structures through component 3.

- o Local mechanics will provide maintenance to the pilot vehicles.

? Component 3

- o The private sector, particularly fossil fuel stakeholders and vehicle distributors, will participate, through the community engagement strategy and the coordination unit, in the development of regulations and the import fiscal regime.

- o In output 3.2, the private banking sector, as well as car distributors, will participate in the elaboration of the project proposal for scaling up electric vehicles in Grenada.

? Component 4

- o Private waste management companies will participate in the process to update the national waste management strategy and amend the Waste Management Act.

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):

5.1 Project risk table

Risk is defined as the effect of uncertainty on a project objective. It is formulated in terms of 'future events'. Risks have been identified during project design through detailed stakeholder consultations and tools such as the UNEP Safeguard Risk Identification Form (SRIF), the gender analysis and the theory of change. A qualitative 1-5 scale has been used to characterise the risk with regards to likelihood (probability of occurrence: 1 = not likely, 5 = expected) and potential negative impact on achieving project objectives (1 = negligible; 5 = extreme). In accordance with the combination of likelihood and impact, each risk is assessed as low (green), moderate (yellow), substantial (orange) or high (red) as follows:

Table 10: Risk Categorization

		Likelihood				
		1	2	3	4	5
Impact	5					
	4					
	3					
	2					
	1					

Climate and COVID risks are identified in the sections following the below table.

#	Risk description	Risk category	Risk rating: likelihood	Risk rating: impact	Risk mitigation strategy	Whom	When
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#	Risk description	Risk category	Risk rating: likelihood	Risk rating: impact	Risk mitigation strategy	Whom	When
1	High impact climatic events (hurricanes, storm surges, etc.) disrupt power generation, damage electric vehicles, destroy infrastructure, and effect overall project execution. <i>For details see the ?climate risk assessment? section following this table.</i>	Climate	3	2	Project activities of components 1, 3 and 4 are primarily desk activities and will not be overly affected by such events. On the pilots, the vehicles will be located at government buildings which have high national security priority and are designed to withstand high impact events. Furthermore, a pilot protocol will be elaborated to ensure effective vehicle management during such events (see output 2.1).	Executing agency (EA)	Throughout the project, and particularly during hurricane months (June 1 to November 30)

#	Risk description	Risk category	Risk rating: likelihood	Risk rating: impact	Risk mitigation strategy	Whom	When
2	Lack of political buy-in and support for the uptake of electric vehicles and renewable energy leads to reduced support for the project and a lack of adoption of project strategies, policies and regulations.	Political	2	4	The project aims to mitigate this risk by establishing a national inter-sectoral electric mobility coordination body. This will be supported by capacity building activities and technical studies. Finally, an engagement plan (output 1.5) focused on the benefits of electromobility will be executed to provide bottom-up support for electric vehicles, leading to greater political support. The Executing Agency will ensure that appropriate beneficiaries for capacity building and awareness activities will be targeted.	EA, Grenada Transport Commission (GTC), government ministries	Throughout the project

#	Risk description	Risk category	Risk rating: likelihood	Risk rating: impact	Risk mitigation strategy	Whom	When
3	Slow government approval processes leads to project strategies, policies and regulations not being approved or adopted before the end of the project.	Political	2	2	To mitigate this risk, the project workplan has been prepared to ensure that all strategies and plans are finalized a minimum of six months before project conclusion, and all draft regulations and laws are finalized a minimum of 12 months before project conclusion.	EA, GTC government ministries	Year 2, Q1: regulations and laws. Year 3, Q2: Strategies and plans
4	Lack of civil society interest in electric mobility leads to project outputs and outcomes that do not reflect their needs and interests.	Social	1	3	The project will mitigate this risk through the development and implementation of a community engagement plan (output 1.5), which will focus on engaging, consulting and communicating with the civil society.	EA	Throughout the project, with key focus on year 1.

#	Risk description	Risk category	Risk rating: likelihood	Risk rating: impact	Risk mitigation strategy	Whom	When
5	Gender issues are not effectively incorporated into project processes and products, leading to project's outputs and outcomes that are not gender sensitive.	Social	2	3	The project will mitigate this risk by executing a gender action plan (see section 3). Furthermore, the project's Chief Technical Advisory (CTA) will be tasked, through their terms of reference, with leading the plan's execution and ensuring its compliance. The project will further mitigate this risk by ensuring that all project activities are gender sensitive, for instance with regards to training sessions and the processes for developing strategies, plans and regulations (as well as the resulting products).	EA, CTA	Throughout the project, with key focus on year 1.

#	Risk description	Risk category	Risk rating: likelihood	Risk rating: impact	Risk mitigation strategy	Whom	When
6	An accident of one of the pilot electric vehicles results in environmental contamination (e.g. battery acid leakage)	Environmental	1	2	The project will mitigate the possibility of accidents by providing pilot driver test drive protocol, operation and safety training (see output 2.1).	EA, GTC	Throughout the project, with key focus on years 2 and 3 when the pilot is underway.
7	The COVID pandemic affects political priorities and the country's economy, resulting in less political appetite and financial sector interest in adopting and promoting electric vehicle incentives.	Political, Financial	3	3	The project team will mitigate this risk by monitoring closely any perceived COVID pandemic measures, and by adjusting the workplan if needed to postpone the need for political decisions and financial sector involvement until year 3 (also in line with risk 3 above).	EA	Throughout the project, with a key focus on year 1, when the pandemic may have a stronger impact.

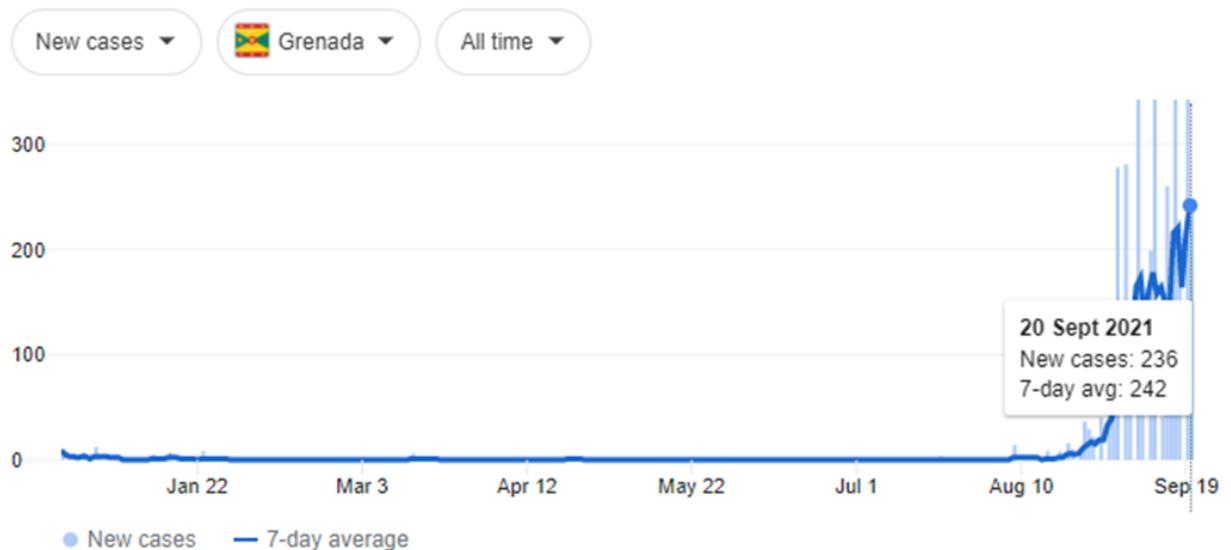
#	Risk description	Risk category	Risk rating: likelihood	Risk rating: impact	Risk mitigation strategy	Whom	When
8	The COVID pandemic results in isolation measures, resulting in government agencies working from home, leading to reduced need for and usage of the project pilot electric vehicles for providing government services, thus reducing pilot effectiveness in demonstrating EV viability.	Social	1	4	The project team will mitigate this risk by monitoring closely any perceived COVID pandemic measures, and by adjusting the workplan if needed to delay the execution of the pilots until later in the project.	EA	Throughout the project, with a key focus on year 1, when the pandemic may have a stronger impact.

5.2 COVID risks

COVID-19 risk analysis

As of 21 September 2021, Grenada has 4,213 total cases, with 63 deaths, according to the Coronavirus Resource Centre of the Johns Hopkins University.[1] Furthermore, 51,610 doses of vaccines were administered as of that date. The country has a [COVID-19 dashboard](#), which provides statistics, information and education to inform and support citizens with addressing the pandemic's effects in the country.

Figure 23: Active cases in Grenada until 21st September 2021 [2]



- ? Travel restrictions. Effective July 31, 2021, all non-resident travellers entering Grenada are required to be fully vaccinated. Fully vaccinated travellers quarantine for up to 48 hours at their approved accommodation whilst awaiting the results of their PCR test. A certificate is also needed by each traveller arriving in Grenada, which is based on the upload of an accommodation booking for a minimum of seven nights.
- ? Restrictions to mobility. The country has set a nightly and weekend curfew until September 21.
- ? Shift of government priorities. The COVID-19 related restrictions have had and will continue to have severe impacts on the Grenada economy due to its dependence on education and tourism income. This has impacted the revenues of the government. In fact, in 2020 and 2021, Grenada's tourism-driven economy was severely impacted by the global COVID-19 pandemic. Recovery will be a multi-year process. The country recorded negative 11.2 percent growth in 2020, a stark contrast to the average 4 percent growth experienced from 2013 to 2019. Tourism and private tertiary education are the main revenue earners and were the hardest hit sectors. In the second quarter of 2020, the unemployment rate almost doubled to 28.4 percent, compared to 15.1 percent in the fourth quarter of 2019. In 2020, Grenada lost more than 14,000 jobs from a labour force of approximately 50,000. The government experienced a significant shortfall in tax revenues and is likely to run a deficit in 2021. Although the debt-to-GDP ratio fell from 108 percent in 2013 to

just under 60 percent by the end of 2020, it is projected to rise to 73 percent in 2021 due to the recent increase in long-term concessionary loans taken out to finance COVID response and economic stimulus programs.

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

Risk	Risk level	Risk Mitigation Measure
Availability of Technical Expertise and Capacity and Changes in Timelines	Medium	<p>The Granada Transport Commission (GTC), as the project executing agency, has recognised the risks to staff and resultant risks to project outputs such as workshops, construction, and others. It also recognises the risk to the supply chain and how it may affect procurement for this project, in addition to the risk of drivers' unwillingness to purchase new vehicles due to financial constraints. In this context, at the beginning of project execution, the project timeline and dates of execution of all project activities will be re-evaluated taking into consideration any on-going risks due to COVID-19.</p> <p>In addition, internally the GTC will add staff and cross-train staff so that if a staff member contracts COVID-19 and is on leave during their recovery the project can continue.</p>
Financing (National debt crisis, availability of co-financing, price increases in procurement)	Medium	<p>As per the foreseen budgeting approach, GEF funding coupled with co-financing allows the project to develop a certain resilience against financing risks. A close monitoring of financing risks and an open dialogue with the co-financier will be done by the executing agency.</p> <p>Overall, the project is covering the incremental costs of barrier removal activities. This also includes the incremental costs that hotel owners (and other stakeholders participating in the pilot projects) would have to pay for an EV compared to a similar internal combustion engine (ICE) vehicle.</p>

Risk	Risk level	Risk Mitigation Measure
Stakeholder Engagement Process	Low	<p>The project's stakeholder engagement process was designed so that leadership and roles of all involved stakeholder groups (including vulnerable people, for whom the COVID-19 pandemic has made it even more difficult to be involved in project design and implementation) are clearly visible, and the full participation of women is promoted at all levels. A variety of communication channels (if possible, off - and online) will be used to provide reliable and accurate information about the project at a community level.</p> <p>In light of experiences made with the pandemic in 2020, the project will ensure that all exchanges foreseen as physical meetings (such as conferences, workshops, etc.) will be planned with a virtual alternative scenario.</p>
Enabling Environment	Low	<p>The pandemic impact in Grenada has been low until December 2020. COVID prevention policies include mobility as a key area for action, and the project will include COVID lessons learned in other countries within its national low-carbon e-mobility strategy.</p>

COVID-19 opportunity analysis

For the project, opportunities in the context of measures taken in response to the COVID-19 pandemic exist regarding innovation in climate change mitigation and engaging with the private sector, also in line with Grenada's post-COVID-19 resilient economic recovery plan (which up to now mostly consists of the country's second NDC).

Opportunity	Opportunity level	Opportunity optimization measure

<p>Electric mobility could help boost green jobs as part of the COVID-19 recovery in Grenada.</p>	<p>High</p>	<p>As executing agency and in committing direct co-financing to the project, the Government of Grenada (GTC) is fully committed to promoting the uptake of electric mobility. As the economy rebounds in 2021 and 2022, the GTC and other public institutions (PURC, Postal Corporation) will begin purchasing of vehicles for public fleets; this project will ensure that the first 8 vehicles purchased are electric vehicles, directly supporting Grenada to instigate a green recovery to the pandemic.</p> <p>By its design, the project foresees fostering of e-mobility and sustainable energy activities and as such can harness opportunities with recovery measures in the country. Thus, the project's focus on creating new market opportunities for public transport operators and electric mobility distributors is aligned with governmental priorities, which foster job creation from increased spending on goods and services resulting from a reduction in spending on oil, and measures related to the production and use of energy. The electrification of private passenger and freight transport would also create jobs, particularly if the electricity came from renewable sources.</p>
<p>The COVID-19 pandemic will likely have a positive impact on future EV sales in Grenada, driven by the increased awareness of their impact on air quality, as well as possible EV-focused incentives.</p>	<p>Medium</p>	<p>Measures to stop the spread of the coronavirus have temporarily reduced the amount of passenger kilometres travelled Grenada. This has most likely resulted in reduced GHG emissions, air and noise pollution, and traffic congestion ? which could lead to fewer road accidents in the medium-term. These events draw attention to the positive effects of e-mobility and should be seen as an opportunity. There is a chance that the pandemic has changed the medium-term attitude toward mobility. According to a recent study, more people can imagine driving a fully electric car in the future compared to the time before the pandemic.[3]</p>

5.3 Climate risk assessment

(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?

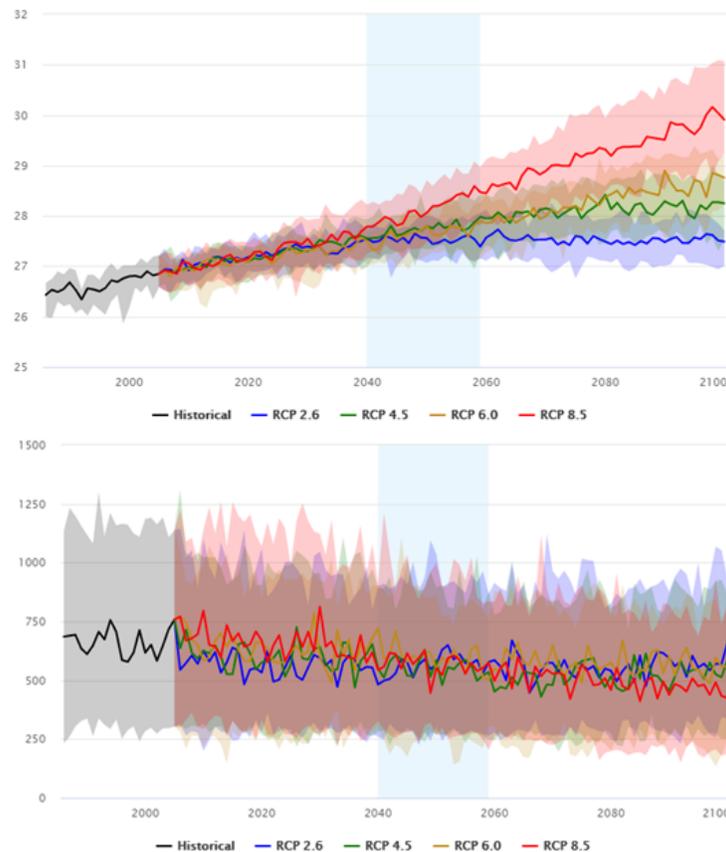
Grenada is already experiencing some of the effects of climate variability and change through damages from severe weather systems and other extreme events (such as Hurricane Ivan in 2004), as well as more subtle changes in temperatures and rainfall patterns. Detailed climate modelling projections for Grenada predict an increase in average atmospheric temperature, reduced average annual rainfall, increased sea surface temperatures, and the potential for an increase in the intensity of tropical storms. And the extent of such changes is expected to be worse than what is being experienced now. Climate change effects are

evident in the decline of some coastal tourism resources, but also in the socio-economic sectors which support tourism, such as agriculture, water resources, health and biodiversity.[4] Climate risk assessment for Grenada in the context of the electric mobility project is as follows:

1. Hazards

As identified in Grenada’s Second National Communication to the UNFCCC,[5] key climate hazards are rising air temperatures, changing rainfall patterns, increased sea surface temperatures, greater intensity of hurricanes, sea level rise and storm surges. The country is highly vulnerable to the expected impacts of climate change and is already experiencing changes in its climate system, as evidenced by increased droughts, longer dry seasons, shorter rainy seasons, higher temperatures, coastal degradation and the intrusion of salt water into the aquifers.[6] According to the International Monetary Fund (IMF), Regional Climate Model (RCM) projections indicate an increase ranging from 2.4°C to 3.2°C in mean annual temperatures by the 2080s in the higher emissions scenario. In the near term, General Circulation Model (GCM) projections of rainfall span both overall increases and decreases, ranging from -40 to +7 mm per month by 2080. Most projections tend toward decreases.[7] These projections are in line with modelled data[8] on the future evolution of mean-temperature anomaly and precipitation in Grenada from the global climate model compilations of the Coupled Model Inter-comparison Projects (CMIPs), overseen by the World Climate Research Program (see Figure 24 below). Projections also indicate increases in sea surface temperature throughout the years. Projected increases range from +0.9°C and +3.1°C by the 2080s. Of the 182 countries in the Climate Risk Index, Grenada was in the top 2% for losses to climate-related natural disasters as a percent of GDP during 1997-2017 and in the top 5% of climate-related disaster fatalities.[9]

Figure 24: Projected mean-temperature and precipitation in Grenada (reference period: 1986-2005)



Source: World Bank (2021): Climate Change Knowledge Portal ? Grenada ? Climate Projections. URL: <https://climateknowledgeportal.worldbank.org/country/grenada/climate-data-projections>

2. Vulnerability and exposure

Climate change can have both direct and indirect impacts on energy generation, distribution and transmission infrastructure, with implications for existing traditional (fossil-fuel based) energy systems, as well as proposed renewable energy initiatives. An increase in the intensity of severe low-pressure systems, such as hurricanes, has the potential to affect both traditional and renewable energy production and distribution infrastructure. Some of the more vulnerable components include transmission lines, poles and other relatively light, above ground infrastructure, which can suffer significant damage from high winds.[10] The energy-based infrastructure in Grenada is therefore vulnerable and 80% was damaged by Hurricane Ivan in 2004. Power generating stations and other major infrastructure located on the coastline are also highly vulnerable to damage from flooding and inundation resulting from sea level rise and storm induced surges. Temperature increases have been shown to reduce the efficiency of energy generation at thermal power plants and reduced precipitation may affect water availability for non-contact cooling of power generators. Alternative energy sources, while they are environmentally more sustainable, also face challenges from physical climate change impacts and these must be considered in energy sector planning.[11]

Grenada's National Climate Change Adaptation Plan (NAP) highlights that the country's coastal infrastructure is heavily exposed to sea level rise, storm surges, and coastal flooding. Most of Grenada's tourism facilities, urban economic and residential infrastructure, and activities are located along the coast. All infrastructure located on slopes is vulnerable to mass movements (rock falls and landslides) resulting from heavy rains, as well as fallen trees and other impacts from tropical storms and hurricanes. In the past, disasters have negatively impacted infrastructure, taking water, power, and telecommunications facilities out of service for extended periods of time. Roads and bridges are also affected, limiting access for post-disaster emergency response. The NAP aims to introduce resilient infrastructure and sustainable land management practices in Grenada.[12]

According to a World Bank analysis, Grenada's key vulnerabilities to climate change are in the following areas:[13]

- ? The major natural disasters that occur in Grenada are storms and hurricanes.
- ? There is also a risk of landslides during the annual rainy season in the mountain regions.
- ? In addition, storm surge is problematic in the coastal area either through localised flooding in low reaches or through cliff side erosion. Flood in Grenada is mostly associated with storm surge in low coastal areas.
- ? Hurricane Ivan struck Grenada in September of 2004, causing severe damages. Approximately 8,000-10,000 people were left homeless. 90% of the buildings were destroyed. The overall damage was estimated to be as high as 2.5 times of the GDP.

3. Risks

Climate risk has been assessed moderate for the project. Financial, environmental and social failure due to climate events is unlikely. The system has, to a certain extent, the capacity to manage climate shocks. While the country has significant propensity to experience increasing frequency of extreme weather events, the project's interventions have moderate exposure, as noted previously. Grenada's Second National Communication to the UNFCCC did not identify the transport or energy sectors as key vulnerable sectors of the country. The primary risks are that:

- ? Hurricanes damage road, transport, electricity or charging infrastructure;
- ? Sea level rises or storm surges affect road or transport infrastructure operation.

4. Measures to manage risks

On top of the adaptation measures already envisaged within the 2017 NAP, the project aims at mitigating these risks through building resilience into the design of all project activities and outputs, to achieve low-carbon and climate resilient electric mobility. In this sense, the key climate risk faced by the project is the eventual disruption of electricity supply due to extreme weather events. The project undertakes the following additional actions to build resilience:

- a. Within Output 1.2, Deliverable 1.2.2, by including good practice recommendations to benefit from the synergies between RE expansion and e-mobility deployment; these recommendations may include contingency plans for RE plants (e.g. removing the panels before a category 4 or 5 hurricane alarm), and design recommendations to ensure resilience (e.g. to promote the installation of charging stations close to RE plants, with a direct connection, so that they can remain operational even in case of disruptions in the grid).
- b. Within Output 1.2, Deliverable 1.2.3, by including a vulnerability and resilience analysis within the study of the future national charging network.
- c. Within Output 2.2, Deliverable 2.2.1, by undertaking a vulnerability study of the locations selected to install the charging stations. If necessary, the installation of grid-interactive renewable energy systems at the pilot's vehicle charging locations will be assessed. These grid-interactive systems located at the charging locations would ensure that in the event of a grid blackout, electric vehicles would still be able to be charged. In addition, the grid-interactive systems would ensure resilience of the installed solar panels and charging stations (e.g. protecting them from grid instability).
- d. Recommendations for regulating the disposal of vehicles (Output 4.1, Deliverable 4.1.5) will be designed to ensure that extreme weather events and sea-level rises do not lead to increased contamination. It is not perceived that an increase in the sea level will impact the project beyond this output.

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

The sensitivity of the project to climate change and its impacts has been assessed, based on the Government of Grenada's existing adaptation policies and plans and consultation with key stakeholders. Grenada faces major challenges from climate change. The increasing risk of major natural disasters is the most obvious threat. Grenada is located at the southern end of the hurricane belt and is therefore less at risk of frequent events than some of its Eastern Caribbean neighbours. Nevertheless, the risk of devastating disasters remains high. Hurricane Ivan in 2004 caused damage in excess of 200% of GDP, and a smaller Hurricane Emily the following year compounded the costs. Hurricane Ivan damaged an estimated 80% of Grenada's electricity distribution system, leaving three-quarters of residents without power. The slower-moving effects of climate change are equally worrisome. Rising sea levels are an acute threat to the population, most of whom live on the coast, where almost all of the critical economic infrastructure is located. Drought and changing weather patterns also threaten livelihoods, such as the recent significant damage to agricultural production due to flooding.^[14]

Grenada is taking actions to mainstream climate adaptation into its broader development plans. The 2017 NAP has provided a clear direction for sectoral plans and climate action. The establishment of the Climate Resilience Ministry with a mandate to coordinate all actions related to adaptation reinforces this consistency. In relation to the management of disasters, the main stakeholder is the National Disaster Management Agency (NADMA). The NADMA has the responsibility to reduce the loss of life and

property within the country by ensuring that adequate preparedness, response and mitigation measures are in place to deal with the impact of hazards. It is in charge of the coordination with all the pertinent agencies during a catastrophic event. Grenada counts with a National Disaster Plan (GNDP), which includes some considerations related to the energy sector, especially related to assessment and attention of the electrical infrastructure during an emergency. The Caribbean Disaster Emergency Management Agency (CDEMA) has worked closely with the Government of Grenada in the development of a policy framework for DRM. Together, they elaborated the Comprehensive Disaster Management Policy and Strategy (CDM). This policy takes into account relevant local conditions. The CDM was incorporated by the CDEMA and the Government of Grenada in the Work Program 2015-2019.[15]

It can be concluded that Grenada already has an appropriate framework for climate change adaptation and building resilience. The deployment of electric mobility raises additional challenges that will be appropriately addressed within the current framework. Accordingly, the project focuses on providing adequate contingency plans and resilience options to the potential vulnerabilities created by the new technology, which mainly refers to the adequate resilience of the charging network.

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

As noted in the response to (i), the project has a central focus on building resiliency in the future charging network.

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

The technical design of the vehicle charging stations will need to be in accordance with the latest building codes, to ensure resilience to extreme weather events. Information on extreme weather events and wind speeds is currently available and will not need to be obtained through the project. Operators and institutions operating the solar panel and vehicle charging installations will need capacity to understand how to operate the grid interactive systems during and after extreme weather events, especially in the event of grid blackouts.

[1] Refer to <https://coronavirus.jhu.edu/map.html>

[2] Refer to <https://coronavirus.jhu.edu/map.html>

[3] Continental Research (2020): (Electric) Mobility During the COVID-19 Pandemic - Continental Mobility Study 2020, p. 7. URL: <https://www.continental.com/resource/blob/241640/d70599de20313b6ddefcd56bbf44f160/-electric--mobility-during-the-covid-19-pandemic-data.pdf>

[4] Simpson, M. C. et al. (2012): Climate Change Risk Profile for Grenada, p. 20. URL: https://www.researchgate.net/publication/272791669_Climate_Change_Risk_Profile_for_Grenada

[5] Government of Grenada (2017): Second National Communication to the United Nations Framework Convention on Climate Change (UNFCCC), pp. xiv-xv

[6] Government of Grenada (2015): First NDC Grenada, p. 1-2. URL: <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Grenada%20First/Grenada%20INDC.pdf>

[7] IMF (2019): IMF Country Report No. 19/193 ? Grenada, p. 9. URL: <https://www.imf.org/en/Publications/CR/Issues/2019/07/01/Grenada-Climate-Change-Policy-Assessment-47062>

[8] The data currently presented is derived from the fifth phase of the CMIPs, CMIP5. The CMIPs form the data foundation of the IPCC Assessment Reports. CMIP5 is used for the IPCC's Fifth Assessment Report and CMIP6 will be used for the IPCC's Sixth Assessment Report.

[9] IMF (2019): IMF Country Report No. 19/193 ? Grenada, p. 9

[10] Simpson, M. C. et al. (2012): Climate Change Risk Profile for Grenada, p. xxvi

[11] *ibid.*, p. p. xxvii

[12] Government of Grenada (2017): National Climate Change Adaptation Plan (NAP) for Grenada, Carriacou and Petite Martinique, p. 52. URL: https://www4.unfccc.int/sites/NAPC/Documents/Parties/Grenada_National%20Adaptation%20Plan_%202017-2021.pdf

[13] World Bank (2021): Climate Change Knowledge Portal ? Grenada ? Vulnerability. URL: <https://climateknowledgeportal.worldbank.org/country/grenada/vulnerability>

[14] IMF (2019): IMF Country Report No. 19/193 ? Grenada, p. 3

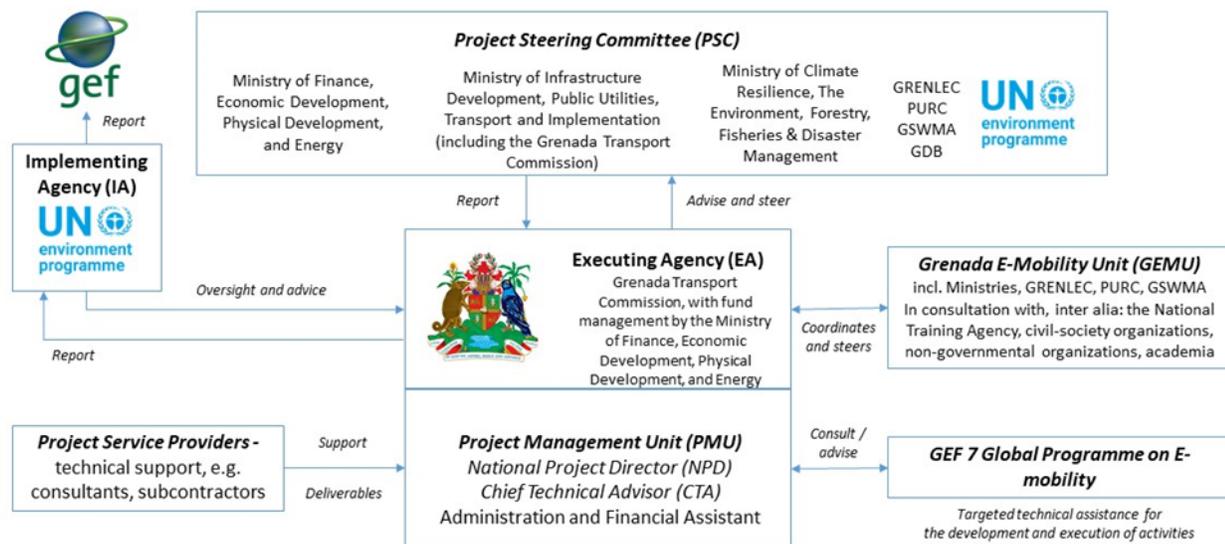
[15] Flores, A.; Peralta, L. (2020): The enhancement of resilience to disasters and climate change in the Caribbean through the modernization of the energy sector, p. 57

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.

6.1 Institutional arrangements

Figure 25: Institutional setup and coordination structure



GRENLEC: Grenada Electricity Services Ltd.
 PURC: Public Utilities Regulatory Commission
 GSWMA: Grenada Solid Waste Management Authority

Body	Constitution and role
Executing agency	The project fund management agency will be the Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy. The technical lead for the project will be the Grenada Transport Commission (GTC) which pertains to the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation.
Implementing agency	UNEP. UNEP will build upon its experience as implementing agency for two other GEF electric mobility projects in the region, for Antigua and Barbuda, and St. Lucia, as its experience as lead agency for the GEF-7 global program on electric mobility. Furthermore, it will draw on in-house expertise on electric mobility led by its Mobility Unit, Energy Branch, Economy Division. In developing this project, UNEP has drawn upon experiences, good practices and lessons learned in developing and implementing the two GEF-7 electric mobility projects in the Caribbean, as well as four others in Latin America and others around the globe. UNEP's significant experience with promoting electric mobility holds it in good stead to be the project implementing agency vis-à-vis other GEF agencies.

Steering committee	<p>The project steering committee will supervise and provide overall guidance to the executing agency and its management team for project execution. This will include as related to political alignment, technical quality, procurement, and financial management of the project. The steering committee will consist of the following entities:</p> <ul style="list-style-type: none"> ? Ministry of Infrastructure Development, Public Utilities, Transport and Implementation, and its Grenada Transport Commission ? Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy (executing agency) ? Ministry of Climate Resilience, The Environment, Forestry, Fisheries & Disaster Management ? United Nations Environment Programme (as the implementing agency) ? Grenada Electricity Services Limited (GRENLEC) ? Grenada National Solid Waste Authority (GNSWA) ? Public Utilities Regulatory Commission (PURC)
Project management unit	<p>A project management unit will facilitate the day-to-day operations of the project. It will consist of:</p> <ul style="list-style-type: none"> ? A co-financed National Project Director, pertaining to and to be appointed by the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation ? A project-financed Chief Technical Officer, who will serve as the project manager as well as undertake technical work related to the project. See annex H (terms of reference) and annex J (project implementation arrangements) for descriptions of this person's functions. This person will be seated at the premises of the Grenada Transport Commission. ? A project-financed Administration and Financial Assistant, who will be responsible for project administrative and financial management. See annex H (terms of reference) for a description of this person's functions. This person will be seated at the premises of the Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy.
Grenada E-Mobility Unit (GEMU)	<p>Created under output 1.1, this body will also serve to provide thematic technical support to project activities through in-kind support of its members. It will also facilitate of interested partners in the implementation of the project components. GEMU will also liaise with the working groups of the global programme. For its membership, see output 1.1. Once operational the unit will meet quarterly. It will provide support, at the Steering Committee or Executing Agency's request, on areas including:</p> <ul style="list-style-type: none"> ? <u>Institutional and regulatory dimensions of e-mobility</u>. GEMU will facilitate the engagement of stakeholders in the preparation of project strategies, policies and regulations. ? <u>Demonstration of e-mobility</u>. GEMU will provide technical, organizational and regulatory advice related to the design and implementation of the project pilots. GRENLEC and the PURC will play key roles in this regard.
Project service providers	<p>Project-financed goods and services provided by consultants and consultancies to prepare project deliverables and support the achieving of project outputs.</p>

Refer to Annex J for further details on the roles and responsibilities of the implementing and executing agencies.

6.2 Coordination with other initiatives

As listed in Table 7, there are several on-going and expected projects that will provide support to the proposed activities. These are related to the deployment of renewable energy capacity, communication of impacts and benefits of low carbon technologies and transport sector reforms. Furthermore, other GEF projects already being executed in the country, however these do not relate in thematic content to this project.

The Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy, which hosts the GEF Operational Focal Point is coordinating the GEF activities. It is also functioning as the nationally designated authority (NDA) for the GCF. This arrangement allows for the country to coordinate financing for climate change projects including the GEF-7 e-mobility project. Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy will lead coordination between the GEF-7 project and other national initiatives, as it is the focal point for all multilateral environmental agreement conventions and funding related to climate finance.

The following table describes technical coordination between the GEF-7 project and other relevant initiatives underway nationally. The Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy is the main national implementing agency for these, ensuring coherence and coordination between these initiatives.

Table 11: Coordination with other relevant national projects

Project Name	National Implementing Agency	Coordination
Solar PV / battery hybrid project	Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy	The project will coordinate with the Ministry to ensure that the installation of solar PV and battery energy storage are technically compatible with the PV grid-interactive charging stations installed by the GEF project.

Project Name	National Implementing Agency	Coordination
GCF FP020: Sustainable Energy Facility for the Eastern Caribbean[1]	Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy	The project will coordinate with the Ministry to streamline the efforts for promoting renewable energy uptake in line with the project objective of accelerating electric mobility.
Road Transport Enhancement Project	Ministry of Infrastructure Development, Public Utilities, Transport and Implementation	The project will coordinate the activities with the Ministry to streamline the efforts for enhancing the public transport in line with the project objective of accelerating electric mobility.
Grenada New Zealand Geothermal Partnership	Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy	The project will coordinate the activities with the Ministry to streamline the efforts for promoting renewable energy uptake in line with the project objective of accelerating electric mobility.
Planning for waste-to-energy (WTE) and recycling / segmentation plants (as part of the Integrated Solid Waste Management Project)[2]	Grenada Solid Waste Management Authority (GSWMA)	The project will coordinate the activities of the GSWMA to streamline the efforts for enhancing the end-of-life vehicle management in the country.
Supporting the implementation of NDCs in the Caribbean ? transforming the energy and transport sectors towards a low-carbon and climate-resilient future - scoping mission[3]	Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy	The project will coordinate the activities with the Ministry to align the project objectives with the NDC target and future updates.

Project Name	National Implementing Agency	Coordination
Enhancing Caribbean Civil Society's Access and Readiness for Climate Finance[4]	Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy	The project will coordinate the activities with the Ministry to explore future opportunities for mobilising international climate finance, e.g. through the GCF for investments in e-mobility in the country.
Accelerating Grenada's DAE Modality For The Effective Implementation of the Country's Goal Towards A Small Smart State[5]	Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy	The project will coordinate the activities with the Ministry to streamline the efforts for promoting renewable energy uptake in line with the project objective of accelerating electric mobility.
NDC Partnership Climate Action Enhancement Package (CAEP)	Ministry of Finance, Economic Development, Physical Development, Public Utilities and Energy	The project will coordinate the activities with the Ministry to align the project objectives with the NDC target and future updates.

The project will coordinate with the global programme by engaging in the LAC regional platform's activities. In particular, country representatives will participate in the regional platform-led community of practice. This will include participating in LAC platform task teams on LDVs, 2&3 wheelers, buses, batteries and charging infrastructure, participating in meetings of the LAC platform and participating in marketplace meetings on technology and finance. The country will coordinate with other child projects in the region, and in particular with the Caribbean sub-region, through the help desk and the community of practice, in particular the task teams and platform meetings. Engagement through the platform will ensure effective two-way coordination, with country representatives sharing project updates, raising challenges and sharing good practices with platform representatives. Platform representatives will share good global practices, identify solutions to challenges raised. and ensure regional coordination and alignment. Furthermore, the regional platform will gather countries, like Grenada, Saint Lucia, Jamaica, and Antigua and Barbuda with common needs and manage them through customised activities. Where needed, trainings and workshops will be developed at sub-regional level for the Caribbean SIDS. Grenada representatives who participate in the global programme will channel global and regional experiences, good practices and lessons-learned to the training activities at the national level, which will be provided to a larger and broader group of local stakeholders.

[1] Source: <https://www.greenclimate.fund/document/sustainable-energy-facility-eastern-caribbean>

[2] Source: <https://unstats.un.org/unsd/envstats/meetings/2019-Grenada/documents/Session%204.5.1%20GSWMA%20National%20experience%20in%20waste%20statistics.pdf>, p. 11

[3] Source: https://www.international-climate-initiative.com/en/details/project/supporting-the-implementation-of-ndcs-in-the-caribbean-transforming-the-energy-and-transport-sectors-towards-a-lowcarbon-and-climateresilient-future-scoping-mission-19_I_375-3086

[4] Source: <https://canari.org/csos-ready-for-climate-finance>

[5] Source: <https://www.greenclimate.fund/document/strategic-frameworks-support-grenada-through-ministry-health-and-environment-antigua-and>

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.

Overall, the project is aligned with key government initiatives and priorities:

National Communications

Grenada submitted its Second National Communication (SNC) to the United Nations Framework Convention on Climate Change (UNFCCC) in July 2017 (providing 2014 emission data). The SNC mentions several mitigation measures in the transportation sector, such as the introduction of a fuel tax, vehicle standards, public transport promotion and promotion of hybrid and electric vehicles. Building on these measures, the project is expected to provide new regulations for vehicle registration and taxes to facilitate the transition to EVs.

Nationally Determined Contributions (NDC)

As described in section 2, Grenada submitted its first NDC in 2016. The country committed to reducing its greenhouse gas emissions by 30% of 2010 by 2025, with an indicative reduction target of 40% of 2010 by 2030. The sectors covered in the document are electricity, transport, waste and forestry. The mitigation targets in these sectors are conditional to the provision of international financial and technical support. In its first NDC, Grenada announced that it plans to reduce its emissions in the transport sector by 20% by 2025. In order to meet its commitment Grenada, plans to undertake several policies/actions including introduction of biofuel blends (specifically liquefied natural gas and diesel blend), implementation of gasoline and diesel taxes and implementation of fuel efficiency standards for vehicles through incentives.

Grenada submitted its second 2020 NDC to the UNFCCC, as a confirmation of the indicative ambitious 2030 NDC target of 40% GHG emissions reductions below 2010 levels submitted in the 2016 NDC. Vehicle sales in Grenada have increased more significantly than projected since the first NDC. In 2018, the number of registered vehicles was 51% higher than in 2010. As a result, the measures proposed in Grenada's first NDC for the transport sector (introduction of gasoline taxes, biofuel blends, and fuel efficiency standards) will be insufficient to achieve the 20% reductions anticipated from this sector by 2025, much less to achieve further reductions by 2030. These unforeseen factors will make it very difficult for Grenada to meet the mitigation targets set in 2016 (in its first NDC). Grenada will make every effort to meet the targets set in its second NDC, however, it will not be possible at this stage to commit to further emission reductions beyond the 40% target. The government once again emphasised that it now relies on multilateral and bilateral support (including through the Green Climate Fund, multilateral agencies and bilateral agreements with development partners) in order to implement the measures outlined in its second NDC. This project aligns with the conditional mitigation targets on energy and transport established by the first and second NDC. It will propose changes in current standards and regulations on the technical conditions for importing new and used vehicles in Grenada, so that inefficient and high-polluting vehicles will be phased-out. Hence, the project will provide a draft for reforming technical standards, such as the development and introduction of (1) vehicle emission standards and (2) fuel efficiency standards. With regards to the electric infrastructure, the project will develop standards and other technical specifications for electric vehicles and charging infrastructure (including related grid integration and solar-powered supply).

United Nations Multi-country Sustainable Development Framework in the Caribbean (UNDAF, now known as the UN MSDF):

The 2012-2016 United Nations Development Assistance Framework (UNDAF) for Grenada and other Caribbean countries has been succeeded by the 2017-2021 Multi-country Sustainable Development Framework in the Caribbean (MSDF). The multi-country approach of the UN agencies in the Caribbean region aims to enable a greater focus on common priorities, to improve regional initiatives and cooperation, as well as to facilitate the exchange of knowledge and mutual cooperation in the region. MSDF offers a multi-sectoral, people-centred approach to development that focuses equitably on the most vulnerable populations.[1] The project is aligned with the MSDF priority area 4 (A Sustainable and Resilient Caribbean?) as it promotes the development of green technologies (e-mobility) coupled with the deployment of renewable energy. Furthermore, the project fosters women's economic development (MSDF priority area 1) through capacity building in these technologies.

United Nations Resident Coordination Office:

The CTA will annually update the Resident Coordinator of the Multi-Country Office of Barbados and Eastern Caribbean (OECS) on project activities and progresses, and invite that person to participate in project events.

Sustainable Development Goals (SDGs):

In 2015, along with the rest of the Global Community Grenada made a commitment to the 2030 Agenda for Sustainable Development. Grenada strives to develop its mitigation actions (in the energy and waste sectors) to enable the greatest possible synergies with the 17 UN Sustainable Development Goals (SDGs).[2] As a part of the stakeholder engagement process undertaken in preparation of Grenada's Second National Communication to the UNFCCC, a mapping exercise was undertaken to identify key mitigation actions and their linkages to the SDGs. All mitigation actions were linked to SDG 13: Climate Action. Beyond Goal 13: Climate Action, the mitigation actions were linked more strongly to three of the SDGs: Goal 1: No Poverty, Goal 7: Affordable and Clean Energy and Goal 9: Industry, Innovation and Infrastructure.[3] In its 'Vision 2030', which was published on the Sustainable Development Knowledge Platform, the Government of Grenada set the ambitious target that by 2030, 100% of Grenada's primary energy demand for electricity generation and for transport will be provided by renewable energy sources. Hence, this project is fully aligned with the country's actions. Grenada also remains committed to linking the NDC implementation to the country's Sustainable Development Goals agenda as reflected in Grenada's Sustainable Development Plan 2020- 2035, with a particular emphasis on development outcomes that contribute to building the resilience of most vulnerable groups.[4]

National Sustainable Development Plan (NSDP) 2020-2035:

The NSDP is Grenada's overarching strategic planning document that will anchor the country's development agenda for the period 2020-2035. It sets a systematic and comprehensive framework to guide Grenada's strategic priorities for balanced and inclusive development over the medium term, while laying a solid foundation for Grenada's transformation over the long term. The specific national goals, objectives and targets set, which are consistent with the United Nations Sustainable Development Goals, aim to achieve 'Vision 2035'[5]. The strategic focus of the NSDP 2020-2035 rests on the three sustainable development pillars; the society, the economy, and the environment. Included in its eight flagship priorities are priorities related to promoting low-carbon and climate resilient electric mobility: (1) Outcome #4 ' Broad-based, Inclusive, and Sustainable Economic Growth and Transformation; (2) Outcome #6 ' Modern Climate-and-Disaster-Resilient Infrastructure; (3) Outcome #7 ' Climate Resilience and Hazard Risk Reduction; and (4) Outcome #8 ' Energy Security and Efficiency.

Alignment with other government initiatives and priorities:

Furthermore, the project is aligned with the Draft Environmental Management Act (EMA) of 2005, Electricity Supply Act (Act #19 of 2016), Public Utilities Regulatory Commission (PURC) Act (Act # 20 of 2016), National Waste Management Strategy for Grenada (2021), Sustainable Energy Action Plan (SEAP) of 2006, Grenada's National Energy Policy (GNEP) of 2011, and the 'Grenada Vision 2030' as explained in the 'Institutional and policy framework' section above.

[1] United Nations Development Programme (2017): United Nations Multi-country Sustainable Development Framework in the Caribbean 2017-2021. URL: https://unsdg.un.org/sites/default/files/cf-documents/9bea30e0-f553-49d6-ac99-3c50989acaa6_UN-MSDF-2017.pdf

[2] Government of Grenada (2017): Second National Communication to the United Nations Framework Convention on Climate Change (UNFCCC), p. 280

[3] *ibid.*, pp. 281-282

[4] Government of Grenada (2020): Grenada - Second Nationally Determined Contribution, p. 9

[5] For further details on Grenada's 'Vision 2035' please refer to the 'Institutional and policy framework' section above.

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.

Knowledge management will be addressed and achieved through several key project outputs: training and capacity development materials and activities, and mobility and emission-related data collection for planning and MRV.

? Training and capacity development materials are included in Component 1 (e.g. material targeting decision-makers, training materials etc.), and Component 2 (Knowledge information and materials on EV and charging infrastructure technology and maintenance under the demonstration).

? Data collection, analysis and recommendations are included in Component 1 (e.g. data collection and analysis of mobility demand and baseline data, passenger transport statistics and GHG monitoring), Component 2 and 3 (including electrification feasibility analysis of fleets, charging network analysis and impact analysis on the electricity sector and deployment of charging points) etc.

Knowledge management is undertaken mainly by the project management unit through supporting actions:

? The data management system, as established under Component 1 (providing access to project deliverables through a variety of channels such as policy briefs, training materials, summaries of workshops, reports, strategies and other knowledge products etc.).

The project is part of the global GEF-UNEP Programme on Electric Vehicles. 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 regional knowledge and investment platforms and the relevant global working groups, as well as by providing insights and knowledge.

The knowledge management elements in the deliverables add up to USD 207,438.00, as shown in the table below:

Description	Output and deliverable	Budget USD
Web-based national transport data system, based on international good practices and drawing on Global Program support	Output 1.3: Deliverable 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.3.5, 1.3.6. and 1.3.7	90,000
Establishing a gender-sensitive e-mobility capacity-building mechanism, based on international good practices in collaboration with the Grenada National Training Agency, including three training modules, on EV technical aspects, EV financing, and EV end-of-life management	Output 1.4: Deliverable 1.4.1, 1.4.2, 1.4.3, 1.4.4	42,688
Participation of national representatives in events of the Latin America and the Caribbean platform of the Global Program on Electric Mobility	Output 1.4: Deliverable 1.4.5	50,000
Three (3) policy briefs on the three topics covered in the capacity-building mechanism (output 1.4), uploaded to data system (output 1.3)	Output 1.5: Deliverable 1.5.3	21,000
Monthly and annual operation reports on the pilot (EVs, chargers and solar PV), including on EV pilot performance and net environmental, social and economic benefits compared to fleet ICEs, uploaded to the data system	Output 2.1: Deliverable 2.1.8 and 2.19	3,750
Total		207,438

9. Monitoring and Evaluation

Describe the budgeted M and E plan

In line with the GEF Evaluation requirements and UNEP's Evaluation Policy, all GEF funded projects are subject to a performance assessment when they reach operational completion. This performance assessment will be either an independent Terminal Evaluation or a management-led Terminal Review. In case a Review is required, the UNEP Evaluation Office will provide tools, templates, and guidelines to support the Review consultant. For all Terminal Reviews, the UNEP Evaluation Office will perform a quality assessment of the Terminal Review report and validate the Review's performance ratings. This quality assessment will be attached as an Annex to the Terminal Review report, validated performance ratings will be captured in the main report.

If an independent Terminal Evaluation (TE) of the project is required, the Evaluation Office will be responsible for the entire evaluation process and will liaise with the Task Manager and the project implementing partners at key points during the evaluation. 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. 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 (or the management-led review) 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 in relation to 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 project performance will be assessed against standard evaluation criteria using a six-point rating scheme. The final determination of project ratings will be made by the Evaluation Office when the report is finalized. 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 Chief Technical Advisor 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 compliance performance against the recommendations is then reported to senior management on a six-monthly basis and to member States in the Biennial Evaluation Synthesis Report.

Monitoring and Evaluation (M&E) activities and related costs are presented in the costed M&E Plan (see below) and are fully integrated in the overall project budget. The project budget for M&E activities is USD\$ 30,500.

M&E activity	Responsible party(ies)	GEF budget	Timeframe
Inception Meeting	Chief Technical Advisor (CTA), National Project Director	USD \$500	Within 2 months of project start-up
Inception Report	CTA	As part of CTA budget	1 month after project inception meeting
Measurement of project progress and performance indicators	CTA	As part of CTA budget	Annually
End-point measurement of project outcome indicators, GEF Core indicators	CTA	As part of CTA budget	End Point

M&E activity	Responsible party(ies)	GEF budget	Timeframe
Half-yearly progress reports	CTA	As part of CTA budget	Within 1 month of the end of reporting period i.e. on or before 31 January
Project Steering Committee (PSC) meetings	Chief Technical Advisor (CTA), National Project Director	Co-financed by Ministry	Once a year minimum
Reports of PSC meetings	CTA	As part of CTA budget	Annually
Project Implementation Review (PIR) report	CTA	As part of CTA budget	Annually, part of reporting routine
Monitoring visits to field sites	CTA	As part of CTA budget	As appropriate
Terminal Review / Evaluation	UNEP	USD \$30,000	Typically initiated after the project's operational completion
Project Operational Completion Report	CTA	As part of CTA budget	Within 2 months of the project completion date
Co-financing report (including supporting evidence for in-kind co-finance)	CTA	As part of CTA budget As part of CTA budget	Within 1 month of the PIR reporting period, i.e. on or before 31 July
Publication of lessons learnt and other project documents	CTA	As part of CTA budget	Annually, part of half-yearly reports & Project Final Report
Total		USD \$30,500	

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 (LDCE/SCCF)?

The direct project beneficiaries includes participants involved in the demonstrations and the trainees and future trainers attending the capacity building activities of the national project and the global programme.

Social benefits

In terms of benefits for the local population, through the introduction and expansion of electric vehicles, the project will help to replace ICEs in the country in the medium to long term, reducing air pollution from road traffic-related emissions and thus improving air quality for the citizens of the country. This has the co-

benefit of improving citizens' health and lowering associated health care costs and potential death rates, which has become even more relevant due to the COVID-19 pandemic. Notwithstanding that there is no regular information on air quality in Grenada, the most recent data from the World Health Organization (WHO) shows that the annual mean PM_{2.5} value in Grenada in 2016 was almost 22 µg/m³.^[1] In comparison, WHO air quality guidelines stipulate that the mean PM_{2.5} value should not exceed 10 µg/m³.^[2] According to a recent study, the death toll attributed to air pollution is rapidly growing, making it now the world's largest single environmental health risk (killing more people every year than malaria and AIDS).^[3] In 2017, the number of deaths attributable to ambient air pollution in Grenada was estimated at 73, up from 59 deaths in 2010.^[4] The project will provide an estimate of the pollutant emissions avoided through the demonstration (see D.2.2.6 and D. 2.2.7). In addition, the introduction of electric vehicles will reduce noise pollution.

Economic benefits

In terms of economic benefits, Grenada currently spends around 18% of its GDP on fuel imports annually.^[5] Although the introduction of low carbon electro-mobility also requires imports and thus investments in renewable energies, electric vehicles and charging infrastructure, in the medium- to long-term the transition will make the country less dependent on global oil prices. Over time this will support the fiscal health of the Grenadian government, as it won't have to provide such significant fuel subsidies, as well as reduce fuel payments made by vehicle users. A reduced dependency on fossil fuel imports will slowly reduce investment uncertainties, which in turn should lead to a more favourable investment environment, lowering interest rates and expected short-term returns, and making long-term investments more attractive. In addition, the transition to electro-mobility will create a new market for the power generation and distribution sectors, making investments in the latter more attractive and thus improving the reliability of the overall system.

Environmental benefits

By focusing on safe management and disposal of electric vehicle and its components, the project also anticipates emerging environmental issues stemming from a large-scale market introduction of electric vehicles and seeks to develop policies and regulations to mitigate the associated risks. By providing a direct focus on solid waste management of vehicles, the project aims to have a net positive effect on the environment by reduction of derelict dumped vehicles.

[1] World Health Organization (WHO) (2018): Concentrations of fine particulate matter (PM_{2.5}). URL: [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/concentrations-of-fine-particulate-matter-\(pm2-5\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/concentrations-of-fine-particulate-matter-(pm2-5))

[2] WHO (2005): WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulphur dioxide, p. 9. URL:

https://apps.who.int/iris/bitstream/handle/10665/69477/WHO_SDE_PHE_OEH_06.02_eng.pdf;jsessionid=3252302599942E092D270818EDBB969F?sequence=1

[3] Piqueras, P.; Vizenor, A. (2016): The rapidly growing death toll attributed to air pollution: A global responsibility, p. 1. URL: https://sustainabledevelopment.un.org/content/documents/1008357_Piqueras_The%20rapidly%20growing%20death%20toll%20attributed%20to%20air%20pollution-A%20global%20responsibility.pdf

[4] Statista (2019): Number of deaths attributable to ambient air pollution in Grenada between 2000 and 2017. URL: <https://www.statista.com/statistics/868828/number-deaths-ambient-air-pollution-grenada/>

[5] NREL (2015): Energy Transition Initiative, Island Energy Snapshot - Grenada, p. 1

11. Environmental and Social Safeguard (ESS) Risks

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

Overall Project/Program Risk Classification *

PIF	CEO Endorsement/Approval	MTR	TE
Medium/Moderate			

Measures to address identified risks and impacts

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

An assessment of the environmental, social and economic impact of the project was undertaken by the Safeguard Team of the United Nations Environment Programme (UNEP). In their analysis, they reviewed the project against a series of environmental, social and economic indicators (contained in annex O of the CEO endorsement document). The assessment determined that this is a moderate risk project, based on UNEP's UNEP Environmental and Social Sustainability Framework (ESSF). In providing this rating, the UNEP Safeguard Advisor noted that:

This project is likely moderate risk due to potential pollution prevention and resource efficiency risks/impacts.

Although the pilot is at a small scale, as part of the long-term inclusive planning, consideration should also be given to enhance circularity of the potentially dumped old technologies e.g., used cars and power generating sources, as a result of the adoption of EVs.

Women seem to have lower employment rates therefore further analysis is encouraged to understand their needs which should be incorporated in the EV policy, capacity building and piloting. Gender mainstreaming should be encouraged to achieve gender parity.

Continuous stakeholder engagement will be important in designing inclusive and non-discriminative policies and financial mechanisms that offset the likely reduction in economic opportunities within the informal sector.

The UNEP ESSF guiding principles ? Leave No One Behind; Human Rights and Gender Equality and Women?s Empowerment, Sustainability and Resilience; and Accountability apply to all UNEP projects. Therefore, specific focus should be given to the most marginalized and vulnerable groups when designing interventions for them.

Detailed information on the analysis undertaken, including types and classifications of risks, may be found in the below supporting document. In accordance with the UNEP Environmental and Social Sustainability Framework (ESSF), a moderate project is one *that may have potential negative impacts, but limited in scale, not unprecedented or irreversible and generally limited to programme/project area; impacts amenable to management using standard mitigation measures; limited environmental or social analysis may be required to develop an Environmental and Social Management Plan (ESMP). Straightforward application of good practice may be sufficient without additional study.*

For this project, the safeguard team recommends the undertaking of a ?take good practice approach?: *In that case, no separate management plan is necessary. Instead, the project document demonstrates safeguard management approach in the project activities, budget, risks management, stakeholder engagement or/and monitoring segments of the project document to avoid or minimize the identified potential risks without preparing a separate safeguard management plan.*

Safeguard Risk Identification Form (SRIF)

Section 1: Project Overview

Identification	01679
Project Title	<i>Accelerating the introduction of low-emission and climate-resilient electric mobility in Grenada</i>
Managing Division	<i>Economy division</i>
Type/Location	<i>National</i>
Region	<i>Latin America and the Caribbean</i>
List Countries	<i>Grenada</i>
Project Description	<p><i>The objective of the project is to promote low-carbon electric mobility in Grenada and reduce fossil fuel consumption, greenhouse gas emissions and air pollution in the transport sector.</i></p> <p><i>The proposed project is structured across four components, which are necessary to address the barriers and facilitate the successful implementation of the efforts to achieve an integrated, sustainable, and low-emissions transport system.</i></p> <ul style="list-style-type: none"> - <i>Component 1: Institutionalization of low-carbon electric mobility</i> - <i>Component 2: Short term barrier removal through low-carbon e-mobility and renewable energy demonstrations</i> - <i>Component 3: Preparing for scale-up and replication of low-carbon electric mobility</i> - <i>Component 4: Long-term environmental sustainability of low-carbon electric mobility</i>
Relevant Subprogrammes	<i>Climate Change Mitigation</i>
Estimated duration of project	<i>36 months</i>
Estimated cost of the project	<i>1,050,917</i>

Name of the UNEP project manager responsible	<i>Asher Lessels</i>
Funding Source(s)	<i>GEF Trust Fund</i>
Executing/Implementing partner(s)	<i>Ministry of Infrastructure Development, Transport & Implementation (Grenada Transport Commission)</i>
SRIF submission version	<i>1</i>
Safeguard-related reports prepared so far <i>(Please attach the documents or provide the hyperlinks)</i>	? <i>Feasibility report []</i> ? <i>Gender Action Plan [X]</i> ? <i>Stakeholder Engagement Plan [X]</i> ? <i>Safeguard risk assessment or impact assessment []</i> ? <i>ES Management Plan or Framework []</i> ? <i>Indigenous Peoples Plan []</i> ? <i>Cultural Heritage Plan []</i> ? <i>Others _____</i>

Section 2: Safeguards Risk Summary

A. Summary of the Safeguards Risk Triggered

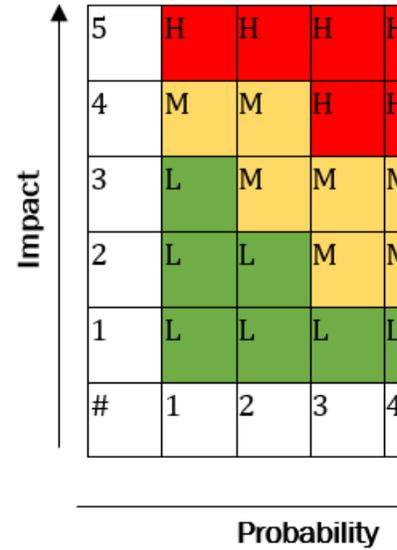
Safeguard Standards Triggered by the Project	Impact of Risk[1] (1-5)	Probability of Risk (1-5)	Significance of Risk (L, M, H) <i>Please refer to the matrix below</i>
SS 1: Biodiversity, Ecosystems and Sustainable Natural Resource Management	1	1	L
SS 2: Climate Change and Disaster Risks	2	2	L
SS 3: Pollution Prevention and Resource Efficiency	3	3	M
SS 4: Community Health, Safety and Security	1	1	L
SS 5: Cultural Heritage	1	1	L
SS 6: Displacement and Involuntary Resettlement	1	1	L
SS 7: Indigenous Peoples	1	1	L

SS 8: Labor and working conditions	3	2	M
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B. ESS Risk Level[2] -

Refer to the UNEP ESSF (Chapter IV) and the UNEP's ESSF Guidelines.

- Low risk x
- Moderate risk
- High risk
- Additional information required



C. Development of ESS Review Note and Screening Decision

Prepared by

Name: Asher Lessels Date: 25 November 2021

Screening review by

Name: Alexandra Mutungi Date: 29 November 2021

Signature

Cleared[3]

D. Safeguard Review Summary (by the safeguard team)

This project is likely moderate risk due to potential pollution prevention and resource efficiency risks/impacts.

Although the pilot is at a small scale, as part of the long-term inclusive planning, consideration should also be given to enhance circularity of the potentially dumped old technologies e.g., used cars and power generating sources, as a result of the adoption of EVs.

Women seem to have lower employment rates therefore further analysis is encouraged to understand their needs which should be incorporated in the EV policy, capacity building and piloting. Gender mainstreaming should be encouraged to achieve gender parity.

Continuous stakeholder engagement will be important in designing inclusive and non-discriminative policies and financial mechanisms that offset the likely reduction in economic opportunities within the informal sector.

The UNEP ESSF guiding principles ? Leave No One Behind; Human Rights and Gender Equality and Women's Empowerment, Sustainability and Resilience; and Accountability apply to all UNEP projects. Therefore, specific focus should be given to the most marginalized and vulnerable groups when designing interventions for them.

E. Safeguard Recommendations (by the safeguard team)

- No specific safeguard action required
- Take Good Practice approach²⁵⁷
- Carry out further assessments (e.g., site visits, experts' inputs, consult affected communities, etc.)
- Carry out impact assessments (by relevant experts) in the risk areas and develop management framework/plan
- Consult Safeguards Advisor early during the full project development phase
- Other _____

Section 3: Safeguard Risk Checklist

Screening checklist	Y/N/ Maybe	Justification for the response (please provide answers to each question)
Guiding Principles (these questions should be considered during the project development phase)		

GP1 Has the project analyzed and stated those who are interested and may be affected positively or negatively around the project activities, approaches or results?	Y	The project document includes an estimate of project beneficiaries, disaggregated by gender.
GP2 Has the project identified and engaged vulnerable, marginalized people, including disabled people, through the informed, inclusive, transparent and equal manner on potential positive or negative implication of the proposed approach and their roles in the project implementation?	Y	The project considered the impacts of transitioning to electric mobility on vulnerable people.
GP3 Have local communities or individuals raised human rights or gender equality concerns regarding the project (e.g. during the stakeholder engagement process, grievance processes, public statements)?	N	Not anticipated.
GP4 Does the proposed project consider gender-balanced representation in the design and implementation?	Y	Yes. The project includes Gender Analysis, which is followed by Gender Action Plan.
GP5 Did the proposed project analyze relevant gender issues and develop a gender responsive project approach?	Y	Yes. Note the comment above.
GP6 Does the project include a project-specific grievance redress mechanism? If yes, state the specific location of such information.	Y	See output 1.5.
GP7 Will or did the project disclose project information, including the safeguard documents? If yes, please list all the webpages where the information is (or will be) disclosed.	Y	Yes. As this is a GEF project, all the project documents will be publicly available on the GEF website (https://www.thegef.org/projects) as the UNEP website (https://open.unep.org/)
GP8 Were the stakeholders (including affected communities) informed of the projects and grievance redress mechanism? If yes, describe how they were informed.	Y	During project meetings (informing of the government officials).
GP9 Does the project consider potential negative impacts from short-term net gain to the local communities or countries at the risk of generating long-term social or economic burden?[5]	Y	Little to no potential negative impacts from short-term net gain are anticipated. It is more the opposite ? short term negative impacts due to increased fuel prices. To mitigate this there will be a dedicated output on community engagement, and also studies on socio-economic impacts, to ensure a just transition (deliverables 1.2.4 and 3.1.5).
GP10 Does the project consider potential partial economic benefits while excluding marginalized or vulnerable groups, including women in poverty?	Y	This answer for GP9.

Safeguard Standard 1: Biodiversity, Ecosystems and Sustainable Natural Resource Management		
<i>Would the project potentially involve or lead to:</i>		
1.1 conversion or degradation of habitats (including modified habitat, natural habitat and critical natural habitat), or losses and threats to biodiversity and/or ecosystems and ecosystem services?	N	Not anticipated.
1.2 adverse impacts specifically to habitats that are legally protected, officially proposed for protection, or recognized as protected by traditional local communities and/or authoritative sources (e.g. National Park, Nature Conservancy, Indigenous Community Conserved Area, (ICCA); etc.)?	N	Not anticipated.
1.3 conversion or degradation of habitats that are identified by authoritative sources for their high conservation and biodiversity value?	N	Not anticipated.
1.4 activities that are not legally permitted or are inconsistent with any officially recognized management plans for the area?	N	Not anticipated.
1.5 risks to endangered species (e.g. reduction, encroachment on habitat)?	N	Not anticipated.
1.6 activities that may result in soil erosion, deterioration and/or land degradation?	N	Not anticipated.
1.7 reduced quality or quantity of ground water or water in rivers, ponds, lakes, other wetlands?	N	Not anticipated.
1.8 reforestation, plantation development and/or forest harvesting?	N	Not anticipated.
1.9 support for agricultural production, animal/fish production and harvesting	N	Not anticipated.
1.10 introduction or utilization of any invasive alien species of flora and fauna, whether accidental or intentional?	N	Not anticipated.
1.11 handling or utilization of genetically modified organisms?	N	Not anticipated.
1.12 collection and utilization of genetic resources?	N	Not anticipated.

Safeguard Standard 2: Climate Change and Disaster Risks		
<i>Would the project potentially involve or lead to:</i>		
2.1 improving resilience against potential climate change impact beyond the project intervention period?	Y	The project promotes a scale up of renewable energy and electric vehicles, reducing dependency on fossil fuel imports, whose shipments may be affected by climate impacts.
2.2 areas that are now or are projected to be subject to natural hazards such as extreme temperatures, earthquakes, extreme precipitation and flooding, landslides, droughts, severe winds, sea level rise, storm surges, tsunami or volcanic eruptions in the next 30 years?	Maybe	In Component 2, in locating the charging stations and selecting the vehicle models, climate and natural disaster factors will be factored in to minimize potential damages from hurricanes, storms, heatwave, among others.
2.3 outputs and outcomes sensitive or vulnerable to potential impacts of climate change (e.g. changes in precipitation, temperature, salinity, extreme events)?	Maybe	While this risk is beyond the control of the project, careful project planning with buffer times will be exercised to help mitigate delays due to unexpected climate events.
2.4 local communities vulnerable to the impacts of climate change and disaster risks (e.g. considering level of exposure and adaptive capacity)?	N	N/A.
2.5 increases of greenhouse gas emissions, black carbon emissions or other drivers of climate change?	N	The project seeks to mitigate GHG and black carbon emissions through the promotion of electric mobility which provides cleaner modes of transport
2.6 Carbon sequestration and reduction of greenhouse emissions, resource-efficient and low carbon development, other measures for mitigating climate change	Y	The project will lead to direct and indirect GHG emissions reduction through the promotion of sustainable and low-emissions transport
Safeguard Standard 3: Pollution Prevention and Resource Efficiency		
<i>Would the project potentially involve or lead to:</i>		
3.1 the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	N	The proposed project seeks to improve air quality through sustainable and low-emissions transport.
3.2 the generation of waste (both hazardous and non-hazardous)?	Y	To address this issue, the activities to be undertaken under project Component 4 will include the development of plans for vehicles disposal and end export and battery reuse and sound disposal.

3.3	the manufacture, trade, release, and/or use of hazardous materials and/or chemicals?	Y	To address this issue, the activities to be undertaken under project Component 4 will include the development of plans for vehicles disposal and end export and battery reuse and sound disposal.
3.4	the use of chemicals or materials subject to international bans or phase-outs? (e.g. DDT, PCBs and other chemicals listed in international conventions such as the Montreal Protocol , Minamata Convention , Basel Convention , Rotterdam Convention , Stockholm Convention)	N	Not anticipated.
3.5	the application of pesticides or fertilizers that may have a negative effect on the environment (including non-target species) or human health?	N	Not anticipated.
3.6	significant consumption of energy, water, or other material inputs?	N	The project seeks to reduce fossil energy consumption through the promotion of electric mobility powered with renewable energy sources.
Safeguard Standard 4: Community Health, Safety and Security			
<i>Would the project potentially involve or lead to:</i>			
4.1	the design, construction, operation and/or decommissioning of structural elements such as new buildings or structures (including those accessed by the public)?	Y	The project will construct charging stations and solar PV panels.
4.2	air pollution, noise, vibration, traffic, physical hazards, water runoff?	N	Not anticipated. Rather, the proposed project seeks to improve air quality through sustainable and low-emissions transport.
4.3	exposure to water-borne or other vector-borne diseases (e.g. temporary breeding habitats), communicable or noncommunicable diseases?	Y	Exposure to the COVID-19 pandemic is a possibility.
4.4	adverse impacts on natural resources and/or ecosystem services relevant to the communities? health and safety (e.g. food, surface water purification, natural buffers from flooding)?	N	Not anticipated.
4.5	transport, storage use and/or disposal of hazardous or dangerous materials (e.g. fuel, explosives, other chemicals that may cause an emergency event)?	Maybe	Additional health and safety protocols for the drivers and charging station operators will need to be put in place to ensure safe operations of demonstration vehicles.

4.6 engagement of security personnel to support project activities (e.g. protection of property or personnel, patrolling of protected areas)?	N	N/A
4.7 an influx of workers to the project area or security personnel (e.g. police, military, other)?	N	Not anticipated.
Safeguard Standard 5: Cultural Heritage		
<i>Would the project potentially involve or lead to:</i>	Y	Y
5.1 activities adjacent to or within a Cultural Heritage site?	N	Not anticipated.
5.2 adverse impacts to sites, structures or objects with historical, cultural, artistic, traditional or religious values or to intangible forms of cultural heritage (e.g. knowledge, innovations, practices)?	N	Not anticipated.
5.3 utilization of Cultural Heritage for commercial or other purposes (e.g. use of objects, practices, traditional knowledge, tourism)?	N	Not anticipated.
5.4 alterations to landscapes and natural features with cultural significance?	N	Not anticipated.
5.5 significant land clearing, demolitions, excavations, flooding?	N	Not anticipated.
5.6 identification and protection of cultural heritage sites or intangible forms of cultural heritage		
Safeguard Standard 6: Displacement and Involuntary Resettlement		
<i>Would the project potentially involve or lead to:</i>		
6.1 full or partial physical displacement or relocation of people (whether temporary or permanent)?	N	Not anticipated.
6.2 economic displacement (e.g. loss of assets or access to assets affecting for example crops, businesses, income generation sources)?	N	Not anticipated.
6.2 involuntary restrictions on land/water use that deny a community the use of resources to which they have traditional or recognizable use rights?	N	Not anticipated.
6.3 risk of forced evictions?	N	Not anticipated.

6.4 changes in land tenure arrangements, including communal and/or customary/traditional land tenure patterns (including temporary/permanent loss of land)?	N	Not anticipated.
Safeguard Standard 7: Indigenous Peoples		
<i>Would the project potentially involve or lead to:</i>		
7.1 areas where indigenous peoples are present or uncontacted or isolated indigenous peoples inhabit or where it is believed these peoples may inhabit?	N	Not anticipated.
7.2 activities located on lands and territories claimed by indigenous peoples?	N	Not anticipated.
7.3 impacts to the human rights of indigenous peoples or to the lands, territories and resources claimed by them?	N	Not anticipated.
7.4 the utilization and/or commercial development of natural resources on lands and territories claimed by indigenous peoples?	N	Not anticipated.
7.5 adverse effects on the development priorities, decision making mechanisms, and forms of self-government of indigenous peoples as defined by them?	N	Not anticipated.
7.6 risks to the traditional livelihoods, physical and cultural survival of indigenous peoples?	N	Not anticipated.
7.7 impacts on the Cultural Heritage of indigenous peoples, including through the commercialization or use of their traditional knowledge and practices?	N	Not anticipated.
Safeguard Standard 8: Labor and working conditions		
8.1 Will the proposed project involve hiring or contracting project staff ?	Y	The project will recruit local experts and international experts.
<i>If the answer to 8.1 is yes, would the project potentially involve or lead to:</i>		
8.2 working conditions that do not meet national labor laws or international commitments (e.g. ILO conventions)?	N	Not anticipated.

8.3 the use of forced labor and child labor?	N	Not anticipated.
8.4 occupational health and safety risks (including violence and harassment)?	N	Not anticipated.
8.5 the increase of local or regional unemployment?	N	Not anticipated.
8.6 suppliers of goods and services who may have high risk of significant safety issues related to their own workers?	N	Not anticipated.
8.7 unequal working opportunities and conditions for women and men	Maybe	The transport sector is dominated by males. In that sense, effort needs to be taken to avoid unequal working conditions for women.

[1] Refer to UNEP Environmental and Social Sustainability Framework (ESSF): Implementation Guidance Note

to assign values to the Impact of Risk and the Probability of Risk to determine the overall significance of Risk (Low, Moderate or High).

[2] **Low risk:** Negative impacts minimal or negligible: no further study or impact management required.

Moderate risk: Potential negative impacts, but limited in scale, not unprecedented or irreversible and generally limited to programme/project area; impacts amenable to management using standard mitigation measures; limited environmental or social analysis may be required to develop an Environmental and Social Management Plan (ESMP). Straightforward application of good practice may be sufficient without additional study.

High risk: Potential for significant negative impacts (e.g. irreversible, unprecedented, cumulative, significant stakeholder concerns); Environmental and Social Impact Assessment (ESIA) (or Strategic Environmental and Social Assessment (SESA)) including a full impact assessment may be required, followed by an effective comprehensive safeguard management plan.

[3] This is signed only for the full projects latest by the PRC time.

[4] Good practice approach: For most low-moderate risk projects, good practice approach may be sufficient. In that case, no separate management plan is necessary. Instead, the project document demonstrates safeguard management approach in the project activities, budget, risks management, stakeholder engagement or/and monitoring segments of the project document to avoid or minimize the identified potential risks without preparing a separate safeguard management plan.

[5] For example, a project may consider investing in commercial shrimp farm by clearing the nearby mangrove forest to improve the livelihood of the coastal community. However, long term economic benefit from the shrimp farm may be significantly lower than the mangroves if we consider full costs factoring safety from storms, soil protection, water quality, biodiversity and so on.

Supporting Documents

Upload available ESS supporting documents.

Title

Module

Submitted

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).

Objective	Indicator	Baseline	Mid-term target	End of project target	Means of verification	Risks (see section 5)
Accelerate the introduction of low-carbon electric mobility and reduce fossil fuel consumption, greenhouse gas emissions and air pollution in the transport sector	A. Metric tonnes of greenhouse gas emissions avoided during the project	0	0	243 tCO ₂ e	Monitoring of mileage and energy consumption of electric vehicles and chargers deployed in demonstration projects and compared with estimated emissions from an equivalent internal combustion engine vehicle	#1, #5, #6, #8
	B. Number of direct beneficiaries disaggregated by gender	0	Women: 50 Men: 50	Women: 470 Men: 650	Workshop reports, capacity-building reports, community engagement reports, pilot reports, and surveys of electric vehicle and charging station users	#4, #5

Outcome	Indicator	Baseline	Mid-term target	End of project target	Means of verification	Risks
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1. The Grenada government enhances coordination, capacity, planning and its strategic vision for accelerating the introduction of low-carbon electric mobility	1.1. A national electric mobility coordination unit is established by the government	Grenada Transport Commission (but does not focus on electric mobility)	Unit is established	Minimum 4 unit meetings held in project year 3	Government records and meeting reports	#2, #4, #5
	1.2. A national 2050 low-carbon and climate resilient sustainable transport strategy is adopted by the Ministry of Infrastructure Development, Public Utilities, Transport and Implementation	0 (no strategy exists)	Completion of four analysis documents as inputs for the development of the strategy (deliverables 1.2.1-1.2.4)	Gender-sensitive strategy is adopted by the Ministry of Infrastructure, Development, Transport and Implementation	Government records and project documents	#2, #3, #7
	1.3. Number of reports on experiences and lessons learned from the Grenada project shared with the Global Program on Electric Mobility	0	0	2	Confirmation by global program team of receipt of best practice reports	Project effectively produces deliverables 1.5.4 and 2.1.9 and shares it with the global program
2. Grenadian public fleet operators start using electric vehicles for their operations	2. Number of kilometres driven by government electric vehicles, thus highlighting regular and sustained EV usage	100 km (the Ministry of Environment has one electric vehicle, uses it sparsely)	500 km	16,000 km	Vehicle mileage as reported by government offices	#1, #5, #6, #8

3. The government takes action towards implementing an enabling environment for facilitating the adoption of electric mobility at scale	3. Regulatory proposals and/or tax reforms to enhance the competitiveness of electric vehicles formally considered by the Government	50% duty and tax concession on the importation of electric and hybrid vehicles	Report on regional and international good practices, with a focus on SIDS, for regulating the importation of conventional and electric vehicles and regulating charging infrastructure, and recommendations for Grenada	3 regulatory proposals/tax reforms each considered formally on at least one occasion by the relevant government ministry (see outputs 3.1 and 3.2 for indication of the ministry for each proposal)	Government records	#2, #3, #7
4. The Government of Grenada takes actions towards implementing a regulatory framework for ensuring the environmental sustainability of low-carbon electric mobility	4. Proposal for updated waste management act reviewed by the Ministry of Climate Resilience, The Environment, Forestry, Fisheries & Disaster Management considered by Cabinet	Waste Management Act, 2001 (doesn't consider electric or conventional vehicles)	Report of regional and international good practices, with a focus on SIDS, for regulating the end-of-life of conventional and electric vehicles, and the reuse of batteries, and recommendations for Grenada	Reviewed by the Ministry of Climate Resilience, The Environment, Forestry, Fisheries & Disaster Management and considered on at least one occasion by the Cabinet	Ministry records and cabinet minutes	#2, #3, #7

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 uploaded to the GEF portal:

- ? Annex B.1 ? Responses to GEF secretariat reviews on the PFD;
- ? Annex B.2 ? Responses to GEF secretariat reviews on the PFD addendum;
- ? Annex B.3 ? Responses to STAP comments;
- ? Annex B.4 ? Responses to GEF Council comments (also included here)

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

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

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

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

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

Response:

The current health crisis related to 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 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 N₂O from both mobile (e.g. trucks and cars) and stationary (e.g. coal power stations) emission sources². 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.

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>

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 PM_{2.5} and PM₁₀, but also N₂O) and carbon emissions but can also increase resilience of transport systems against the current - and any potential future - health crises. The contribution of low-carbon mobility, including electric mobility, to a more resilient economy will be further integrated in the Programme and highlighted throughout the training components to be delivered to participating countries.

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

Response:

The information presented in the project documentation (PIFs and PFDs) represents the best available information available at the time of the submission to Council, following the technical review from the GEFSEC. Some level of change in the project design and in the availability of the amount of co-financing estimated ex- ante is possible and sometimes even desirable, considering the additional in depth design analysis conducted during the project preparation phase, including through the PPG-funded activities, between the submission of PIFs/PFDs and the submission of the relative CEO ER. Co-financing arrangements and amounts specified in PIFs/PFDs are best-case estimations that GEF Implementing Agencies and National Executing entities or participating actors provide for the formulation of the project proposals. These up-front estimates are assessed as part of the GEFSEC review process in terms of their relevance and adequacy vis-?-vis the scope and objective of the proposed Project/Program activities.

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

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

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

the developers might wish to either postpone the project or discuss with the country if the project should/can go ahead.

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

Response:

In addition to the explanation provided above on the dynamics of co-financing, co-financing is reported on a yearly basis, based on progresses related to the sourcing and use of co-financing amounts. In the case of the e- mobility Programme, the Lead Implementing Agency is UNEP. For each project implemented by UNEP, the Project Manager has responsibility to seek signed co-finance reports from each co-financier of that given project. While the co-financiers are not audited, their signed (by the authorized authority in each entity providing co- financing) co-finance reports are available for the mid-term and terminal evaluators, so that the evaluation process can assess if that given GEF project reached or not the co-finance amounts which had been estimated up-front.

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

Response:

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

which covers both the Agency's internal procurement policies and procurement by recipients of funds, provides that:

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

- o Open competition and define the situations in which other less competitive methods can be used; and
- o Wide participation through publication of business opportunities; descriptive bid/ proposal documents that disclose the evaluation criteria to be used; neutral and broad specifications; non-discriminatory participation and selection principles; and sufficient time to submit bids or proposals.

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

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

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

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

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

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

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

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

? The introduction of e-busses to local public transportation fleets differs from other e-mobility forms,

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

Response:

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

? Germany welcomes that information exchange and knowledge management are a substantial part of the programme. We suggest establishing a close working relationship to the new TUMI (Transformative Urban Mobility Initiative) E-Bus mission. The ?TUMI E-Bus Mission? follows a

similar logic and approach in supporting cities in the uptake of e-busses. As the e-bus implementation in public transport is largely dependent on an involvement of city level decisionmakers, the TUMI E-Bus Mission can contribute to the proposed programme by feeding in local perspectives and requirements.

Response:

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

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

? We recommend that there be some consideration to mitigating the environmental impacts of electric vehicles, particularly where facilities for managing batteries don't exist.

Response:

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

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

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

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

Response:

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

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

Response:

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

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

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

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

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

Response:

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

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

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

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

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

Response:

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

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

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

Response:

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

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

Response:

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

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

Feasibility. The core of this proposal for Armenia deserves further scrutiny. The claim of 5,000 electric vehicles does not fit with other statistics, for example press reports citing the Minister of Nature Protection as saying that 30 electric vehicles were imported into Armenia in 2018. While there may have been a several-fold increase in electric vehicle imports in Armenia since 2016, those imports would have started from extremely low levels. That Armenia would manufacture electric vehicles does not track with the fact there is no real manufacturing industry even for traditional petroleum fuel vehicles at present. Due to the ratcheting duties caused by incremental adoption of the Eurasian Economic Union (EAEU) common external tariff, Armenia will face steadily increasing prices for imports of cars from outside the EAEU, complicating the adoption of such technology. We encourage more background investigation before its basic feasibility can be established.

Response:

Regarding the question on Armenia, unfortunately there is a mistake with the short description of the Armenia child project baseline in Table 2 of the PFD. This will be corrected during the Child Project development and a note will be attached to the PFD to that effect. The 5,000 EVs mentioned and the local manufacturing actually belong to Ukraine. The US Council comment is right and Armenia imported about 30 EVs in 2018 (https://energyagency.am/en/page_pdf/tsragri-anvanoum). The project feasibility in Armenia will be further analyzed during development, but the government has prioritized the promotion of electric vehicles as one of the transport measures in their NDC. Armenia recently waived the VAT on EVs to stimulate the EV market

(<https://energyagency.am/en/category/noroutyouanner-ev-mijocaroumner/elektromobilneri-nermoutsoumy->

[k azatvi-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 EVs 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 EVs in Armenia would be able to reduce emissions with such a grid profile, and Armenia has introduced several policies to incentivize renewable power generation investments. For example, projects have been implemented or have been committed to improve energy transmission efficiency and reliability, and investment in renewables is taking off. This GEF project aims to demonstrate light duty vehicles in a government fleet in Yerevan, and in 2019, 23 charging stations will be installed through a GEF-6 funded Small Grant Programs implemented and led by UNDP. Promoting electric vehicles together with renewable energy will improve energy efficiency and further reduce CO₂

emissions, air pollution and energy dependence in Armenia. This will be in full alignment with the countries' NDC and its strong commitment to the introduction of clean and sustainable energies.

Comment by Lauren Celine Naville Gissels, NORAD, Department for Climate, Energy and Environment, Council, Norway made on 6/29/2019

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

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

Response:

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

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

Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: US\$ 50,000			
Project Preparation Activities Implemented	GETF Amount (US\$)		
	Budgeted Amount	Amount Spent to date	Amount Committed
PPG expert technical consultant	37,000	30,000	7,000

UNEP Regional Office for Latin America and the Caribbean	3,000	3,000	-
UNEP Air Quality and Mobility Unit	5,000	5,000	-
Total	50,000	38,000	7,000

The unspent balance of USD 5,000 will be spent during project execution, as per the GEF policy: If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake exclusively preparation activities up to one year of CEO Endorsement/approval date. No later than one year from CEO endorsement/approval date. Agencies should report closing of PPG to Trustee in its Quarterly Report.

ANNEX D: Project Map(s) and Coordinates

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

Grenada is comprised of three islands: Grenada, Carriacou and Petite Martinique. The project will take place in the first of these (with approximately 95% of the population), where the capital St. George's is located. The location of charging stations will be determined during project implementation. It is anticipated that the pilot demonstration activities will be located on Grenada. The exact locations of the pilots will be determined during project implementation.

Figure 26: Area of Project implementation



The coordinates of St. George's, the capital, are: Latitude: 12° 03' 23.18" N; Longitude: -61° 44' 54.56" W.

ANNEX E: Project Budget Table

Please attach a project budget table.

GEF Expenditure Category & Detailed Description	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Sub-total	M&E	PMC	Total
02. Goods	30,000	59,000			89,000			89,000
Data management system, incl. Webpage integration and information platform	30,000				30,000			30,000
Procurement of a 10kWp grid connected solar plants and its installation		20,000			20,000			20,000
Procurement of electric vehicle charging infrastructure and its installation		39,000			39,000			39,000
03. Vehicles		157,200			157,200			157,200
Vehicle GPS monitoring systems and user connectivity apps		7,200			7,200			7,200
Procurement of electric vehicles		150,000			150,000			150,000
06. Sub-contract to executing partner/entity	10,000				10,000			10,000
Grenada National Training Agency	10,000				10,000			10,000
07. Contractual services (company)		3,000			3,000		18,000	21,000

Independent financial audits					0	18,000	18,000
Vehicle maintenance		3,000			3,000		3,000
09. International Consultants	296,500	33,600	73,801	14,000	417,901	30,000	447,901
Terminal Evaluation					0	30,000	30,000
Consultancy on sustainable transport, promotion and finance of electric vehicles	122,500	26,600	56,000	14,000	219,100		219,100
Consultancy on gender and socio-economic (just transition) impact	20,000		17,801		37,801		37,801
Consultancy on renewable energy technologies	42,000	7,000			49,000		49,000
Consultancy on electricity distribution grid stabilization and climate resilience	35,000				35,000		35,000
Data Management System Provider and Consultancy	35,000				35,000		35,000
Consultancy on gender-sensitive community engagement	42,000				42,000		42,000
10. Local Consultants	4,000		80,000	7,000	91,000	72,600	163,600
Chief Technical Advisor					0	32,000	32,000

Regulatory Framework Expert and Legal Advisor	4,000		80,000	7,000	91,000			91,000
Administration and Financial Assistant					0	40,600		40,600
11. Salary and benefits/Staff Costs	36,563	21,000	23,438	7,279	88,279			88,279
Chief Technical Advisor	36,563	21,000	23,438	7,279	88,279			88,279
12. Training, Workshops, Meetings	12,500		4,500	1,500	18,500	500		19,000
Services and logistics to support meetings	5,000				5,000			5,000
Workshops	7,500		4,500	1,500	13,500			13,500
Inception workshop					0	500		500
13. Travel	50,000				50,000			50,000
Travel expenses for the global and regional programmes on electric mobility	50,000				50,000			50,000
15. Other operating costs					0	4,938		4,938
Office and IT equipment					0	4,938		4,938
Total general	439,563	273,800	181,738	29,779	924,879	30,500	95,538	1,050,917

ANNEX F: (For NGI only) Termsheet

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

Not applicable.

ANNEX G: (For NGI only) Reflows

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