



Part I: Project Information

Name of Parent Program

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

GEF ID

10898

Project Type

FSP

Type of Trust Fund

GET

CBIT/NGI

CBIT **No**

NGI **No**

Project Title

Accelerating the shift towards electric mobility in South Africa

Countries

South Africa

Agency(ies)

DBSA

Other Executing Partner(s)

SANEDI

Executing Partner Type

Government

GEF Focal Area

Climate Change

Sector

Transport/Urban

Taxonomy

Focal Areas, Climate Change, Climate Change Mitigation, Sustainable Urban Systems and Transport, Influencing models, Convene multi-stakeholder alliances, Strengthen institutional capacity and decision-making, Demonstrate innovative approaches, Stakeholders, Beneficiaries, Local Communities, Civil Society, Private Sector, Partnership, Type of Engagement, Gender Equality, Gender Mainstreaming, Women groups, Gender-sensitive indicators, Sex-disaggregated indicators, Participation and leadership, Gender results areas, Knowledge Generation and Exchange, Awareness Raising, Access to benefits and services, Capacity Development, Knowledge Generation, Capacity, Knowledge and Research, Training, Workshop, Seminar, South-South, Knowledge Exchange, Peer-to-Peer

Rio Markers**Climate Change Mitigation**

Significant Objective 1

Climate Change Adaptation

No Contribution 0

Biodiversity

No Contribution 0

Land Degradation

No Contribution 0

Submission Date

12/2/2021

Expected Implementation Start

3/1/2023

Expected Completion Date

2/29/2028

Duration

60In Months

Agency Fee(\$)

424,190.00

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	4,713,224.00	32,016,943.00
Total Project Cost(\$)			4,713,224.00	32,016,943.00

B. Project description summary

Project Objective

Demonstrating and upscaling electric mobility in the public transport sector in South Africa.

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. Policy development for an integrated and sustainable mass-transit transport solution for South African Cities	Technical Assistance	1. Policies are reviewed for adoption at the national, regional and city level to foster the integration of low carbon electric mobility in public transport.	<p>1.1 National strategic Roadmap developed for Electric Buses growth in public transportation inclusive of targets, demand side and supply side policy measures and gender/EWC D features</p> <p>1.2 National policies for the taxation of the import of e-Buses, batteries, EV powertrain, and EVSE components are revised in cooperation with DTI</p> <p>1.3 Experience with large-scale electric public transport in combination with low carbon recharging is fed into national renewable energy and grid upgradation planning in cooperation with DoE</p>	GET	755,028.00	911,500.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
			1.4 Battery recycling and re-use disposal policy is drafted and operationalized in cooperation with DFFE			
			1.5 Industry planning and partnerships to meet the local content requirements for large scale electric bus procurement and EVSE are established			
			1.6 Technical standards for homologation of electric buses as well as EVSE are set in cooperation with DTI			

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
2. Deployment and demonstration of electric buses	Investment	?Experience with electric buses is gained	<p>2.1 Comprehensive feasibility studies assessing the various options for the combined demonstration of electric buses and low carbon recharging, including battery life cycle management, development of business models and finance schemes and gender/EWC D aspects are carried out for select cities (with specificity of routes and operator selection; renewable offset).</p> <p>2.2 Procurement specifications for electric buses, chargers and other infrastructure and services for fleet transition are revised for select cities</p>	GET	3,169,896.00	28,689,982.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
			<p>2.3 Technical , operational and managerial staff of the select city bus operating companies are trained across e-Bus life cycle stages and change management is prepared</p>			
			<p>2.4 Electric buses and charging infrastructure are procured, tested and commissioned with select city bus operating companies</p>			
			<p>2.5 Electric buses and charging infrastructure are operationalised, performance data collected and monitored, repair and maintenance established, and lessons are synthesized</p>			

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
3. Institutional capacity building to support the implementation of a large-scale public transport sector transformation	Technical Assistance	Capacity among all stakeholder has been built for electric bus demonstration, large-scale procurement and operation	<p>3.1 National e-mobility Knowledge Hub is established in cooperation with DST, SANEDI and uYilo to enhance multi stakeholder capacity building and knowledge share including leverage of GEF's Global Electric Mobility Programme</p> <p>3.2 Guidelines for technical specifications and operational and financial planning for the integration of electric buses and low carbon recharging, including evidence based best practices from the e-Buses demonstrations are developed and disseminated to select and</p>	GET	320,000.00	937,500.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
			<p>additional cities</p> <p>3.3 Best practices from low carbon electric mobility demonstrations and gender inclusivity in public transport are compiled and aligned to various city policies and are disseminated to relevant National and Regional Government departments and institutions, also leveraging the National e-Mobility Knowledge Hub, Best practices and case studies in e-Bus manufacturing and increased localisation is developed and Bus manufacturers are engaged to improve and grow e-Bus and other component</p>			

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
			local supplies.			
4. Scaling up of electric bus fleet	Investment	Procurement is underway to make a significant share of the public transport fleets electric	<p>4.1 e-Bus scale-up strategic roadmap including feasibility of new routes and refinement of procurement and business models based on planned vs. actual results from demonstrations are carried out for select cities</p> <p>4.2 Market driven investment and its structuring is identified, and procurement process is initiated for up to 200 e-Buses, chargers and associated low carbon recharging in select cities</p>	GET	127,430.00	
Monitoring and Evaluation (M&E)	Technical Assistance			GET	116,431.00	

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Sub Total (\$)					4,488,785.00	30,538,982.00

Project Management Cost (PMC)

	GET		224,439.00			1,477,961.00
	Sub Total(\$)		224,439.00			1,477,961.00
	Total Project Cost(\$)		4,713,224.00			32,016,943.00

Please provide justification

PMC is calculated as 5% of total budget.

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

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
GEF Agency	DBSA	Loans	Investment mobilized	9,800,000.00
GEF Agency	DBSA	Loans	Investment mobilized	9,000,000.00
GEF Agency	DBSA	In-kind	Recurrent expenditures	600,000.00
Beneficiaries	SANEDI	In-kind	Recurrent expenditures	311,500.00
Beneficiaries	TIA	In-kind	Recurrent expenditures	937,500.00
Beneficiaries	City of Tshwane	In-kind	Recurrent expenditures	944,737.00
Beneficiaries	City of Tshwane	Public Investment	Investment mobilized	5,104,080.00
Beneficiaries	eThekwini	In-kind	Recurrent expenditures	1,003,750.00
Beneficiaries	eThekwini municipality	Public Investment	Investment mobilized	4,315,376.00
Total Co-Financing(\$)				32,016,943.00

Describe how any "Investment Mobilized" was identified

Through its South African Metros/ Cities and Bankable Cities Unit, DBSA will provide technical skills and know-how to the project. DBSA works with metros in South Africa, including the beneficiaries' cities of this project. The DBSA will also offer loans of up to USD 70 million blended with resources from the Green Climate Fund to the three metros for the up scaling of the technology. Co-financing from the DBSA will also emanate from the portion of energy that the Bank is currently financing in the renewable energy independent power producer programme that will be attributed to the charging of electric buses both at demonstration and upscaling of the project. The financing of the REIPPP programme with the earmarked \$9,000,000 will assist in increasing the supply of clean energy in the country. The renewable energy from the REIPPP will be channeled toward the grid, which will in turn help supply the energy required to charge electric buses. South Africa currently battles limited energy supply, hence increased supply from the

REIPPP programme will improve electricity supply and ensure that electric buses do not cause further electricity demand on an already constrained supply from the grid. The City of Tshwane and eThekweni Municipality have committed to use their own funds, supported by DBSA concessional facility to procure and put into operation twenty (20), nineteen (19) electric buses respectively for the demonstration phase of the project. The National Government (National Treasury) is currently working on a facility that will provide fiscal incentives for e-Bus deployment to cities as part of national e-mobility and policy roadmap development. Basis to DBSA concessional facility and National Government fiscal incentive, the cities investment for deployment of electric buses in demonstration phase has reduced from PIF stage. This has resulted in revision of the investment requirements for 1) City of Tshwane from USD 7,875,000 to USD 5,104,080 and 2) eThekweni Municipality from USD 6,930,000 to USD 4,677,968. The Public Investment amounts reflected in the source of co-financing table above are however lower (from USD 5,104,080 to USD 1,432,016 for City of Tshwane and from USD 4,677,968 to USD 1,331,824 for eThekweni Municipality) because the co-financing from the National Treasury has been stripped out (ie USD 3,672,064 for City of Tshwane and USD 3,346,144 for eThekweni Municipality) since commitment on these funds is yet to be made. The USD 70 million facility mentioned at PFD stage has also been removed from the co-financing table since the nature and structure of the facility will be determined subsequent to the outcome of the feasibility stage. In spite of the reduced amount compared to PFD stage, it is expected that the demonstration component of the project will support the development of a baseline that will support the development of a facility for upscaling of e-buses in coordination with international financial institutions with a view to reach the long term outcome envisaged by the project. As per GEF co-financing guidelines, such additional co-financing would then be captured and reported on at MTR and Terminal evaluation stage. If National Treasury's initiative does not materialise, the cities have committed (see co-financing letters) to providing funds from their budgets. Additional in-kind funding for programs related to introduction of new buses, establishment of new routes, charging stations and management of operations would also come from the cities. The DBSA will also consider extending the concessional funding to cover financial shortfalls at the request of the cities and internal approval processes would be followed by the DBSA before such funds could be committed. A letter of support has been issued by the DBSA to this effect. The DBSA concessional facility of 9.8 MUSD would be composed of a 0% rate amount for phase 1 of e-buses procurement as agreed with participating cities and a concessional amount for phase 2. (Kindly refer to the Co-financing Options spreadsheets for clarification on the breakdown of amounts mentioned in the co-financing letters from the cities)

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(\$)
DBSA	GET	South Africa	Climate Change	CC STAR Allocation	4,713,224	424,190	5,137,414.00
Total Grant Resources(\$)					4,713,224.00	424,190.00	5,137,414.00

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 (\$)

150,000

PPG Agency Fee (\$)

13,500

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
DBSA	GET	South Africa	Climate Change	CC STAR Allocation	150,000	13,500	163,500.00
Total Project Costs(\$)					150,000.00	13,500.00	163,500.00

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	238665	0	0
Expected metric tons of CO ₂ e (indirect)	0	496364	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)		238,665		
Expected metric tons of CO ₂ e (indirect)		496,364		
Anticipated start year of accounting		2024		
Duration of accounting		4		

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)		860,058,989		

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

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
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Indicator 11 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female		11,510		
Male		11,110		
Total	0	22620	0	0

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

Part II. Project Justification

1a. Project Description

A. The global environmental and/or adaptation problems, root causes and barriers that need to be addressed

Climate change is no longer a futuristic phenomenon. Emissions anywhere affect people everywhere. Climate change and rise in

emissions is a global challenge that does not respect national borders. Extreme weather events around the world including flooding,

droughts, wildfires, hurricanes and heatwaves have continuously caught the world's attention.

Bearing witness to the increasingly clear signs of climate change, globally governments have announced new and updated nationally determined contributions (NDCs) to achieve the temperature goal of the Paris Agreement at the 26th United Nations Climate Change Conference of the Parties (COP26). However, as per the recent IPCC report, new and updated NDCs and announced pledges for 2030 have only limited impact on global emissions. There is a fifty-fifty chance that global warming will exceed 1.5°C in the next two decades. Unless there are immediate, rapid and largescale reductions in GHG emissions, limiting warming to 1.5°C or even 2°C by the end of the century will be beyond reach.

To keep global warming below 1.5°C this century, the aspirational goal of the Paris Agreement, the world needs to halve annual greenhouse gas (GHG) emissions in the next eight years. Hence, today it is more than important to work towards measures that will reduce emissions and build climate resilience. One of the most attractive recovery measures for reducing emissions include electrification of public transport. Electrification of public transport provides an opportunity to achieve multiple objectives of low-carbon urban development, reduction of local air pollution, creation of jobs, and higher acceptance of public transport by residents.

The transport sector, which accounts for around 22% (one-fifth) of carbon dioxide (CO₂) emissions, has always been the focus of decarbonization. Despite changes caused by the COVID-19 pandemic, when the world went through the largest-ever decline in global emissions due to economic and social shutdowns, the transport sector remains accountable for nearly 7.2 Gt CO₂ in 2020. The rapid rebound of transport demand in coming decades is expected to steeply rise transport emissions if no interventions are taken.

Key Barriers for e-Bus deployment in South Africa

? Institutional Structure: South Africa has had various ministries that have been driving e-mobility vision in the country for decades. However, when it comes to transport sector, the National Department of Transport takes lead and works to lobby other national departments. As part of country's response to high transport emissions, South Africa developed the Green Transport Strategy in 2018, committing to reduce emissions from the transport sector by 5% by 2050, a target that has been heavily criticized for being too low. South Africa's first submission (2015/2016) to the Paris Agreement on climate change indicated that the country will aim to have more than 2.9 million electric cars on the roads by 2050 ? investing R6.5 trillion into the EV industry over the next four decades. While a number of strategy papers and action plans have been issued by the relevant institutions, limited coordination and integration within and across these parties persist and therefore, there is very slow implementation, hindering the stimulation of the EV in public transportation. Different Ministries including DOT, the DTiC, and DFFE are involved in different policies, standards, and regulations

design to deal with industrial, environmental, social and economic impact of introducing new energy vehicles, but their effective integration and ground execution at national, provincial and municipal level is still lacking. Different government departments are coming up with individual EV policies without any model road map to follow, and hence there are implementation delays and little guidance to support effective implementation at municipal level. The current structure fails to drive coordinated planning and implementation at different levels of governments (national and municipal) to ensure all actors and stakeholders work towards a common goal.

? **Integrated EV policy guidelines for public transport and effective implementation:** South Africa now has a set of EV related policies, but these are fragmented between different national departments and lack ambitious targets, effective integration and implementation. There is lack of comprehensive guideline or a framework that integrate different EV related policies, set aligned goals at national and municipal levels, define clear implementation agency, processes and monitoring framework, and clear governance structure to report issues and drive timely improvements. Cities are taking own initiatives to formulate their own green procurement strategies and structures without clear leadership from national departments. In lack of such comprehensive guidelines and dedicated EV strategy document, the top-to-bottom and bottom-to-top gaps in policies design, their integration and consistency with other policies and effective implementation are not identified and resolved, leading to sub-optimal EV ecosystem.

? **Affordability:** Currently, there are no government incentives to promote the sales of EVs. This leads to difficulties for consumers and public transport operators to buy EVs due to the high price of EVs. South Africa is very protective of its local manufacturing industry and imported goods termed ?luxury items? are heavily taxed. The upfront cost for an EV becomes a significant barrier due to the imposed Ad Valorem tax (up to 25%) that comes in addition to the 20% customs duty, even though the operating cost of an EV is more than 35% or lower compared to ICE. Bringing the prices down rapidly and making it competitive with ICEs would require several measures including developing efficient local supply ecosystem plus rapid scale-up of demand to capture the economy of scales. With competing needs for resources, the government lacks the capacity to provide large scale support for enabling better affordability. Lack of charging infrastructure standardisation is also a key barrier. There is no government support in creating charging infrastructure for EVs.

? **Energy supply and grid stability:** A sizable EV fleet could place a substantial burden on the local electrical network and power generation capacity of South Africa. Electricity network issues have been a long standing crisis in South Africa and therefore poses as significant barriers for EV charging. Black-outs due to regular theft and vandalism of the electrical infrastructure, as well as the load shedding periods have regularly been a challenge in recent years, so there are doubts that the network is reliable enough to support an increasing number of EVs in the vehicle parc. 2019 was the worst year on record for load shedding, with blackouts lasting for a total of 530 hours. The country?s scarcity of electricity represents a major barrier to investment into EV infrastructure, which in turn makes the short to medium-term large-scale adoption of EVs look unlikely.

? **Financing for e-Buses for public transportation:** Capital costs for e-buses is around trice that of conventional internal combustion engine (ICE) buses and batteries may need to be replaced after approximately six years, highlighting the importance of finding sustainable financial plans and business models. Some governments are helping cities to afford both direct and indirect costs of bus electrification. A variety of grants are helping cover direct costs, including for both capital and operational expenditures on buses and research and development. Tax incentives, such as value-added, import, and corporate profit tax breaks, are used to reduce the cost burden on operators and manufacturers.

? **Information on e-Bus deployments:** There is no effective system or portal to monitor, gather, analyse, and disseminate information on e-bus deployment by any agency in South. Currently, there are only 2 e-buses operating in the country since 2021. Therefore, real operational experience is limited. Consequently, lessons are often not well communicated and there is a lack of information on best practices. There is a low level of awareness among planners and decision-makers on the linkages and potential common interventions to address climate change from the transport sector. Lack of information

limits coordination and effective partnering between different sectoral stakeholders for driving improved EV adoption in the public transport sector.

B. The baseline scenario and associated baseline projects

As described above, the project had anticipated three beneficiary cities for the demonstration of e-Buses; however, only two cities, 'City of Tshwane' and 'eThekweni Municipality,' confirmed their participation during the CEO Endorsement development process. On the basis of multiple consultations with cities, it has been determined that Covid-19 has had a significant impact on their overall operations. As a result, the budgets previously approved at the PIF stage has been reallocated to streamline and address other city priorities. In light of this, it was proposed that the e-Bus demonstration be divided into two phases, Phase 1 and Phase 2, over a period of five years. Phase 1 will support 9 e-Buses deployment including GEF-supported five e-Bus grants for the first two years. In Phase 2, cities can deploy the remaining 41 e-Buses in next three years.

It is also expected that by the end of phase 1, project component 1 will help develop enabling policy ecosystem in the country which has high probability of provision of fiscal support to cities for e-Buses deployment. Even in worst condition, if the fiscal incentive support does not come from the National Government then the cities financial condition is expected to be stabilize and they expect to provide funds for e-Buses demonstration under phase 2. Given this scenario and to further retain the impact of this GEF project on the overall e-mobility growth, the third city is anticipated to be shortlisted during phase 2 of the project's implementation. The potential options for the third city are the "City of Ekurhuleni" and the "City of Cape Town," both of which have expressed a strong desire to participate in the project. Consequently, this section provides information at the national level, as well as for the two confirmed and anticipated cities.

Country Overview

South Africa is the southernmost country in Africa. With over 60 million people, it is the world's 23rd most populous nation and covers an area of 1,221,037 sq. km. There are three capital cities, Pretoria, Bloemfontein, and Cape Town. In 2020, over 67.35% of South Africa's total population lived in urban areas and cities and the statistics indicate that the population will rise to 71% by 2030. By 2050, approximately 80% of the country's population will be living in urban areas, increasing demand on basic infrastructure requirements. South Africa is the single largest emitter of CO₂ on the African continent, and the 12th largest emitter in the world.

Public Transport Overview in South Africa

The public transport system in South Africa is the primary mode of transport and plays an essential part in the daily life of the general South African population. Public transport is particularly important for low to middle income households, especially those not able to afford private vehicles, who spend a disproportionate share of their income on mobility. It is critical in providing most of the population access to jobs, education, health, and social activities. Available statistics report that 70% of South Africa's population is dependent on public transport, including buses, minibus taxis (MBTs), the railway network and walking for its mobility needs.

In South Africa, the public transport industry comprises of three main modes of transport: i) the commuter rail system operated by Metrorail, a division of the Passenger Rail Agency of South Africa (PRASA), as state-owned enterprise, and the Gautrain high-speed rail, which operates between Johannesburg, Tshwane, and the Oliver Tambo International Airport, ii) the bus industry (contracted buses, unsubsidised buses, municipal buses), and iii) the minibus-taxi industry.

The Metrorail system consists of 471 stations, 2,228 kilometres (1,384 miles) of track, and carries an average of 1.7 million passengers per weekday. Because Metrorail operates services in several separate cities, for operational purposes, it is subdivided into four regions, namely: Metrorail Gauteng in the

Gauteng region, Metrorail Kwazulu-Natal in the Durban region, Metrorail Eastern Cape in the Eastern Cape region and Metrorail Western Cape in the Western Cape region. The train operators receive 44% of government subsidy. The Gautrain is an 80 kilometre (50 mile) express commuter rail system in Gauteng region. While rail and bus networks serve as a trunk service in parallel with minibus taxis, minibus taxis are a key feeder into these services ? transporting passengers to and from their first and last mile. This first and last mile service provides commuters with greater access and convenience.

The typical minibus taxi is a 16-seater minibus, which operates a point-to-point flexible demand-responsive transport service on routes managed by taxi associations. Passengers hail taxis using hand signals to indicate where they are travelling. Fares for each route are determined by regional taxi councils and are paid in cash. There are 5 distinct role players that make up the taxi transport industry, namely: i) the taxi owners, ii) the drivers, iii) the passengers, iv) the taxi associations, and v) the regulation authorities. Compared to metrobuses, minibus taxis do not run on a fixed schedule. Data published by SA Taxi showed that South Africa has 250,000 minibus taxis operating nationally in 2020. The South African National Taxi Council (SANTACO), sometimes referred to as South Africa National Taxi Association (NTA), is a community of taxi owners and drivers, who come together to make rules that help progress goals for better public transportation. SANTACO operates as an umbrella organization for local taxi associations and campaigns nationally on important issues that affect the taxi industry. These taxi associations self-regulate the servicing of routes to ensure routes are not over supplied and that minibus taxis can operate profitably. They also determine the number of drivers who frequent a particular route to limit conflict.

The taxi industry is commercially self-sustainable and receives a small amount (less than 1%) government subsidy. Taxi operators have only received capital subsidies to repair and replace old vehicles. This is done under the Taxi Recapitalisation Programme (TRP), which is an intervention by government with the main goal of ensuring that vehicles are safe, essentially providing a one-off payment to buy new vehicles. By June 2015, the Department of Transport had scrapped 61,254 old taxis with a total payment of R3.4 billion for scrapping allowances. In 2018, The TRP came to an end and evolved into the Revised Taxi Recapitalisation Programme (RTRP), which was initiated in 2019. The objective of the RTRP is significantly different to the original TRP. The aspect of scrapping the ageing and unroadworthy fleet of minibus taxis and recapitalisation remains. The RTRP has, however, an additional element of introducing commercially viable sustainable solutions to leverage and exploit opportunities available in the taxi industry?s entire value chain.

e-Bus Overview in South Africa

The electrification of public transport in South Africa remains at its infancy. Currently, the National regulations mandate Euro II emission levels for new buses. South African cities are, however, looking to introduce e-Buses as part of their green initiative strategies. The city of Cape Town was the first African city to have procured e-Buses to be added to its BRT fleet. In 2016, the city?s MyCITI BRT service purchased 11 e-Buses that were 12m long with 34 seats and 63-passenger carrying capacity, costing the city administration R128 million (USD ~8 million). Chinese-owned company BYD SA won the public tender to provide the city with the bus fleet that were locally manufactured by Busmark and had a range of 200 km on a single charge. The city administration indicated that the pilot project will aim to evaluate performance, energy consumption, life cycle costs on specific route deployments ? using the data gathered for future decision making regarding future acquisition and deployments. The 11 e-Buses, however, were never operated citing city administration misconduct and irregular procurement processes. The matter remains unresolved, and the pilot programme has been unable to advance.

Golden Arrow Bus Services (GABS), a bus operator launched the very first active e-Bus pilot in Cape Town. It partnered with the Chinese bus manufacturer BYD and uYilo to test two e-Buses for a 12-month period to develop real figures and replace estimated variables and understand the feasibility for introducing e-Buses in South Africa. The objectives of the test are to understand charge times and challenges, to develop maintenance skills and framework for future tests. Two 37-seater e-Buses were tested since April 2021. Non-passenger test was initially done for 7,000 kilometres with one bus using maximum weight simulated with sandbags (equivalent to 44 passengers in weight) for safety and range

testing. Since July 2021, the two e-Buses have been incorporated into the day-to-day bus operations with passengers and have covered more than 50,000 kilometres operational testing.

Golden Arrow Bus Services has indicated their next steps of ordering a 65-seater with Golden Arrow spec, which is estimated to arrive in May 2022. By the end of June, the company should have energy efficiency early results in comparison to the current e-Bus pilot with 37-seater e-Buses. GABS revealed plans to procure a fleet of 60 e-Buses annually and their goal is to have identified potential local bus body builders by the third or fourth quarter of 2022. However, several challenges to introducing e-Buses exist, such as i) High taxes on EVs vs. ICE vehicles, ii) Limited support for expensive 'Start-up Phase?', iii) No operational e-Buses in South Africa, therefore no local data, iv) No active OEM and v) No or limited local support, vi) Cost and availability of electricity, vii) Coal generated electricity supply.

According to GABS, the introduction of e-Buses would only be viable with private sector leading with local manufacturing to eliminate or reduce import taxes, as well as private electricity generation and distribution for reliability and cost control. In addition, the government should play a pivotal role to address tax discrepancies with ICE vehicles. In the short-term, incentives for EV purchases should be introduced and long-term goals of national government should be to introduce EV manufacturing incentives. On the local government, off-peak electricity tariffs should be incentivised. Alternative electricity generation (such as solar and wind) should be supported on a greater scale with both national and local governments playing their parts.

There is no one singular entity providing bus service across South African cities. Generally, each municipality has its own bus company or companies, depending on the size of the city. Many of South Africa's bus companies are municipality-run, while others are private. The City of Tshwane (Tshwane Bus Service) and eThekweni Municipality (People Mover) own and operate commuter bus services. In Gauteng, the Gautrain's bus services cater mainly to the commuters who use their train services, as a feeder system.

In 2013/14, the government spent over R5.5 billion (USD ~3.4 million) in up to 13 cities on planning, building, and operating integrated public transport networks. The introduction of BRT through the adoption of the Public Transport Strategy was influenced by the availability of capital grants by national government to municipalities for infrastructure spending for Integrated Rapid Transport Networks (IRPTNs) of which BRTs were a significant component and the need to reduce travelling costs and time for commuters to offset inefficient apartheid spatial planning.

Green procurement is not yet well-established across government departments. The exception is a few metro municipalities such as the City of Cape Town, eThekweni Municipality, Ekurhuleni Municipality, Nelson Mandela Bay Municipality, and the City of Tshwane that have piloted a fleet of cleaner fuel vehicles, and to a certain extent, already developed green procurement policies. At national level, and within the context of transport sector, this could change given that the Green Transport Strategy (2018-2050) makes provisions for Government to develop policy guidelines for green procurement of transport goods and services.

Emissions contribution from Transport sector at National level

The transport sector is the largest user of liquid fuels. Out of the 98% of liquid fuels used for transportation in South Africa, the majority is used on the road at 79% followed by civil aviation at 13%. Incentivising the switch to electric mobility for relevant portions of the transportation sector in urban environments would create a considerable reduction in the requirement for imported liquid fuels and positively impact energy security. Efforts have been done to introduce cleaner fuels for public transport in South Africa.

South Africa's CO₂ emissions per capita are amongst the highest per capita emissions in the developing world. This is due to South Africa's strong reliance on a coal-based energy production system, and heavy emissions from the transport sector. The use of coal-to-liquids (CTL) technology for liquid fuel production in the transportation sector is the second major contributor to energy related GHG emissions

in South Africa. In 2017, transport contributed 78 million tCO₂eq (17.0%) of the energy sector emissions, a 50% increase from the year 2000. From this 17%, road transport accounts for over 90% of the national transport emissions in 2017. Overall, emissions from the transport sector in South Africa have been rising since 2000. According to the DFFE, by 2025, emissions are forecast to be 100% higher than in 2000 under the 'without measures' reference scenario. By 2050, the increase in emissions is projected to be almost 300%.

Metro/City level Business-As-Usual (BAU) Public Transport and e-mobility landscape

Confirmed City: City of Tshwane (Transport)

City of Tshwane is the largest city in South Africa and geographically it is situated in the northern Gauteng Province. The Metropolitan area is centered on the city of Pretoria, with surrounding towns and localities included in the local government. Tshwane is the executive capital of South Africa. The city is spread over area of 6368 km² and houses approximately 2.9 million people. The city is served by the following bus services: i) Subsidised bus services managed by the Department of Roads and Transport on the provincial level, and ii) Tshwane Bus Services managed by the City of Tshwane and A Re Yeng a BRT system, which is also managed by the Roads and Transport of the Gauteng Province, and iii) the Gautrain buses which serve as last mile bus service for the Gautrain rapid rail, a privately operated service by Bombela Concession Company.

Confirmed City: eThekweni Municipality (Transport)

eThekweni is one of the 11 districts of the KwaZulu-Natal Province of South Africa. It includes City of Durban and its surrounding towns. The city is spread over area of 2,291 sq. km and home of approximately 3.4 million people. ¹The most reliable intercity buses are Durban People Mover, MYNAH bus service, and Aqualine buses. These bus services are managed by the eThekweni municipality (eThekweni Transport Authority) with City Fleet Department being responsible of operations and maintenance. Durban People Mover is a tourist-oriented bus service which operates a city loop consisting of three routes within the CBD and along the beachfront, connecting various attractions. It links the city center to the beachfront. Their beach line runs from Ushaka marine world to Suncoast casino. The interchange between the city loop and beach route is at Dr. Pixley Ka Seme Street near city hall. This bus system forms part of a transport redesign process that the city implemented in preparation for the 2010 FIFA World Cup. The MYNAH bus is a frequent and reliable service. Mynah buses run mostly from Berea suburbs to the CBD. MYNAH's buses operate to and from South Beach, North Beach, Albert Park, Market, Morningside, Berea, Tollgate, Musgrave, Mitchell Park, Botanic Gardens, Ridge and Vause Road. Buses don't have route numbers, but their destinations are always indicated on the bus. Aqualine is the oldest bus service in Durban and serves the central, southern, and northern Durban regions.]

Private sector overview and support in EV development

In South Africa, the electrification of public transport remains in its infancy. Apart from a few e-Bus pilot projects that are on-going in the country, there has never been a viable case to commercialise the e-bus technology. Apart from the Joule, a local, all-electric family car that was funded from the national DSI's Innovation Fund (now the TIA) and the Industrial Development Corporation (IDC) with a combined investment of approximately R300 million (USD18 million) in the early 2010's, South Africa almost considered an operation to run and manufacture e-buses through the BYD manufactured 11 e-buses for the City of Cape Town public transport service. The company delivered the buses at a cost of R128 million (USD 8 million); however, these were never put on the road to operate.

There are 8 bus companies that supply the local market, namely Isuzu Motors SA, MarcoPolo, Tata, Iveco, Mercedes-Benz, Volvo Group Southern Africa, MAN and Scania. They rely on a few local body

manufacturers, such as Busmark, MCV-SA, Irizar, CNH Industrial SA, Busco and Real African Works (RAW) and other imported parts. Most assembly is on a SKD basis with minimal local parts. Production is exclusively focused on diesel drivetrains. The vast majority (more than 90%) of locally manufactured buses are sold locally while the remainder are exported to neighbouring countries.

C. The proposed alternative scenario with a brief description of expected outcomes and components of the project

The overall objective of the project is to accelerate the shift towards electric mobility by demonstrating the technical, operational, and economic viability of e-Buses. It aims to provide technical assistance across a range of activities; an investment component to design, demonstrate and test financing and business models for the demonstration of e-Buses and charging infrastructure deployment. The successful demonstration of e-Buses is expected to catalyse and complement additional investment resources from funding agencies/partners and active participation from the private sector. This project also focuses on development of national strategic e-Bus Roadmap development with targets, demand and supply side measures, and gender/EWCD features which is expected to foster the integration of low carbon electric mobility in public transport. This project also focuses on low carbon charging infrastructure options and battery recycling, reuse and effective disposal management system.

The project also encompasses establishment of National e-Mobility Knowledge Hub to enhance multi-stakeholder capacity building. This Knowledge Hub will disseminate capacity building programs for public transport stakeholders with focus on technical specifications, operational and financial planning for low carbon recharging of e-Buses. The experience and best practices from demonstration projects will also be shared with stakeholders for large-scale procurement and operation of e-Buses in South Africa.

The project interventions are designed to create the right enabling eco-system across stakeholders on scaling up the adoption and deployment of e-Buses in the cities. This project also addresses the challenge of GHG emissions in South Africa, where the transport sector is one of the biggest contributors and was responsible for 55.4-million-ton CO₂ equivalent in 2016, which is 10.8% of overall emissions, with road transport being responsible for 91.2% of these GHG emissions. The project is well aligned with the Green Transport Strategy (GTS) of South Africa which incorporates GHG reduction targets, promoting energy efficient transport system, incentives for EV manufacturers, research on EV batteries and regulatory support for transition of municipal transport fleet to cleaner technology/ fuel and the city level interventions under the GEF project will support strategies formulated for GTS.

The proposed project activities are structured across four components listed below, which are necessary to address the barriers and facilitate the on-going country efforts in adopting e-mobility in public transport sector.

Component 1: Policy development for an integrated and sustainable mass-transit transport solution for South African Cities

In South Africa, noticeable work has been undertaken (and on-going) for development of Low Carbon Transport (LCT). One of such initiatives is the Low Carbon Transport (LCT) established in 2014-15. Funded by the Global Environment Facility (GEF), the project was established to promote widespread use of EVs and Non-motorised Transport (NMT). The country has also developed multiple policies and programmes like National Determined Contributions (NDC), Green Transport Strategy (GTS), South Africa Automotive Masterplan (SAAM), Automotive Production and Development Programme (APDP), etc. to promote use of cleaner or low carbon electric mobility technologies in transport sector.

Though these policies have highlighted the need and benefits of transition to e-mobility, however, lack of an integrated policy has delayed the growth of electric vehicles (EVs). One of the key challenges identified by the stakeholders for uptake of low carbon electric mobility in public transport in South

Africa is the lack of an integrated national policy laying a comprehensive implementation plan/targets for e-Bus and associated charging infrastructure growth in the country.

e-Bus is an evolving technology with several challenges like i) high upfront cost ii) lack of clear policies supporting transition towards e-Buses iii) limited technical know-how iv) lack of financing options availability, etc. Government intervention in the form of developing a comprehensive roadmap detailing vision and strategy for growth of e-Bus market in the country will form the crucial step to deal with the challenges associated with the technology. In this outcome, GEF funds will be utilised for the development of a National Strategic e-Bus Roadmap including targets, demand and supply-side measures for e-Bus adoption in the country. The outcome will also focus on developing/revising the national policies on taxation structure for e-Buses and its subsystems and technical standards for homologation. It will also benchmark global best practices and develop policies/plan on scaleup renewable energy integration with e-Buses charging and battery recycling and re-use disposal. The global benchmarking will actively leverage learnings/materials from GEF-7 e-mobility global project working groups - specific policies, regulations, standards, and other local initiatives.

This project will provide required synergies of RE and EV integration and support in its coordinated growth as they both are complementary. This increased capacity of RE and EV will aid in reducing GHG emissions and air pollution from road transportation. Likewise, this project will focus and facilitate Government in developing appropriate regulation and standards for effective operationalization of LIB reuse and recycling policy. The policy will support in development of domestic supply chain for batteries (including second-life) and create an enabling conditions for manufacturing of batteries.

The development of supportive policies of RE and EV integration and battery re-use for e-Buses deployment would help scale-up its adoption and gradually bring interests in national demand and supply side stakeholders. This project will also help in sharing knowledge for development of policies supporting electrification of public transport in other African regions and developing countries. The outcomes for this Component will be achieved through the following Outputs.

Component 2: Deployment and demonstration of electric buses

In this outcome, GEF funds will be utilised for the demonstration of total 50 e-Buses in two phases (Phase 1 and Phase 2) across three cities of South Africa. As outlined in the baseline scenario introduction, out of three cities, the two confirmed cities for demonstrations are City of Tshwane and City of eThekweni with 20 and 19 e-Buses respectively. The third city will be shortlisted either from ?City of Ekurhuleni? and ?City of Cape Town? in phase 2 of the project duration and will be deploying 11 e-Buses.

Currently there are no deployments of e-Buses in any of the select cities. The outputs of the component, by virtue of on-ground implementation, will address the primary barriers for uptake of e-Buses in public transport like i) high upfront cost of EVs over the ICEV counterparts, ii) easy access to finance iii) technical know-how, performance (range anxiety, charging time, etc.) and quality concerns, iv) lack of charging infrastructure, v) operational barriers associated with vehicle plying, vi) lack of plans/policies and regulations for e-mobility vii) others. It will enable city authorities, urban and transport planners, as well as private players, to gain first-hand experience of e-Bus integration and will thus help them to design city-specific EV interventions leading to the effective integration and implementation of e-Bus in public transport. These demonstrations will also lead the initiative of further scale-up of the vehicles in select cities and is expected to contribute to transformative uptake of e-Bus in public transport in South Africa.

In this component, utilizing GEF funds, comprehensive techno-commercial feasibility study for public transport e-Bus deployment will be conducted for the select cities covering following: i) identify routes and operators for e-Bus demonstrations, ii) identify potential depot(s)/terminals, iii) evaluate energy requirement, battery pack specifications and charging strategy under different operational scenarios, iv) assess potential and pathways for renewable energy integration with e-Buses charging, v) estimate total cost of ownership (TCO) vi) develop viable and effective business model with potential financing sources

(e.g. expected from co-finance) vii) assess various financial models for the demonstrations, viii) identify avenues for increased inclusivity in public transport by evaluating and suggesting revisions in existing gender/EWCD features, etc.

A study has identified procurement business model as the most critical factor in successful transition to cleaner transport. This component will involve working with the central and city authorities to review existing procurement model for e-Buses, associated charging infrastructure, and services and recommend required changes by developing revised detailed specifications and mechanisms to help implementing authorities build capacity regarding technical requirements and other technical know-how in tender document.

This GEF project will also support in capacity building programmes and training needs assessment (TNA) in line with national roadmap, which will be undertaken for the select bus operating companies in select cities to ensure the authorities are well trained and aided with the technical know-how of e-bus deployment stages. This will contribute to a greater performance of e-Buses throughout the vehicle's life cycle. The component will also complement and supplement the on-going work of organisations like uYilo in capacity building for e-Bus in South Africa. With the detailed techno-commercial feasibility study, procurement specifications revisions and capacity building in place, pre-dispatch inspection, trials and testing and commissioning with select city bus companies will be done for the final e-Buses and charging infrastructure procurement.

After deployment, the performance data will be continuously monitored and analysed, and, via a change management system, revisions will be implemented. One of the key challenges for growth of e-Buses, as identified by stakeholders globally, is the lack of clear division of roles and responsibilities among multiple authorities at both national and regional/city level. This outcome will establish a clear organogram mapping key roles and responsibilities. The lessons from pilot deployment will be synthesized to ensure skills training and knowledge transfer for e-Buses operations from OEM and establishment of appropriate co-working for (i) e-Bus operations, (ii) charging, (iii) depot workshop for repair and maintenance, and others. The output will also develop operations, monitoring and reporting process, leveraging evidence-based learning so that whenever required, concerned department or authority can act in an effective manner. This component will leverage learnings from the GEF Global Programme (Component 2: Support and Investment Platforms) as it will create an opportunity for investors/ funding agencies that have been supporting e-mobility projects globally. It will also create an enabling market condition for national and regional (within Africa) investors to explore low-carbon e-mobility projects and support its scale-up and adoption. This output will include assessment of RE as an energy source (or low carbon) for charging infrastructure. EVs are as clean as their source of charging. Integrating a greater proportion of Renewable Energy (RE) sources to the grid for EV charging results in benefits like higher contribution to CO₂ emission reductions; it can also help minimize grid impact challenges. RE with battery storage can act as an ancillary support to the grid by storing energy during high RE output hours and supplying power during off-peak hours, thereby enhancing system reliability and resiliency. It also improves grid stability and minimize AT&C (aggregate technical and commercial) losses of the grid network. e-Buses provide higher GHG abatement per passenger-km compared to other vehicle segments. Hence, an e-Bus charging with renewables will result in high GHG savings compared to when charging with carbon-intensive grid. The project will identify low carbon (i.e. renewable) based recharging for the proposed e-Bus demonstrations such as deploying Solar Rooftops (SRTs) at e-Bus depots having big rooftops as well as ground space. The financing for low carbon recharging in this GEF project will be supported by DBSA, which is already financing the Renewable Energy Independent Power Producer Programme (REIPPP). the programme will earmark a portion of funds for low carbon recharging for e-Bus deployment in the demonstration and scaleup phases.

Component 3: Institutional capacity building to support the implementation of a large-scale public transport sector transformation

As a result of increased efforts and resources in research and development, e-mobility technology experiences frequent upgradation coupled with price optimization. Thus, to secure the interests of all stakeholders (Government authorities, OEMs, suppliers/ dealers, repair and maintenance setups) and to enable efficient implementation of demonstration, operations, and scale-up of e-Buses in public transport, capacity building among all stakeholders and inter-departmental knowledge share is imperative. Training Needs Assessment (TNA) is important to organise e-bus training and capacity building programme to overcome the identified skills gap and build required capacity across stakeholders.

Under this component, GEF funds will be utilised in the development of a National e-mobility Knowledge Hub for South Africa. This Knowledge Hub, established in cooperation with DSI, SANEDI, will be led by uYilo, and will track, monitor, and evaluate efforts and results of the demonstration project. The web based platform will store and disseminate e-mobility related policy guidelines and the learning and experience from the demonstration of e-Buses. These guidelines will be with regard to technical specifications, operational and financial planning for the integration of electric buses and low carbon recharging, best practices from low carbon electric mobility demonstrations and gender inclusivity in public transport, and best practices and case studies in e-Bus manufacturing and increased localisation. It will help in institutional capacity development at all levels (National, Regional and Local) and improve alignment and coordination across stakeholders. The Knowledge hub will also incorporate global best practices from programmes like GEF's Global Electric Mobility Programme. Such a platform will empower stakeholders to understand the progress made globally in e-Bus industry, analyse expected vs actual results from e-Bus demonstrations, and thus implement any corrective measures, if required. This project will also help in creating and sharing knowledge of the electric bus planning and implementation in other cities of South Africa and other developing countries/ cities for uptake of low-carbon e-mobility.

Component 4: Scaling-up of electric bus fleet

Stakeholders from the select cities highlighted their vision to expand the growth of e-Buses in public transport beyond the first demonstrations. Synergies between growth of EVs in South Africa and efforts to decarbonise the country's electricity grid will help the nation in its bid to limit the GHG emissions to 3,98,510 MtCO₂e by 2025, and to 3,50,420 MtCO₂e by 2030, as updated under the Paris Agreement. In the updated Integrated Resource Plan (2010-2030), the country targets to significantly lower its coal dependency and increase the % of renewable energy from ~11% in 2018 to 40% in 2030. This component will involve initiation of procurement of additional 200 e-Buses and associated charging infrastructure for deployments in the select cities.

Evidence based learnings will be acquired from the demonstrations of e-Buses in select cities, analysing planned versus actual efforts and results. Based on the experience and the knowledge gained and in alignment with earlier developed National strategic e-Bus Roadmap, an e-Bus scale-up strategic roadmap will be developed for the select cities, defining a clear path for e-Bus scaleup in public transport. This component will also identify and establish a structure for market-driven investment for the procurement of the additional e-Buses and charging infrastructure. This output will leverage learnings from GEF Global Programme (Component 2: Support and Investment Platforms) on investments potential and also support for future e-mobility projects in the country and the African region.

D. 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. The project will create an enabling environment to demonstrate and roll-out electric buses in selected metros in South Africa. Opportunities for integrating renewable energy as a charging source will be explored.

E. Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing.

Baseline scenario

South Africa is witnessing rapid urbanization, and this has resulted in increasing demand for urban transportation. The increasing vehicles are largely Internal Combustion Engine (ICE) vehicles, with a very minuscule portion of electric vehicles. In public transport, only 2 e-Buses are running in the country. Economic growth, urbanization along with rising incomes and aspirations of the population are expected to further fuel the ownership and usage of automobiles (especially ICE vehicles) in South African cities, thereby giving a steep increase in GHG emissions and air pollution.

Promotion of e-mobility is a possible solution to the issues as outlined above and numerous policies/standards are being made by Central and State Governments (detailed in policy sections) for promoting the adoption of EVs. Efforts are being made by Government to make a shift to renewable energy and adoption of electric vehicles (detailed in baseline section through various projects/ regulations/ policies).

In various national policies, the Central Government has indicated the importance and priority of adoption of EVs in South Africa, however, there is no clear roadmap to its implementation. There is no clear target for production, sales of EVs leading to lack of volume and visibility for OEMs. Lack of an institutional structure for driving deployment and growth of e-mobility in the country has resulted in non-complimentary efforts for uptake of EVs. This GEF funded project will enable the country to couple the review of policies and introduction of new ones creating an enabling environment with the actual demonstration of the commercial viability of the technology in the country, an initiative that would have been difficult to implement without the GEF funds.

? Alternative Scenario

The project builds on the various policy measures developed to promote electrification in public transport by demonstration of e-Buses in 3 select cities in South Africa. This will address the barriers/ existing issues (detailed in baseline section) and will result in scaling up of the use of e-Buses in the select cities making them the driver for creating momentum in the growth of e-Buses in additional cities in the country.

GEF funds will be utilized to develop a e-Mobility National Roadmap including targets, demand and supply-side measures for e-Bus adoption in the country. The outcome will also focus on developing/revising the national policies on taxation structure for e-Buses and its subsystems and technical standards for homologation. It will also benchmark global best practices and develop policies/plan on scaleup renewable energy integration with e-Buses charging and battery recycling and re-use disposal. The project will develop policy guidelines, regulations and standards for reuse and recycling of Lithium-Ion battery (LiB) and that will lead to creation of a secondary market for batteries as well as investments in the recycling of batteries.

The project resources will be utilized to develop a comprehensive institutional structure by forming a coordination mechanism where key stakeholders will work together for the execution of this project. This will help remove the barrier around the lack of coordination mechanism to implement e-mobility programs.

Moreover, development of innovative procurement and business models, in conjunction with integration with low carbon recharging, will facilitate market transformation from using conventional internal combustion engine to low carbon vehicles, thus possibly resulting in significant energy savings and

energy cost savings from the transport sector will be realized, as will be the co-benefit of reduced negative environmental and health impacts.

The project will also include monitoring and documenting demonstration efforts and impact, utilising the Knowledge Hub. This increased information and its tracking on use of sustainable low-emission transport modes will support later scale-up of e-Buses and will also create greater awareness of benefits in policymakers and users to continuously integrate new and emerging sustainable and low-emission transport options.

Besides, the project is supported by the global project. The global knowledge management component and the regional platform approach seek to bundle demand in the region and thus reduce the incremental costs:

? Generic tools are produced at global level, disseminated through regional support and investment platforms, and adapted to the needs in the country at the country level ? thus return on investment for the development of tools and methodologies is maximized.

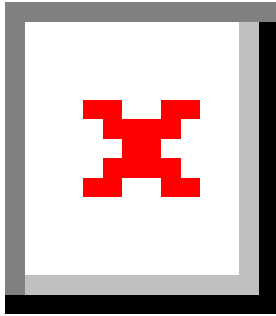
? Investment risk for demand-side ? bundling for e-Buses for demonstration in a certain region can lead to lower vehicle prices.

? Technology risk for supply-side ? through adequate training of e-Buses operators and exchange between numerous projects, the industry is less likely to face misuse of technology.

F. Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF);

South Africa is estimated to have a total of ~475 million tCO₂ (1.3% of global) emissions as of 2019. In South Africa, energy contributes to 80.8% of the emissions, the industrial processes and product use (IPPU) contributes to 6.3%, the agriculture, forestry and other land use (AFOLU) contributes 9.5% and waste 4.1%^[3]. Energy industries were the main contributor, accounting for 60.7% of emissions from the energy sector. This is followed by transport (13.3%) and other sectors (9.3%) and manufacturing industries and construction (7.0%). The fugitive emissions and none specified sectors accounts for 7.3% and 2.4% respectively. The emissions from the transport sector account for 13.3% of the country's total GHG emissions, with road transport being responsible for 91.2% of these GHG emissions.

In BAU scenario, it is estimated that GHG emission will rise to 736 to 1,236 MtCO₂e by the year 2030. The result of the 50 e-Buses pilot demonstration is expected to mitigate 29,284 tCO₂e of Direct GHG emission combining both phases (P1 and P2). Furthermore, the project is expected to generate Indirect GHG emission reductions through the country's market shift to electric mobility. The indirect emission reduction assumes the annual sales share of e-Bus in the country will reach 40% by 2040 from the 3% sales share in 2021. This scenario would lead to a cumulative total of 496,364 tCO₂e Indirect GHG emission reductions and 209,381 tCO₂e secondary direct GHG emission reductions (considering a 20% causality factor).



G. Innovativeness, sustainability and potential for scaling up

The project takes cities as the driver for transformation to e-mobility in public transport. The project will develop a **National strategic Roadmap for e-Buses growth in public transportation** which will bring synergies and consistencies across the different tiers of government ? national, regions, and cities - for taking effective interventions in public transport. The project will include development of policies including i) taxation on the import of batteries and charging infrastructure, bus body manufacturing localization regulations, and homologation of e-Buses, in consultation with the DTiC, ii) battery recycling and disposal norms, in consultation with DFFE, and iii) integration of e-Buses with low carbon recharging, in consultation with DMRE.

The project will also develop the **e-Bus scale-up strategic roadmap** to plan for procurement and deployment of additional buses in the select cities. These policy documents will identify, elaborate, and recommend new emerging procurement mechanism, business models, low carbon charging techniques, etc. to optimize the deployment of e-Buses in the country.

A key innovation is development of of a **National e-Mobility Knowledge Hub** which will help institutionalize knowledge around EVs and will have an impact beyond the demonstration cities. The platform will have interactive content to also collect end user?s survey response and feedback around EVs experience and deployment and this can be used for attracting more users on the platform. Dissemination of the demonstration information with respect to efforts and impact will made to the City, Regional, and National Government Departments which will empower the authorities to adopt best practices for growth of e-Buses in the country.

The key to the sustainability of efforts beyond the project is that it addresses some of the key barriers that impede accelerating the adoption of e-mobility in public transport in South Africa. The project by addressing the three main barriers that affect transformation to sustainable low-emission public transport system ? lack of institutional capacity and coordination to plan and develop such a system; lack of comprehensive integrated policy framework; and proven procurement and business models ? enables a sustained transformation. One of the key elements of the project is the development of policy guidelines and standards to enable sustainable market development and uptake of e-Buses in public transportation.

The policies will cover the purview of taxation on vehicles and batteries, localization regulations, battery recycling, low carbon recharging, among others.

A significant part of the project resource is directed towards demonstrating the sustainable low-emission transport options in terms of e-Buses. This will be important interventions for long term sustainability of low emission transportation. The demonstration projects would provide the necessary visibility to these options to cities. The demonstration project is aimed at creating higher buy-in and behavior change. This is building of public support will create the demand for sustaining and scaling up these actions post project. Another important element supporting sustainability is documenting the actual efforts and results of the demonstration. This will provide the necessary data to track the progress in the transformation which will help evidence-based planning as well as for using the impacts achieved in public awareness activities. These will be integrated with the Knowledge Management Hub to support wider access to information.

Finally, as explained in the private sector engagement the project will engage the private sector to create private sector interest in the transformation which will help sustain the activities post project. Mechanisms to leverage private sector expertise are very important to improve the penetration of EVs. The involvement of the private sector allows minimizing bottlenecks by pioneering in advanced technology and efficient operations. Since electric mobility is still evolving, the sector requires collaborative industry action between all stakeholders.

The focus of the project is intervention at city level is through demonstration of e-Bus and development of associated charging infrastructure plan. Through innovative low carbon recharging, business models, and procurement models the project will involve demonstration of 50 e-Buses in cities in South Africa. These experiences will be leveraged to later scale-up the demonstrations in the same select cities by 200 e-Buses. By the means of demonstrations and scale-up in 3 select cities in South Africa, the right policy, procurement models, financing mechanisms, localization regulations, etc. will be established and the same can be then replicated in additional cities in South Africa. Given the complexity and size of South African market, demonstration impact through this project in select cities will help establish modal validation. Involvement of financial institution in lending for e mobility will remove the key barrier for large scale scale-up of e mobility in South Africa as well act as a hub for regional markets.

The project endeavours to establish connection with Government and Industry stakeholders, to facilitate exchange of best practices and continuing innovations and improvements for higher EV deployments. National e-mobility Knowledge Hub will help institutionalize knowledge around EVs and will have an impact beyond the pilot cities. The platform will also have interactive content to collect end user's survey response and feedback around EV experience and deployment, which could be leveraged for attracting more users on the platform.

1b. Project Map and Coordinates

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





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

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 SANEDI 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.

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.

2. Stakeholders

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

Civil Society Organizations

Indigenous Peoples and Local Communities

Private Sector Entities Yes

If none of the above, please explain why:

Please provide the Stakeholder Engagement Plan or equivalent assessment.

Stakeholder Engagement Plan

Stakeholder main group	Stakeholder name	Existing activities with potential to be leveraged	Content engagement, contributions to the project (identified by Component)
Government	Department of Trade, Industry and Competition (the DTiC)	<p>the DTiC is responsible for developing and establishing national policies manufacturing and for the taxation of the import of batteries, EV powertrain and EVSE components through ITAC, as well as technical standards for homologation of electric buses as well as EVSE through its agency the NRCS.</p> <p>NRCS under the DTiC is the Central nodal agency to act as the key facilitator in setting national standards for EV charging and vehicle homologation.</p> <p>ITAC under the DTiC is the Central nodal agency to act as the key facilitator in setting national EV tariff structure.</p>	<ul style="list-style-type: none">o the DTiC, together with DoT, will be responsible for the effective execution of Component 1 of the project, with the DTiC focusing specifically on policy related to EV tariffs, standards and manufacturing.o NRCS will provide support on Component 1 activities related to standards.o ITAC will provide support on Component 1 activities related to tariffs.o the DTiC will be part of the Project Steering Committee.

<p>Government</p>	<p>Department of Transport (DOT)</p>	<p>The DOT released their Green Transport Strategy, which promises to develop National Green Procurement guidelines, deployment of charging infrastructure on an annual basis, introduction of cleaner fuel municipal vehicles and support municipalities draft regulation, requiring 10% of municipal bus fleets converted to cleaner technologies or cleaner fuel within 11-20 years (2028-2038).</p>	<ul style="list-style-type: none"> o DOT, together with the dti, will be responsible for the effective execution of Component 1 of the project, with DOT focusing specifically on procurement guidelines. o DOT will provide support to the municipalities for execution of Component2 and Component 4. o The DOT will act as the Chair of the PSC.
<p>Government</p>	<p>The Department of Environment, Forestry and Fisheries (DFFE)</p>	<p>DFFE through a notification in the official gazette dated 20th February, 2020, has issued the Draft Battery Waste Management Rules, 2020 (?Draft Rules?), which is proposing to supersede the Batteries (Management and Handling) Rules, 2001.</p>	<p>The DFFE will be engaged throughout project execution to oversee project progress and strategically maintain the direction of the project in line with environmental priorities.</p> <p>In particular, the DFFE will support project?s activities relating to Component 1 with the development of national-level policies relating to recycling, re-use and sound disposal.</p> <p>DFFE will be part of the Project Steering Committee.</p>

Government	City of Tshwane, eThekweni Municipality	The cities are part of the C40 clean bus declaration.	City of Tshwane and the eThekweni Municipality, will be responsible for the effective execution of Component 2 and component 4 of the project and policies for the deployment of e-Buses in their city. All municipalities will be part of the Project Steering Committee.
Private sector	uYilo	TIA established the uYilo is the first EV living lab, to enable, facilitate and mobilise EV mobility in South Africa.	uYilo will lead the execution of Component 3 focusing on the establishment of the National e-mobility Knowledge Hub. uYilo will be part of the Project Steering Committee
Private sector, OEMs	BYD, Scania, Mercedes, Busmark, NAAMSA, to name a few.	Potential e-Bus Original Equipment Manufacturer (OEM)	Private sector OEMs will support this project for execution of Component 2 and Component 4
Fleet operators	Golden Arrows Bus Services, Tshwane Bus Service, Gautrain, to name a few	Potential e-Bus Fleet operators	Private sector Fleet operators will support this project for execution of component 2.

Civil Society Organizations	The South African Local Government Association (SALGA), the South Africa Cities Network, TIPS, SAIIA to name a few.	Research, policy advocacy, awareness, and capacity building around Electric Vehicles.	Civil society organizations[1] will play a role in awareness raising and policy inputs throughout the project. They will also be engaged in the consultations on outputs developed under all components. CSOs working on gender and development will be engaged in development of gender related outputs as well as in the training component.
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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 Identification and Engagement for the proposal development went through a series of meetings and workshops jointly led by DBSA and various local and international partners, which are as follows:

- ? June and July
- a. Meeting with cities to clarify their doubts and seek co-financing letter
- ? 26 May 2022
- a. Meeting SANEDI to discuss the agency's role in the project, as well as sourcing of co-financing support.
- ? 24 May 2022
- a. Meeting with DSI to discuss the proposal for uYilo to take the role of knowledge hub within the project.
- ? 19 April 2022
- a. Meeting with Eskom to discuss involvement of the utility and possible co-financing.
- ? 11 March 2022
- a. Meeting with TIPS to round-up baseline data collection pertaining to the DTiC and industry developments.
- ? 22 February and 23 March 2022
- a. Workshops organised by DOT and GIZ to discuss the Electrical Vehicle Regulatory Framework for South Africa attended by representatives from government (DoT and the DTiC) and private sector (NAAMSA, Volvo, Scania, Daimler, Toyota, Mahindra, Gridcars, etc.)
- ? 1-2 March 2022
- a. EMCSA Conference where Golden Arrows Bus Service presented their e-bus pilot project.
- ? 14-18 February 2022
- a. Meetings conducted with DOT and the DTiC to ensure elimination of project duplication regarding other project concepts initiated by UNIDO and GIZ that focus on e-mobility in South Africa.

The GIZ and UNIDO are simultaneously at conceptual level of initiating projects that include e-mobility policy development e-bus piloting and scaling-up.

b. Meetings conducted with local and international bus manufacturers (EV Dynamics, BYD and Busmark).

? 7-9 February 2022

a. Meeting conducted with DOT to introduce the DBSA e-mobility project and discuss co-financing.

b. Follow-up meeting with City of Tshwane for additional baseline data collection.

? 1-4 February 2022

a. Meeting with UNEP to discuss comments from GEF/STAP/Council and other technical issues to ensure correct integration into the CEO Endorsement document before submission.

b. Meeting conducted with City Power, Fleet Department and Energy Department Of the eThekweni Municipality, the DTiC for baseline data collection.

? 24-28 January 2022

a. Meetings conducted with the Fleet Department of the eThekweni Municipality, the Transport Division and the Energy and Electricity Division of the City of Tshwane, uYilo, amongst others, to formally introduce the DBSA e-mobility project and to The above-mentioned stakeholders will be consulted on a frequent basis, through project steering committee meetings, technical working group meetings and stakeholder consultation workshops and meetings.

Additionally, as part of the proposed work plan and the activities/deliverables, various key stakeholders (including Private Sector and Civil Society) will be consulted and engaged through stakeholder consultation workshops and meetings.

Select what role civil society will play in the project:

Consulted only; Yes

Member of Advisory Body; Contractor;

Co-financier;

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

Executor or co-executor;

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

Women in South Africa

South Africa developed one of the most inclusive constitutions in the world, with a Bill of Rights that specifically refers to equal treatment for all regardless of race, age, disability status, socio-economic

status and gender (Section 9). Legislation such as the Employment Equity Act of 1998 has facilitated access to formal employment for women, where employers are legally required to work towards more equitable representation based on gender, race and disability. The National Development Plan 2030 envisions an inclusive society and economy, free from unequal opportunities through capacity building, redress and increased interaction.

Through a combination of legislation, monitoring and accountability, significant progress has been made in this regard, especially in the public sector. For example, the percentage of women in senior management positions in the public service increased from 13% in 1998 to 42% in 2017. Gender stereotypes form the basis of sexism, or the prejudiced beliefs that value males over females or vice versa. Gender inequality refers to the unequal treatment and/or perceptions of inequality of men in relation to women or vice versa. Even though there are instances where discrimination occurs against men, more often than not women are at a disadvantage. This is manifested in, for example, preferential access to work and/or certain jobs for men, unequal pay for equal work, bullying, domination and violence against women, selective abortion of female children, and preferential household expenditure on boys' education.

Despite gaining independence in 1994 and these measures, majority of black women have not experienced a real improvement in their everyday lives especially in the rural areas. South African Constitution is one of the most progressive in the world. Adopted in 1996 after the enshrining equality before the law, protecting human rights and many progressive policies, the history of apartheid has meant gender remain deeply structural entrenched.

Many challenges still remain: discriminatory laws and social norms remain pervasive, women continue to be underrepresented at all levels of political leadership, and 1 in 5 women and girls between the ages of 15 and 49 report experiencing physical or sexual violence by an intimate partner within a 12-month period. Discrimination in the workplace includes sexism, implicit bias, sexual harassment, and assault.

Before COVID-19 crisis, the poverty and unemployment rates in South Africa were already high. With some of the highest inequality rates in the world, many of the deep seated barriers created under apartheid continue, contributing to a vicious cycle of poverty. Women are harder hit by the economic impacts of COVID-19, as they disproportionately work in insecure labour markets. Nearly 60 per cent of women work in the informal economy, which puts them at greater risk of falling into poverty.

- South Africa remains a dual economy with one of the highest inequality rates in the world, with a consumption expenditure Gini coefficient of 0.63 in 2015.

- High inequality is perpetuated by a legacy of exclusion and the nature of economic growth, which is not pro-poor and does not generate sufficient jobs. Inequality in wealth is even higher:

? the richest 10% of the population held around 71% of net wealth in 2015, while the bottom 60% held 7% of the net wealth.

? - In 2015, over half of South Africa's population (55.5%) lived in poverty. However, there are certain groups which are more vulnerable to poverty. Unemployment remains a key challenge, standing

at 27.6% in the first quarter of 2019. The unemployment rate is even higher among youths, at around 55.2%.

? - In 2018, over half of children (59%) lived below the 'upper bound' poverty line (with a per capita income below R1,183 per month), and 30% lived in households where no adults were employed.

Government Commitment To Gender Equality In Policy

The South African Government has committed itself to advocating for gender equality and the empowerment of women; however there is still more to be done. Key policies and plans that focus on women include, the National Development Plan (NDP) 2030, the DMRE's policy on Women's Empowerment and Equality (WEGE); and the Framework and Strategy towards Gender Mainstreaming in the Environmental Sector. Challenges still remain to ensure that gender is fully integrated into all policies.

Programmes and Policies that align to green transport & mobility, and how to overcome discriminatory gender norms and social traditions that hinder women's involvement in green industry, include;

- The National Development Plan (NDP) 2030 which builds on foundational international normative frameworks, including the

1. Convention for the Elimination of All Forms of Discrimination Against Women (CEDAW).

- The Department of Mineral Resources and Energy (DMRE) on Women's Empowerment and Gender Equality (WEGE) references CEDAW; - African Union Protocol to the Charter on Human and People's Rights on the Rights of Women in Africa; - 2030 Agenda for Sustainable Development; and - The Beijing Platform for Action.

? - The Framework and Strategy towards Gender Mainstreaming in the Environmental Sector.

? - The National Green Fund established in 2012 injected funding into women-headed green economy projects and employed 812 women in direct jobs. This has especially assisted women in rural areas;

? - SAFEE (South African Females in Energy Efficiency), a unit within the South African Energy Efficiency Confederation, provides mentoring and networking.

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 Yes

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

Yes

4. Private sector engagement

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

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

Growth in e-mobility in South Africa cannot happen in isolation with the private sector. Manufacturing and commissioning of EVs including e-Buses along with the associated charging infrastructure is primarily catered by the private sector. In South Africa, private bus and taxi operators play their significant role in development of public transport sector. E-Bus demonstration initiative have also been led by private sector in the country, where uYilo has partnered with GABS for the operation of 2 e-Buses in the city of Cape Town. Thus, authorities should support and encourage private sector engagement for successful demonstration and scale-up of e-mobility in the country.

The government have an essential role to play in influencing private sector engagement and provide an enabling environment for establishing strong partnerships between the public and private sectors. Mechanisms to leverage private investment shall result in improved long-term environmental performance, if an adequate enabling policy, the regulation environment exists in the country. To scale-up proposed demonstration/pilot project cases to programmes or sustainable market level, it is crucial to adopt a holistic approach to private sector engagement on climate change and sustainable development. This approach involves supporting a range of policy reforms and regulations to promote mitigation and adaptation and improved environmental performance ? the enabling policy environment for private climate investments along with the use of limited public finance for mechanisms to leverage private investment.

The private sector has played a huge role in South Africa's development and economic growth over the last few decades. It fosters innovation, provides investments/funds, builds competitiveness, and creates employment in the industry/sector. In EVs also, the private companies in the country has been showing a lot of interest across the value chain viz. be it as an OEM (e-Bus); Electric Vehicle Supply Equipment (EVSE) manufacturers; Energy Operators (providing battery charging and swapping stations) and Li-ion battery and recycling setup. This GEF project across various (below) Components will engage multiple private companies during project execution and unlock their potential for electric vehicles growth in South Africa.

Component 1: Policy development for an integrated and sustainable mass-transit transport solution for South African Cities

In this outcome, GEF funds will be utilised for the development of a National Strategic e-Bus Roadmap along with various policies concerned with e-Buses. Policies will include localisation regulations and stakeholders should draft policy which will support both global and local e-Bus manufacturing and assembling companies.

Component 2: Deployment and demonstration of electric buses

In this component, utilizing GEF funds, comprehensive techno-commercial feasibility study for public transport e-Bus deployment will be conducted for the select cities. GEF funds will be utilised for the demonstration of 50 e-Buses in 3 select cities of South Africa wherein the private providers will be looked upon for supply/ leasing, commissioning, operations, and maintenance of the procured e-Bus and charging infrastructure.

Component 3: Institutional capacity building to support the implementation of a large-scale public transport sector transformation

This component encompasses establishment of National e-Mobility Knowledge Hub to enhance multi-stakeholder capacity building. This Knowledge Hub will disseminate capacity building programs for public transport stakeholders with focus on technical specifications, operational and financial planning

for low carbon recharging of e-Buses. The Hub will be developed in consultation and cooperation of DSI, uYilo, and SANEDI.

Component 4: Scaling-up of electric bus fleet

This component will involve initiation of procurement of additional 200 e-Buses and associated charging infrastructure for deployments in the select cities. Private companies will play an important role in supply and operations of the additional e-Buses required for scale-up.

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):

Project Risks

Risk description	Main categories	Risk level rating	Risk Mitigation Strategy and Safeguards	By Whom / When?
Negative perceptions about e-mobility technology and the impacts this will bring to society and industry	Political	Moderate	The proposed project plan includes collaborative discussion/ workshops with key stakeholders (including Government Departments, Private players, Institutions, etc.) and the communication/ advocacy activities that will reduce this risk in two main ways: first, integrating the views of stakeholders into the planning process; second, providing more in-depth explanations of the actual impacts of the measures to be taken. These activities typically reduce the level of negative perceptions in the project.	PMU/PSC through all the project output
Materials developed are not relevant for country context	Technical	Low	The proposed project will include development of national policies, tools like National Knowledge Hub which will be leveraged for capacity building activities, and stakeholder consultations and engagement across various outputs. This is detailed in ?Knowledge Management? section and would be very useful for stakeholders.	PMU

<p>Failure to materialize expected co-financing</p>	<p>Financial</p>	<p>Low/ Moderate</p>	<p>The e-Buses deployment is in two phases. Phase-1 will see deployment of 9 e-Buses of which 5 e-Buses are supported by GEF grant and remaining 4 from cities which is not a significant investment.</p> <p>Phase-2 will see remaining 41 e-Buses deployment and it is expected that project component 1 will help develop enabling policy ecosystem in the country which has high probability of provision of fiscal support to cities for e-Buses deployment. Even in worst condition, if the fiscal incentive support does not come from the National Government then the cities financial condition is expected to be stabilize and they expect to provide funds for e-Buses demonstration under phase 2.</p>	<p>City Municipalities/ DBSA</p>
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<p>Countries are not interested in second life and disposal of batteries so early on in market transformation to electric vehicles/ Materials from EVs (e.g. from batteries) might generate environmental pollution</p>	<p>Political/ Environmental</p>	<p>Moderate/ Substantial</p>	<p>In South Africa, there is already awareness around the safe disposal, recycling and reusability of batteries. In 2013, the country banned disposal of lead acid batteries. In November 2020, DFFE published the regulations on Enterprise Resource Planning (EPR) which aimed at the establishment of Producer Responsibility Organisations (PROs).</p> <p>Component 1 of this project will focus and facilitate Govt. in developing appropriate regulation and standards for effective operationalization of LIB reuse and recycling policy. The policy will support in development of domestic supply chain for batteries (including second-life) and create an enabling conditions for manufacturing of batteries. This is a very important step in creating a necessary market for battery re-use, usage and disposal.</p> <p>Increasing market for electricity storage also provides a market for used batteries from vehicles. Enabling regulations and clarity of rules will help expand the market and create a market for second use.</p>	<p>PMU/PSC, DFFE</p>
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<p>The growing demand from electric vehicles in a country can destabilize the power supply</p>	<p>Technical/ Economic</p>	<p>Low/ Moderate</p>	<p>As mentioned by concerned stakeholders in various consultations, the installed power generation capacity of South Africa is large enough to cater to the demand generated by electric vehicles. The peak load coming from e-Bus charging may not pose a significant toll on the existing business-as-usual infrastructure upgradation plan. The load factor from EV charging is similar (closely matches) to DISCOM's any other loads and hence can be planned on an as-is basis rather than a drastic change or investments. With clear and evolving policies on EV adoption trends, DISCOM can undertake the required local distribution transformer level interventions and splitting of feeders to take more loads.</p>	<p>PMU</p>
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<p>GHG savings achieved are limited in countries with a more carbon-intensive grid</p>	<p>Environmental</p>	<p>Low/ Moderate</p>	<p>EVs are as clean as their source of charging. Hence, charging EVs will need cleaner sources of energy like renewables (solar, wind). Integrating a greater proportion of Renewable Energy (RE) sources to the grid for EV charging results in benefits like higher contribution to CO₂ emission reductions; it can also help minimize grid impact challenges. RE with battery storage can act as an ancillary support to the grid by storing energy during high RE output hours and supplying power during off-peak hours, thereby enhancing system reliability and resiliency. It also improves grid stability and minimize AT&C (aggregate technical and commercial) losses of the grid network.</p> <p>Government of South Africa has set a target of increasing the % contribution of renewable energy-based electricity to 30% till 2030. This is expected to reduce the grid emission factor of South Africa significantly and also provide an opportunity to power EVs with renewables leading to high GHG savings.</p> <p>e-Buses provide higher GHG abatement per passenger-km compared to other vehicle segments. Hence, e-Bus charging with renewables will result in high GHG savings compared to when charging with carbon-intensive grid. The project will also identify low carbon (i.e. renewable) based recharging for the proposed e-Bus demonstrations such as deploying Solar Rooftops (SRTs) at e-Bus depots having big rooftops as well as ground space.</p>	<p>PMU</p>
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<p>Insufficient and incomparable systems for tracking results</p>	<p>Capacity/ Technical</p>	<p>Low/ Moderate</p>	<p>As part of Knowledge Management plans, the proposed project will include development of National e-Mobility Hub which will track, monitor, and evaluate efforts and results of the project. It will help in institutional capacity development at all levels (Central, State and City) and improve alignment and coordination across stakeholders.</p>	<p>PMU</p>
<p>Inadequacy of the exit strategy and lack of ownership of the program after the end of the GEF funded activities and inability to source resources to continue the program's activities in the medium/long term (including thematic working groups and support and investment platforms)</p>	<p>Political/ Financial</p>	<p>Low/ Medium</p>	<p>The project activities and outputs are aligned with the Mandate of the Govt. of South Africa as well as based on the key issue of air pollution and traffic congestion perceived as key issue with wide range of stakeholders. Further, the deliverables will be developed and integrated into the policy/regulatory framework of the key Ministries with related mandate.</p>	<p>PMU/ PSC</p>
<p>Higher electricity use might lead to higher emissions, e.g. from coal power plants</p>	<p>Environmental</p>	<p>Low</p>	<p>There is a strong commitment of the Government of South Africa to expanding use of renewable energy (RE). This though aspirational provides a clear direction to the market. Thus, it is more likely than not that higher share of future electricity will be from RE.</p>	<p>PMU/ PSC, Private Players</p>

Change of leadership at DBSA	Political	Medium	The project team will ensure continuous update of the project strategy with the new leadership and try to align the updated thoughts with the project objectives.	PSC
Risks arising due to CoViD-19	Project Continuity	Low/ Moderate	<p>The key impact of Covid-19 induced regulations could be on holding meetings, travel, and lead times for importing goods which may slow down the implementation of project activities and demo projects. However, the effect of Covid-19 pandemic, especially on lockdown and engagement constraints, has been managed to a larger extent. According to city consultations, they are in the recovery phase from the covid-19 impact and developing long-term plans for more resilient transportation systems to deal with pandemic-like situations. The cities expressed strong interest and willingness to participate in this project, as e-Buses deployment is already in pipeline. As a result, cities see this GEF project as an opportunity to expand and deploy e-Buses.</p> <p>The situation will be reviewed at the inception workshop and based on the situation the workplan will be revised and measures will be identified to mitigation the impacts.</p>	PMU

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.

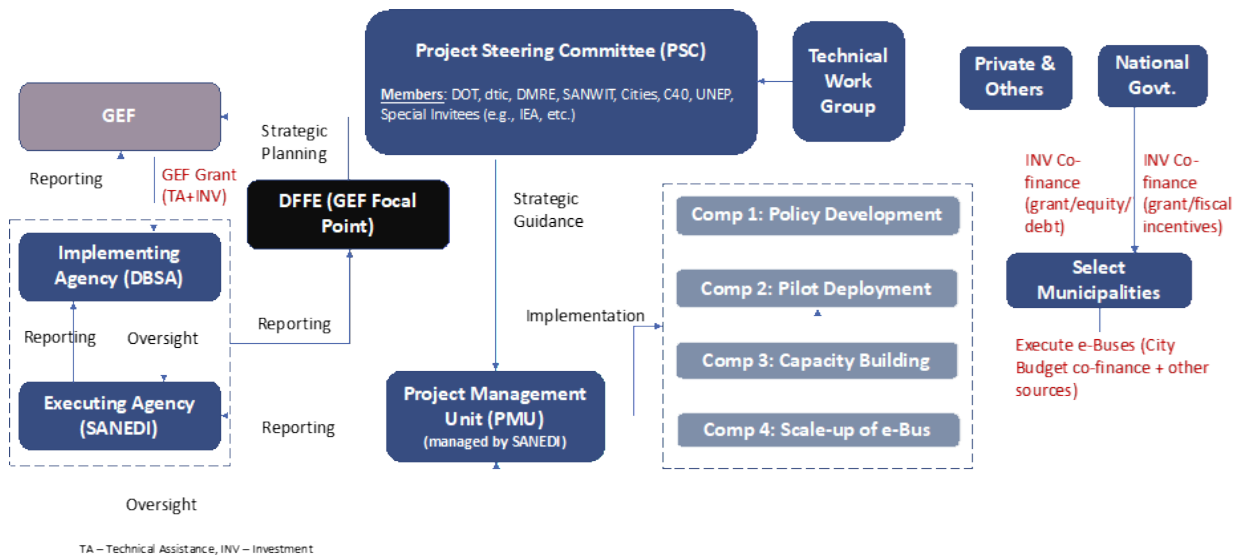
Development Bank of South Africa (DBSA) is the GEF Implementation Agency (IA). DBSA is the lead agency and will primarily be responsible for reporting, monitoring and evaluation and relationship

management with GEF. The IA will keep a regular oversight on project execution and conduct project supervisory missions as per Supervision Plans and in doing so ensure that all GEF and DBSA criteria, rules, and regulations are adhered to by project partners. They will also technically assess and oversee quality of project outputs, products and deliverables including formal publications. The IA will also ensure linkage to any events organized by DBSA and GEF to disseminate information on project results and lessons.

The executing Agency (SANEDI) will be responsible for overseeing the project implementation plan and reporting to DBSA. It will execute and oversee day to day on-ground activities in accordance with the project objectives, activities and budget. It will also periodically report to DBSA for allocation of the GEF grant according to the approved workplan and budget, in coordination with DBSA and other co-financing agents and ensure timely submission of all project reports, including work plans, financial reports, technical reports and completion reports to IA (realized outputs, inventories, verification of co-finance, terminal reporting, etc.).

A Project Management Unit (PMU) supported by GEF project will support in implementation of the Component 1,2,3 and 4. The Unit will be responsible for undertaking the procurements for the project and maintenance of all Financial Accounts. Additionally, the proposed PMU will be responsible to coordinate with the key stakeholders (the same set mentioned above) on output basis, which will ensure seamless coordination and progress towards achievement of the project objectives. It will engage with each of the relevant stakeholders on an ongoing basis.

The Project Steering Committee (PSC) will have nominated members from key ministries like DOT, the DTiC, DMRE, among others at senior management level and invited members from non-government stakeholders (Representative of Private sector and Civil Society) like SANWIT uYilo, AIDC, C40 Cities, and other special invitees. DBSA will also be represented on the PSC, with option for a GEF representative on ?as needed? basis, with observer status. The role of the PSC is to provide oversight of the project progress and implementation of outputs, facilitate cooperation with key government stakeholders of the project and ensuring synergies with Government initiatives, and provide overall guidance and strategic direction. PSC will ensure all the existing and planned initiatives/projects by the participating stakeholders are in alignment with each other and there is no duplication of efforts and resources. The PSC will meet twice a year and consider the progress of the project and provide guidance. The project institutional structure and coordination is depicted by the figure below:



Project structure Roles and Responsibilities

Organisation/Person(s)	Roles and Responsibilities
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Development Bank of Southern Africa (Project Directory)

- ? Ensure timely disbursement/sub-allotment to executing/co-executing agency based on agreed legal document and in accordance with DBSA and GEF fiduciary standards
- ? Follow-up with Executing/Co-Executing agency for progress, equipment, financial and audit reports
- ? Provide consistent and regular oversight on project execution and conduct project supervisory missions as per Supervision Plans and in doing so ensures that all DBSA and GEF criteria, rules and regulations are adhered to by project partners
- ? Technically assess and oversee quality of project outputs, products and deliverables ? including formal publications.
- ? Provide no-objection to main TORs and subcontracts issued by the project, including selection of the Project Manager (PMU)
- ? Attend and facilitate inception workshops, field visits where relevant, and selected steering committee meetings
- ? Asses project risks, and monitor and enforce a risk management plan
- ? Regularly monitor project progress and performance and rate progress towards meeting project objectives, project execution progress, quality of project monitoring and evaluation, and risk
- ? Monitor reporting by project executing partners and provide prompt feedback on the contents of the report
- ? Promptly inform the management of any significant risks or project problems and act and follow up on decisions made
- ? Apply adaptive management principles to the supervision of the project
- ? Review of reporting, checking for consistency between execution activities and expenditures, ensuring that it respects GEF rules
- ? Clear cash requests, and authorization of disbursements once reporting found to be complete
- ? Approve budget revision, certify fund availability and transfer funds
- ? Ensure that GEF, and DBSA quality standards are applied consistently to all projects, including branding and safeguards
- ? Certify project operational completion
- ? Link the project partners to any events organized by GEF and DBSA to disseminate information on project results and lessons
- ? Manage relations with GEF.

SANEDI (Project Manager, PM)

- ? Take responsibility for day-to-day project operations
- ? Take responsibility for the execution of the project in accordance with the project objectives, activities and budget
- ? Ensure that the project meets its objectives and achieves expected outcomes
- ? Coordinate project execution and liaison with national counterparts (relevant ministries, national agencies, private sector, NGOs etc.)
- ? Ensure technical execution according to the execution plan laid out in the project document
- ? Ensure technical quality of products, outputs and deliverables
- ? Ensure compilation and submission of progress, financial and audit reporting to IA
- ? Submit budget revisions to IA for approval
- ? Address and propose solutions to any problem or inconsistency raised by the IA
- ? Bring issues raised by or associated with clients to the IA for resolution
- ? Facilitate meetings of Steering Committees and other oversight bodies of the project
- ? Day to day oversight of project execution
- ? Submit all technical reports and completion reports to IA (realized outputs, inventories, verification of co-finance, terminal reporting, etc.)
- ? Monitoring and evaluation of the project outputs and outcomes
- ? Ensure technical quality of products, outputs and deliverables
- ? Effective use of both international and national resources
- ? Notify IA in writing if there is need for modification to the agreed implementation plan and budget, and to seek approval
- ? Timely availability of financing to support project execution
- ? Proper coordination among all project stakeholders; in particular, national parties
- ? Periodic reporting to DBSA for allocation of the GEF grant according to the approved workplan and budget, in coordination with DBSA and other co-financing agents
- ? Timely submission of all project reports, including work plans and financial reports

	<ul style="list-style-type: none"> ? Follow-up with, or progress, procurement, financial and audit reports.
<ul style="list-style-type: none"> ? Representation from GEF Focal Point ? Senior Representatives from DOT, DTIC, DOE ? Other Special Invitees from SANWIT, uYilo, C40 Cities, Special Invitees 	<ul style="list-style-type: none"> ? Provides oversight of the project progress and implementation of outputs ? Approves annual work plans and budget ? Approves management decisions to ensure timely delivery of quality outputs ? Provides overall guidance and strategic direction
Project Coordinator	<p>The Project Coordinator will be recruited externally, supported with GEF funds, hosted within SANEDI premises and have the following duties,</p> <ul style="list-style-type: none"> ? Manage day to day on-ground execution ? Deliver the outputs and demonstrate its best efforts in achieving the project outcomes ? Manage financial resources and processing all financial transaction relating to sub-allotments ? Prepare all annual/year-end project revisions ? Attend and facilitate inception workshops and national project steering committee meetings ? Assess project risks in the field, monitor risk management plan ? Coordinate the project team of consultants and subcontractors ? Coordinate with strategic taskforces (i.e. thematic or technical working groups) ? Notify EA in writing if there is need for modification to the agreed implementation plan and budget ? Address and rectify any issues or inconsistencies raised by the Executing Agency ? Support compilation and submission of progress, financial and audit reporting to the Implementation Agency ? Prepare, in coordination with EA, the project Final Report

Representative from relevant ministries, cities, utilities, experts, etc.	<ul style="list-style-type: none"> ? Provide technical inputs to support the completion of project activities ? Provide linkages with other on-going works of departments to ensure synergies ? Participate in consultation meetings and training programs as well as provide data and information required for executing the activities
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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.

The project is directly supportive of, and consistent with, South Africa's national priorities and policies related to climate change and e-mobility. Specifically, it is consistent with the National Development Plan 2030 (NDP), Nationally Determined Contributions (NDCs), Clean Air Cities Declaration, Sustainable Development Goals (SDGs) and Smart Cities Framework.

National Development Plan 2030: The NDP provides a long-term vision for the country and defines a desired destination, specifically aiming to eliminate poverty and reduce inequality by 2030. Chapter 5 of the plan highlights that the country's transition to low carbon, resilient and just economy is under way.

Nationally Determined Contributions (NDCs) under the Paris Agreement: A revised NDC was submitted in 2021, which aims in reducing emissions from transportation sector is clearly stated as one of the priority areas in South Africa's NDCs, and the country has already started taken steps to achieve lower emission intensity. The proposed GHG emissions will be in a range from 398-510 Mt CO₂-eq in 2025, and in a range from 350-420 Mt CO₂-eq in 2030. Additionally, updated NDC also targets achieving zero emissions by 2050 in its Low-Emission Development Strategy for South Africa. During the 2021-2025 period, after the passing of the Climate Change Bill, phase 2 of the carbon budgets programme will be implemented, phase two of the carbon tax will be implemented, and Sectoral Emissions Targets (SETs) (including the transport sector) will be established. The consideration of South Africa's likely GHG emissions in 2030 will be achieved with the implementation of currently planned mitigation policies, which include IRP 2019, the Green Transport Strategy, the draft post-2015 National Energy Efficiency Strategy, and the Carbon Tax.

South Africa Low-Emission Development Strategy (SA LEDS) targets achieving zero emissions by 2050 through implemented policies and measures across various sectors of the economy. SA LEDS targets GHG emissions reduction will be in a range of 398-614 Mt CO₂-eq in 2025 and 212-428 Mt CO₂-eq by 2050.

Clean Air Cities Declaration: The sources of air pollution in South Africa are diverse and complex and managing them requires a multi-sectoral approach. Air pollution has been recognised as a major environmental risk to health. The National Environmental Management on Air Quality is an objectives-based legislative approach that is aligned to South Africa's Constitution. The Act also creates mechanisms and tools to achieve the desired ambient air quality. In 2022, the South African court ruled that clean air is a constitutional right and that the South African government needs to reduce air pollution. Recently (in 2022), C40 launched the African Cities for Clean Air Programme to support African cities as they work to improve air quality and public health and the City of Tshwane and the City of Johannesburg are amongst a list of African cities that signed the C40 Clean Air Cities Declaration.

Cities Clean Bus Declaration: City of Tshwane and City of Cape Town are signatories to the Clean Bus Declaration where they have committed to reducing emissions from the transportation sector and improving air quality through the introduction of low and ultimately zero emission buses in their fleets.

Smart Cities Framework: In his State of the Nation Address (SONA) in June 2019, the President of South Africa expressed his dream of building a South African smart city. In the February 2020 SONA, he announced more concrete plans to develop a smart city in the country. These statements provoked discussion around the notion of Smart Cities within the South African context. The Framework was developed to provide municipalities, national and provincial government, the private sector, civil society and other role players with guidelines to coordinate smart city initiatives planned and implemented throughout the country.

8. Knowledge Management

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

The project is part of the global GEF-UNEP Program on Electric Vehicles. It will actively participate in the program's global and regional activities especially through its component 3, 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.

Knowledge Management (KM) is a vital factor for the project, both at the national level as well as at the global program level. It strengthens the ability to learn from existing experience and to make this knowledge readily available to wider stakeholders. As part of KM plans, the proposed project will include capacity building activities; public awareness and advocacy; development of applications, tools, websites, etc. and stakeholder consultations & engagement across various outputs. The project will see development of following applications, tools, and reports:

?National strategic Roadmap developed for Electric Buses growth in public transportation? for explication and integration of national e-Bus targets, demand and supply side measures, and gender/EWCD features in public transportation.

?National e-Mobility Knowledge Hub" to bring together Central and State EV Nodal Agencies and Industries for best practices exchange. It will be developed for digitalization and hosting of cities e-mobility demonstration data and learnings, connection and sourcing with global best practices and programmes including GEF's Global Electric Mobility Programme, assessment of GHG reduction and AQI Impact from EVs.

?e-Bus scale-up strategic roadmap? for identification and feasibility assessment of new routes and depots and refinement of strategies (procurement and business model) incorporating learnings from earlier demonstrations.

Above tools and policy documents will help in institutional capacity development at all levels (Central, State and City) and improve alignment and coordination across stakeholders. These policy documents will incorporate Gender sensitive best practices in design, material development and execution. Another important aspect of KM considered in the project is to provide trainings to EV supply side ecosystem. This will include skill assessment for drivers, maintenance technicians, financing institutions, etc. and their respective development of training modules. The timeline for development KM tools/ policies is in sync with the work plan as mentioned in Annex I: Project Work Plan

Furthermore, this project will receive knowledge in the form of trainings, best practices and tools provided by the Global electric mobility program. On the other hand, overall lessons from the proposed project will be of substantial value to the Global electric mobility program which will disseminate the lessons of South Africa through its regional hubs, which link the global program activities to the child projects. Linkages to

the Global electric mobility program will provide countries a unique opportunity to exchange on-the ground experiences with electric mobility South to South, North to South and Peer to Peer.

The focus on creating a useful KM is a good way to ensure that project learnings are shared nationally and across borders.

9. Monitoring and Evaluation

Describe the budgeted M and E plan

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

Monitoring and Evaluation (M&E) plan and budget

M&E Activity	Responsible Parties	Timeframe	Indicative budget (USD)
Inception Workshop (IW)	Execution: Project Management Unit (PMU) Support: Project Co-ordinator	1 report to be prepared following the IW, to be shared with participants 4 weeks after the IW (latest)	GEF: as part of PMU budget
Project Steering Committee Meeting	Execution: PMU	At least 1 per year Minutes to be submitted 1 week following each PSC meeting	GEF: as part of PMU budget
Project Implementation Review (PIR)	Execution: PMU Support: Project Co-ordinator	1 report to be prepared on an annual basis, to be submitted by 15 July latest	GEF: as part of PMU budget
Half-yearly progress report	Execution: PMU Support: Project Co-ordinator	half-yearly progress reports for any given year, submitted by January 31 (latest) for period 1st July ? 31st December of previous year	GEF: as part of PMU budget

Quarterly expenditure reports	Execution: PMU Support: Project Co-ordinator	Four (4) quarterly expenditure reports for any given year, submitted by January 31, April 30, July 31 and October 31 (latest)	GEF: as part of PMU budget
Co-financing Report	Execution: PMU Support: Project Co-ordinator, Co-finance partners	1 annual report from each co-finance partner, and 1 consolidated report, to be submitted by 31 July latest	GEF: as part of PMU budget
Medium-Term Evaluation (MTE) / Medium-Term Review (MTR)	Execution: Independent Evaluator / DBSA/SANEDI Support: PMU	At mid-point of project implementation if deemed needed by the Task Manager	GEF: US\$ 55,104
Final Report	Execution: PMU Support: Project Co-ordinator	Final report to be submitted no later than three (3) months after the technical completion date	GEF: as part of PMU budget
Terminal Evaluation (TE)	Execution: Independent Evaluator / DBSA/SANEDI Support: PMU	Can be initiated within six (6) months prior to the project's technical completion date	GEF: US\$ 61,327
			GEF US\$ 116,431

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)?

Introduction of electric mobility in South Africa, at a significant scale, will open a new segment for locally produced vehicles. This will be especially true for the Bus Industry which has a minimum 80% localisation in bus body regulation applicable. In addition, pilot demonstrations will provide a pathway for vehicles to enter the market around the globe. Secondary market for lithium ion batteries and recycling Internal Combustion Engine (ICE) vehicles is expected to create employment opportunities in the community. It will also substantially reduce the dependency of import of raw materials for production of batteries and vehicles. The policy measures will ensure safety and health of the workers engaged in reuse and recycling of lithium ion batteries and ICE vehicles.

The widespread use of EV in public transportation is expected to help achieve various benefits including reduction of noise pollution, reduced traffic, etc. The transformation to EV system will result in public infrastructure and service cost savings, consumer savings and affordability ? particularly savings targeting lower-income households. Increased safety and security, and improved mobility options for non-drivers too are expected benefits. Improved reliability of travel times for public transport will also contribute substantially to the attractiveness of living and the ease of doing business in urban areas.

Further, air quality will be improved due to reduction in emissions from pollution sources, arising from adoption of electric mobility, improved policies and enforcement of standards and regulations. Improved air quality will reduce adverse effects on health. It will substantially reduce financial impact on economy.

11. Environmental and Social Safeguard (ESS) Risks

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

Overall Project/Program Risk Classification *

PIF	CEO Endorsement/Approval	MTR	TE
Low			

Measures to address identified risks and impacts

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

The DBSA classifies all projects into one of four classifications: High/Substantial Risk Category A); Medium/Moderate Risk (Category B); Low Risk (Category C) and Financial Intermediary (Category FI). Category A projects are likely to generate significant, broad and diverse environmental impacts. They may be irreversible and could lead to significant impacts on the social, physical and biological environment, and changes in land use. Category B projects and projects may have adverse environmental and social impacts which are likely to be less severe than those associated with Category A. Most of the significant impacts of the project will relate to the following activities:

- ? Large-scale procurement and operation of the buses;
- ? Construction of charging infrastructure; and
- ? Battery recycling, reuse and sound disposal.

These are activities with potential limited adverse environmental and social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation

measures. As per DBSA's classification methodology, the project is consequently classified as Low Risk (Category C). In line with DBSA's Environmental and Social Safeguard Standard (ESSS) the project will be required to carry out an Environmental Impact Assessment (EIA) and develop both an Environmental Impact Assessment Report (EIAR) and Environmental and Social Management Plan (ESMP). These assessments will be conducted during the implementation of the project and are more applicable at the demonstration phase of the project.

Climate Risk Analysis

DBSA is currently in the process of developing its climate risk analysis methodology which will be applied to all projects that will be funded by the bank. The methodology will align to international standards and also incorporate the GEF STAP's guidance on climate risk screening. It is envisaged that the methodology will be completed and adopted by DBSA by 31 March 2023. The methodology will be applied to this project to screen climate related risks and adopt mitigation measures. This process will take place at the demonstration phase of the project.

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
Annexure - Environmental Social Economic Review Note (ESERN)_LL Final	CEO Endorsement ESS	

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

Project Objective	Objective level Indicators	Baseline	End of project Target	Means of Verification
Demonstrating and up-scaling electric mobility in the public transport sector in South Africa	Direct and Indirect Greenhouse Gas Emissions Mitigated (metric tons of CO ₂) mitigated	0[1]	End-of-project target: > Total direct emission mitigation: 238,665 tCO ₂ e > Total indirect emission mitigation: 496,364 tCO ₂ e	> GHG emissions reduction estimates based on demonstration reports > Project final and M&E report
	Direct and Indirect energy savings (MJ)	0	End-of-project target: > Total direct energy savings: 2,792,623,891 MJ > Total indirect energy savings: 5,807,965,708 MJ	
	People benefitting from GEF-financed investments	0	End-of-project target: Number of direct beneficiaries disaggregated by gender as a co-benefit of GEF investment >Female: 11 510 >Male: 11 110 Total: 22 620	
Project Outcomes	Outcome level Indicators	Baseline	End of project Target	Means of Verification
Outcome 1: Policies are reviewed for adoption at the national, regional and city level to foster the integration of low carbon electric mobility in	Government endorses a National Strategic Roadmap to promote Electric Buses growth in Public Transportation using services and knowledge products offered by the Support and Investment Platform	No	Yes	Official Gazette, Project monitoring reports

public transport.	Longer-term planning between low carbon electric mobility and renewable power integration as part of national grid upgradation plan	No	Yes	Official Gazette, Project monitoring reports
	Government endorses a Battery recycling and re-use disposal policy	No	Yes	Official Gazette, Project monitoring reports
Outcome 2: Experience with electric buses is gained	# Of Cities to undertake feasibility study assessing the various options for the combined demonstration of electric buses and low carbon recharging	0	2 confirmed + 1 expected	Official documentation, Project monitoring reports
	# Of Cities where e-Bus and charging infrastructure are procured, tested, and commissioned	0	2 confirmed + 1 expected	Official documentation, Project monitoring reports
Outcome 3: Capacity among all stakeholder has been built for electric bus demonstration, large-scale procurement, and operation	A national coordination body to support and promote the uptake of low-carbon e-mobility is established and operational	No	Yes	Project monitoring reports
	The national coordination body on e-mobility generates best practices and lessons learned on e-Bus demonstrations and shares them with the national and global stakeholders	No	Yes	Official Gazette, Project monitoring reports

	The national coordination body prepares and submits guidelines for technical specifications and operational and financial planning based on e-Bus demonstrations	No	Yes	Official Gazette, Project monitoring reports
Outcome 4: Procurement is underway to make a significant share of the public transport fleets electric	# Of Cities takes a position on the technical and financial viability of low-carbon electric mobility based on the evidence generated through the in-country demonstration project	0	2 confirmed + 1 expected	Project monitoring reports
	# Of e-Bus up-scaling plans endorsed that incorporate lessons learned from the demonstration project	2 (insufficient evidence)	Upto 200	Official Gazette, Project monitoring reports

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).

Comments received from the GEF Secretariat, STAP and Council on the original parent PFD (GEF ID 10114) and addendum were addressed in the following documents which have been uploaded on the GEF portal:

Annex B.1 ? Responses to GEF Sec. reviews on PFD

? Annex B.2 ? Responses to GEF Sec. reviews on PFD Addendum

? Annex B.3 ? Responses to STAP comments

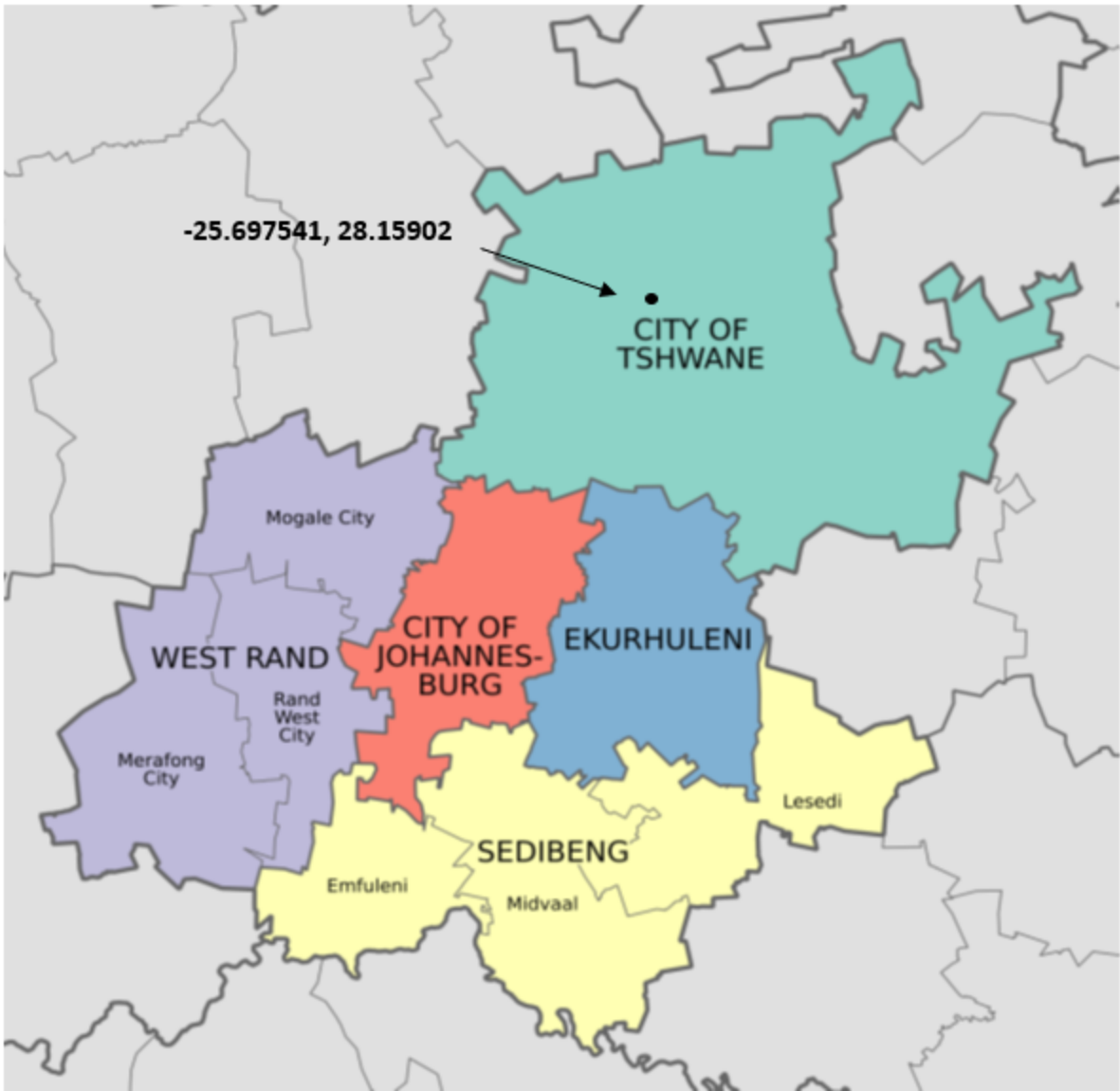
? Annex B. 4 ? Responses to Council comments

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

PPG Grant Approved at PIF: 150 000 US\$			
<i>Project Preparation Activities Implemented</i>	<i>GETF/LDCF/SCCF Amount (US\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent to date</i>	<i>Amount Committed</i>
Consultancy ? Project development	110,000	74,934	35,066
Gender, Environmental and Social safeguards analysis	5,000	0	5,000
Assistance toward development of national policy for eMobility	10,000	0	10,000
Travel Costs	10,000	0	10,000
Local workshops	15,000	14,053	947
Total	150,000	88,987	61,013

ANNEX D: Project Map(s) and Coordinates

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





ANNEX E: Project Budget Table

Please attach a project budget table.

Expenditure	Detailed Description	Component (USDeq.)	Total (USD eq.)	Responsible Entity
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Category		Component 1	Component 2	Component 3	Component 4	Sub-Total	M&E	PMC		(Executing Entity receiving funds from the GEF Agency) [1]
		Outcome 1	Outcome 2	Outcome 3	Outcome 4					
Works	?	-	-	-	-	-			-	
Goods		-	-	-	-	-			-	
Vehicles	Procurement of e-Buses and charging infrastructure	-	2,425,000	-	-	2,425,000			2,425,000	City Municipality, Government (Department of Transport, others)
Grants/Sub-grants	?	-	-	-	-	-			-	
Revolving funds/Seed funds / Equity	?	-	-	-	-	-			-	
Sub-contract to executing partner/entity	Project coordination or recruitment (to be hosted at Executing Agency)	-	-	-	-	-		151,550	151,550	SANEDI with support from DBSA
	Financial Audit by Executing Agency							51,164	51,164	SANEDI
	Reports, documentation, and publications							21,725	21,725	SANEDI

Contractual Services ? Individual	?	-	-	-	-	-	-	-	-	
Contractual Services ? Company	Development of National Strategic e-Bus Roadmap	134,206	-	-	-	34,206¹			134,206	City Municipality, Government (Department of Transport, others)
	Revision of National taxation policies of e-Bus, batteries, EV powertrain and EVSE Components	80,524	-	-	-	80,524			80,524	Department of Trade, Industry and Competition
	National renewable energy and grid upgradation plan development	102,948	-	-	-	02,948¹			102,948	
	Battery recycling and re-use disposal policy	78,221	-	-	-	78,221			78,221	Department of Environment, Forestry and Fisheries (DFFE)
	Technical standards for homologation of electric buses & EVSE	116,086	-	-	-	16,086¹			116,086	Department of Trade, Industry and Competition

	Preparation of e-Bus demonstration feasibility report (at each city)	-	145,130	-	-	45,130 ¹			145,130	City Municipality, International and Local Consultants
	Procurement specifications for e-Buses, and its associated charging infrastructure	-	124,480	-	-	24,480 ¹			124,480	City Municipality
	Training Needs Assessment (TNA) across e-Bus life cycle	-	209,405	-	-	09,405 ²			209,405	City Municipality, International and Local Consultants
	Establishment of National e-mobility Knowledge Hub	-	-	9,888 ¹	-	19,888			19,888	uYilo
	Best practices and dissemination on i) technical specifications, operation and financial planning and low carbon e-Mobility demonstrations and gender inclusiveness	-	-	7,888 ¹³	-	37,888 ¹			137,888	uYilo

	Best practices and case studies in e-Bus manufacturing and increased localisation	-	-	6,144 ⁶	-	66,144			66,144	uYilo
	National e-Bus scale-up strategic roadmap	-	-	-	6,593 ⁶	66,593			66,593	City Municipality, Government (Department of Transport, others)
	Investment and its structuring for procuring 200 e-Buses, chargers and associated low carbon recharging	-	-	-	4,463 ²	24,463			24,463	City Municipality, Government (Department of Transport, others)
International Consultants	e-Bus Specialist	44,396	54,640	9,200 ¹	6,745	24,981 ¹			124,981	
	e-Mobility and Energy Specialist	44,396	49,840	6,400	3,854	104,490 ¹			104,490	
Local Consultants	Urban Transport Planning Specialist	44,396	54,640	9,200 ¹	6,745	24,981 ¹			124,981	
	Social and Gender Specialist	14,799	17,680	6,400	1,927	40,806			40,806	

	e-Mobility Knowledge Management Specialist	-	-	2,800 ¹	-	12,800			12,800	
Salary and benefits / Staff costs	?	-	-	-	-	-			-	
Trainings, Workshops, Meetings	Stakeholder consultation meetings & workshops	63,345	53,881	4,880 ²	0,119 ¹	52,225 ¹			152,225	
Travel	Travel for stakeholder consultation meetings and workshops	11,929	14,080	2,880	2,794	31,683			31,683	
	Travel for International Experts	19,782	21,120	4,320	4,190	49,412			49,412	
Other Operating Costs	Mid-Term Evaluation by Implementing Agency						55,104		55,104	
	Terminal Evaluation by Implementing Agency						61,327		61,327	DBSA
Grand Total		755,028	1,169,896 ³	20,000 ³²	7,430 ¹²	137,354 ^{4,3}	16,431 ¹	116,869 ²²	4,713,224	

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.

N/A

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.

N/A

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).

N/A