



## **CLEAN TECHNOLOGY FUND**

**Lagos Cable Car Project**

**USD 20 million**

**March 2020**

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**Cover Page for CTF Project/Program Approval Request  
Dedicated Private Sector Programs (DPSP-III)**

<b>1. Country/Region</b>	Nigeria	<b>2. CIF Project ID#</b>	[CIF AU will assign ID]
<b>3. Public or Private</b>	Public		
	Private		<b>X</b>
<b>4. Project/Program Title</b>	Lagos Cable Car Project		
<b>5. Is this a private sector program composed of sub-projects?</b>	Yes		
	No		<b>X</b>
<b>6. Financial Products, Terms and Amounts</b>			
<b>Financial Product</b>		<b>USD (million)</b>	<b>EUR (million)</b>
Grant		0.00	
Fee on grant		0.00	
MPIS (for private sector only)		0.00	
Public sector loan	Harder terms	0.00	
	Softer terms	0.00	
Senior loan		20.00	
Senior loans in local currency hedged		0.00	
Subordinated debt / mezzanine instruments with income		0.00	
Second loss guarantees		0.00	
Equity		0.00	
Subordinated debt/mezzanine instruments with convertible		0.00	
Convertible grants and contingent recovery grants		0.00	
Contingent recovery loans		0.00	
First loss guarantees		0.00	
Other (please specify)		0.00	
<b>Total</b>			
<b>7. Implementing MDB(s)</b>	AfDB		
<b>8. National Implementing Agency</b>	NA		
<b>9. MDB Focal Point</b>	Leandro Azevedo ( <a href="mailto:l.azevedo@afdb.org">l.azevedo@afdb.org</a> )		
<b>10. Brief Description of Project/Program (including objectives and expected outcomes)<sup>[c]</sup></b>			
<p>The project entails the development, construction and operation of the first phase/green line of the Lagos Cable Car Transit (LCCT) project, an aerial cable car public transport system that comprises 4 stations and spans 4.67 km connecting Lagos island to Victoria island.</p> <p>Once operational, the green line will lead to substantial time and cost savings resulting from a more efficient form of public transportation in Lagos. The total greenhouse gas emission reductions of the project are</p>			

estimated at 1,202,953.5 t/CO<sub>2</sub> eq. over the project lifetime. The project will lead to the creation of 3,400 jobs during construction and 450 permanent jobs during operations.

**11. Consistency with CTF investment criteria**

(1) Potential GHG emissions savings	See page 11.
(2) Cost-effectiveness	See page 11.
(3) Demonstration potential at scale	See page 11.
(4) Development impact	See page 11
(5) Implementation potential	See page 12.
(6) Additional costs and risk premium	See page 12.

**Additional CTF investment criteria for private sector projects/ programs**

(7) Financial sustainability	See page 12.
(8) Effective utilization of concessional	See page 12.
(9) Mitigation of market distortions	See page 12.
(10) Risks	See Annex II.

**12. For DPSP projects/programs in non-CTF countries, explain consistency with FIP, PPCR, or SREP Investment Criteria and/or national energy policy and strategy**

Not applicable.

**13. Stakeholder Engagement**

The engagement with various Federal Government Ministries as well as national departments and agencies were held in August 2019 with a view to undertake a detailed review of the Environmental and Social Impact Assessment including identified risks and mitigation measures. The Africa Finance Corporation - one of the project developers - is leading the way on other engagements with various stakeholders aimed at vetting and confirming the project structure. In particular, discussions with the Federal Government of Nigeria (FGN) and the Lagos State Government led to the signature of the Passenger Revenue Shortfall Guarantee (PRSG) agreement. This agreement plays a key role in supporting the bankability of the project as it secures minimum cash-flows to the project.

**14. Gender Considerations**

As outlined in the country’s National Gender Policy (2006), the FGN is committed to building a nation devoid of gender discrimination, guaranteeing equal access to political, social and economic wealth creation opportunities for women and men; and developing a culture that places premium on the protection of all including children. In furtherance of this goal, the FGN promotes the full participation of women, men, girls and boys by involving both public and private sectors as agents of development. The Federal Ministry of Women Affairs and Social Development serves as the national vehicle to bring about speedy and healthy development of Nigerian women and men in the mainstream of the national development processes and ensure the survival, protection, development and participation of all children in preparation for a meaningful adult life.

One of the targets of the policy is to provide equal opportunities for women and men to enjoy and attain an acceptable minimum threshold of universal access to potable water, sanitation, electricity and transportation.

The project’s security plans will include state of the art video-vigilance that will, among others, help ensuring that women are not harassed while using the infrastructure. Furthermore, the project will make a substantial contribution to help women participate in the labor market as it will significantly reduce commuting times in the city of Lagos.

**15. For projects/programs with activities in countries assessed as being at moderate or high risk of debt distress, macro-economic analysis to evaluate the potential for the CTF project or program to impact the country’s debt sustainability**

Not applicable.

<b>16. For public sector projects/programs, analysis of how the project/program facilitates private sector investment</b>		
Not applicable.		
<b>17. Indicators and Targets</b>		
<b>Project/Program Timeline</b>		
Expected start date of implementation		January 2021
Expected end date of implementation		January 2023
Expected investment lifetime in years (for estimating lifetime targets)		15 years
<b>Core Indicators</b>		<b>Targets</b>
GHG emissions reduced or avoided over lifetime (tons of CO <sub>2</sub> -eq)		1,202,953.5
Annual GHG emissions reduced or avoided (tons of CO <sub>2</sub> -eq/year):		24,059.07 (average)
Number of additional passengers using low-carbon transport per day:		277,198 (male) / 277,198 (female)
Energy savings cumulative over lifetime of investment (MWh)		
<b>Identify relevant development impact indicator(s)</b>		<b>Targets</b>
Number of Jobs During Construction		3,400
Number of Jobs During Operations		450
<b>18. Co-financing</b>		
	Please specify as appropriate	Amount (in million USD)
AfDB	Senior Loan	50.0
AFC	Senior Loan	56.0
JICA	Senior Loan	59.0
Shareholders	Equity	109.0
<b>Total</b>		<b>274.0</b>
<b>19. Expected Date of MDB Approval</b>		
30 October 2020.		

## **1. INTRODUCTION**

1.1 The city of Lagos, with over 20 million inhabitants, is one of the largest cities in the World and in Africa. With a population growth estimated at 6%, Lagos engages 45% of the skilled workforce of Nigeria. Over the years, infrastructure development in Lagos has not been in parallel with its population growth. The density of the road network is estimated at 0.4 kilometers per thousand inhabitants, well below the continental average.

1.2 Outdated transport equipment and a poor management system have hindered the development of this sector which, by 2020, is expected to accommodate around 17 million daily passenger movements and trips putting substantial pressure on the existing and already unsustainable transport infrastructure of the city.

1.3 Generally, the existing mass transportation systems of Lagos are informal, strongly reliant on road infrastructure and do not cater to the need for swift and safe transportation of many Lagosians. The capacity constraints have reached unacceptable levels of traffic congestion with inhabitants spending as much as 6 hours (3 hours in either direction) per day commuting to/from their place of work.

1.4 Gaining access to Lagos Island has been a major constraint as additional new bridges are required and which constructions is very challenging due to existing urbanizations. Furthermore, roads in and around Lagos Island do not have setbacks and cannot be widened easily to meet a rapidly increasing demand.

1.5 Improvement in transport infrastructure is therefore a critical component of the transport policy of the Federal Government of Nigeria (FGN) who has reaffirmed its commitment to improving transportation as a part of Nigeria's Vision 2020 and the Economic Recovery Growth Plan.

1.6 The Dedicated Private Sector Program (DPSP), established under the Clean Technology Fund (CTF) in 2013, was designed to finance programs or operations that can deliver scale in terms of development results and impact, support private sector and fast-track the deployment of CTF resources under more efficient processing procedures while maintaining a strong link to country priorities as well as CTF program objectives. This funding request is being submitted as part of DPSP III.

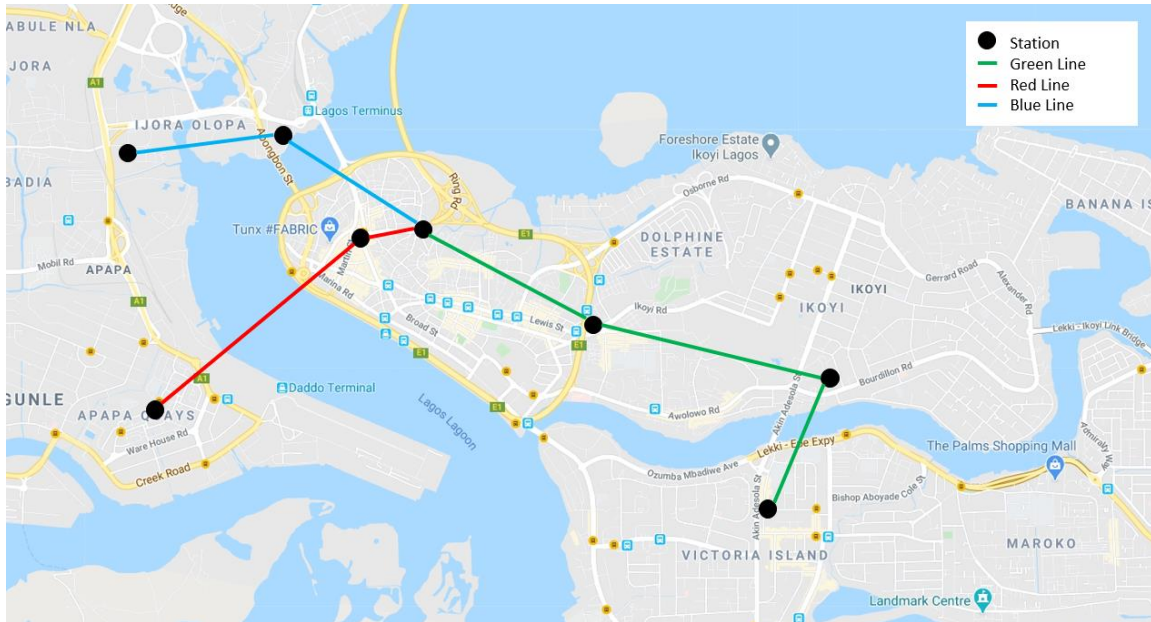
## **2. PROJECT DESCRIPTION**

2.1 The project entails the design, development, ownership, financing, construction and operation of an aerial cable car public mass transit transport system in Lagos. Phase 1 consists of the development of the Green Line comprises 4 stations and spans along 4.67 km connecting Lagos Island to Victoria Island. The project will directly contribute to the development of a formal Lagos mass transportation system by seeking to replicate the success of identical initiatives in other cities such as in Tlemcen (Algeria), Caracas (Venezuela) and in Medellin (Colombia). Subsequent phases will include the Orange and Blue Lines as illustrated in Figure 1 below.

2.2 The Green Line will connect Adeniji Adele on Lagos Island to Ozumba Mbadiwe Street in Victoria Island passing through stations in Obalende and Falomo. The project will also include the construction of the main hub/ interchange station that will be located at Adeniji Adele. See figure I below.

2.3 The Green Line is likely to experience a swift operational ramp up as the Lagos' central business district expands outside its normal zone at the end of central Lagos near the marina and around Victoria Island and the new Eko Atlantic city development. The Ozumba district in Victoria Island has, in recent years, become the home to a diverse mix of large indigenous and multinational corporations as well as a large number of small and medium-sized enterprises together with a large number of major hotel chains.

**Figure 1: Lagos Cable Car Route Map - The Green Line represents Phase 1**

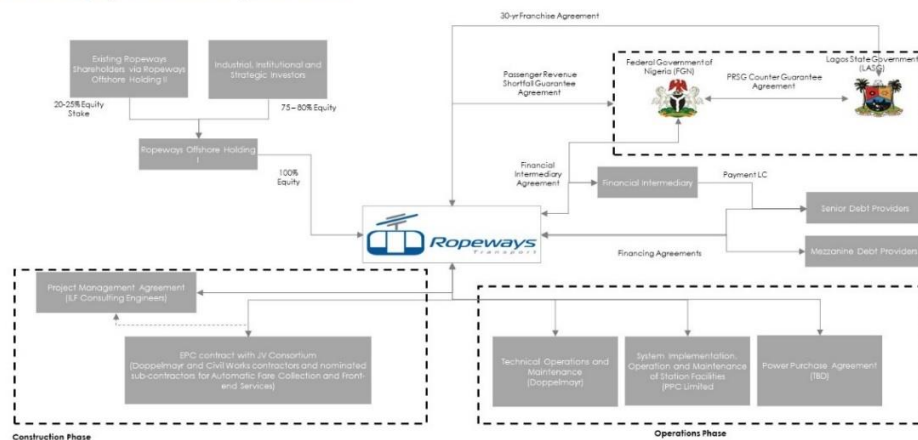


2.4 Based on the current design, the project will provide a mass transportation solution that will incorporate 218 cable cars with a capacity of 38 passengers each for a total capacity of 77,000 passengers per hour or 112 million passengers annually.

2.5 Figure II shows the legal structure of the project. The 30 year Franchise Agreement grants the Project Company exclusivity for the development and operation of the cable system and allows the franchisee to determine, set and collect fares. In addition, a Passenger Revenue Shortfall Guarantee (PRSG) will be provided by the FGN and will cover any shortfall on the estimated usage of the infrastructure without compromising the financial viability of the project. In other words, this guarantee will cover market risk associated with the project.

**Figure II: Project Structure**

The broad project structure and parties include:



2.6 To address the negative impact of limited electricity supply in the country, the project will have its own captive power generation. Although the cable car system will still be connected to the national grid, its design allows it to be completely independent and to generate its own power needs. Each station will have a combination of three Uninterrupted Power Supply (UPS) systems that shall be supplemented by smaller back-up generators in the event of an emergency or if power is neither available from the grid or from the installed UPS systems.

### **Project Rationale**

2.7 As the largest African city, Lagos is yet to develop an appropriate mass-transit system that caters for most of its population. It is considered one of the most congested cities in Africa where vehicle registration records reveal that 900,000 vehicles are registered on average every year outstripping the national average of only 60 vehicles per km of road available. Despite being classified as a global megacity in its own right, Lagos remains the only major city without an organised and truly mass urban transit transportation system.

2.8 The project will rely on a tri-cable detachable grip constant flow system that is being deployed on a number of other cities around the world. This system ensures that people are moved in an efficient and safely manner. As opposed to mono-cable, the proposed technology is being adopted in the interest of cost-efficiency as there are savings from less towers and cabins to be achieved.

2.9 The choice for this technology offers competitive advantages in comparison to other solutions such as light rail, subway or road network extensions. Due to the aerial nature of the system, the project does not have to acquire significant plots of land and is flexible in nature as it can quickly and easily scaled-up to include new and additional lines.

2.10 The project will reduce the pressure on the bridges connecting Lagos Island with Victoria Island. Such reduction in traffic will translate into significant environmental benefits through reduced greenhouse gas emissions. The project will also lead to substantial economic growth and improvements in the quality of life of its users as it will improve commuter safety and significantly reduce journey times from hours to a matter of minutes. With its high population density, the increasing demand for swift transportation, the non-existence of a formal regulated transit system and the lack of viable alternatives to the heavily congested road infrastructure, present a market opportunity for a modern and efficient mass transit system in Lagos.

### **The Sponsor**

2.11 SIAOBI Investments Limited (SIAOBI) (30%), Doppelmayr Seilbahnen GmbH (10%), the Nigerian Sovereign Investment Authority (NSIA) together with other 3<sup>rd</sup> party equity providers (60%) jointly fully own Ropeways Transport Limited (Ropeways Ltd.) a special purpose vehicle established for the purpose of building, operating and maintaining the proposed infrastructure and acting as project company.

2.12 SIAOBI is a privately-owned investment company founded in 2007 for the purpose of investing in infrastructure projects. NSIA is the Nigerian sovereign wealth fund which is capitalized with a share of the profits associated with the Nigerian oil exports. Its mission is to drive sustained economic development for the benefit of all Nigerians, build a saving base for the Nigerian people and enhance the development of Nigeria's infrastructure while providing stabilisation support in times of economic stress.

2.13 Doppelmayr is an Austrian company founded by Konrad Doppelmayr in 1893. The company developed its ski lift and ropeways manufacturing business right after World War 1 when ski tourism start growing. Doppelmayr is one of the world leaders in the sector. As the market leader in the sector, Doppelmayr operates production plants as well as sales and service centres in over 40 countries worldwide. To date, the group has built more than 15,000 installations for customers in 96 nations including Nigeria, Democratic Republic of Congo, Morocco, Algeria and South Africa.



## Cost Structure and Financing Plan

2.14 The total project cost is estimated at USD 294 million and will be funded by a combination of debt (63%) and equity (37%). The total debt amounts to USD 185 million and will be committed by AfDB and other potential lenders which are currently in discussions with Ropeways Ltd. and AfDB but include, among others, the Africa Finance Corporation and JICA. Table 1 illustrates the indicative sources and uses of funds.

Table 1: Sources and Uses of Funds (in USD million)

SOURCES OF FUNDS			USES OF FUNDS		
Description	Amount	%	Description	Amount	%
AfDB Senior Loan	50.0	17.0	Construction Costs	218.0	74.0
CTF Concessional Loan	20.0	7.0	Development Costs	44.0	15.0
AFC Senior Loan	56.0	19.0	Financing Costs	31.0	11.0
JICA Senior Loan	59.0	20.0			
Shareholders' Equity	109.0	37.0			
<b>TOTAL</b>	<b>294.0</b>	<b>100.0</b>	<b>TOTAL</b>	<b>294.0</b>	<b>100.0</b>

### AfDB's Role

2.15 AfDB is considering a senior loan of up to USD 50 million and is in the process of being mandate as lead arranger for a share of the project's total debt. AfDB is considering a tenor of up to 15 years and a grace period of 2 years to allow for the construction and ramp-up of the project. AfDB is in discussions to consider the deployment of a partial credit guarantee to cover part of FGN's obligations under the PRSG.

### Corporate Governance and Management

2.16 The Project will have a typical project finance structure with a strong management team that has extensive experience in the development, implementation and operations of similar transport projects. As a shareholder and both equipment & technology provider, Doppelmayr will play a key role during the construction and in the operations phase of the project.

### Contractual Arrangements

2.17 **Franchise Agreement.** The project will benefit from a 30-year Franchise Agreement that will come into force at the Commercial Operation Date. The agreement grants Ropeways Ltd. exclusivity for the development and operation of the project and right of way access within the franchise area. This agreement can be extended by mutual agreement for a period of 20 years.

2.18 **EPC Contract.** Ropeways Ltd. is in the process of finalizing a turnkey Engineering, Procurement and Construction (EPC) agreement with Doppelmayr and Julius Berger International/Julius Berger Nigeria. The latter shall be responsible for the civil works. The EPC agreement will include liquidation damages provisions and a performance guarantee.

2.19 **O&M Contract.** The project will enter into a 12-year Operation and Maintenance (O&M) agreement with Doppelmayr GmbH for the operation and maintenance of the project.

2.20 **Passenger Revenue Shortfall Guarantee Agreement.** The FGN will provide a USD 200 million shortfall guarantee to mitigate traffic and revenue risk of the project.

## **Environmental and Social**

2.21 In line with AfDB's Integrated Safeguards System, the sponsor has undertaken an Environmental and Social Impact Assessment (ESIA) which was approved by the Federal Ministry of Environment of Nigeria. All statutory processes required for the acquisition and allocation of the project sites have been fulfilled and the original owners (private entities, Lagos State and FGN) have willingly allocated or sold the land to Ropeways Ltd.. All sites have presently been cleared and are in full possession of the project company. The Project is classified as Category 1 by AfDB based on its potential for high social and environmental risks. This categorization forces AfDB to disclose publicly a summary of the ESIA, the Environmental and Social Management Plan (ESMP) and the Resettlement Action Plan (RAP) 60 days prior to approval by the AfDB's Board of Directors.

2.22 A total of 935 Project Affected People were compensated under the RAP. Evidence of these compensations will be a pre-condition for AfDB approval.

2.23 During supervision, AfDB's safeguards teams will make sure Ropeways Ltd. is continuously and actively monitoring all potential risks identified in the ESMP and that all proposed mitigation measures are being implemented.

## **The Market**

2.24 **Demand.** Lagos has a population of around 23 million and is expanding rapidly with a growing need for efficient transport systems between the outskirts of the city and Lagos Island. Lagos has 7 million daily commuters and 10 million daily motorized transport trips. Trips to the centre of Lagos Island can take up to 3 hours during rush hour periods with the bridges linking Lagos Island with the mainland being the critical bottlenecks where average vehicle speed in peak hours is less than 10 km/h.

2.25 **Supply.** The existing public transportation in Lagos currently relies heavily on a road infrastructure that is unsafe, poorly maintained and severely overcrowded. This led over the years to the widespread of informal and sometimes dangerous transport alternatives.

2.26 Road services, whether formal or informal, constitute the bulk of public transportation as rail and ferry alternatives are highly underdeveloped in Lagos. The Lagos Bus Rapid Transit System, operational since 2008, complements the main public transport services which include the danfos (minibuses), okadas (motorcycle taxis), coasters (mid-size buses), molues (large buses) and keke (3-wheeled motorcycles). This market is largely dominated by the private sector. Effective from 1<sup>st</sup> February 2020, the Lagos State Government banned the use of okadas and kekes in major parts of the Lagos State due to security, health and safety concerns.

2.27 **Competition.** There is no direct competition for the project as alternatives would include the water ferry system which despite existing is extremely underdeveloped due to the lack of public investments in basic terminal infrastructure. On the other hand, the bus rapid system, although successful, has a limited capacity of around 200,000 people.

2.28 The proposed lines for the project were designed and developed in coordination with the Lagos State Strategic Transport Master Plan and the regulator. Each site proposed for the construction of the proposed stations was deliberately selected to ensure full inter-modal integration with at least one other mode of transport to achieve optimized integration. The Obalende station, for example, is located besides the main Lagos bus rapid transit system's hub and a taxi park. The Falomo station will be located near a major interchange in the city and next to the newly completed Lagos State Waterways Authority Boat Terminal (Five Cowries Terminal). This highlights a level of integration with land and water transport modes that will contribute to a better integration.

2.29 **Fares.** Through various revenue forecasts resulting from different traffic scenarios, an average one-way fare of N520 (USD 1.44) was derived and is currently being proposed to be charged to every user of the project. The fare compares with an average bus fare of N170 (USD 0.47) as of 2017.

### **3. CTF INVESTMENT CRITERIA**

#### **Potential GHG Emission Savings**

3.1 In addition to the CTF USD 20 million loan contribution, the project will raise an additional USD 274 million in equity and debt financing from other investors. This provides for a leverage ratio of roughly 13.7x. Greenhouse gas emission reductions for the project are expected to equal 24,059.07 tCO<sub>2</sub> eq. per year. Assuming a life of 30+20 years for the infrastructure, the project will contribute to a total reduction of 1,202,953.5 tCO<sub>2</sub> eq. over the lifetime of the infrastructure.

#### **Cost Effectiveness**

3.2 With CTF funds of USD 20 million and total greenhouse gas emissions reduction of 1,202,953.5 tCO<sub>2</sub> eq. over the life of the infrastructure, the cost effectiveness of CTF funds is roughly USD 16.6 per tCO<sub>2</sub> eq.. More detailed information on these calculations can be found in Annex I.

#### **Demonstration Potential at Scale**

3.3 It is expected that the financing and the proposed project structure will greatly improve the status quo of public transportation in Lagos and contribute to remove some important barriers to investment in sustainable transportation in the city and in the country, particularly in terms of increasing the attractiveness (reduced risk and ability to generate returns) of projects that engage private. This will lead to an improvement in the risk perception of local financial institutions by promoting contractual practices and schemes that credibly build track record.

3.4 The project presents a great opportunity to demonstrate the commercial viability of investments into sustainable transport schemes that could lead, over time, to other sustainable solutions across Nigeria and in the region in the long-term. Recently, the Lagos State Government announced the deployment of a new fleet of 65 buses in Lagos and banned the use of some of the informal road services.

3.5 The project can greatly transform the transport system of Lagos by showcasing how key barriers and risks that investors usually face, such as lack of financing, lack of regulatory visibility and a better understanding of the business opportunities, can actually be overcome.

#### **Development Impact**

3.6 Mass-transit systems are key factors of competitiveness, social and economic growth. Considering its strategic location, the project is expected to have a significant impact on the local economy by improving commuting time and allowing its users to become more productive in their jobs and spending more quality time with their families and loved ones as opposed to spending a significant amount of their time on a daily basis commuting.

3.7 The project will also have a positive effect on surrounding land values, property prices and commercial activity that is expected to increase in the vicinity of the stations.

## **Implementation Potential**

3.8 Doppelmayr is the world leader in the development of cable car projects. The company has prior experience in Nigeria as it was the EPC for the country's first cable car project now in operations for over 10 years. In addition to a substantial equity injection, Doppelmayr will be responsible for the operation and maintenance of the project and given their track record, the technical risk of the project is deemed low.

## **Minimum Concessionality and Mitigation of Market Distortions**

3.9 Public transport plays a critical role in assuring mobility of a large portion of Lagosians. Around 95% of the daily passenger trips are undertaken by road through buses, taxis, motorcycles and to a less extent private cars. Despite having one of the most extensive road networks in West Africa, the transport network of Lagos is overwhelmed and in dire need of other solutions that not only improve the average commuting time of its users but are also more sustainable and less polluting.

3.10 The proposed CTF financing can play a number of roles in this first-of-its-kind project in the city, the country and the region. First, it will contribute to prove a technology that has the potential to be replicated in other parts of Lagos where other solutions can be very difficult to implement. Second, CTF can help bringing down the cost of capital of the project and contribute to improve its economies of scale that are being affected by the long duration of the project development phase that led to development costs higher than the average private-sector led projects of this magnitude. Third, contribute to the stabilization of the fares that are perceived as high when compared to other non-sustainable transport solutions and lead to direct benefits to the users of the infrastructure. Fourth, CTF will be involved in a project that requires the establishment of appropriate legal and regulatory frameworks that can contribute, over time, to unlock sources of long-term financing for other sustainable, efficient and formal transportation infrastructure under public-private partnership schemes.

3.11 CTF resources will be deployed in parallel with resources from AfDB, other DFIs as well as the private sector. In particular, the FGN's guarantee is a testament to the commitment by local and federal authorities to the commercial viability of the project as it fully addresses market risk.

3.12 Over time, the project will contribute to the development of new business models by showcasing the viability of close partnerships between public and private sector where risks are allocated properly. As track record is built by the project, other investors and local financiers are likely to consider the expansion of the project. The demand for alternative and efficient transport solutions in Lagos is such, that the project is not expected to create any market distortions. On the contrary, if properly implemented and managed, it can lead to strong replication effects across the Lagos, Nigeria and the region.

## **Financial Sustainability**

3.13 The project is expected to operate profitably under prevailing and projected market conditions. Once phase I is operational and proving to be commercially viable, financing to the next two phases is likely to be raised without recourse to additional concessional finance. This will depend to some extent on the government's ability to re-size and extend the PRSG.

3.14 The limited financial support to be provided by FGN as well as the strong co-benefits and demonstration effects potential of this project directly contribute to the financial sustainability of the proposed CTF financing.

## **Risks**

3.15 Annex II includes a table with all anticipated risks as well as mitigation measures for each one.

## 4. MONITORING & EVALUATION

4.1 AfDB will undertake supervision missions throughout the life of the CTF loan. These missions will focus on the management of the identified environmental and social risks (including gender) and on the monitoring of the project's performance operational and financial performance.

4.2 The legal agreement between the CTF and Ropeways Ltd will include the obligation by the latter to submit on an annual basis a monitoring and evaluation report capturing all relevant CTF indicators that are part of the CTF Results Measurement Framework. Table 2 includes the targets for these indicators.

Table 2: CTF Performance Indicators

<b>INDICATORS</b>	<b>TARGET</b>
Annual GHG Emissions Reductions	24,059.07 tCO <sub>2</sub> eq.
Cost Effectiveness of CTF Funds	USD 16.6 per tCO <sub>2</sub> eq.
CTF Financial Leverage	13.7 x
Number of men/women with improved mobility and access to improved public transport	277,198 / 277,198
Number of Jobs Created	3,400 construction jobs 450 operation jobs

## 5. CONCLUSIONS

5.1 AfDB requests the CTF Trust Fund Committee to approve a CTF concessional loan in the amount of USD 20 million with an interest rate of 0.75%, a tenor of 15 years and a grace period of 2 years.

## Annex I: CTF Investment Criteria Calculations

<b>SOURCE OF FUNDS</b>	<b>USD million</b>	<b>%</b>
Equity	109.0	37.0
AfDB Senior Debt	50.0	17.0
AFC Senior Debt	56.0	19.0
JICA Senior Debt	59.0	20.0
CTF Concessional Senior Debt	20.0	7.0
<b>TOTAL</b>	<b>294.0</b>	<b>100%</b>
<hr/>		
<b>LEVERAGE</b>	1 / 13.7	
<hr/>		
<b>EMISSION REDUCTIONS</b>		
Annual Emission Reductions (t/CO <sub>2</sub> )	24,059.07	
Project Life Emission Reductions (tCO <sub>2</sub> / 20 years)	1,202,953.5	
<hr/>		
<b>CTF COST EFFECTIVENESS</b>		
CTF Funds (USD million)	20.0	
GHG Emission Reductions for the Project (tCO <sub>2</sub> eq.)	1,202,953.5	
Cost Effectiveness of CTF Funds (USD per tCO <sub>2</sub> eq.)	16.6	
<hr/>		
<b>PROJECT COST EFFECTIVENESS</b>		
Total Funds (USD million)	294.0	
GHG Emission Reductions for the Project (tCO <sub>2</sub> )	1,202,953.5	
Cost Effectiveness of Total Funds (USD per tCO <sub>2</sub> )	244.3	
<hr/>		

## Annex II: Risks and Mitigants

Description	Mitigants
Commercial and Revenue Risk	The project will benefit from a traffic revenue shortfall guarantee of up to USD 200 million which can be called upon to cover any decrease in expected traffic of the infrastructure and allow Ropeways Ltd. to honour its financial obligations, including principal and interest payments of the debt committed to the project.
Change of Law Risk	Under the 30-year Franchise Agreement entered between Ropeways Ltd., the Lagos State Government and LAMATA, the FGN commits to set the legal framework to enable the smooth operations of the project by assisting on the provision of the required operating licenses and to generally support the project. The Lagos State Government will provide a Letter of Support as a condition precedent to the date in which the Franchise Agreement enters into force. This letter will cover all permits and approvals.
Power Supply Risk	For the operation of the Project, there is a strict need for constant, reliable and uninterrupted power supply in order for the systems to operate smoothly and without interruptions. In order to achieve this, the project will procure an on-site power generation arrangement under a long-term Power Purchase Agreement (PPA) with an Independent Power Producer (IPP) for a duration of at least 20 years. The PPA will have standard performance obligations and appropriate liquidated damages. The IPP fuel source will be mainly gas (piped or compressed natural gas) as it will seek to take advantage of the infrastructure's proximity to gas pipelines in. The project requires around 5.8 MW of constant power which can be easily realized with existing providers. Two potential providers have already been pre-selected, including CET Power, a company supplying projects with similar capacity needs (from 2-10 MW) such as the largest hospital university in Lagos State that operates off-grid facilities. In addition to the power sourced from the selected IPP, the project will rely on a rotary UPS back-up to ensure uninterrupted power supply at all times.
Market Price Risk	Given the status of transportation links in Lagos State, transport fares across all transportation modes have been known to be elastic in nature as they quickly adjust to changes in inflation with very little resistance. Moreover, the Franchise Agreement allows Ropeways Ltd. to update fares on an ongoing basis. This risk will be fully mitigated through the PRSG.
Counterparty Risk	Ropeways Ltd. and its shareholders are deemed to have the required technical and financial capacity required to develop, finance, build and operate a project of this magnitude.
Construction Risk	The Project will be constructed under a fixed lump-sum turnkey EPC contract. Construction risk will be allocated to the EPC contractor through a combination of liquidated damages and penalties for late delivery of the facilities or in case performance levels are below the contracted ones.
Operations and Maintenance Risk	The operation and maintenance risk will be borne by Doppelmayr as the O&M contractor. Doppelmayr has an operating cable car system in Obudu, Cross River state located in the eastern part of Nigeria which has been operational for over 10 years. The proposed project is expected not only to leverage this experience but to rely on the market leader position globally that Doppelmayr holds. In addition, the project and its financiers will benefit from a Maintenance Reserve Account that will cater for periodic heavy maintenance costs and lifecycle works expenditure.
Currency Exchange and Convertibility Risk	Due to the fact that Lenders will be exposed to currency exchange risk since project revenues will be priced in local currency, the Franchise Agreement allows Ropeways Ltd. to adjust fares in line with inflation and foreign exchange fluctuations. Furthermore, the EPC contract

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**Description****Mitigants**

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will be denominated in USD/EUR for all the offshore components in a bid to reduce the quantum of currency exposure for the Project.

Ropeways Ltd. will procure Certificates of Capital Importation (CCI) that would ultimately allow both Ropeways Ltd. and its lenders a right to access the official foreign exchange markets of the Central Bank of Nigeria (CBN) in order to secure hard currency to meet debt service obligations at official rates.

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### Annex III: Project Area

