



KenGen's CARBON CREDIT PORTFOLIO



KENYA ELECTRICITY GENERATING COMPANY PLC

Climate Mitigation Engagement

Introduction

The world is facing unprecedented rise in temperatures as a result of rise in greenhouse gases in the atmosphere. The world through the United Nations Frameworks Convention on Climate Change has been tackling the rise of temperatures post-industrial period through treaties that binds all or part of the member states.

Such a treaty is the Kyoto protocol that set emission reduction targets for Annex I countries and technological and financial transfers to Non-Annex I countries to support mitigation and adaptation initiatives. In a novel way, the second convention, The Paris Agreement, demonstrated clear link between global warming and emission increase in the atmosphere and so, tasked all member states to reduce emission in a way to limit warming to well below 2°C and pursue efforts to limit the rise to 1.5°C above pre-industrial levels by the end of the century.

The 2°C and the 1.5°C come as a result of the backdrop of the predicted severity of climate change impacts, including more frequent and severe droughts, heat waves, rainfall, diseases, scarcity in water and pasture which leads to conflicts. All these impacts affect countries negatively but at different intensities owing to the varied adaptive capacities. Developing countries, on one hand will be, and has been impacted the most even though their emission contribution is very low, if not negligible.



KenGen participation in the Kyoto Protocol

As provided for in article 12 of the Kyoto Protocol, Kenya Electricity Generating Company (KenGen) developed and registered six renewable energy projects in the Clean Development Mechanism (CDM) to support climate Change mitigation and the resultant Certified Emission Reduction (CER) as indicated in table I below. The registered projects have a potential to reduce 1.5 million CO₂e annually and have so far been issued with **5,057,253 CERs** (gross). KenGen commercialized some of the issued CERs with partners. Of the issued CERs, KenGen still has **4,578,148** available CERs for commercialization as indicated in table I below.

KenGen seeks to sell its acquired CERs to stimulate increase in mitigation ambition, and to support sustainable development. The projects and CERs have been implemented and verified in accordance with the United Nations Framework Convention on Climate Change (UNFCCC) guidelines. The projects meet the criteria for high quality emission reduction units, which include:

1. Demonstration of additionality
2. Verifiable
3. Permanence
4. Measurability
5. Avoids leakage

In addition the projects have demonstrated sustainable development co-benefits components as detailed below:

1. Improved air quality
2. Affordable & clean energy
3. Employment and access to income generating activities
4. Improved access to education
5. Environmental improvement
6. Clean water for domestic use

Table 1: KenGen CDM Projects

No.	Project	Date of Registration	UN Project ID	Available CERs	Vintage
1	5.1MW Grid Connected Wind Electricity Generation at Ngong Hills, Kenya	May 19, 2014	9960	23,391	01/07/2014 to 30/09/2018
				12,575	01/10/2018 to 31/12/2020
2	Olkaria IV Geothermal Project	December 28, 2012	8646	1,985,297	01/09/2014 to 31/12/2018
3	Olkaria I Units 4&5 Geothermal Project	December 28, 2012	8643	1,999,705	01/01/2015 to 31/12/2018
4	Optimization of Kiambere Hydro Power Project	October 24, 2012	7783	36,110	01/11/2012 to 30/06/2013
				120,697	01/07/2013 to 30/09/2018
				27,775	01/10/2018 to 31/12/2020
5	Redevelopment of Tana Hydro Power Station Project	October 11, 2011	5023	56,309	01/01/2013 to 30/09/2018
				23,673	01/10/2018 to 31/12/2020
6	Olkaria II Geothermal Expansion Project	December 4, 2010	3773	292,616	01/10/2014 to 03/12/2017

At KenGen, we voluntarily dedicate 10% of the income from commercialization of CERs to support neighbouring communities in a program themed Community Benefit Program. So far, we have invested more than **USD. 360,000** to support communities in the area of education infrastructure, water and sanitation and mobility.

Some of the projects undertaken are outlined in Table 2



Ngong- 5MW



Olkaria IV



Kiambere-164MW



Tana - 20MW



Olkaria IAU - 140 MW



Olkaria II - 35 MW Geothermal Expansion



Kiambere Dam



Olkaria II



Olkaria IV



Tana Power Station

Table 2: Community Benefit Programs

No.	Community Benefit Project	Associated CDM Project
1	Construction of Ngurunga Earth Dam	Kiambere Hydro Project
2	Rehabilitation of Mirira Primary School and associated infrastructure	Tana Hydro Project
3	Rehabilitation and equipping of Kiambaa Primary School	
4	Construction of Mirira Dam footpath	
5	Construction and equipping of three classrooms in Oloiruwa Primary School	Olkaria II Geothermal Project
6	Excavation of Oloosing'ate water pan	
7	Construction and equipping of three classrooms in Nkaampani Primary	
8	Construction and extension of a 10km Maiella waterline	

Future Outlook

KenGen has deliberately planned to increase electricity capacity in Kenya through renewable energy. We have planned to increase our capacity to 2500MW by 2025 using sources geothermal, wind and solar resources. Our projects will support climate mitigation through low carbon energy pathways as well help in achieving 2030 Sustainable Development Goals. As envisaged in our vision and mission, we intend to provide reliable, safe and competitively priced electric energy and undertake capacity expansion using environmentally friendly technologies.

KenGen is placing itself at a strategic position to participate in the carbon market frameworks under the Paris Agreement through development of innovative energy technologies that is green, renewable and of low carbon. We intend to tap into carbon markets to harness the needed financing for the capacity expansion through the low carbon pathways.

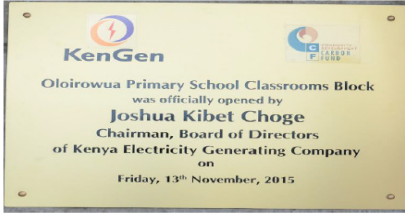
In addition, the carbon finances will go a long way in increasing climate mitigation ambition and in supporting Kenya's climate commitments. The funds will also support development of climate resilient energy programs that will climate proof Kenya's energy sector.

Table 1: Olkaria CBP Project Location and Beneficiaries

PROJECT NAME	PROJECT LOCATION	EXPECTED BENEFICIARIES
Oloirowua Primary School	Narok County	Approximately 135 pupils annually
Maiella 10km waterline	Nakuru County	Approximately 2,000 households
Nkaampani Nursery School	Nakuru County	Approximately 150 pupils annually
Olosing'ate Water Pan	Narok County	Approximately 7,000 livestock daily belonging to individuals and 1,500 people daily

Other Project Benefits to the Community

1. Employment of youth within the project communities.
2. Skills on environmental management delivered to project committee by KenGen Environmental Officer.
3. Road repair has benefitted over 5,000 people during and after the project implementation period.
4. Watering of around 7000 livestock daily and 1500 people fetching water from the water infrastructure provided.
5. Community project implementation committees have benefitted from sitting allowances as well as project sustainability training.
6. Distance to water access shortened hence saves time for looking for water.
7. Girl child whose role has been to fetch water has now been freed to attend school.



Handover plaque for Oloirowua Primary School Classrooms



KenGen and World Bank Team during the Handover



World Bank Rep Speaking during the Handover



KenGen Chairman speaking during Handover



Completed Classrooms at Oloirowua



Children in Class at Oloirowua

Olkaria – Maiela Water Line - Headquarter Tank – Before 2011 & After March 2018

Repaired & Roofed Tank – the last point of the 10 km Maiela Waterline – USD 10,584.37



Booster Pump – Bought & Installed by KenGen – USD 8,529.37

Olkaria CBP Project – Nkaampani Primary School – 3 Classrooms Built & Equipped



Olosing'ate Water Pan



Water levels June 22, 2016



Water levels January 4, 2018



Embarkment June 22, 2016



Embarkment January 4, 2018

Table 2: Kiambere CBP Project Location and Beneficiaries

No.	ACTIVITY	BENEFIT	BENEFICIARIES
1	Construction of Earth Dam	Increased safety: reduced fatalities from crocodile attacks when collecting water from 10 per year. Improved access to water: Distance (km) to access water reduced. Residents will have more time to engage in other business or social activities. Economic: water for crop growing for the immediate residents next to the dam.	500 residents 320 cows and 4000 goats and sheep

Table 3: Tana CBP Project Location and Beneficiaries

	Benefit Activity	Benefit Components	Beneficiaries
1	Rehabilitation of Mirira Primary School	Cover classroom floors with concrete slabs Concrete floors installed in all 9 classrooms	200 pupils, 15 teachers 100 parents
		Install metal doors in all 9 classrooms	
		Refurbish the school roof and install rainwater harvesting materials	500 community members within the school catchment area
		Repair existing 50,000-liter water tank	
		Establish a wood lot with 1000 indigenous seedlings. School lot of 4 acres allocated and fenced. 600 indigenous seedlings (of 300 Mango and 300 Cassia siemea procured and planted on lot.	
2	Kiambaa Primary School Project	<p>The school CBP project has contributed to the social, economic and environmental development of the area and benefited both direct (students and school staff) including:</p> <p>Income generation through employment for the community during renovation - short term financial benefit.</p> <p>Establishment of a mini-woodlot with fruits to supplement students' diets and for sale - long term health, environmental and financial benefit.</p> <p>Provision of gutters for rainwater harvesting - long term socio-economic and health benefit.</p>	Kiambaa Primary School serves a total 250 pupils.







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