

## KENYA INVESTMENT AUTHORITY

### KIRINYAGA COUNTY SMALL & MICRO HYDRO POWER GENERATION Project Profile

Please fill the questionnaire to enable KenInvest understand the details of the investment Opportunity and return by email to [profiling@investmentkenya.com](mailto:profiling@investmentkenya.com) .

*Note that this is a summary sheet and in no way does it constitute a business plan. It is a first point of contact aimed at collecting initial project information before the project is reviewed. As such information should be given in summary and preferably in point form.*

#### A. ADMINISTRATIVE AND CONTACT INFORMATION

Organisation Name	COUNTY GOVERNMENT OF KIRINYAGA
Street address	ACK BUILDING, KUTUS
City	KUTUS
Telephone	+254202582237
Fax	
E-mail	<a href="mailto:finance@kirinyaga.go.ke">finance@kirinyaga.go.ke</a>
Website	<a href="http://www.kirinyaga.go.ke">www.kirinyaga.go.ke</a>
Type of Organisation	COUNY GOVERNMENT

#### Contact Person

Title	HONOURABLE
Name	MURIMI MURAGE
Position	COUNTY EXECUTIVE COMMITTEE MEMBER & HEAD OF THE COUNTY TREASURY
Telephone	+254 729 320 103
Mobile	AS ABOVE
E-mail	<a href="mailto:finance@kirinyaga.go.ke">finance@kirinyaga.go.ke</a> and <a href="mailto:murimi.murage@gmail.com">murimi.murage@gmail.com</a>
Working languages	English, Kiswahili

#### Project Snap shot

Sector	ENERGY
Private Sector engagement required	FINANCIAL – CAPITAL RAISING AND TECHNICAL – FEASIBILITY STUDY
Cost estimate of the project	KSHS 2 BILLION
Stage of project readiness	CONCEPT PAPER READY. SITES IDENTIFIED
County government Incentive	WHERE APPLICABLE, COUNTY LEGISLATION WILL GIVE INVESTMENT INCENTIVES DEPENDANT ON SCALE & LEVEL OF INVESTMENT

#### B. PROJECT INFORMATION

##### 1. Overview of the Project

*Summary /Key highlights of the project including a brief description of the economic and social benefits*

Project:

#### **EXECUTIVE SUMMARY:**

Kirinyaga County is located on the windward side of Mt Kenya forest, meaning that it receives lots of relief rainfall. The implication of this is that part of its upper catchment is covered by natural rainforest which has a stabilizing influence on surface runoff.

Mt Kenya has a volcanic origin which has in turn influenced the nature of geology and soils. The consequence of this is that the river basin morphology and riverbed structure is largely defined by the geomorphic history of volcanism, volcanicity, erosional and depositional cycles. Resultant from the geological processes of the area is a large coverage of the upper parts of the county with well drained

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volcanic soils that promote infiltration and ground water recharge.

The combined effect of these physical characteristics is a permanent springs system that feed and sustain perennial rivers. But due to the seasonal nature of rainfall, the rivers exhibit very unstable flows during each transition from wet to dry hydrology. This poses a challenge in the sustainability of large hydropower dam projects. It is due to this challenge that small scale hydro power plants are a viable alternative in the County.

### **Problem Statement**

Over the years, the focus of Kenya's electricity generation has been hydropower from large scale dams. But power generation from this source has been hampered by the twin problem of diminished reservoir storage during the dry season and high reservoir sedimentation rates during the rainy season. The result of this is that Kenya's electricity supply remains erratic in view of the over-reliance on this source which is sensitive to variable hydrological conditions. This informs the current government's policy of diversification into thermal and geothermal sources. While the former poses the challenge of heavy operational costs, the latter requires huge capital investments to install.

At the County level, financing the development of huge hydropower dams with local resources is not easily affordable. In Kirinyaga county, the physical sub-catchment characteristics of precipitation, geology and high drainage density are favourable for the development of small and micro-hydro power plants. Run-of-river power generation plants are particularly suitable as they rely on small catchment areas that have comparatively higher flow stabilities and are free from the problem of siltation. Kirinyaga County has a high number of potential small and micro hydro sites. Save for a few that have been developed by the Kenya Tea Development Agency (KTDA), the bulk of these sites remain undeveloped due to the inability to finance, by either the County Government or the local community groups. Investment in the development of these sites has the potential to raise revenue through surplus electricity sale, boost local enterprises through cheaper energy and stimulate and sustain the growth of the local economy.

### **Rationale.**

In the recent years, the government of Kenya through the Ministry of Energy & Petroleum has been formulating laws, regulations and policies to guide sustainable energy generation in Kenya. This is in a bid to beat the high demands of energy in pursuant of the *Sustainable Development Goals* (SDGs) and the *Vision 2030*. One of the most supportive policies along this line was the feed-in-tariffs policy created through parliament Session Paper 1 of 2004. Implementation of this policy was actualized through the enactment of the *Energy Act 2006*.

The feed-in-tariffs policy is the basis for viable investment in the small and micro-hydro electricity generation sector. It provides three excellent features: First, it has pre-negotiated pricing and procedures; second, it exempts the investor from going through the normal government procurement process since it is normally pre-negotiated and approved with all necessary details; third, the approval of an investor to be an Independent Power Provider (IPP) is catered for under the framework.

The viability of investment in small and micro-hydro power stations in the county is illustrated by the successful installations by KTDA and a few community projects. Additionally, through the support of the government of Japan and UNIDO, an Ultra Low Head micro-hydropower turbine has been installed in one the National Irrigation Board's canals in Mwea on a pilot basis.

### **Benefits.**

At the general level, investment in power generation by Independent Power Producers (IPPs) has the benefit of complementing the Kenyan government's efforts towards enhanced power generation as envisioned by the Vision 2030 development blueprint. The total net energy is projected to increase from the 7,032 GWh generated in 2008/09 to 55,544 GWh by the year 2028/29. At the global scale, enhanced investment in the clean energy sector is expected to reduce carbon emissions in mitigation of global warming. At the county level, the growing demand for energy by domestic customers and growing applications of electronic technologies provides viable market for electricity generated at small and micro-hydro scale.



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### **Project Objective:**

The prime objectives for investment in the development of small and micro-hydro electricity projects in Kirinyaga County are:

(i) Acceleration of development in the poor rural areas where majority of the people live.

(ii) Increase accessibility of affordable energy.

(iii) Enhancing of the capacity and reliability of the national grid.

(iv) Promotion of positive use of clean energy.

### **Project Implementation and Management Plan**

The implementation of the project is planned to comprise of consultancy services, construction, supervision and monitoring and evaluation. Any procurement will be done in compliance to the PPDA and the requirements of our development partner.

### **Project Budget:**

Ksh 2 Billion to cater for design, supervision and construction.