

# UTILITIES AND ENVIRONMENT INDUSTRY

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Utilities comprise of public services offered to citizens of a country. They include water & sanitation and electricity services. Less than half of Kenyans (48%) have access to tap water while 68% to adequate sanitation. The government aims to provide water and sanitation to the whole country by 2030. The demand for energy is increasing and works are underway to double the transmission from 3,767km of voltage lines by 2017. 17,000MW of electricity are expected by 2030 from the current 1,672MW.

## Regulatory environment

The energy sector is governed in chapter 314 of the Kenyan Constitution. In 2006, there were reforms where Energy Regulation Commission was launched in 2007, which lifted the role of regulation from the government. Its role is to set prices for Independent power producers (IPPs), ensure stiff competition, monitor market failure, promote cheaper renewable energy sources and reduce thermal share in generation.

Prior to the reforms, the government was the sole provider of utilities. As for the energy sector, Kenya Power and Lighting Company was the only monopoly until mid-1990s. OrPower 4 was the first company to be offered a tender to be an Independent Power Producer in Kenya in 1995. Tsavo Power also paved into the market around that time with diesel-based power production whereas OrPower 4 generates geothermal electricity.

In 1997, the sector was disintegrated into production, transmission and distribution activities which are currently done by Geothermal Development Company (GDC) or KenGen, Kenya Electricity Transmission Company (KETRACO) and Kenya Power respectively.

The Water Act was established in 2002, after which the Water Services Regulatory Board was launched and set up to guide on pricing, issue licenses and boost growth of the sector. It also analyses performance of the water utility service companies using a set benchmark and is in charge of SPAs and tariffs.

## **GROWTH OF THE UTILITIES INDUSTRY**

The utilities industry is facing major turn arounds, with growth rates accelerating. The government understands that electricity is essential for industries such as ICT and Manufacturing to grow, water is necessary for proper sanitation of citizens therefore reducing the risks of diseases; boosting performance of individuals to drive the economy forward and reduce medical expenses.

### **ELECTRICITY UTILITY**

#### **Hydro and thermal electricity**

Some of the IPPS in Kenya producing are OrMat Technologies via OrPower, Tsavo Power, Iberafrica, Aldwych International and Burmeister & Wain Scandinavian Contractors, and Triumph Power being the latest arrival to provide thermal power. 44% of Kenya's power generation is from hydroelectric sources and 43% from thermal sources. KenGen owns

1,133MW of the existing 1,672MW with almost half being hydroelectric and the rest geothermal and thermal.

### Geothermal

The Great Rift Valley in Kenya is said to have 10,000MW of potential energy, but the current capacity is only 200MW. Ormat Technologies was the first IPP to establish a geothermal plant in Kenya in 2000. GDC later on was developed to develop geothermal wells. Among the largest wells are the Menengai and the Baringo one, which have potential capacities of 1,600MW and 800MW. By 2017, under vision 2030, the government aims to have 3,620 geothermal wells.

### Wind and Sun

The British firm Aldywich is undertaking the wind energy production project in Turkana. It is expected to produce 300MW being the biggest before the New Zealand which has a load factor of 48%, while Turkana has 52%. Africa Development Bank was the leading financial of the project, having invested Ksh73b. Kenya power has also partnered with Aldywich International for a 20-year power purchase agreement. Plans to construct a 100MW wind farm in Meru are to begin in the next few years. Wind energy can be very expensive to set up but very economical in the long run.

Solar energy on the hand is not a big-scale project; below 100MW. This is because off grid solar units are more expensive than the power price of 8 cents targeted by the government. Another challenge would be that solar power is expensive to store; hence it is mostly left for local consumption. The biggest scheme is in Changoi, Bomet County and the largest in East Africa. It

was put up by a British company SolarCentury in the tea farm so as to cut electricity costs which had risen to 79.4% from 2001 to 2010.

## **Coal and gas**

In the government's mission to increase power capacity to 5,000MW, coal and gas are included.

A 960MW coal-fired electricity plant in Kitui and Lamu are expected to be completed by 2016

whereas the Natural gas plant will be based in Dongo Kundu in Mombasa.

## **The influencing economic factors**

### **Weather**

The weather patterns greatly determine power production capacities and the load factors.

Demand increases when the weather is cold for heating and lighting purposes. It can also be argued that more energy is used during the hot season for air conditioning purposes.

### **Disposable income**

People will tend to spend more on utilities if they have a disposable income. People in the rural areas will demand for electricity only if they can afford it.

### **Number of suppliers**

Since the number of suppliers is still very small, they hold the bargaining power. The more the suppliers, the more competition there will be in the industry and as a strategy, a few companies may set the prices down.

### **Volatile fuel prices**

The struggle by oil producing countries to control oil prices and the industry has caused a lot of volatility in the market.

### **New regulations**

The government still continues to introduce new laws governing the Energy and Water Act. Favorable regulations influence investors into the market.

### **Environmental restrictions and regulations**

With the increasing need to use natural elements to produce electricity, geothermal, wind and sun energy is encouraged across the world. This is to reduce environmental hazards such as deforestation in the case of coal as a source of energy.

### **Increased operational costs**

Production of energy is very expensive especially diesel-fueled. Thermal electricity causes fuel cost levy to rise significantly.

### **General industry competition**

IPPs are emerging to produce alternative sources of energy which are renewable and cheaper.

## **Main competitors and their operations**

### **Kenya Power and Lighting Company (KPLC)**

This is a limited liability company that transmits, distributes and retails electricity to customers throughout Kenya. It was the only monopoly till the late 90s. It sells

electricity to over 2.6 million customers. It is listed on the securities exchange.

Government controls the majority of shares, 50.1%, and the rest is for private investors.

### **Kenya Electricity Generating Company (KenGen)**

This is the largest power producing company in Kenya. KenGen relies on various sources to generate electricity ranging from hydro, geothermal, thermal and wind. Hydro is the leading source, with an installed capacity of 0.821 GW, which is 52.3 percent of the company's installed capacity.

### **Geothermal Development Company**

The Geothermal Development Company (GDC) is a 100% state-owned company, formed by the Government of Kenya for a specific purpose i.e. to promote the development of geothermal resources as a Special Purpose Vehicle to fast track the development of geothermal resources in the country.

### **OrPower**

This was the first IPP to enter the Kenyan market. It is based in Naivasha and seeks to generate electricity using geothermal sources. It is a subsidiary of Ormat Technologies Inc.

## **WATER UTILITY**

Water is a scarce resource especially in urban slums and rural areas. During the early years of the 90s, it was the responsibility of National Water Conservation and Pipeline Corporation to provide these services and other a few utilities companies. Private water utilities were formed

under the Service Providers Association (SPAs). The following table shows the current situation of water service providers:

**Table 1: Types of small-scale water providers**

Type of providers Sample	number of providers	Share (%)
Tap water vendors	62	39
Water kiosks (including CBOs)	37	23
Borehole water vendors	28	18
Pushcart vendors	17	11
Tanker trucks	15	9
Total	159	10

## Main water service providers

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### **Nairobi City Water and Sewerage Company (NCWSC)**

NCWSC was formed after the enactment of the water Act 2002. It is a fully owned subsidiary of the Nairobi County Council. It is results and customer oriented and aims to be the best water service provider in Africa. The management of the company is recruited on the basis of merit and therefore the government has no significant influence on NCWSC.

### **Runda Water Limited**

Based at Ruaka in Kiambu, Runda Water Limited was established to provide water services to the Old Runda since City Council did not have the capacity to do so. Runda Water limited provides water services to the residents at a monthly charge matching their bills. Water interruptions are also very rare and if they happen, are attended to promptly within two hours.

### **Nyeri Water & Sewerage Company Limited (NYEWASCO)**

This company aims to be the leading provider of water and sewerage services. Its main operations include extension & connection of water services and extension and connection of sewerage services. It is based in Nyeri town and it is a customer oriented company. They seek to satisfy the water needs of a customer while still following statutory regulations.

### **Kisumu Water and Sewerage Company Ltd. (KIWASCO)**

KIWASCO can be dated back to 1901 where it was known as Port Florence in Kisumu. The company was formed on July 2003 after transformations were made in the Water Act of 2002.



Its main objective is to provide water services around the Lake Victoria region, and obtain sufficient revenue to finance their operations. It took over the roles previously coordinated by the Kisumu Municipal Council.

**Eldoret Water and Sanitation Co. Ltd (ELDOWAS)**

ELDOWAS is a committed limited company that aims to provide quality & adequate water services and waste water disposal, meeting dynamic customer needs. It also emphasizes on cost-benefit principle through competitive qualified staff.

**Mombasa Water & Sewerage Company Ltd (MOWASCO)**

Committed to the residents of Mombasa city, MOWASCO was incorporated in December 2003 to supply water and waste water disposal services. It was incorporated under the Companies Act, Chapter 486.