



# Ekurhuleni Power Partners Mark Wilson Pr Eng



# Introduction



The City of Ekurhuleni (COE) adopted an energy and climate change strategy in 2007

From this strategy an Energy Plan was adopted in 2015

The Energy Plan aims to reduce energy demand in the COE and diversify our energy mix

A minimum of 10% of our energy usage must be from renewables by 2020, achieved as follows:-

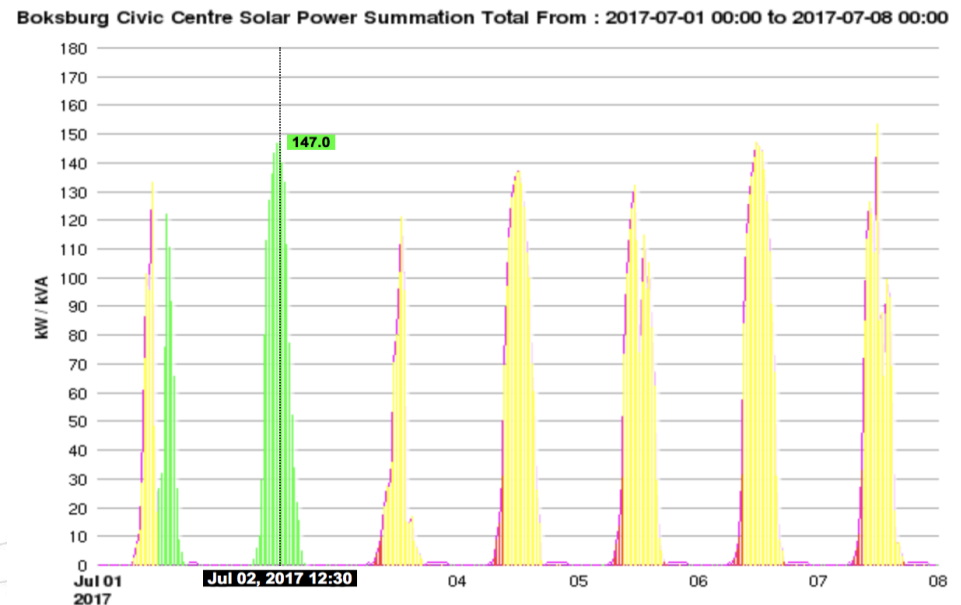
Installing PV plants on our own buildings – 1 MW of rooftop PV have been installed

Installing solar water heating, energy efficient street lighting and building lighting



The creation of, and partnering with Ekurhuleni Power Partners to generate renewable energy on a large scale

The graph below shows the weekly profile of the 250kWp PV installation on the various rooftops of the Boksburg Civic Centre, taken in the first week of July 2017



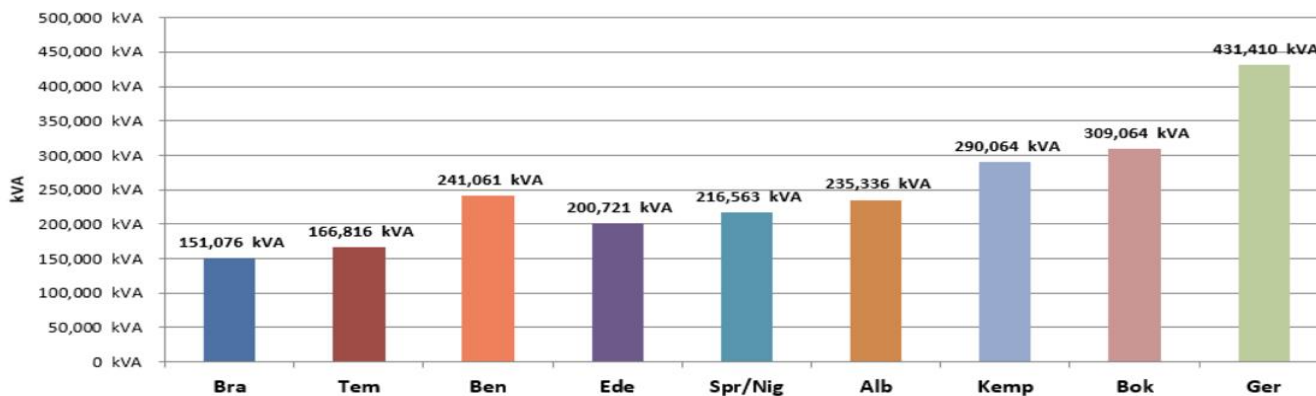
# Background



The COE incorporated 9 old towns and cities of the East Rand, as well as portions of the Kyalami Metro and the Eastern Gauteng Services Council

It became one of the country's largest Metros, as well as one of the largest electricity distributors

The graph indicates the demand in every one of the COE Energy Depot Areas:- Brakpan, Tembisa, Benoni, Edenvale, Springs/Nigel, Alberton,



The COE has no power stations and is reliant on Eskom for its power requirements



During 2016, the Executive Mayor, Councillor Mzwandile Masina put forward the vision of a

Ekurhuleni Power Station

With our limited annual Energy capital budget of R700 million, it will be impossible to build and operate a City owned power station

Many companies have approached the COE to supply the City with electricity from various realistic and unrealistic technologies

The COE as the industrial heart of the country, has to ensure adequate reliable power supply and needs to reduce emission levels in the city and the country as a whole



# The Ekurhuleni Power Partner (EPP) Model



In the absence of legislation and many regulations in draft only, the COE designed a model that would fit into these draft regulations, whilst still meeting the needs of the City

Our concept was discussed with the National Department of Energy, as well as the previous Minister of Energy

**The model can be described as follows:-**

Ekurhuleni would call for tenders for **power partners**, extending over a period of **20 years**

EPP's would build Power Stations within the **geographical boundaries**

No cross boundary supply and directly connected to COE networks



It meets the draft regulation idea of **own generation for own needs**

Plants in our boundaries also ensure **job creation**

All technologies will be **renewable and/or reduce emissions** – natural gas generation of electricity will be allowed

**The main technologies proposed are:-**

- **Waste to Energy** – The COE disposes of almost 2 million tons of mixed waste to 4 main landfill sites
- **Landfill Gas** – The COE has an estimated volume of methane gas from gas wells and flaring program to generate between 5MW and 10MW
- **Photovoltaic (PV) electricity generation** – Gauteng has very good levels of solar radiation, EPP's will be allowed to build a PV plant on their own land within COE or they can utilise a COE owned farm that is ideal for a large PV installation of about 250MW
- **Natural gas electricity generation**



The pricing for the electricity generated shall be a maximum of the **Eskom Megaflex Tariff**

rates as paid by the COE to Eskom



All EPP's shall offer a discount per year with the first 3 years after power production, commencing

with a 0% discount - this 3 year period will aid start-up and stabilisation

All discounts offered per annum will be grouped per technology and averaged excluding the highest and lowest discount

The same average discounted rate shall be paid to each EPP, per technology

The COE shall apply to NERSA for a generation licence/s and the EPP will provide the role of the service provider





# EPP Implementation



The COE Energy Department obtained “in principle” approval from Council to call for tenders exceeding 3 financial years up to 20 years

The tender was awarded on 24 May 2017

The award was made subject to the **Section 33** process of the MFMA being concluded as well as subject to a **successful power purchase agreement** being concluded between the COE and each EPP as well as the necessary **generation licences** being obtained from NERSA



The following number of bidders, technologies and average discounts were awarded subject

to the conditions stated:-



- 1 x company for **Landfill Gas** electricity generation to the volume of 5 MW, with an average discount of 1% per annum, after the first 3 years
- 6 x companies for **Waste to Energy** electricity generation for a total of 139 MW with the minimum of a 5 MW plant and a maximum plant size of 33 MW, with an average discount of 9,7% over 20 years
- 32 x companies for **PV** electricity generation for a total of 288 MW with the minimum of a 5 MW plant and a maximum plant size of 10 MW, with an average discount of 8,7% over 20 years
- 7 x companies for **Natural Gas** electricity generation for a total of 195 MW with the minimum of a 5 MW plant and a maximum plant size of 50 MW, with an average discount of 12,4% over 20 years (continue overleaf)



## Continued

- 1 x company for **Coal Gasification** electricity generation for 36 MW with the minimum of 5 MW, with an average discount of 0%
- 1 x company for KPP Technology (still to be clarified) electricity generation for 10 MW, with an average discount of 8,7%



# Conclusion



- The COE has issued a draft PPA for comments - parallel to this, the Section 33 process as prescribed in the MFMA is followed
- Once the Section 33 process is concluded, the COE will enter into individual negotiations with each technology group to conclude PPA's
- Once these processes are concluded, the COE will approach NERSA and DoE for the issuing of licenses
- The COE has the support of our Executive Mayor and Council and although we are working in a new regulatory environment, we believe we shall succeed in defining a new model for power generation in local government



