



Eskom's Air Quality Offsets Implementation Plan for the Nkangala District Municipality

Nkangala District Municipality Public Meeting eMalahleni, 16 March 2016

What are we talking about today?





Why is Eskom doing offsets and how did they develop the plan?

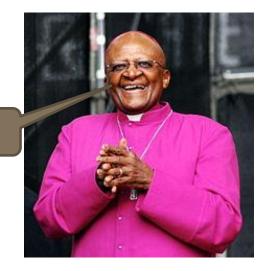


What is Eskom proposing for their highlevel plan?

How can Eskom's plan be improved?



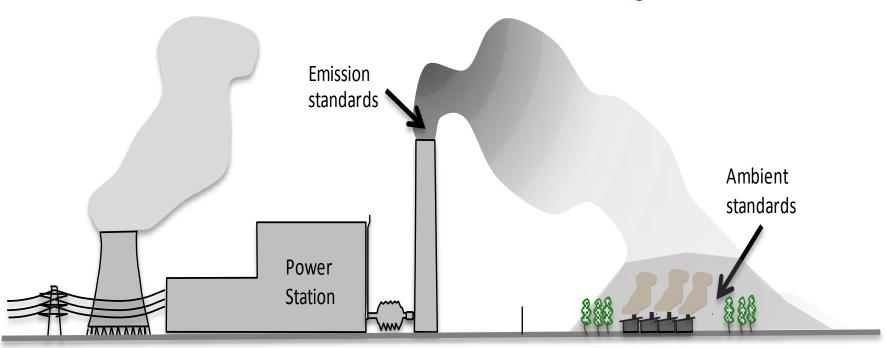
Peace!



Eskom and air quality



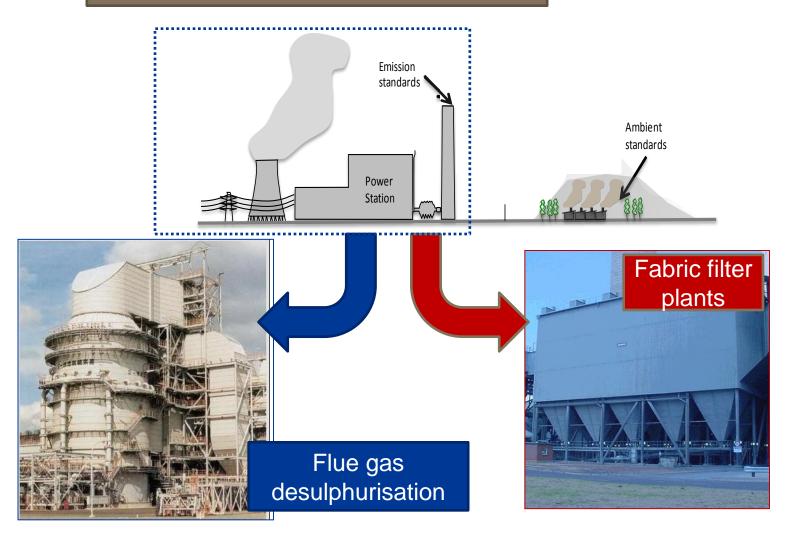
- Eskom generates the bulk of South Africa's electricity, which sustains the economy and livelihoods of all South Africans
- As a by-product of electricity production, Eskom power stations emit combustion gases and particulate matter which have an impact on the air we breathe
- Ambient air quality is affected by many sources, including power stations, other industries, mines, vehicles, domestic emissions, agriculture, veld fires



Eskom is taking steps to improve air quality



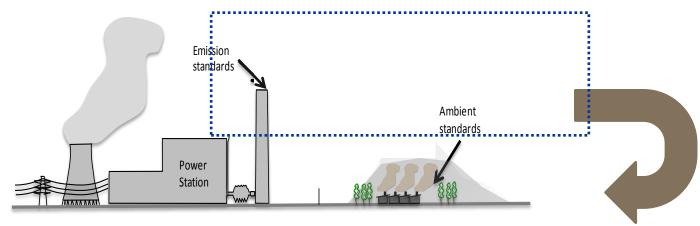
1. Upgrade power stations

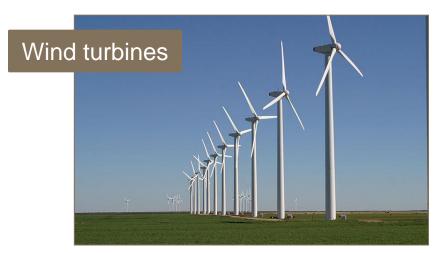


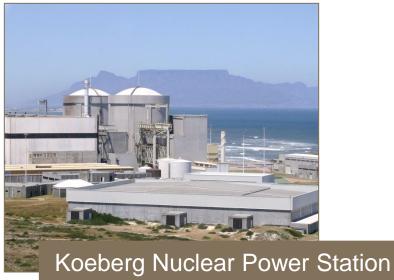
Eskom is taking steps to improve air quality



2. Install more renewables and nuclear



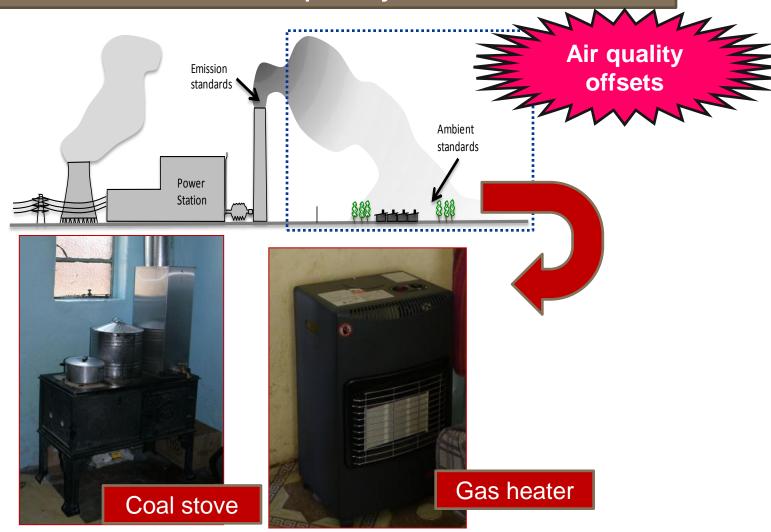




Eskom is taking steps to improve air quality



3. Improve ambient air quality in communities



What is an air quality offset?

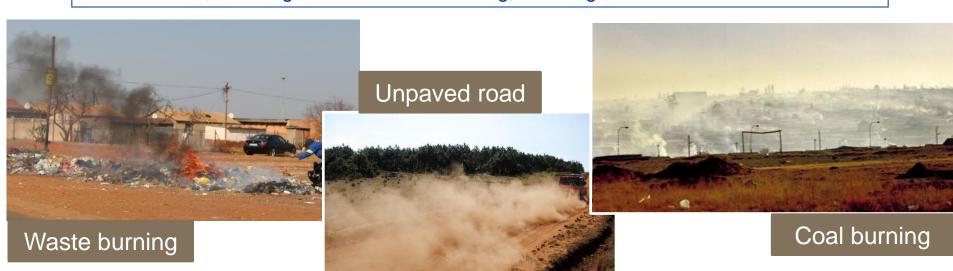


Department of Environmental Affairs's Draft Air Quality Offsets Guideline (26 June 2015):

an offset is an intervention, or interventions, specifically implemented to counterbalance the adverse environmental impact of atmospheric emissions in order to deliver a net ambient air quality benefit within the affected airshed/s.

"affected airshed" means the closest area to the facility in question, wherein ambient air quality standards are being or have the potential to be exceeded and opportunities for offsetting exist.

Examples: Switching households to cleaner energy sources, low emission appliances and insulation; reducing domestic waste burning; reducing emissions from landfills



Legal requirement for air quality offsets



Section 4.4 of power stations' Atmospheric Emission Licences:

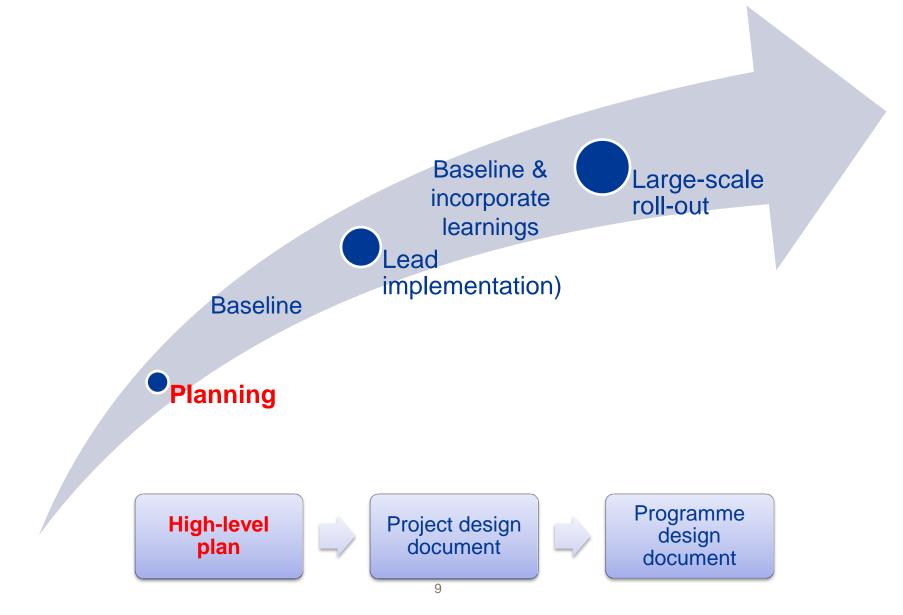
each of the power stations is to 'submit an Emission Offset Programme to reduce PM Pollution in the ambient/receiving environment by the 31th March 2016

 National Air Quality Officer's decision on power stations' application for postponement of the Minimum Emission Standards:

Implement an offset programme to reduce PM pollution in the `ambient/receiving environment. A definite offset implementation plan is expected from Eskom by 31 March 2016

Eskom is starting on an offsets journey





What is the offsets plan being used for?



- Obtain approval from the authorities on the proposed offsets methodology, the types of offsets to be implemented, and the areas for implementation
- 2. Form the basis of Eskom's request for offset funding in its Multi-Year Pricing Determination 4 (MYPD4) application to NERSA
- Fulfil the requirement in the power stations' Atmospheric Emission Licences
- 4. Get input from key stakeholders (YOU!) into the design of the offsets programme

What can be achieved through offsets?



Primary aim

Improve air quality



Secondary aims

- Local job creation and skills development
- Improve communities' health
- Improve quality of life
- Reduce energy poverty
- Cost effective channelling of resources
- Reduce CO₂ emissions





How was the draft plan compiled?



Scientific development

Consultation

Draft Offsets Plan

Process followed to develop Air Quality Offsets Implementation Plan: Scientific Development



Pre-feasibility study (2012-2013)

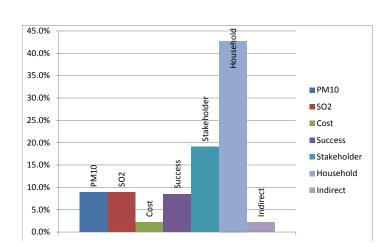
- Exhaustive list
 of household
 offsets
 evaluated
 against
 weighted criteria
- Identified six most feasible offsets

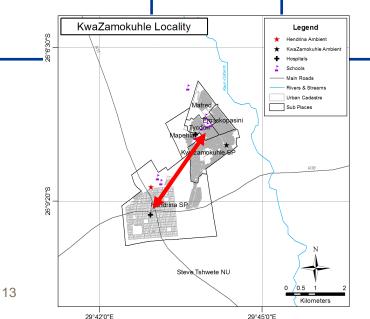
Pilot study (2014-2015)

- Test household acceptability and reduction in solid fuel use
- 140 households in KwaZamokuhle, Mpumalanga

Air Quality Offsets Implementation Plan

> Plan for largescale roll-out of air quality offsets in at least one settlement per power station





Interventions for pilot study – fuel efficiency or switching







LPG stove and heater







Interventions for pilot study: housing insulation



Ceilings

Full thermal insulation: ceilings + three insulated walls + Trombe wall

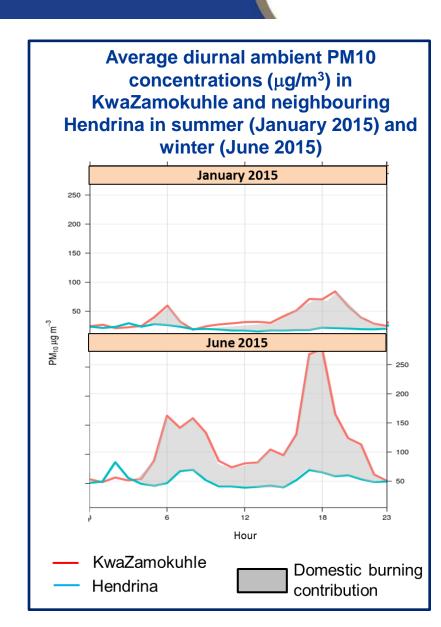




Key findings of air quality offsets pilot study

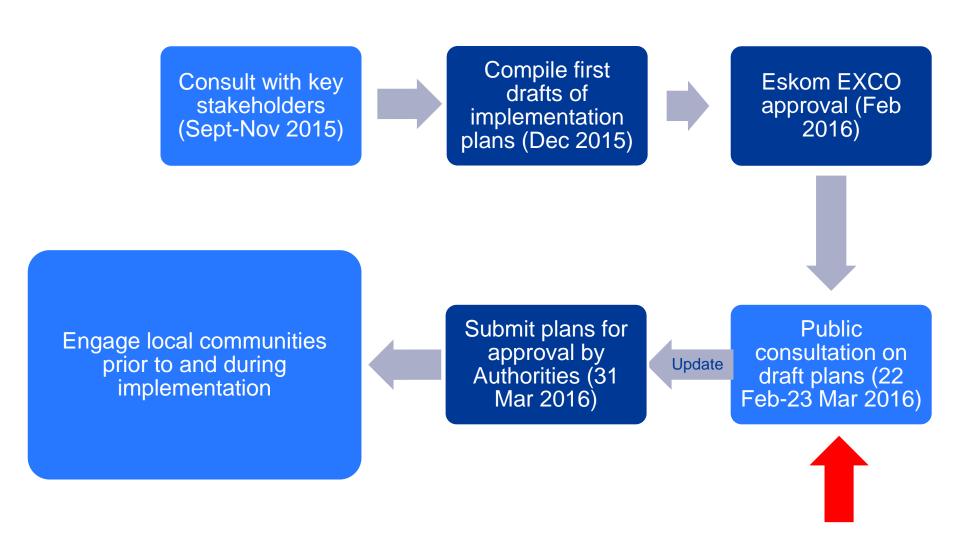


- Domestic coal burning in KwaZamokuhle accounts for around 50% of the ambient particulate matter
- Residents were very willing to participate in the project (>80%) and did not want their old coal stoves back at the end
- The electricity subsidy without a stove swop did not eliminate coal burning, but an LPG stove and heater did
- A stove swop and housing insulation (to raise the indoor temperature, especially on winter nights) are needed to reduce domestic coal burning



Process followed to develop Air Quality Offsets Implementation Plan: Stakeholder Consultation







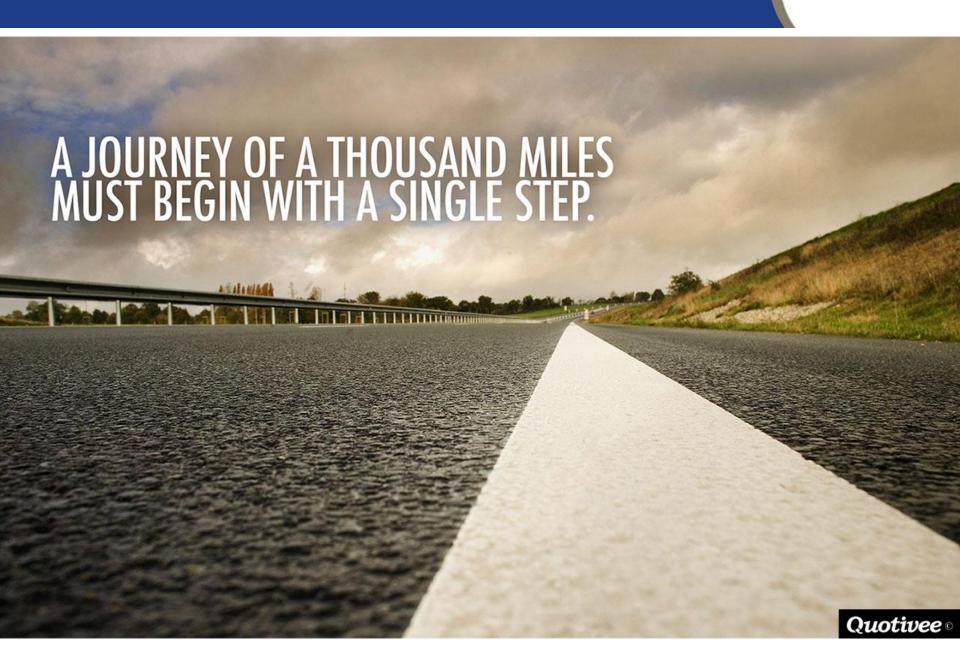
So what is Eskom proposing for the high-level offsets plan?

1. Principles

2. Plan specifics

The offsets journey

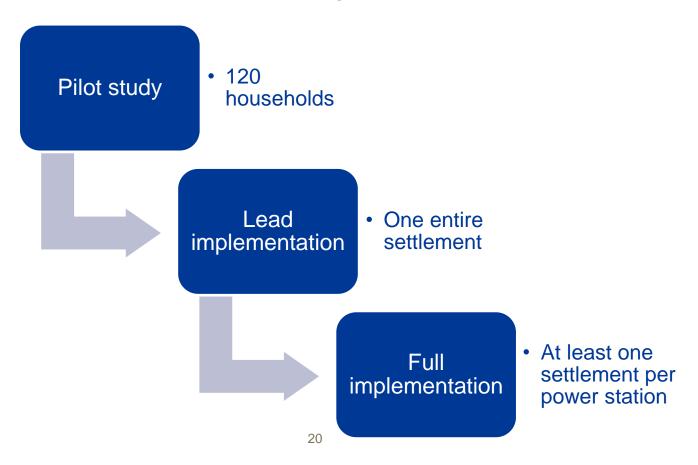




Offset principles: 1 A phased approach



- Balance the need for quick implementation with the need to mitigate the risk of failed interventions.
- Offsets are a new field. Interventions must be properly tested and learnings incorporated before rolled out on a large scale

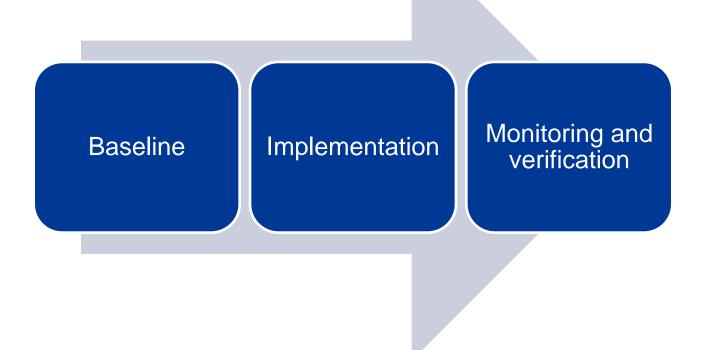




Offset principles: 1 A phased approach cont.



Process per settlement



Offsets principles: 2 Selection of interventions



Programme of activities:









Household emission reduction

Community emission reduction

Education and awareness

Projects in development

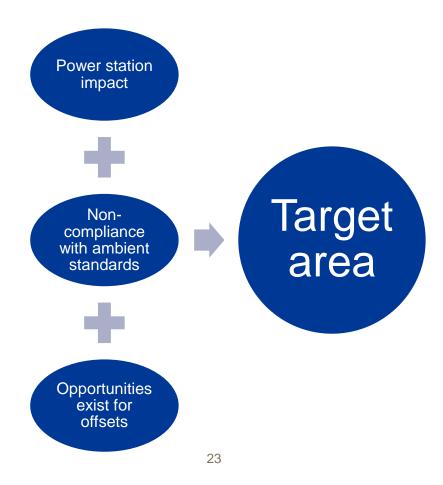
Offsets principles: 3

Selection of areas



Offsets need to be implemented on at least one settlement of reasonable size for each power station.

Area selection criteria:



Offsets principles: Selection of areas example



Priority 2	Rietspruit		
Population	5 385	Montaning Subseque	
Coal-using households	1 188?	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Participating households (est)	1 069?		
Mpumal	langa KRIEL PS	Neal Neal	
		Priority 1	Thubelihle
) \	Population	13 251
		Coal-using households	3 391
		Participating households (est)	2 987



Objectives of community consultation:

- Get buy-in from the community
- Identify local emission sources and how they can best be addressed.
- Establish an energy usage and socio-economic baseline for a community
- Create awareness as to how air pollution affects health
- Educate on how to best employ and maintain the offset



- A Local Stakeholder Reference Group (LSRG) will be set up in each community
- Key stakeholders for the LSRG include all households, political leaders, social leaders, local government, the South African Police Service, Eskom and Eskom contractors

Offsets principles: 4 Community consultation cont.



Communication with the community may proceed in four stages:

- Stage 1: Engage licensing authorities, local government and formally elected leaders
- Stage 2: Establish and maintain a Local Stakeholder Reference Group, with meetings held at least 3 times a year
- Stage 3: Conduct public communication meeting(s) with a wider audience as needed.
- Stage 4: Communicate with qualifying households.

Offsets principles: 5 Local employment creation



- Potential for local temporary employment creation
- Teams which conduct the socio-economic surveys and implement the interventions
- Establish a locally owned company which can assist with the maintenance of the installations in the longer term.





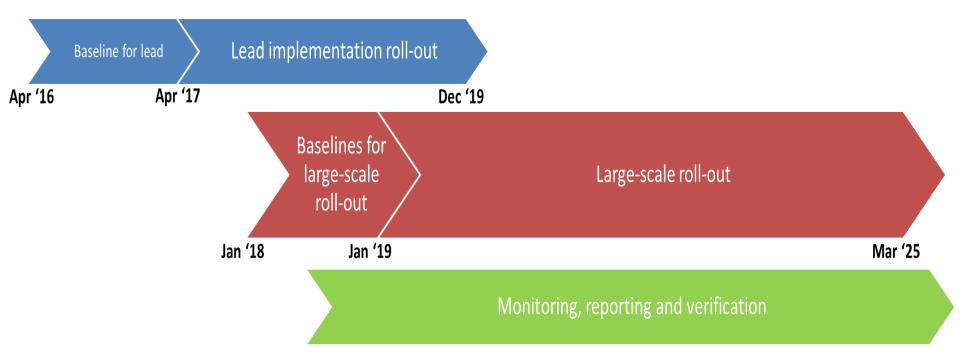
Offsets plan: 1 Areas



Power station	Settlement	Indicative no. of households	Intervention
Hendrina	KwaZamokuhle	3255	Household
Arnot	Silobela	2360	Household
Komati	Big House Emahlathini Goedehoop Kamfefe (Driffontein) Vandyksdrift Rethabile	70 215 215 32 146 108	Household - informal Household - informal Household - informal Household Household Household
Kriel	Thubelihle Rietspruit	2990 1070	Household Household
Matla	Emzinoni +	4375 of 9200	Household
Kendal	Phola Eskom Triangle Khayalethu Village Olympic Makhosi	6015 10 10 50 150	Household Household Household Household
Duvha	Masakhane eMalahleni	1100 2000 of many	Household Household

Offset plan: 2 Timeline for implementation





Schedule is dependent on the authorities' approval of the implementation plan, and on NERSA's approval of the inclusion of the costs into the MYDP4 electricity tariff

Offset plan: 3 Lead implementation



- KwaZamokhule has been selected for the lead implementation since:
 - Implementation can start sooner: a baseline survey was done and local office established for pilot study (120 households)
 - Domestic coal burning is prevalent
 - Kwazamokhule is an appropriate size
- The following interventions have been selected:
 - Replacement of existing coal/wood stoves with LPG heaters and stoves
 - Insulation of housing to reduce the need for space heating
 - May be complemented with other energy sources
 - Education and awareness
 - Informal housing pilot

Offset plan: 3 Lead implementation cont.



- LPG safety: Training will be provided to all participating households on the safe use of LPG and local safety officers will be trained
- Energy carrier supply and cost: Eskom will ensure that the energy costs of households do not increase due to the intervention, and that households are not solely dependent on an unreliable energy carrier
- Who can participate? All solid fuel using households will be invited to participate in the roll-out. Unfortunately, households using only electricity will not qualify to participate.

How can you input into the draft plan?



- Speak up today!
- Please submit comments to Ekolnfo by 23 March 2016:

Contact person: Sean Hutcheons

Telephone number: 012 365 2546 from 08:00 to 16:00

Fax number: 012 365-3217 or 086 515-5337 or 086 582-7427

Email address: public@ekoinfo.co.za

Postal address: PO Box 72847, Lynwood Ridge, Pretoria, 0040

Electronic copies of the Draft
Plan can be downloaded from
www.ekoinfo.co.za or requested
from EkoInfo

Hard copies of the Draft Plan are available for viewing at:

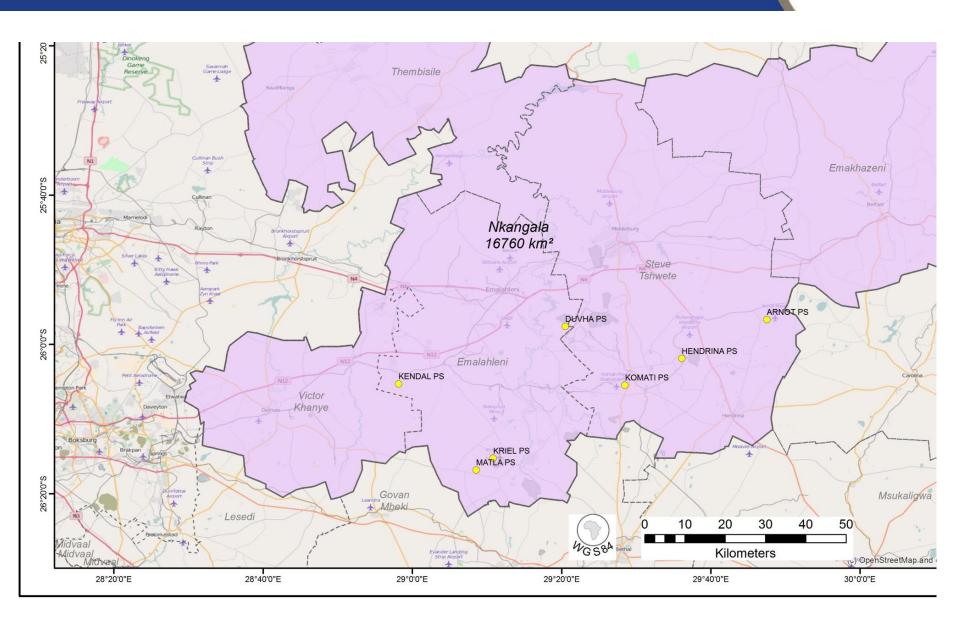
Venue	Address
eMalahleni Main Library	Cnr Hofmeyer St & Elizabeth Ave
Middelburg Public Library	Verdoorn Street, Middelburg
Kriel Public Library	Quentin Street, Kriel
Hendrina Public Library	33 Kerk Street, Hendrina
Emzinoni/Milan Park Public Library	1 st Street, Emzinoni Ext 7
Elukwatini Library	Church Street, Carolina



BACK UP SLIDES

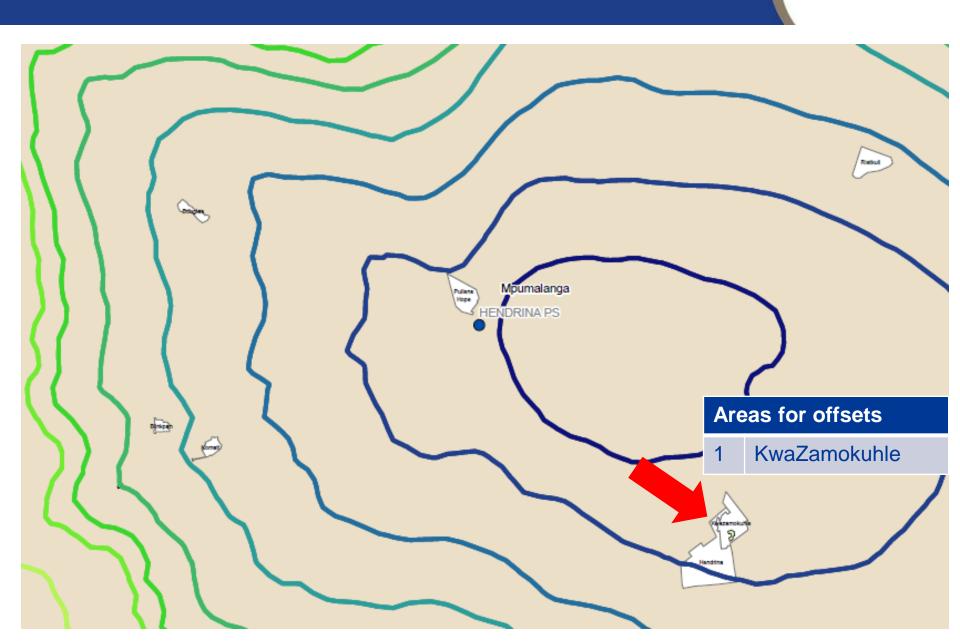
Power stations in Nkangala District Municipality





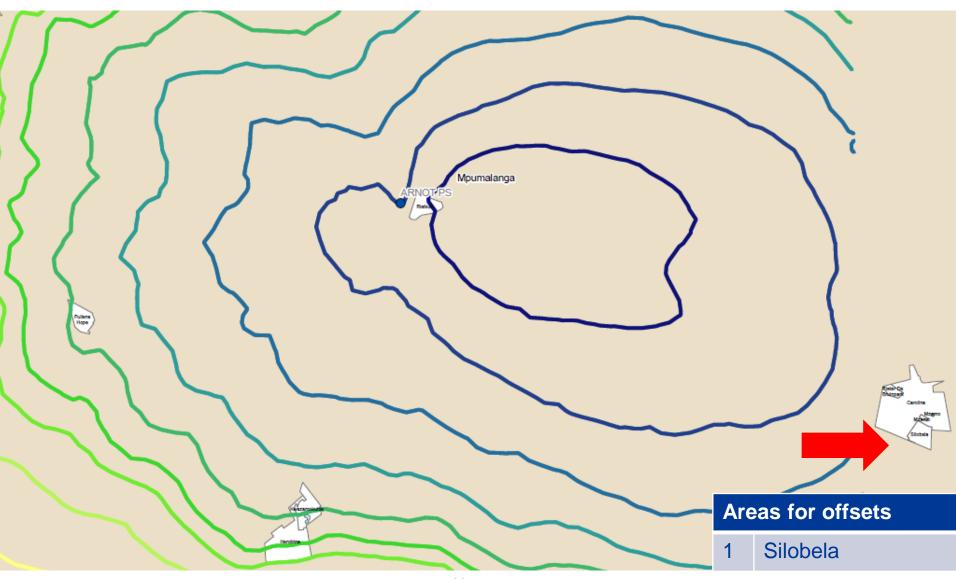
Offset plan: Hendrina Power Station





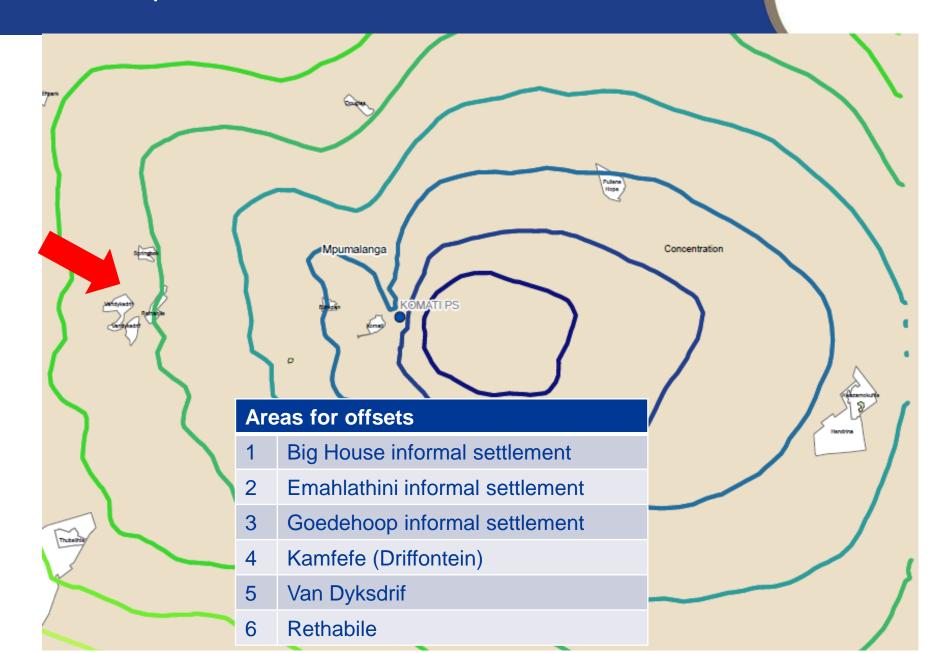
Offset plan: Arnot Power Station





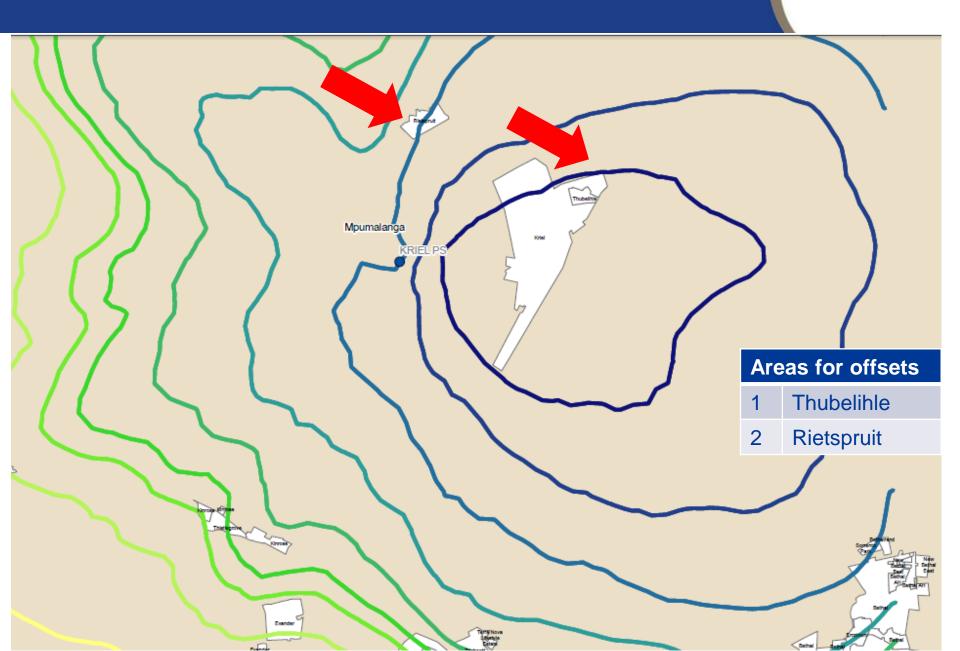
Offset plan: Komati Power Station





Offset plan: Kriel Power Station

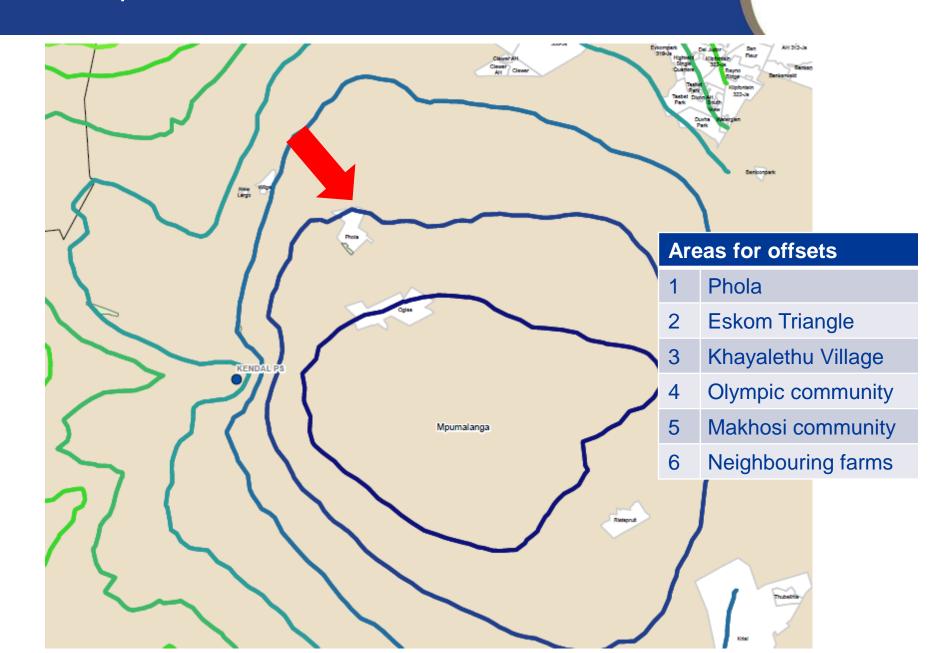




Offsets plan: Matla Power Station **Eskom** MATLA PS Mpumalanga **Areas for offsets** Emzinoni etc (4000 households)

Offset plan: Kendal Power Station





Offset plan: Duvha Power Station



