

# **Eskom's Air Quality Offsets Implementation Plan for the Gert Sibande District Municipality**

Gert Sibande District Municipality Public Meeting

Ermelo, 15 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 high-level plan?

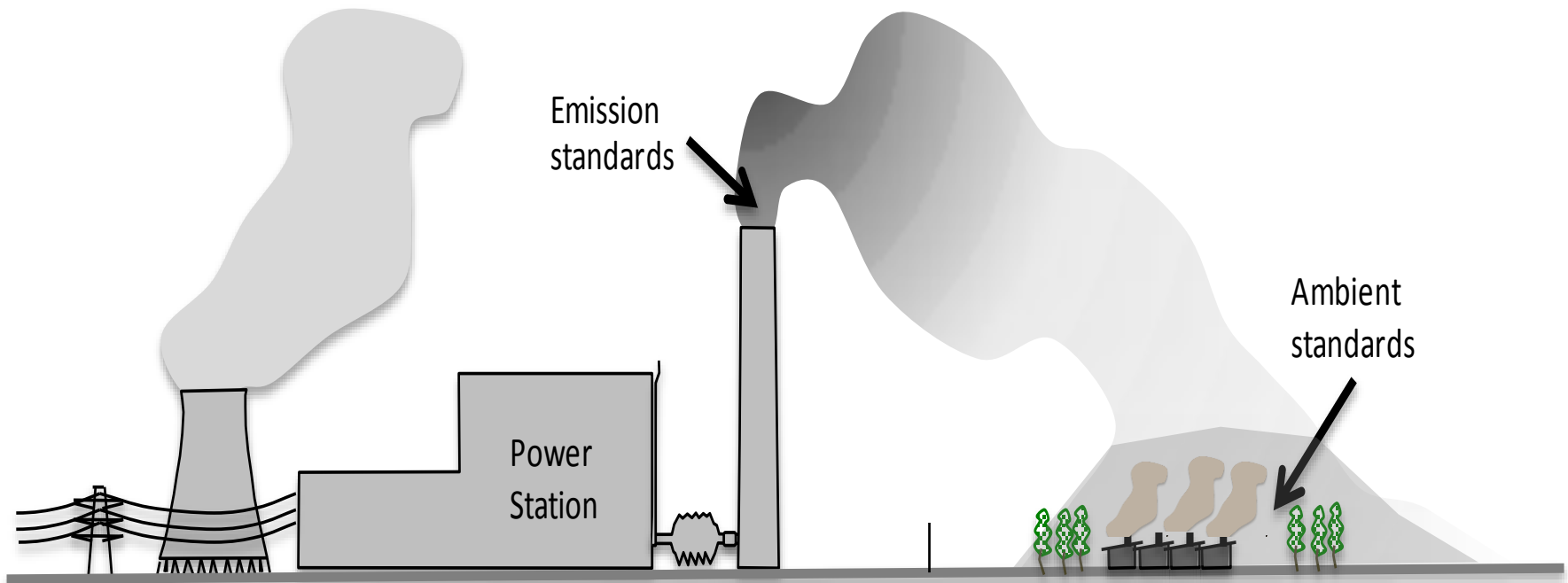
How can Eskom's plan be improved?



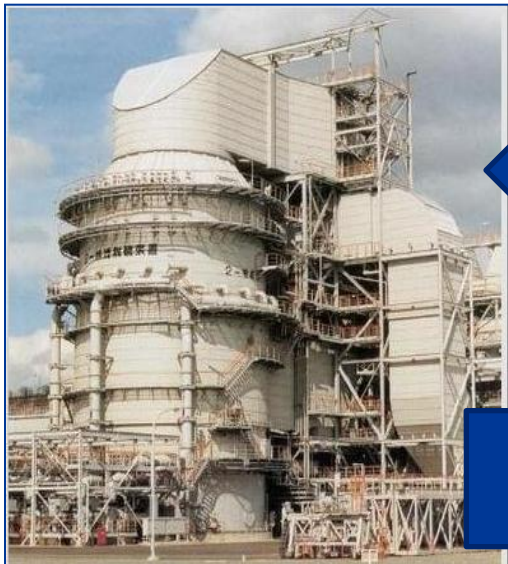
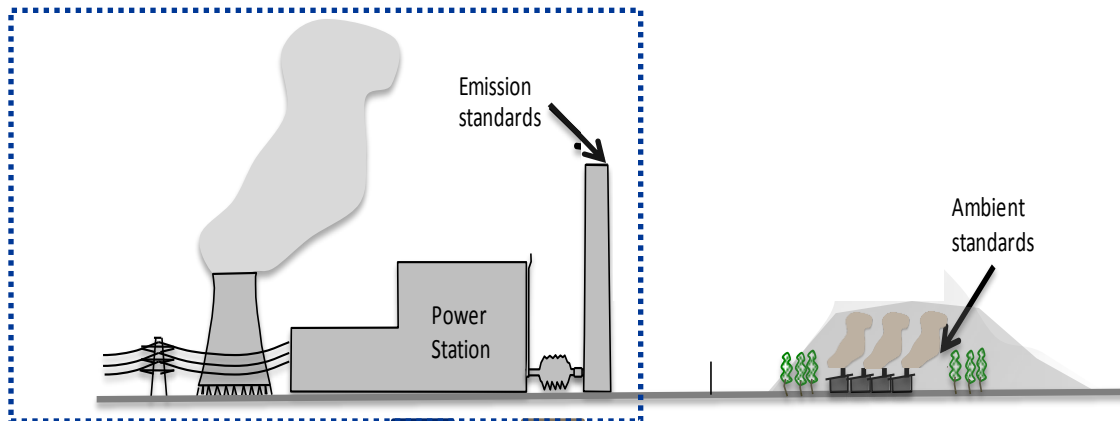
Peace!



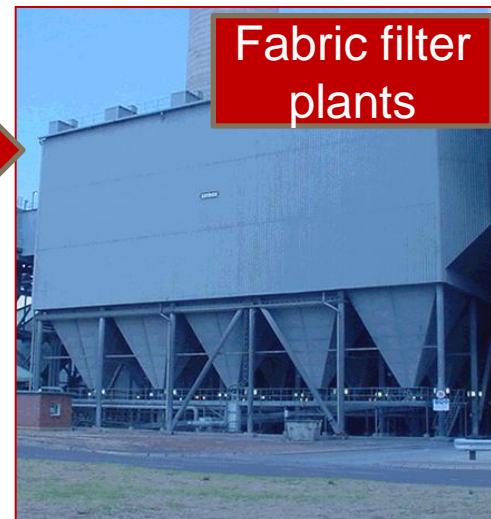
- Eskom generates the bulk of South Africa's electricity, which sustains the economy and livelihoods of all South Africans
- As a by-product of electricity production, Eskom power stations emit combustion gases and particulate matter which have an impact on the air we breathe
- Ambient air quality is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



## 1. Upgrade power stations

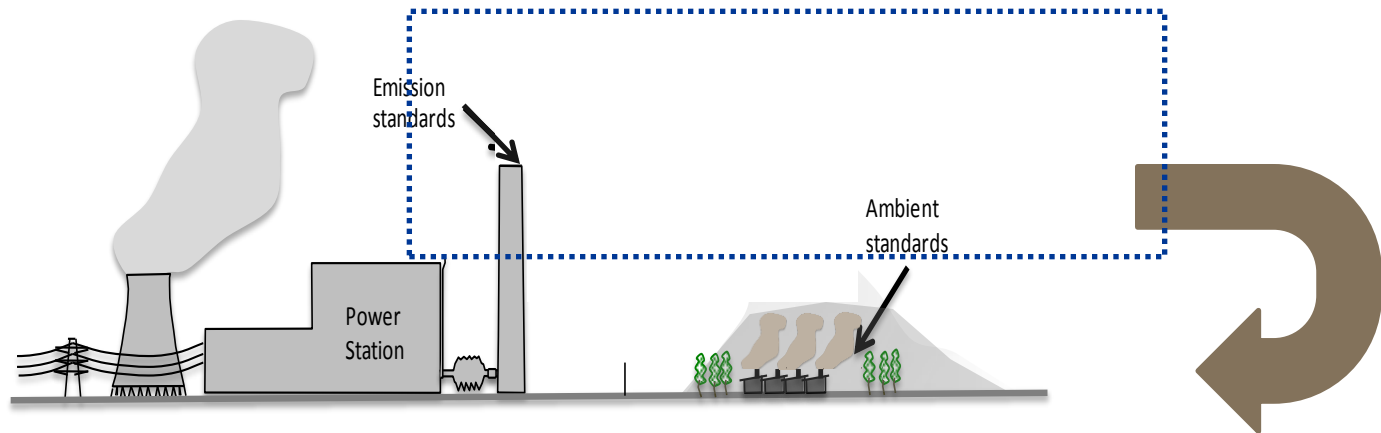


Flue gas  
desulphurisation





## 2. Install more renewables and nuclear

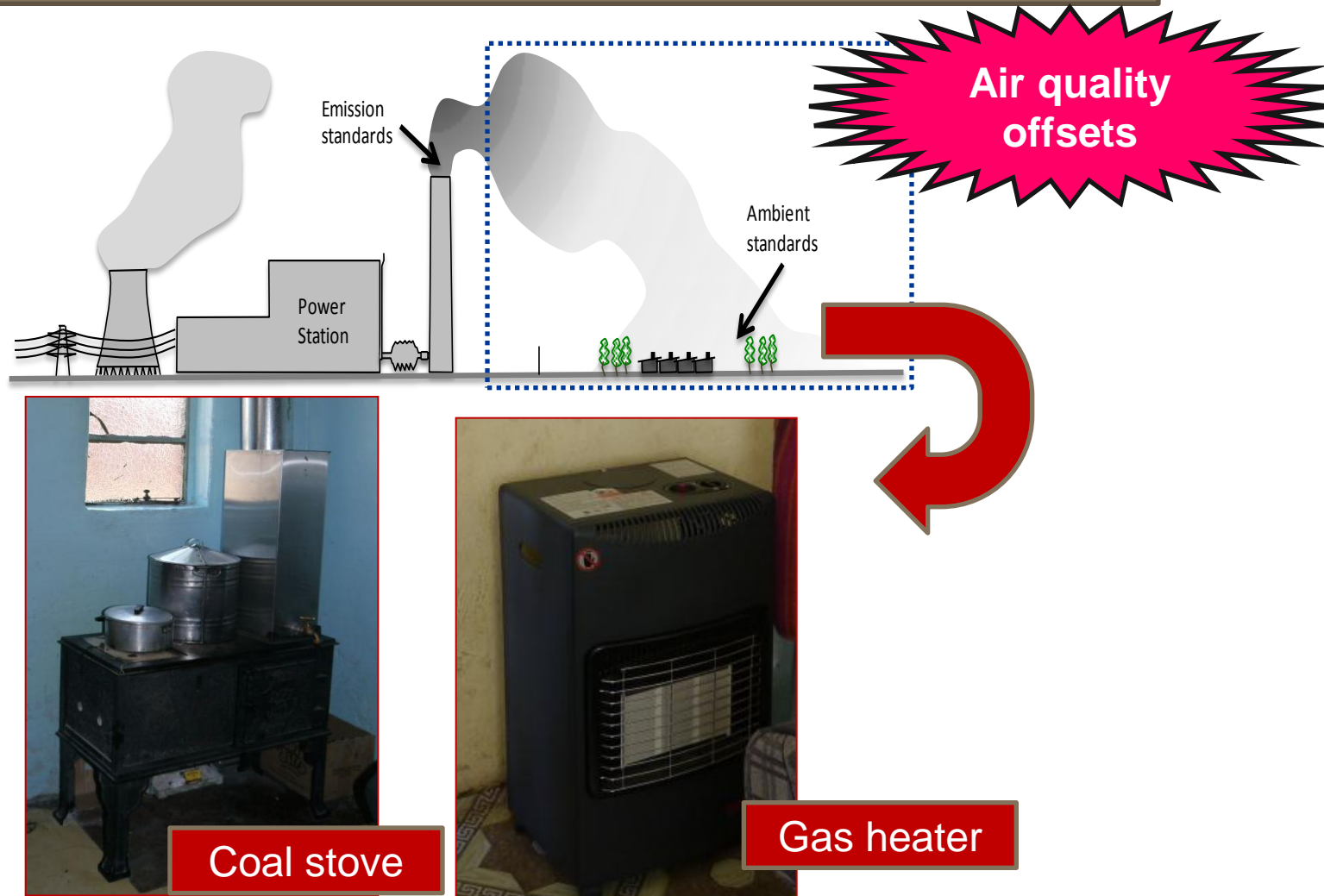


Wind turbines



Koeberg Nuclear Power Station

## 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



Waste burning



Unpaved road



Coal burning

- Power stations' Atmospheric Emission Licences:

*Submit to the National Air Quality and Licencing Officers for approval the offset program/plan that will mitigate the priority pollutants applied for postponement including details of implementation in the surrounding affected communities/plant impact zones and timeframes.*

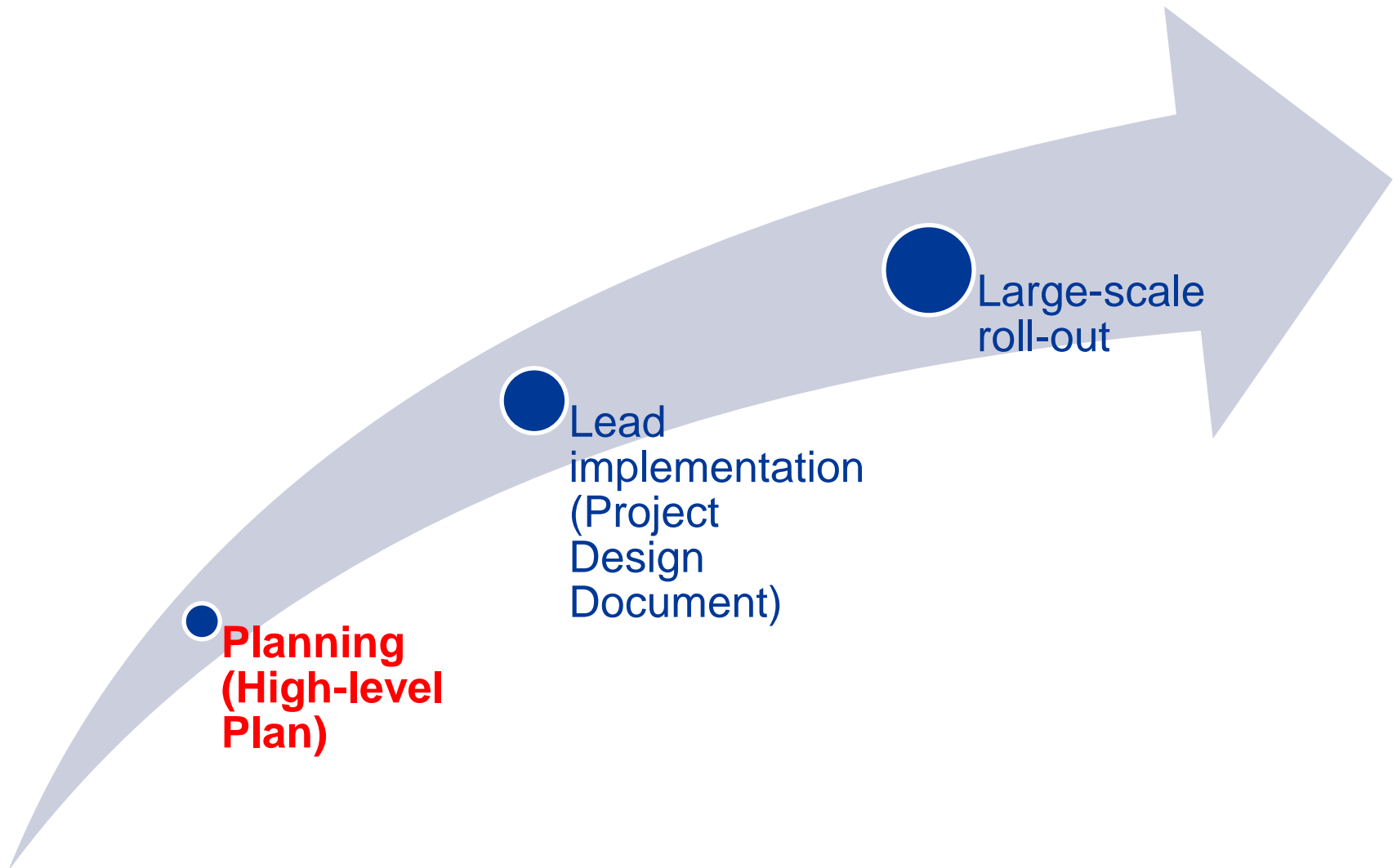
- National Air Quality Officer's decision on power stations' application for postponement of the Minimum Emission Standards:

*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*

PM is particulate matter



# Eskom is starting on an offsets journey



# What is the offsets plan being used for?

1. 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
3. 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

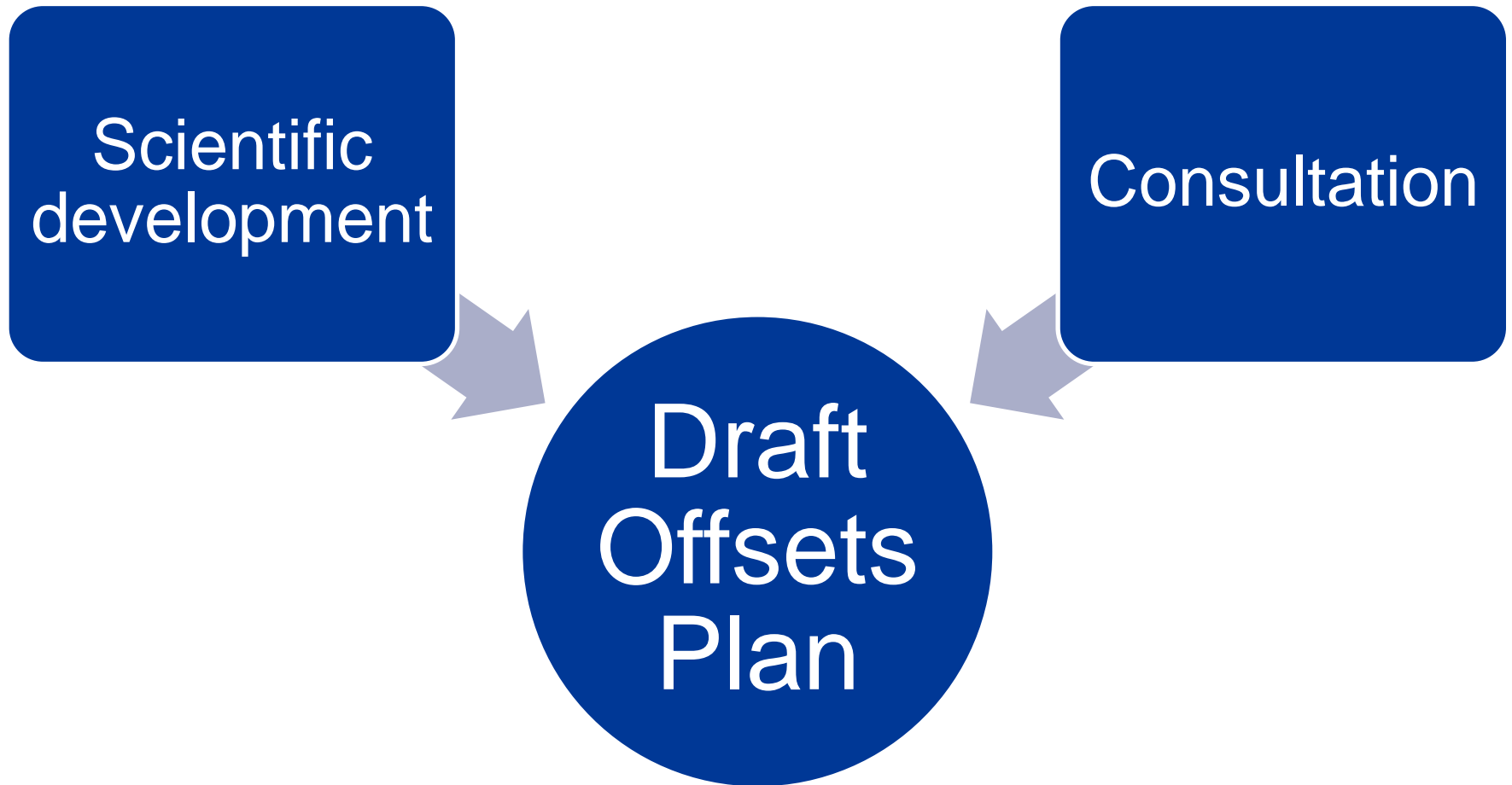
- Improve air quality



## Secondary aims

- Local job creation and skills development
- Improve communities' health
- Improve quality of life
- Reduce energy poverty
- Cost effective channelling of resources
- Reduce CO<sub>2</sub> emissions





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

## Pre-feasibility study (2012-2013)

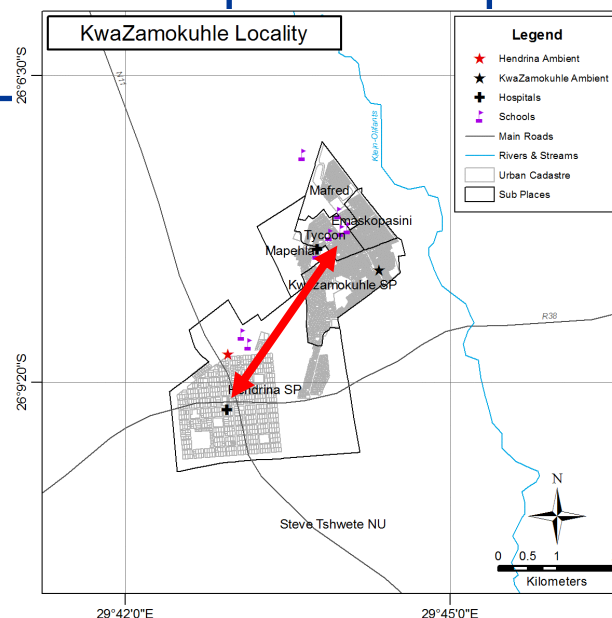
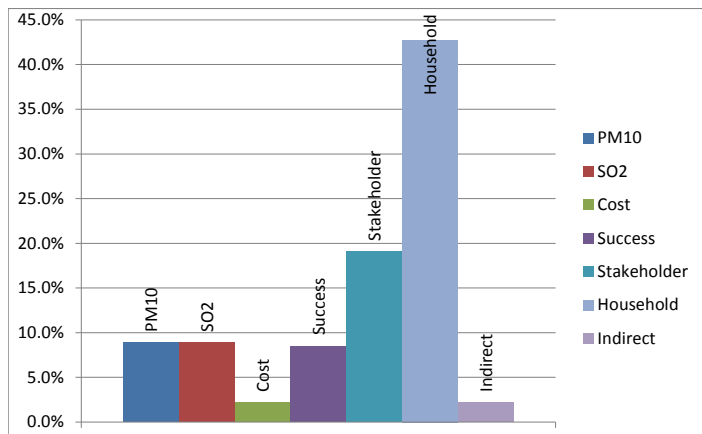
- Exhaustive list of household offsets evaluated against weighted criteria
- Identified six most feasible offsets

## 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 large-scale roll-out of air quality offsets in at least one settlement per power station

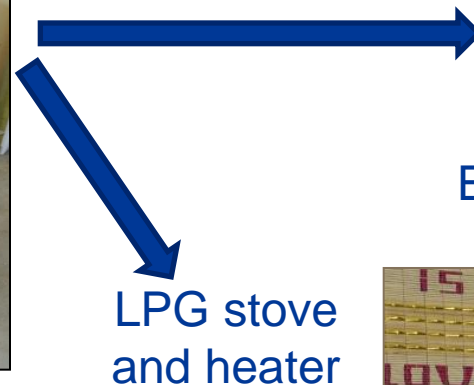




# Interventions for pilot study – fuel efficiency or switching



Efficient stove



LPG stove  
and heater



Electricity subsidy



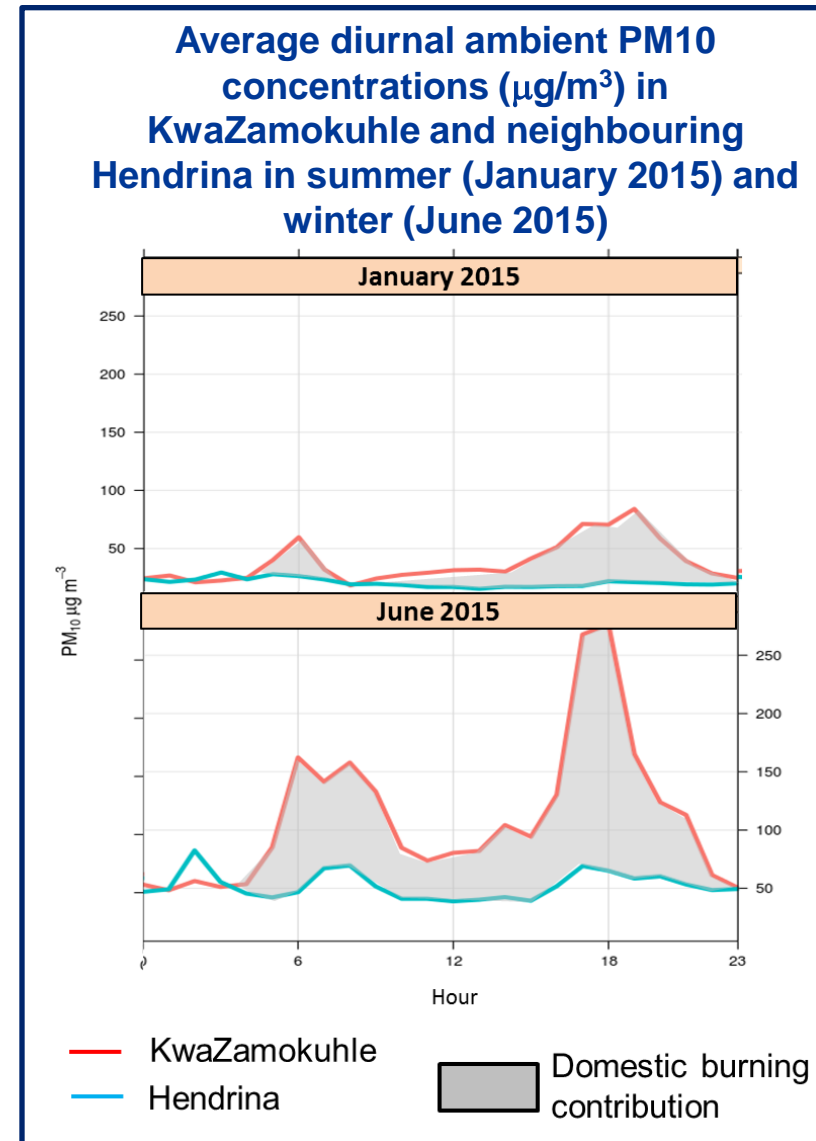
Ceilings



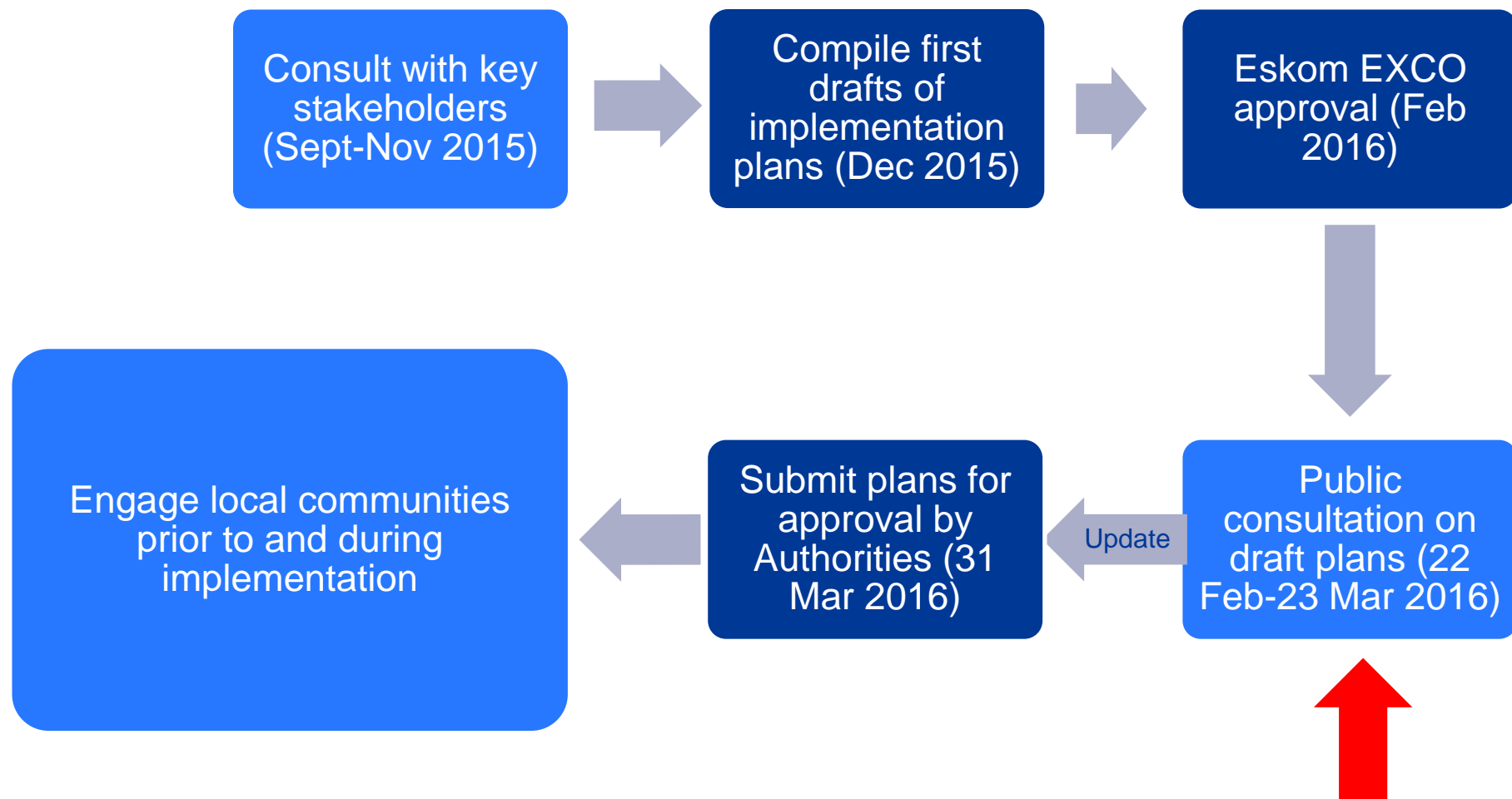
Full thermal insulation: ceilings + three insulated walls + Trombe wall



- 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 swap did not eliminate coal burning, but an LPG stove and heater did
- A stove swap 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

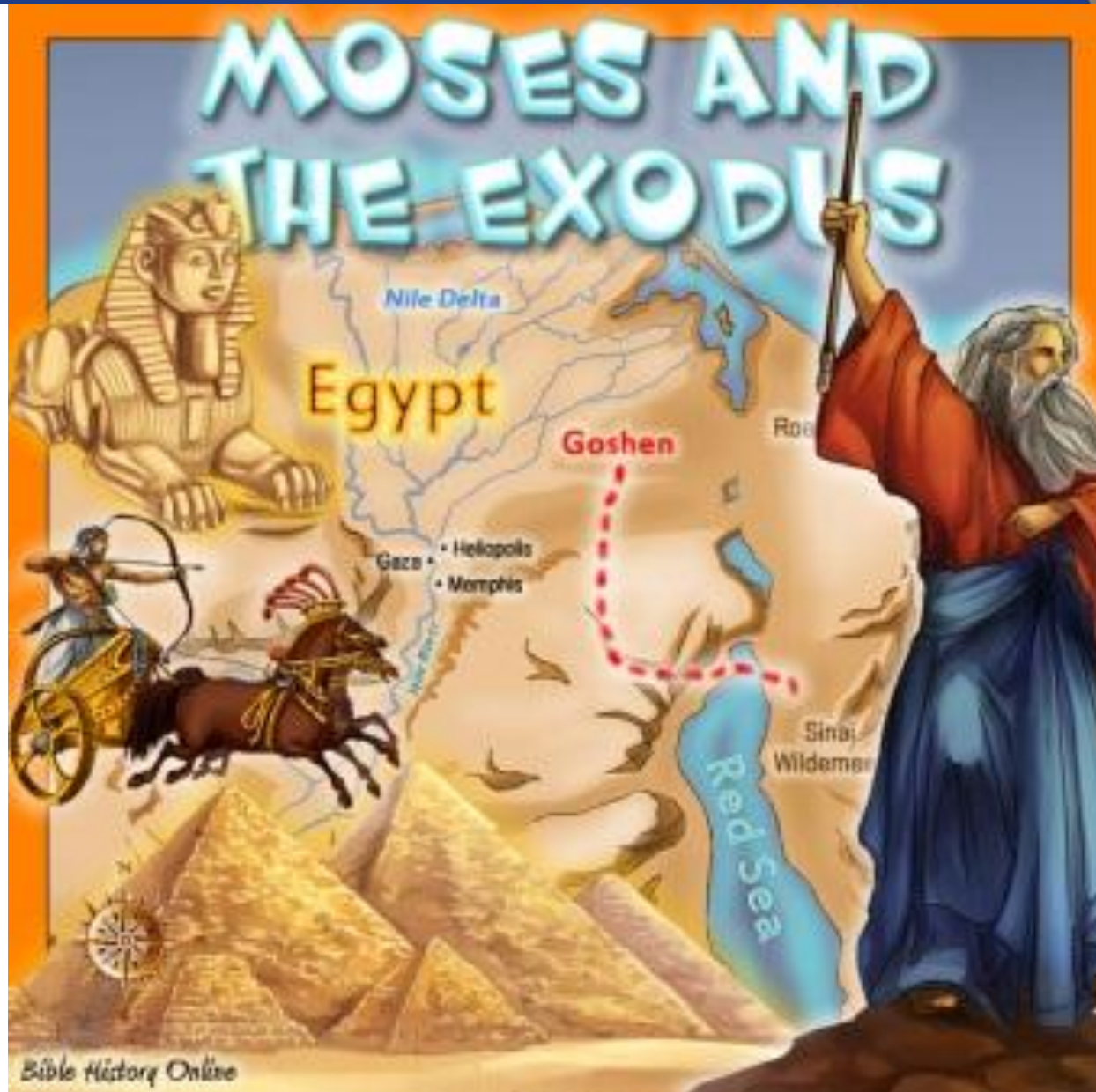


# So what is Eskom proposing for the high-level offsets plan?

1. Principles

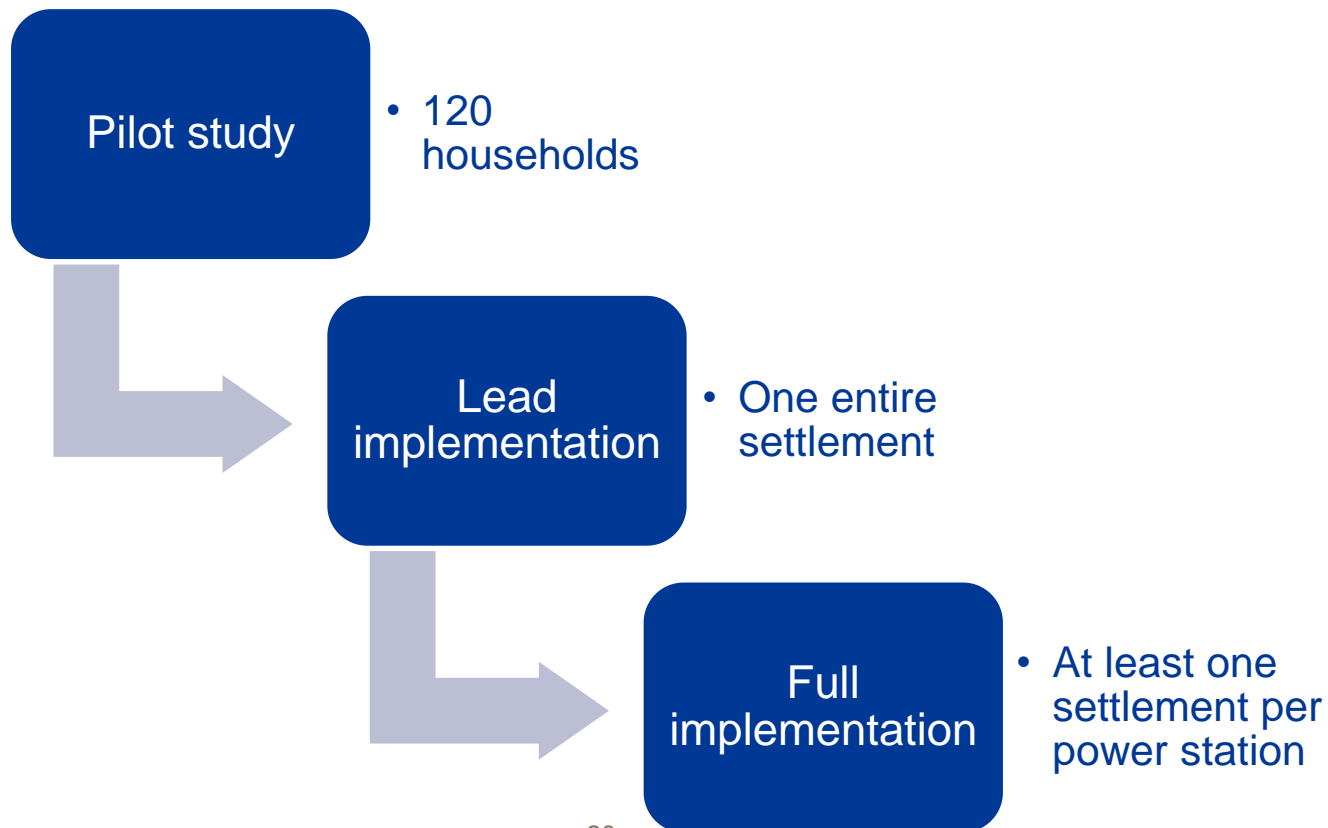
2. Plan specifics



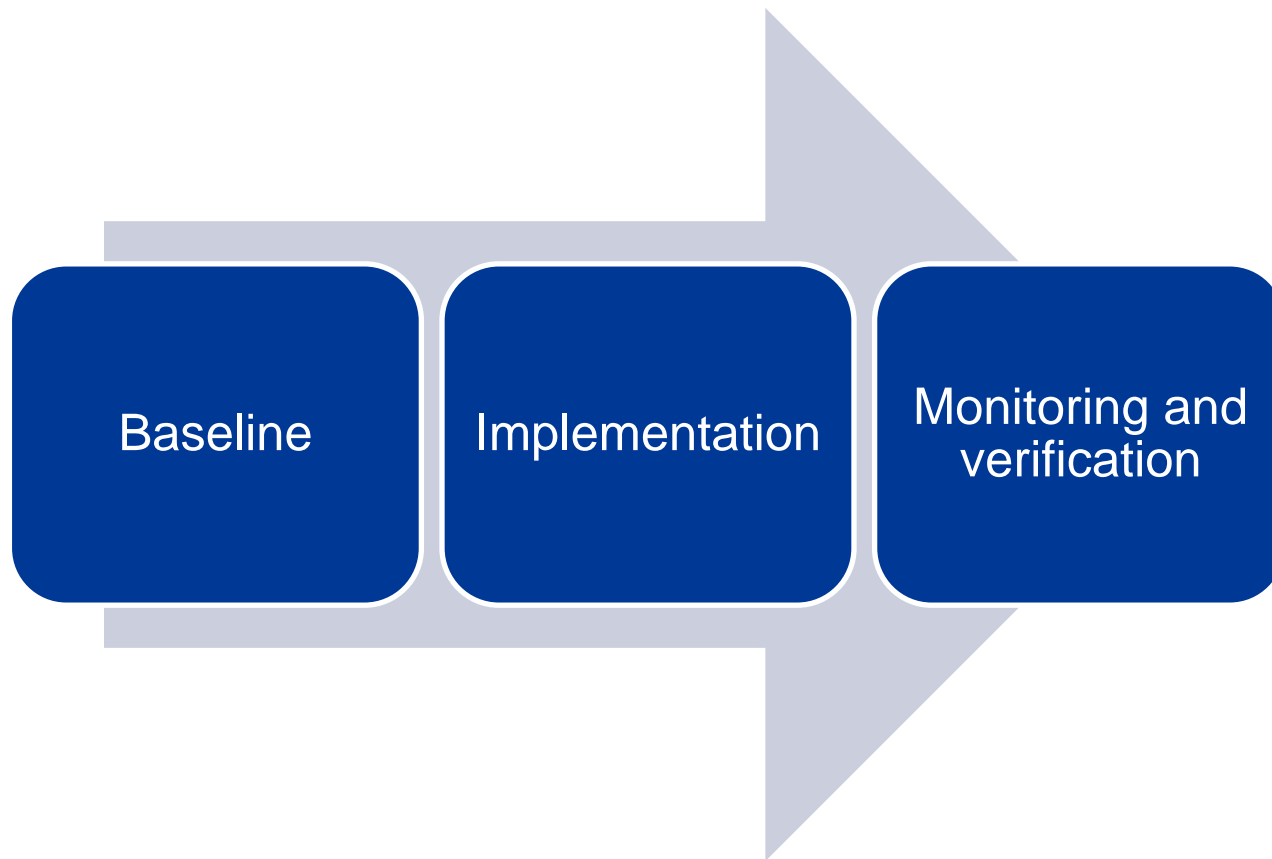


# Offset principles: **1** A phased approach

- 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



## Process per settlement



## Programme of activities:



Household  
emission  
reduction



Community  
emission  
reduction



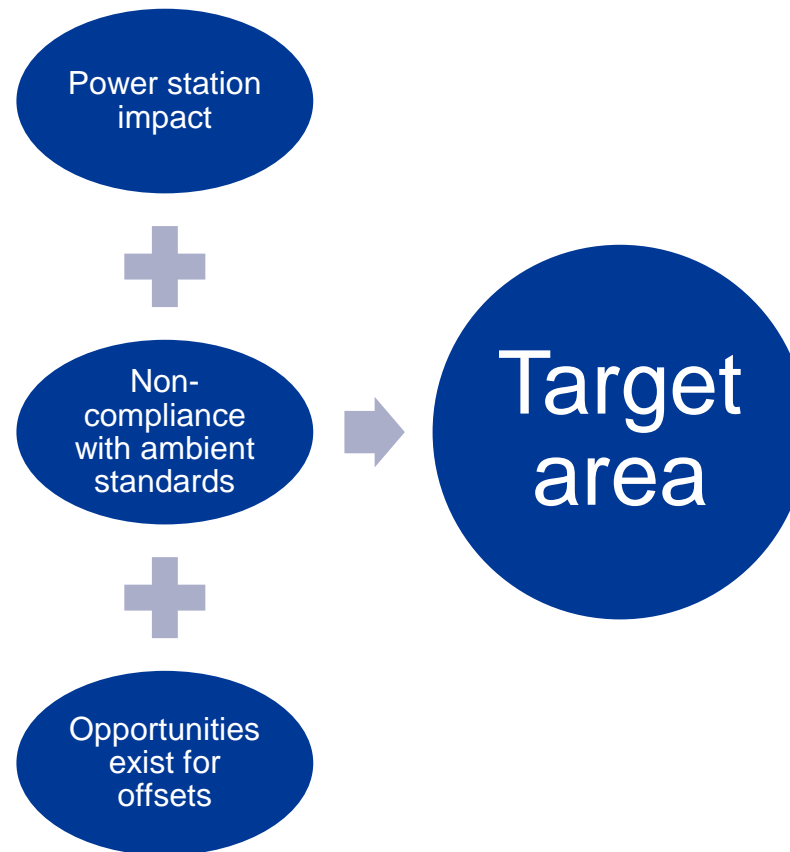
Education  
and  
awareness



Projects in  
development

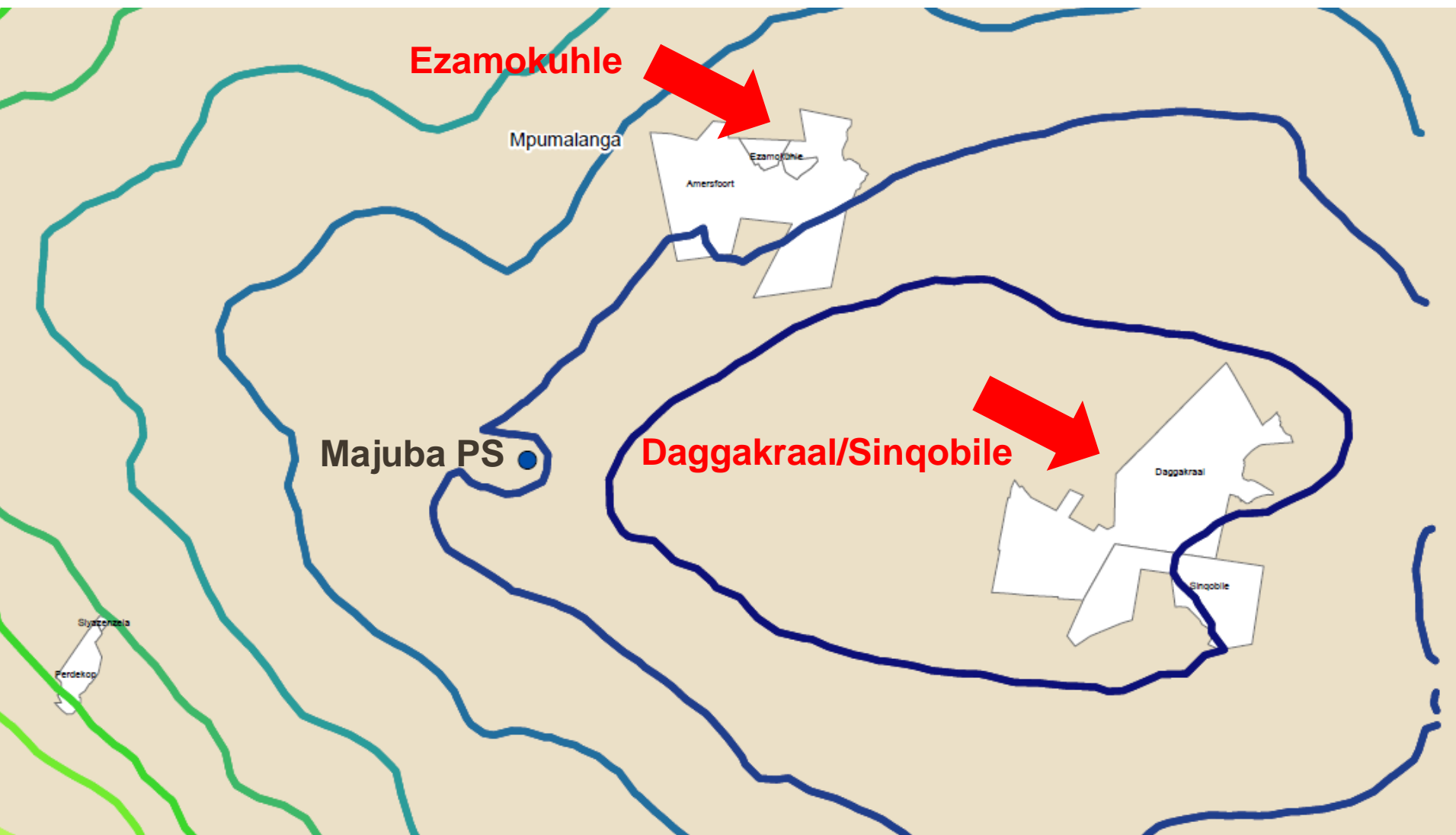
Offsets need to be implemented on at least one settlement of reasonable size for each power station.

## Area selection criteria:





# Offsets principles: Selection of areas example



## 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



## Project Design

- 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

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.

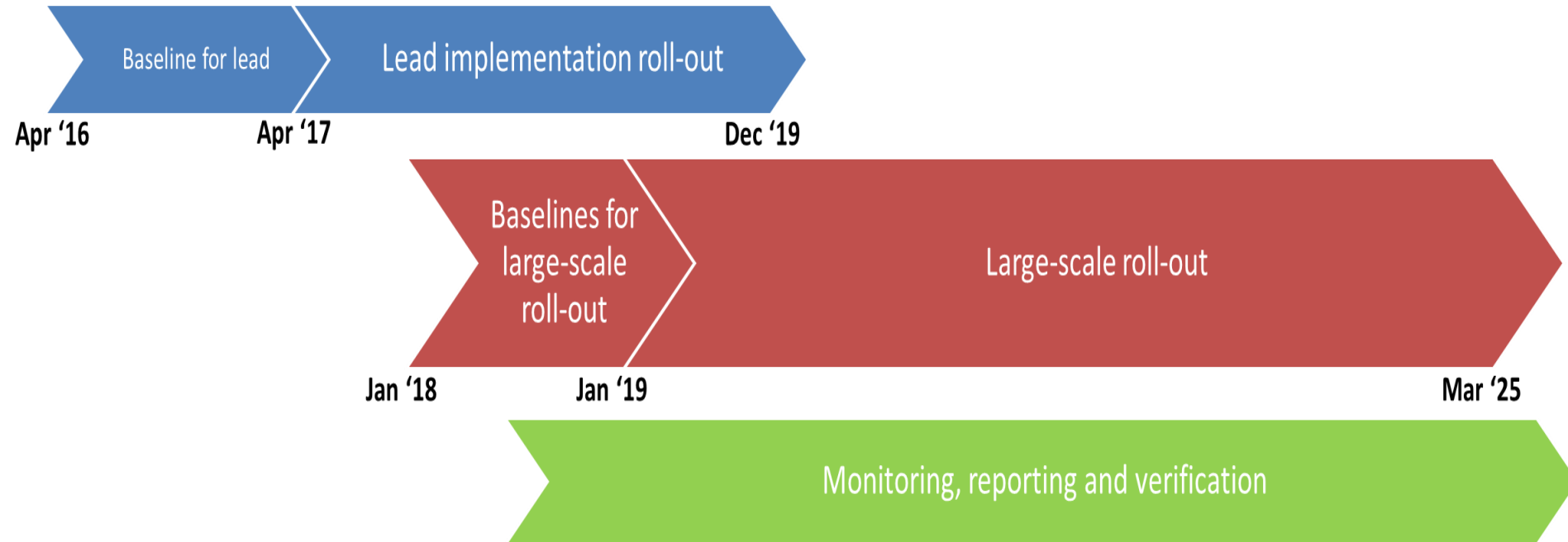
- Potential for local **temporary** employment creation
- Teams which conduct the socio-economic surveys and implement the interventions
- Establish a locally owned company which can assist with the maintenance of the installations in the longer term.



Power station	Settlement	Indicative no. of households	Intervention
Tutuka	Sivukile Thuthukani RDP	1160 340	Household Household
Majuba	Daggakraal/Sinqobile Ezamokuhle	2940 1850	Household - rural Household
Grootvlei	Grootvlei PS village Grootvlei S Nthorwane	763 1216	Landfill Household Household
Camden	Sheepmoor New Ermelo and Nederland Park – if life extension	600 935 1660	Household – rural 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\*\***

- **Sivukile** has been selected for the lead implementation since:
  - Domestic coal burning is prevalent
  - It is an appropriate size
- The following **interventions** have been selected:
  - Replacement of existing coal/wood stoves with alternative, probably LPG heaters and stoves
  - Insulation of housing to reduce the need for space heating
  - May be complemented with other energy sources
  - Education and awareness

- **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 EkoInfo by **23 March 2016**:

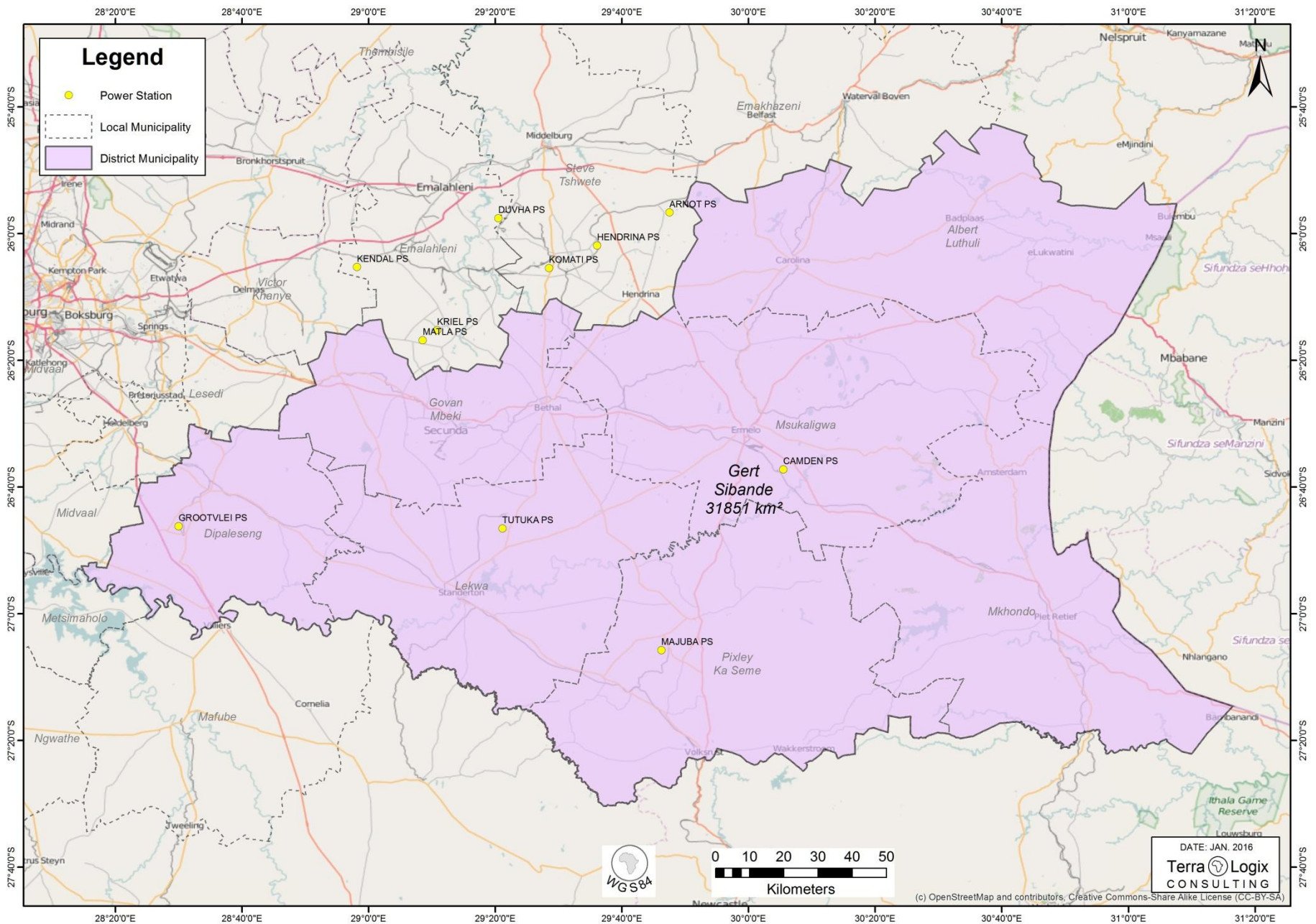
Contact person:	Sean Hutcheons
Telephone number:	012 365 2546 from 08:00 to 16:00
Fax number:	012 365-3217 or 086 515-5337 or 086 582-7427
Email address:	<a href="mailto:public@ekoinfo.co.za">public@ekoinfo.co.za</a>
Postal address:	PO Box 72847, Lynwood Ridge, Pretoria, 0040

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

Electronic copies of the Draft Plan can be downloaded from [www.ekoinfo.co.za](http://www.ekoinfo.co.za) or requested from EkoInfo

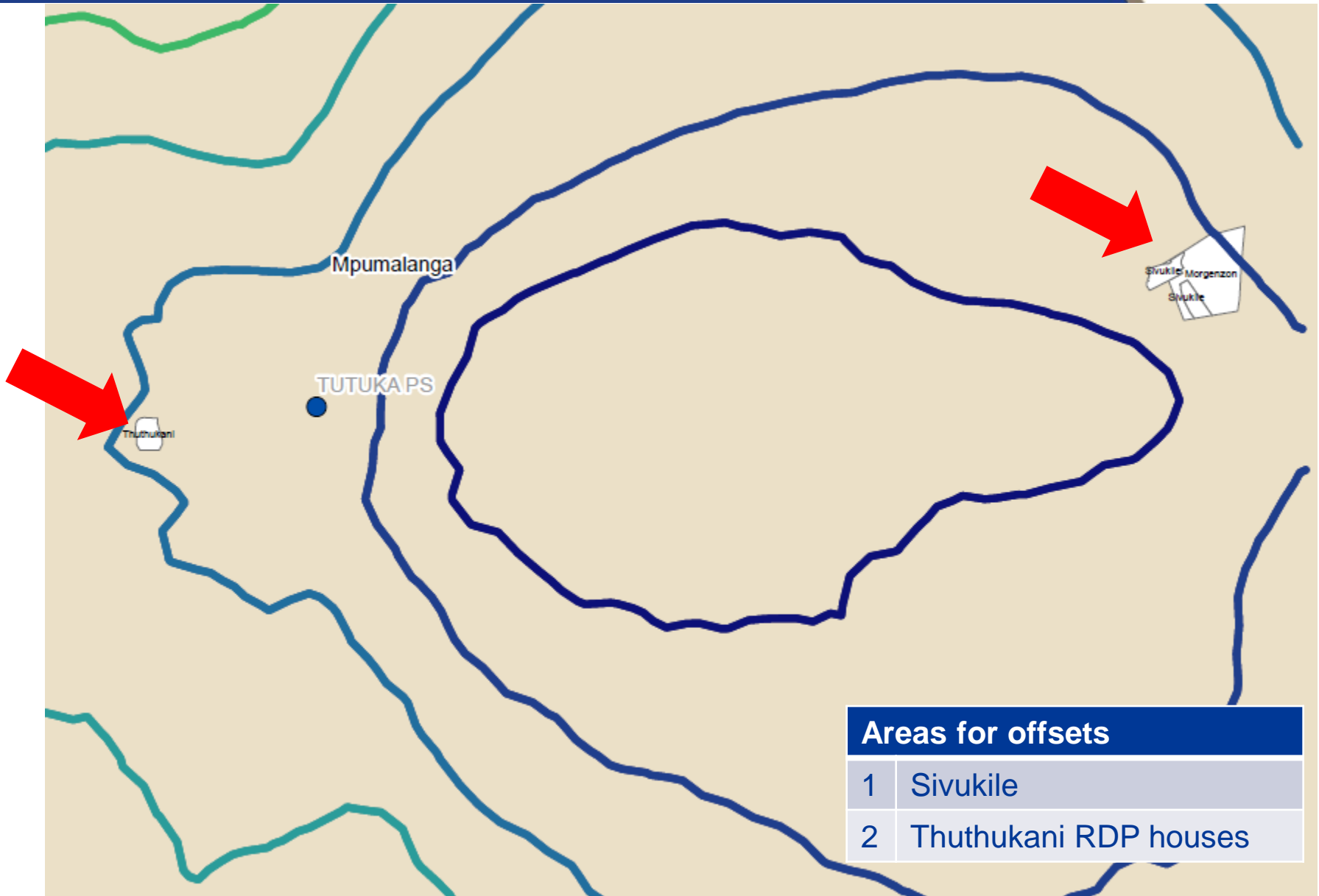
Venue	Address
Ermelo Public Library	Cnr Church and Taute Street, Ermelo
Grootvlei Library	Minetown Grootvlei, 26.80°S; 28.53°E
Morgenzon Public Library	464 Steyn Street, Morgenzon
Greylingstad (Nthoroane) Library	Sechaba Drive, Nthoroane

# BACK UP SLIDES





# Offset plan: Tutuka Power Station

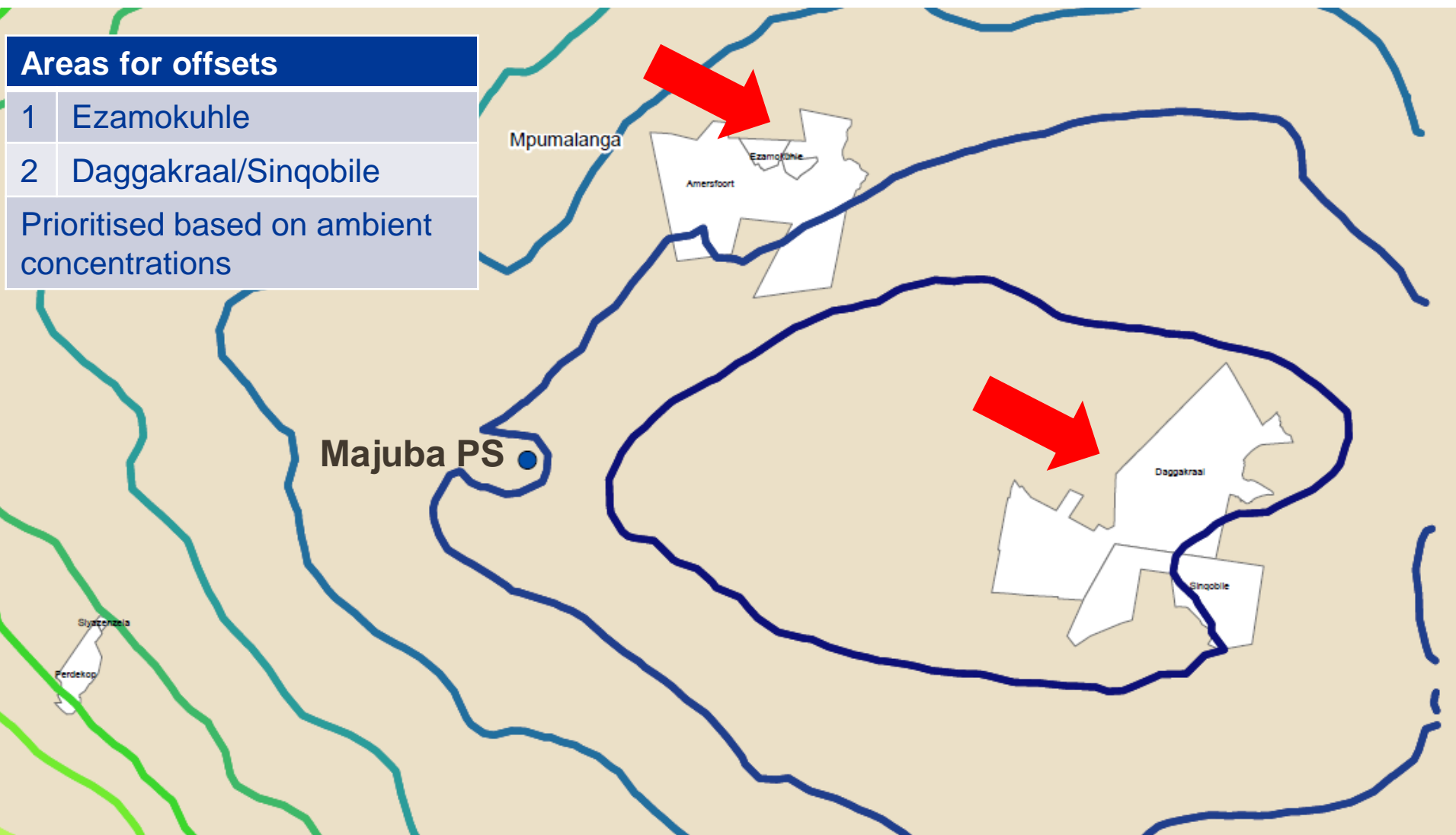


# Offset plan: Majuba Power Station

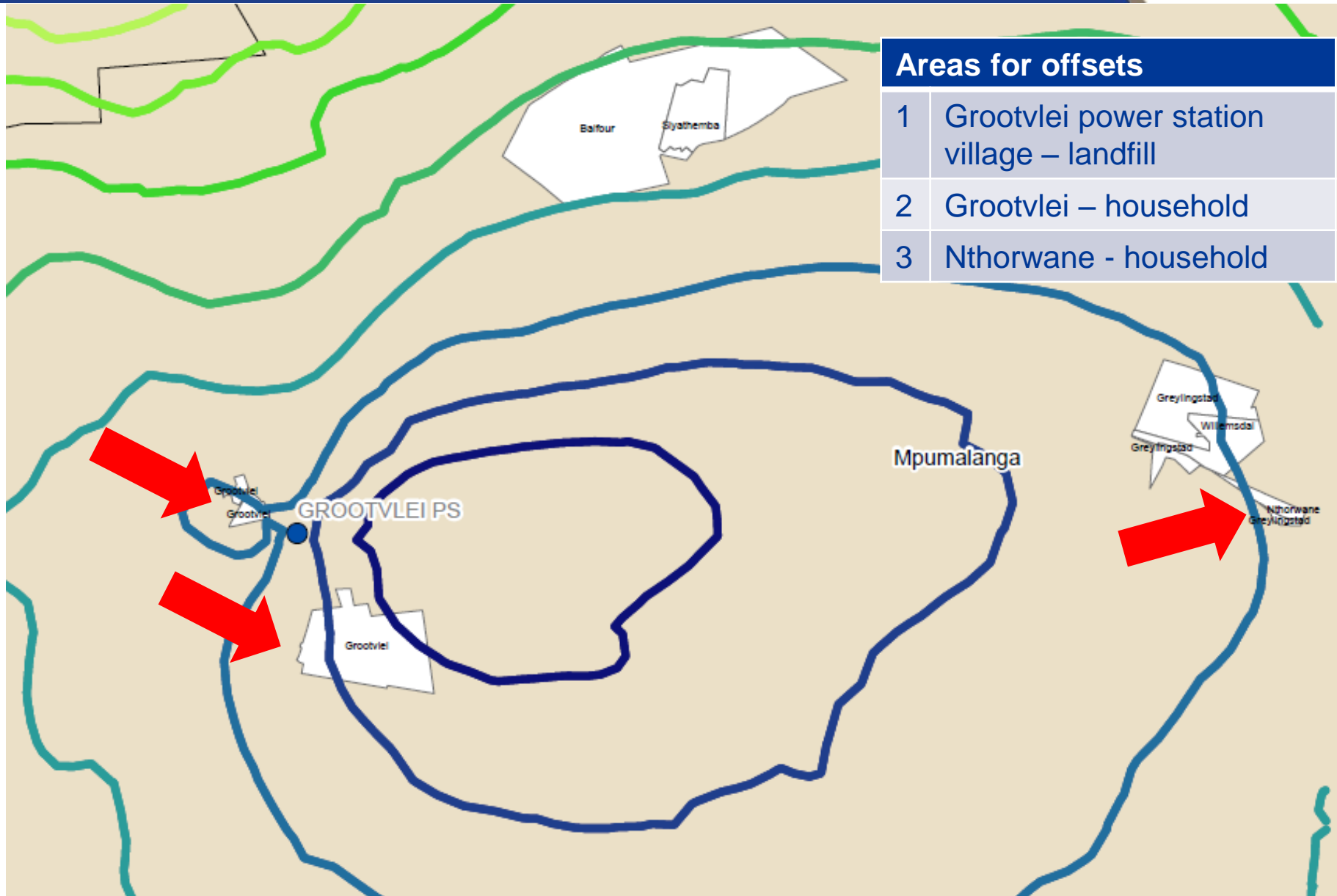
## Areas for offsets

- 1 Ezamokuhle
- 2 Daggakraal/Sinqobile

Prioritised based on ambient concentrations



# Offset plan: Grootvlei Power Station



# Offset plan: Camden Power Station

