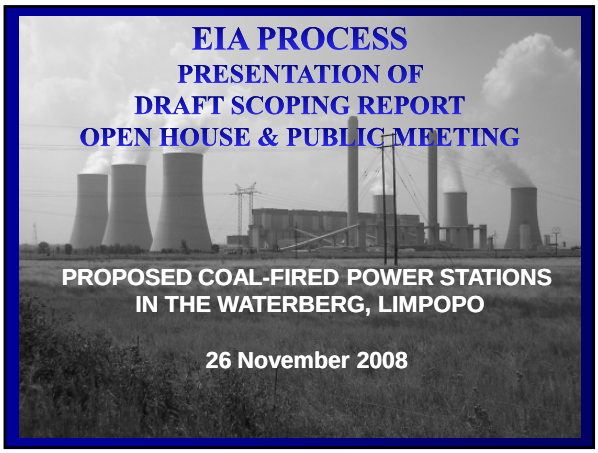
EIA PROCESS
PRESENTATION OF DRAFT SCOPING REPORT OPEN HOUSE & PUBLIC MEETING



PROPOSED COAL-FIRED POWER STATIONS IN THE WATERBERG, LIMPOPO

26 November 2008

Agenda

16:00	**Open house**
18:00	**Welcome, introduction and objectives (AO)**
18:10	**Overview of the proposed project:** **Brief overview of electricity supply & demand** **Technical appreciation of the project**
18:45	**Presentation of Draft Scoping Report (AW)**
19:15	**Public participation (AO)**
19:30	**Discussion on Draft Scoping Report**
19:55 – 20:00	**Next steps and closure (AO)**

Welcome & Introduction

Anelle Odendaal

Welcome & Introduction

- Deidre Herbst – Eskom
- Nico Gewers - Eskom
- Tobile Bokwe – Eskom
- Leonard van der Walt - Eskom
- Kritesh Bedessie – Eskom
- Thozama Gangi – Eskom
- Bronwyn Stolp – Eskom
- Ashwin West – Ninham Shand
- Brett Lawson – Ninham Shand
- Louise Corbett – Ninham Shand
- Anelle Odendaal – Zitholele Consulting
- Andre Joubert – Zitholele Consulting

Objectives of the Meeting

- Present the contents of the Draft Scoping Report
- Obtain comments and inputs from stakeholders on the Draft Scoping Report
- Obtain suggestions for the planning, impact assessment and public participation processes ahead

Objectives of the Meeting cont.

- We are here to:

⇨ SHARE information

⇨ OBTAIN comments

Guidelines for Productive Discussion

- Focus on issues, not people
- Courtesy
- One person at a time
- Work through facilitator
- Agree to disagree
- Cell phones on silent

Overview of the Proposed Project

-Brief overview of electricity supply & demand
-Technical appreciation of the project

Eskom

Technical appreciation of the project

Eskom

Agenda

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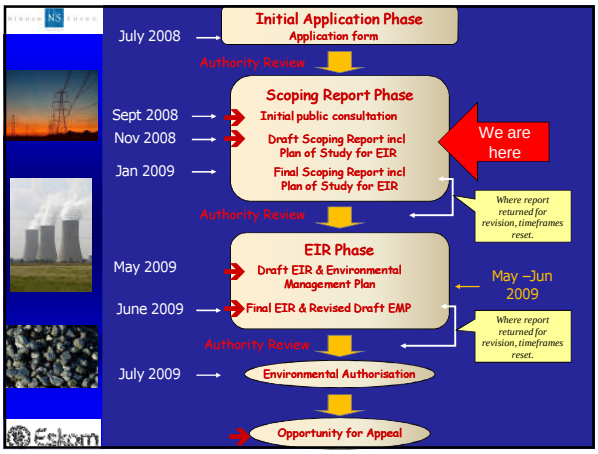
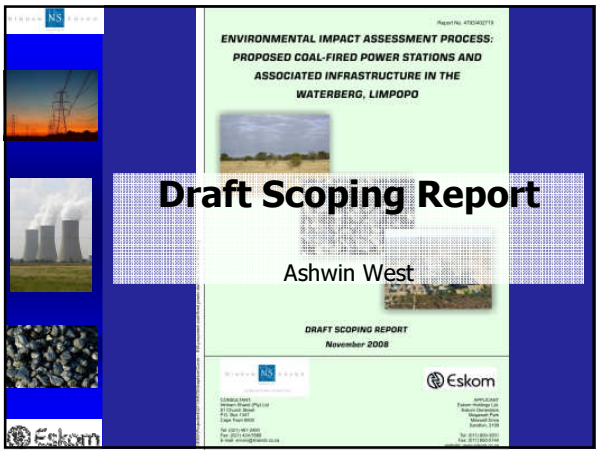
Environmental Impact Assessment Process:

Ashwin West

Purpose of the EIA process

- To satisfy requirements of:
  - National Environmental Management Act
  - National Heritage Resources Act
- To identify potential environmental impacts (social and biophysical) & determine their likely significance
- To allow for public involvement
- To inform Eskom's decision-making
- To inform Environmental Authority's Decision





Purpose of the Scoping Phase

- Identify alternatives and potential impacts requiring more detailed investigation in the EIR phase
- Based on:
  - Literature review
  - Professional input (technical & environmental)
  - Public input
- Forms basis for Plan of Study for EIA

Availability of DSR

- Lodged, from 5 Nov 2008, at
  - Lephalale Local Municipality & Public Library
  - Agri Lephalale local office
  - Marapong Clinic, Marapong
  - Lephalale District Agricultural Union &
  - Theunispan Kontant Winkel (20/11/08)
- Available on the Internet:
  - http://www.eskom.co.za/eia
  - http://www.ninhamshand.co.za
- Registered I&APs notified and sent Non-Technical Summary on 5 November 2008

Comment on DSR

- Captured at Public Meetings and on Response Forms
- All comments responded to in Comments and Response Report
- Scoping Report and Plan of Study for EIA revised in light of comment
- All comments will be included in Final Scoping Report submitted to DEAT
- DEAT may require additional changes to Plan of Study for EIA

Identification of Alternatives

Alternatives

Alternative:

` a possible course of action, in place of another, that would meet the same purpose and need'

Ref: DEAT, 2004

Alternatives cont.

- Activity alternatives
  - dealt with through strategic policies/plans
- Location alternatives
  - Site Selection Process
- Process alternatives
- High level layout alternatives

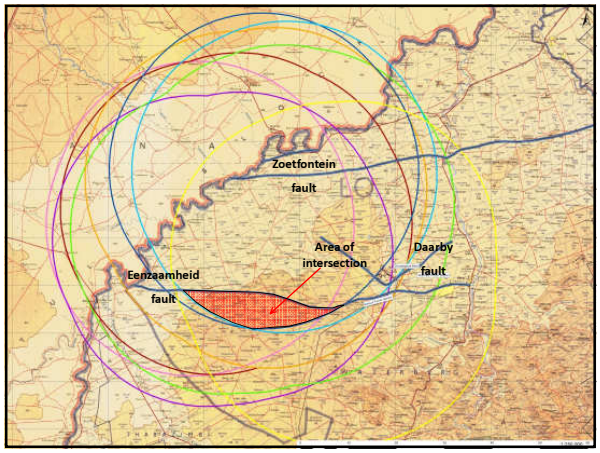
Location Alternatives: Site Selection Process

Site Selection: Rationale for Waterberg

- Expression of interest for coal supply
  - Various coal sources offered
  - Coal source not finalized
- Waterberg identified as location for further coal-related development
  - Size of coal field
  - Depth to coal
  - Allocation of resources

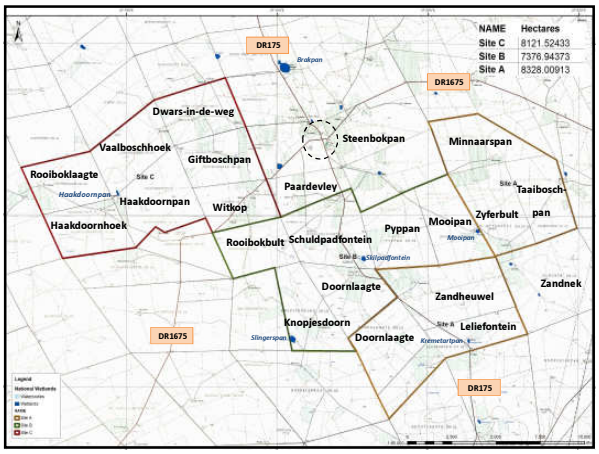
Site Selection: Rationale for Region Delineation

- Within South Africa
- Must be off-coal
- Distance from the coal
  - Max. feasible distance can transport by conveyor belt = 30 km
- Must access the shallow Waterberg coal
  - Waterberg coal reserves boundaries:
    - South Africa-Botswana border, Zoetfontein fault (north), Eenzaamheid fault (south), Daarby fault (east)



Site Selection: Rationale for Site Delineation

- Minimum 5 000 ha footprint
  - PS, ash dump, associated infrastructure
- Boundaries
  - Roads, railways, major powerlines & farm boundaries
- Buffer zones around residential areas
  - Air quality & noise
- Other infrastructure
  - Substation
- Other considerations
  - Topography, vegetation type, sensitive fauna, wetlands and land-use



Site Selection: Three Candidate Sites

Site A	Site B	Site C
Minnaarspan Farm No. 322	Pyppan Farm No. 326	Dwars-in-die-Weg Farm No. 289
Zyferbult Farm No. 324	Mooipan Farm No. 325	Gifboschpan Farm No. 288
Taaiboschpan Farm No. 320	Knopjesdoorn Farm No. 351	Witkop Farm No. 287
Zandheuwel Farm No. 356	Ptn of Doornlaagte Farm No. 353	Rooiboklaagte Farm No. 283
Leliefontein Farm No. 672	Schuldpadfontein Farm No. 328	Haakdoornpan Farm No. 673
Ptn of Doornlaagte Farm No. 353	Rooibokbult Farm No. 330	Haakdoornhoek Farm No. 333
	Ptn of Paardevley Farm No. 329	Vaalboschhoek Farm No. 285

Process Alternatives

- Combustion technology
  - Pulverised fuel
  - Fluidised bed
  - Coal gasification

ONLY PULVERISED FUEL TO BE CONSIDERED FURTHER

- Steam temp. & pressure
  - Temperature and pressure range to be considered
  - Temp – 540°C to 570°C
  - Pressure – 24 MPa to 26 MPa

Process Alternatives cont.

- Cooling technologies
  - Wet cooling
  - Dry cooling
    - Direct
    - Indirect
    - Stack-in-tower

DIRECT, INDIRECT AND STACK-IN-TOWER DRY COOLING TO BE CONSIDERED FURTHER

Process Alternatives cont.

- Ash disposal
  - Above-ground ash facility
  - Inpit / back ashing

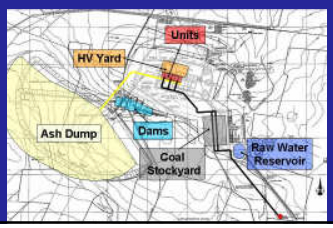
ONLY *ABOVE-GROUND ASHING* TO BE CONSIDERED

Process Alternatives cont.

- Emission reduction technology
  - Flue Gas Desulphurisation - 90 % removal (lime or limestone sorbent)
  - Low NOx burners
  - Particulate matter controls (electrostatic precipitators or bag filters)

Site Layout Alternatives

- High level site layout alternatives
  - Will be developed for each candidate site
  - 1 or 2 layouts per candidate site
  - Subjected to assessment during EIR Phase



Potential Impacts

Operational phase (biophysical)

- Impact on the *terrestrial fauna and flora*
- Impact on *aquatic flora and fauna*
- Impact on ambient *air quality*
- Impact of *founding conditions* on the power stations &
- Impact on *groundwater* resources

Potential Impacts cont.

Operational phase (social)

- *Visual* impacts
- *Noise* impacts
- Impact on *health of surrounding people*
- *Societal risk* assessment
- Impact on *heritage resources*
- Impact on local *economy*

Potential Impacts cont.

Operational phase (social) cont.

- Impact on *land use and planning*
- Impact on *livelihood security*
- Impact on *tourism*
- Impact on *traffic*
- Impact on *agricultural potential*

Terrestrial Fauna & Flora

- Context
  - Mostly indigenous vegetation with many game species
  - Potentially Red Data species present
- Potential impact
  - Impact on terrestrial habitats, plants and animals (from footprints, servitudes & atmospheric emissions)

Terrestrial Fauna & Flora cont.

- Recommendation
  - Terrestrial ecological impact assessment of candidate sites, to determine impact on communities and ecosystems
  - Toxicology study to determine impact of atmospheric emissions on game
  - Recommend mitigation measures
  - Dr Johan du Preez, Makecha Development Associates
  - Dr Jan Myburgh, under Dr Willie van Niekerk, Infotox

Aquatic fauna and flora

- Context
  - Area has a number of pans
  - Potential for sensitive/ conservation-worthy elements
- Potential impact
  - Run-off from ash dump / power station impact on ecological functioning of aquatic ecosystems

Aquatic fauna and flora cont.

- Recommendation
  - Aquatic ecological assessment to:
    - delineate wetlands and aquatic systems and
    - determine impact on communities and ecosystems
  - Recommend mitigation measures
  - Mr Daniel Otto, Golder Associates

Air Quality

- Context
  - Infrequent SO_2 exceedances recorded near Matimba power station
  - Existing air quality good in region
  - More industrial development potentially planned for region
- Potential impact
  - SO_x, NO_x and particulates impacts on biophysical environment and human health
  - Carbon dioxide contributes to global warming

Air Quality cont.

- Recommendation
  - Comprehensive air quality assessment be undertaken to determine the impact of proposed power stations
  - Model impact with combination of one and two power stations, and the Sasol CTL
  - Recommend mitigation measures
  - Dr Lucian Burger, Airshed Planning Professionals

Founding Conditions

- Context
  - Region underlain by sandy soil
  - Faults, seismic hazard or nature of soils may not be suitable
- Potential Impact
  - Founding conditions may not be suitable for proposed infrastructure

Founding Conditions cont.

- Recommendation
  - Obtain relevant information from detailed Geotechnical study being undertaken by Eskom
- Eskom has appointed Partridge, Maud and Associates to undertaken the Geotechnical investigations

Groundwater

- Context
  - Groundwater generally under-used in area
  - Groundwater potential of unweathered formations low, weathered formations good.
- Potential impact
  - Impacts on groundwater as a result of ash disposal, fuel and chemical storage, 'dirty water' dams recharging resource etc.

Groundwater cont.

- Recommendation
  - Groundwater impact assessment to
    - Determine status quo,
    - Assess potential power station impacts on groundwater
    - Assess groundwater impacts of ash disposal
  - Andrew Johnstone, Groundwater Consulting Services

Visual Aesthetics

- Context
  - Landscape mostly flat, dominated by bushveld
  - Agricultural area (grazing & game farming) crossed with transmission lines
- Potential impact
  - Visual impact due to power stations and associated infrastructure
  - Tourism could be impacted

Visual Aesthetics cont.

- Recommendation
  - Visual Impact Assessment, utilising photomontage simulations to determine the extent and nature of visual impacts
  - Visual impact considered from a range of receptor points, under different conditions
  - Eamonn O'Rourke, Strategic Environmental Focus

Noise

- Context
  - Various components generate noise (cooling fans, crushers, turbines, conveyor belts)
- Potential impact
  - Increase in ambient noise may impact on surrounding land uses

Noise cont.

- Recommendation
  - Noise impact assessment and modelling to determine:
    - Ambient (existing) noise levels
    - Increases in noise levels as a result of the power station
    - Compliance with established standards
  - Derek Cosijn, Jongens Keet Associates

Health of Surrounding People

- Context
  - Existing air quality in region good
- Potential impact
  - SO_x, NO_x and particulate matter from coal burning impacts on human health

Health of Surrounding People cont.

- Recommendation:
  - The air quality assessment and social impact assessment will cover this impact

Societal Risk

- Context
  - Hazardous material stored on site
  - People located within 3 to 30 km of candidate sites
- Potential impact
  - Operational risk related to loss of life and damage to property (workers and surrounding communities)

Societal Risk cont.

- Recommendation
  - Preliminary risk assessment to determine the consequences of an incident
  - Mike Oberholzer, Riscom

Heritage Resources

- Context
  - Graveyards and buildings over 60 years old may be present in the area
  - High points in the landscape more likely to support heritage material
- Potential Impacts
  - Destruction of heritage material during construction
  - Vandalism of heritage material, through easier access to the sites

Heritage Resources cont.

- Recommendation
  - Phase 1 Heritage Assessment
  - Dr Johnny van Schalkwyk

Local Economy

- Context
  - Agriculture is dominant land use, but only contributes 3% to GGP of the region
  - Unemployment 15.5 %
- Potential Impacts
  - Power station could create 8 000 direct construction jobs and up to 600 direct permanent jobs
  - Displacement of agricultural land, farmers and farm workers

Local Economy cont.

- Recommendation
  - Socio-economic assessment of the sites and region
  - Ben van der Merwe, Urban Econ Development Economists

Land Use and Planning

- Context
  - Land largely under private ownership
  - Majority under agriculture (grazing or game farms)
  - Land use planning frameworks in place (IDP, SDF)
  - Power stations would require at least 5 000 ha of land each
- Potential Impacts
  - Alter land use patterns, potential conflict with planning frameworks

Land Use and Planning cont.

- Recommendation
  - Undertake a land use and planning study to determine current and planned land use in the area
  - Determine authorisation requirements
  - Wim Jacobzs, Winterbach, Potgieter & Partners

Livelihood Security

- Context
  - Farms owned for many generations
  - Farms privately owned
- Potential Impacts
  - Loss of portion of land may affect sustainability of farming businesses
  - Knock-on effect for labourers

Livelihood Security cont.

- Recommendation
  - Undertake a Social Impact Assessment to determine:
    - Willingness to relocate
    - Ties to the land
    - Skills levels
    - Employment opportunities
  - Engage with representatives of a suite of stakeholder groups
  - Ilse Aucamp, Ptersa Environmental Management Consultants

Tourism

- Context
  - Waterberg game farms popular holiday & hunting destinations
- Potential Impacts
  - Candidate sites include game farms
  - Potential visual, noise and health impacts could impact tourism

Tourism cont.

- Recommendation
  - Impacts on tourism covered by the Socio-economic Assessment and Social Impact Assessment

Traffic

- Context
  - Existing road network links Thabazimbi to south west and Pretoria to east
  - Not much traffic
- Potential Impacts
  - Increased traffic due to project (construction & operation)
  - Road surface condition may deteriorate

Traffic cont.

- Recommendation
  - Traffic assessment to assess the impact of the project on the road network in the immediate vicinity of the sites
  - Louis Roodt, Ndodana Consulting Engineers

Agricultural Potential

- Context
  - Loss of agricultural land could impact farmers livelihood
  - At least 5 000 ha required for each power station
- Potential Impacts
  - Potentially valuable agricultural land may be lost

Agricultural Potential cont.

- Recommendation
  - Undertake an assessment of the agricultural potential of candidate sites
  - Alta van Dyk, Ivuzi Environmental Consultants

Public Participation Process

Anelle Odendaal

Public Participation Process

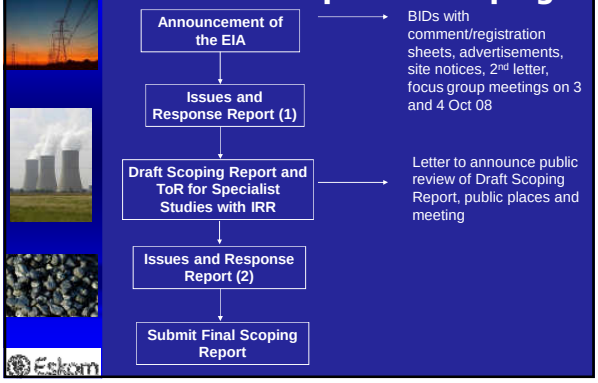
- It is a process in the EIA that is regulated under NEMA
- *It is to obtain and share information and to verify that comments have been considered*
- **Public participation is:**
  A process leading to a joint effort by stakeholders, technical specialists, the authorities and the application who work together to produce better decisions than if they have acted independently

Public Participation Process

Public participation process is designed to serve the following objectives:

- To provide sufficient and accessible information to stakeholders in an objective manner
- To assist in raising issues of concern and suggestions for enhanced benefit,
- To verify that their issues have been captured

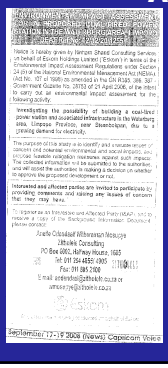
Public Participation: Scoping

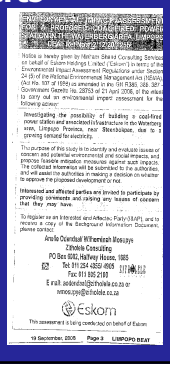


Public Participation: Examples

Public Participation: Focus Group Meetings 3 & 4 Oct 08

Public Participation: Adverts





Public Participation: Impact Assessment Phase

Feedback to I&APs	Letter announcing approval and next steps in the Impact Assessment
Public Review of Draft EIR	Letter to announce the public review, public places and review meetings
Issues and Response Report (3)	Collate response to draft report
Submit Final EIR	Letters and Environmental Authorisation notification

Public Participation: Documents for your input

- BID, follow-up letter & comment/reply sheet
- Draft Scoping Report (IRR vs 1)
- Draft EIR (IRR vs 3) & EMP
- Environmental Authorisation

General Discussion

Next Steps

Anelle Odendaal

Next Steps

- Comment period for Scoping Phase ends on 9 January 2009
- Finalise Scoping Report/ Plan of Study for EIA & submit to DEAT (Jan 09)
- Revise Plan of Study to satisfy DEAT requirements (Feb 09)
- Complete specialist studies (Mar 09)
- Compile draft EIR (May 09)
- Comment period on Draft EIR (May-Jun 09)
- Finalisation & submission to DEAT (Jul 09)

Comments on DSR

- Send comments to:
  - Anelle Odendaal or Wilheminah Mosupye
    Zitholele Consulting
    PO Box 6002, Halfway House, 1685
    Tel: (011) 254 4855 /4905
    Fax: (011) 805 2100
    Email: aodendaal@zitholele.co.za
    wmosupye@zitholele.co.za
- All comments responded to in Issues Trail & included in Final Scoping Report

Thank you for your time

Proposed Waterberg Coal Fired Power Stations

Strategic Overview

Public Participation Meeting
26 & 27 November 2008

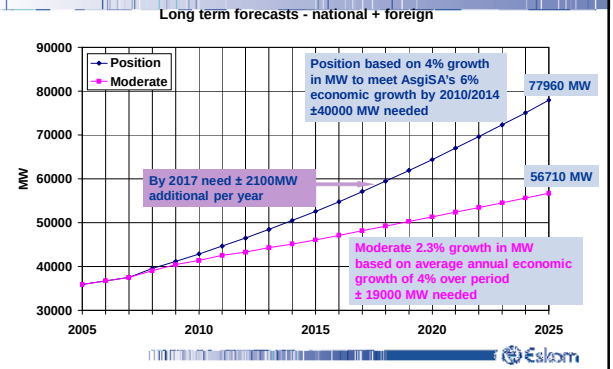
1

Eskom Vision

Together building the powerbase for sustainable growth and development

2

The Need – Long term forecasts



3

Electricity demand and supply – key challenges

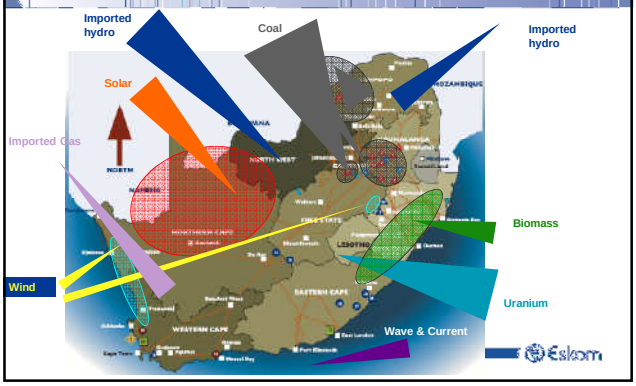
- **Demand for electricity continues to increase, resulting in South Africa approaching the end of its surplus generation capacity**

  ***1st challenge*: Avoiding mismatch between demand and supply**
  - Excess capacity - stranded resources
  - Capacity shortage - constrained economic growth

  ***2nd challenge*: Correct choice of capacity to be constructed. The available options differ dramatically in terms of:**
  - Cost (construction and operating)
  - Lead time to construction
  - Environmental impact
  - Operating characteristics (for example: peaking, baseload)

4

Then, to understand the Energy Opportunities & Constraints



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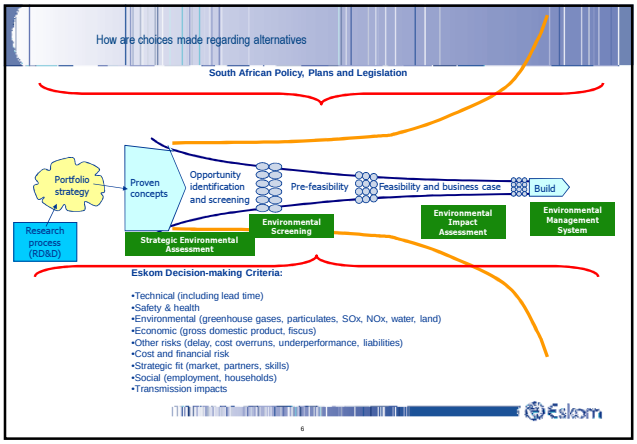
How are choices made regarding alternatives



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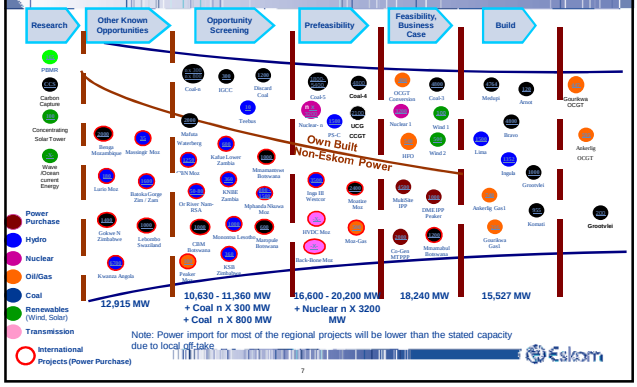
PDD Capacity Projects Funnel



Note: Power import for most of the regional projects will be lower than the stated capacity due to local off-take

Regulatory processes

Environmental Impact Assessment

- Eskom is developing options to supply the electricity need.
- The EIA is an important step in determining the viability of a specific option.
- The EIA is on the critical path (in terms of the schedule) in developing a power station.
- This EIA is for two coal fired power stations of approximately 5400 MW capacity each.
- A separate EIA will be undertaken for the required transmission lines, the two processes will run in parallel as far as possible.

Other authorisations

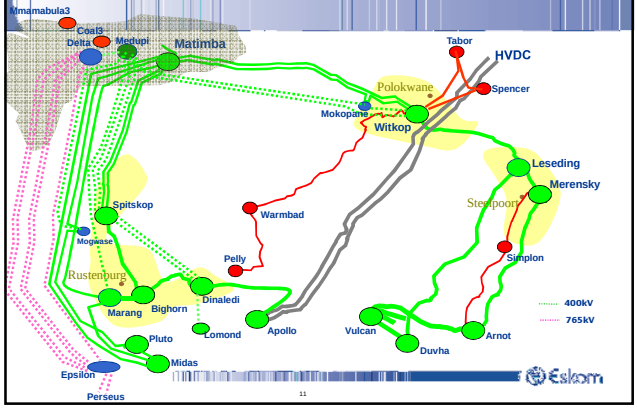
- Applications for authorisations and permits required from other Authorities - for example with respect to water, land use zoning, generating license - will be made at the appropriate stage during the project

Strategic Summary

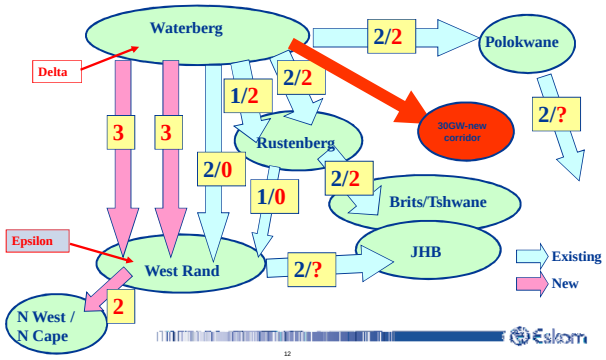
- **40 000 MW + additional generating capacity needed up to 2025, this trend continues after 2025.**
- **In addition to the existing approved base load stations additional base load power stations need to be constructed.**
- **Coal 3 and Coal 4 are developed as options for base load coal fired power stations in the Waterberg, each with a capacity of up to 5400MW. The decision to build will be made by Eskom Board, taking the environmental and other inputs into account.**
- **Three sites have been identified close to the Waterberg coal fields. These sites will be evaluated from an Environmental perspective. The aim is to complete feasibility studies for two power stations on the two most suitable of the three sites, considering environmental and various other issues.**
- **The approval by Eskom Board and the timing of the construction of Coal 3 & Coal 4 is dependant on various ever changing factors, amongst other the actual Electricity growth and the feasibility of these projects in relation to other available options.**

Transmission

WATERBERG COALFIELD: EXISTING Tx PLAN



Overview of Waterberg Corridors



Power Station

13

Expected Technical Parameters

- 6 x 900 MW (nominal) = 5400 MW
- Pulverised fuel (pf) fired, based on the newer more efficient super critical technology as used for Medupi/Kusile or higher
- Dry cooled - note, photos show direct dry cooled. (Indirect dry cooling employing cooling towers will also be evaluated)
- Reduction of Sulphur dioxide - Flue Gas Desulpherization will be installed
- Reduction of Nox - Low NOx burners will be used
- Either Bag filters or precipitators will be used to control fine particulate matter

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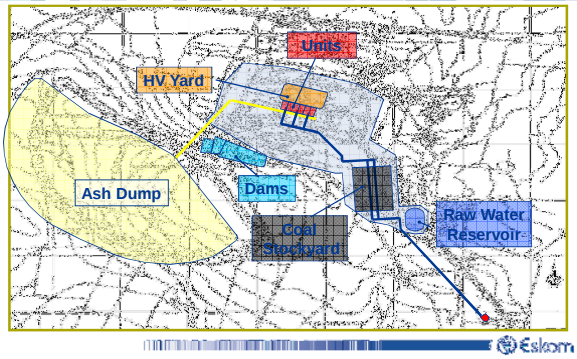
Typical Site Layout



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THANK YOU

16