

## Proposed commercial Wind Energy Facility in the Western Cape

### Strategic Overview

Focus Group Meetings  
25 – 27 July 2007

## 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 (from an array of available options that differ dramatically in terms of):
    - Cost (construction and operating)
    - Lead time to construction
    - Environmental impact
    - Operating characteristics (for example: peaking, baseload) →
- Eskom will target approximately 70% of new capacity (in MW), remaining 30% supplied from independent power producers.

## Technological Options

**Coal:** The coal is ignited, and combustion is maintained by injecting air or oxygen and/or steam through one of the burners.

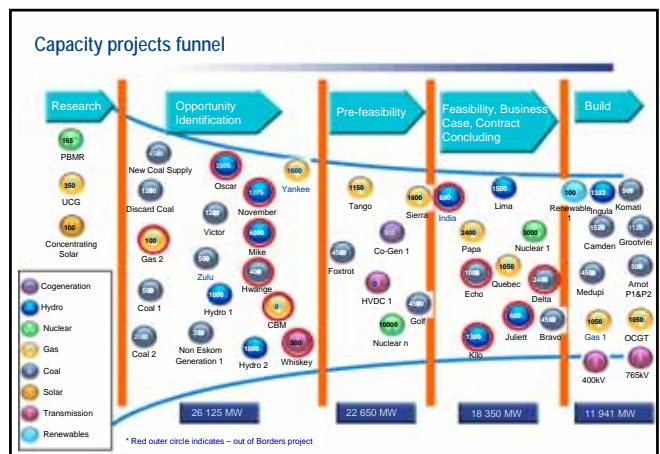
**(Gas) Diesel**

**Efficiency**

**Renewables**

**Nuclear**

**Transmission**



## Summary of previous slides...

- 40 000 MW + generating capacity addition over the next 20 years
- Generating mix (energy mix) will change (in fact has changed)
- Internationally increasing pressure on countries to increase their share of renewable energy generation due to concerns around climate change and exploitation of non-renewable resources
- In line with SA Government's 10-year target for renewable energy – 1667 MW (about 4%) renewable energy contribution (biomass, wind, solar and small-scale hydro) to final energy consumption by 2013, subject to acceptable economics, including distributed renewable opportunities
- Additional peaking plant which will include pumped storage and OCGT capacity where technically and economically feasible
- The demand-side management and energy efficiency programme target of 8,000 MW by 2025, including distributed generation options
- Promote the development of incentives for distributed renewable options and energy efficiency

## Contextualising Eskom's Energy Planning

(Please refer to the triangle on page 2 of either the Afrikaans or English version of the Background Information Document – BID)

## Where does the proposed commercial Wind Energy Facility fit in?

- Eskom is embarking on this in response to the growing demand in electricity within South Africa
- More importantly though – contribution to the country's targets for renewable energy

## Why Wind Energy?

- Wind energy is firmly established as a mature technology for electricity generation, with a reported 65 000 MW installed base worldwide.
- It is one of the fastest growing electricity generating technologies with installed capacity increasing by ~10 000 MW annually, and features in energy plans across all five continents.
- Use of wind for electricity generation is essentially a non-consumptive use of a natural resource, and produces zero greenhouse gas emissions.
- In addition, the wind energy facility qualifies as a CDM (Cleaner Development Mechanism) project as it meets all international requirements.

## Eskom's Wind Research Programme

- Klipheuwel Wind Energy Demonstration Facility (north of Durbanville) – commissioned in February 2003
- Main objective: to determine how the technology interacts with the environment and to gather and verify important performance data (such as strength, direction and frequency of the wind resource)
- Compilation of a national wind atlas (in conjunction with the DME and CSIR)
- Identification of areas of high potential for future commercial wind farm development and the ongoing monitoring and gathering of high-accuracy meteorological data/measurements

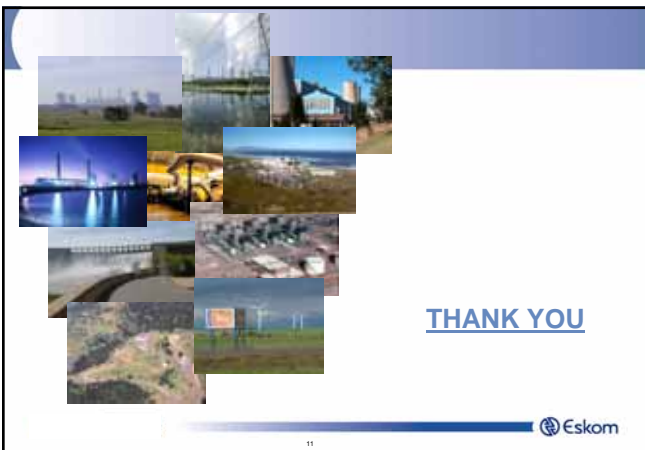
## Regulatory processes

### Environmental Impact Assessment

- This EIA is for a 100 wind turbines, over an area of approximately 25 km<sup>2</sup>, plus associated infrastructure (substation, overhead powerlines, access road, etc.)

### Other authorisations

- Applications for authorisations and permits required from other Authorities - for example with respect to land use zoning, PFMA, NER generating licence, other local authority requirements, etc., will be made at the appropriate stage during the project



## Capacity expansion - driven by long term demand forecast

