Electricity Grid Infrastructure SEA analyses update

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Outline

• Recap

• Utilisation mapping

• Utilisation map development

• Corridor refinement

• Way forward
Environmental Constraints Map

Legend
- Very high sensitivity
- High sensitivity
- Medium sensitivity
- Low sensitivity

Wall to Wall Environmental Constraints Map
Engineering Constraints

Regulatory
- Variable
  - Forest Clearing permits*
  - WULAs
  - Road Access

Risk
- Asset
  - Coastal
  - Soil erodibility
  - Unstable geology
  - Mining areas

- Negotiation
  - Rural settlements
  - Game Farming

Design
- Lightning strikes
- Veld & field fires
- Extreme temp
- Prolonged ice
- Slope
Phase 1b: SDF Mapping process

- Latest SDFs sourced where available
- District and Provincial SDFs or IDPs also sourced
## Phase Ib: Utilisation Mapping

<table>
<thead>
<tr>
<th>No.</th>
<th>Planning category</th>
<th>Example in SDFs</th>
<th>Push/Pull</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Urban expansion</td>
<td>New housing development, new shopping areas, new markets, new suburbs, existing/proposed mixed use areas</td>
<td>Push</td>
</tr>
<tr>
<td>2</td>
<td>Industrial expansion</td>
<td>Light industrial areas, heavy industrial areas-within urban edge</td>
<td>Pull</td>
</tr>
<tr>
<td>3</td>
<td>Industrial zone establishment</td>
<td>Areas outside the urban edge demarcated for special/strategic economic developments</td>
<td>Pull</td>
</tr>
<tr>
<td>4</td>
<td>Planned transportation routes</td>
<td>Proposed linkages; roads, taxi/train/bus stations; activity corridors</td>
<td>Push</td>
</tr>
<tr>
<td>5</td>
<td>Priority mining areas</td>
<td>Existing mining activity, proposed/potential mining activity</td>
<td>Pull</td>
</tr>
<tr>
<td>6</td>
<td>Priority agriculture areas</td>
<td>High potential agricultural areas; intensive/extensive agricultural areas; existing/proposed agricultural nodes;</td>
<td>Pull</td>
</tr>
<tr>
<td>7</td>
<td>Priority tourism nodes &amp; landscapes</td>
<td>Existing/proposed game farms; conservancies; scenic routes, heritage areas; botanical gardens</td>
<td>push pull</td>
</tr>
<tr>
<td>8</td>
<td>Priority natural areas &amp; open spaces</td>
<td>Municipal/Urban Open Space; Conservation Area; Parks, Recreation; CBA; ESA rivers; wetlands</td>
<td>Push/pull</td>
</tr>
</tbody>
</table>
Phase Ib: Utilisation Mapping

- Strategic Economic Zones Act
- The IDZ Programme
- Bulk Generation Exercise
- Bulk Load Exercise
- Review of renewable energy EIA applications
Priority Mining
Priority Tourism Nodes
Priority Natural Areas
## November 2014 Phase Ib Consultation

<table>
<thead>
<tr>
<th>Type</th>
<th>Location</th>
<th>Province</th>
<th>Date</th>
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<tbody>
<tr>
<td>Workshop 1</td>
<td>Pretoria</td>
<td>Gauteng and Mpumalanga</td>
<td>November 4</td>
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<tr>
<td>Workshop 2</td>
<td>Pretoria</td>
<td>Bulk User/Generator</td>
<td>November 5</td>
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<td>Workshop 3</td>
<td>Polokwane</td>
<td>Limpopo</td>
<td>November 6</td>
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<td>Workshop 4</td>
<td>Bloemfontein</td>
<td>Free State</td>
<td>November 11</td>
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<td>Workshop 5</td>
<td>Kimberly</td>
<td>Northern Cape</td>
<td>November 12</td>
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<tr>
<td>Workshop 6</td>
<td>Mahikeng</td>
<td>North West</td>
<td>November 17</td>
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<td>Workshop 7</td>
<td>Cape Town</td>
<td>Western Cape</td>
<td>November 25</td>
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<td>Workshop 8</td>
<td>Pietermaritzburg</td>
<td>KwaZulu-Natal</td>
<td>November 27</td>
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<td>Workshop 9</td>
<td>East London</td>
<td>Eastern Cape</td>
<td>November 28</td>
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Bulk Load Layer
SEZ and IDZ layer
SDF Review Layer
Load Layers
Renewable Energy Apps
Generation Layers
Phase 1b: Utilisation Mapping - Data Layers and Analysis
Utilisation Map Development

Step 1: Aggregation

Step 2: Corridor Optimisation

Step 3: Eskom Validation

Utilisation Map (Buffered Corridors - 150km) ➔ Utilisation Map (Optimised Corridors - 100km) ➔ Utilisation Corridors
Utilisation Outputs

Utilisation Map (Buffered Corridors - 150km)

Utilisation Map (Optimised Corridors - 100km)
Utilisation Outputs

Utilisation Map (Eskom Validated Corridors - 100km)

Final Utilisation Corridors
Phase II: Corridor Refinement Process (Pinch Point Analysis)

Phase 1a: Overlays
- W2W Engineering Constraints Map
- W2W Environmental Constraints Map

Phase 1b: Foundation
- Utilisation Corridors

Pinch Point Analysis

Final Corridors
Constraints Map Overlay (Very High Sensitivity)
Central/ Eastern Corridor- Partial Pinch Point
Central/ Eastern Corridor- Post Refinement
Easter Corridor- Complete Pinch Point
International Corridor - Complete Pinch Points

Legend:
- Substations
- National roads
- Remaining area
- Very high sensitivity

International Corridor - Complete Pinch Points

N1

N11

1

2
International Corridor - Post Refinement

Legend
- Substations
- National roads
- Remaining area
- Very high sensitivity

International Corridor - Post Refinement

N1

N11
Pinch Point Corridor Refinements
Final Corridors

Final Corridors vs Eskom Preliminary Corridors
Draft Corridor Environmental Constraints Map

Legend
- Very high sensitivity
- High sensitivity
- Medium sensitivity
- Low sensitivity
Way forward

- Integrate data outputs from specialist studies
- Create an integrated layer (raster) for environmental sensitivities
- Layer to show all levels of sensitivities using a MCDA model for better decision making
- Reports
Questions?