National Wind and Solar Photovoltaic Strategic Environmental Assessment

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Renewables in South Africa

- Renewable Energy Independent Power Producer Procurement Programme: by end 2014: 64 renewable energy projects / 4 GW of capacity / R 120 billion private investment

- In 2014 only 1600 MW wind and PV projects connecting to the grid → net saving to the national economy of R 800 million (CSIR, 2015)

- To date more than 550 projects (41 GW) are proposed in SA

- Current SA policies: no spatial reference for Renewable Energy allocation
Study Objectives

• Facilitate **Sustainable Development** through a holistic consideration of:
  - Environmental Impacts;
  - Social Needs; and
  - Economics.

• Undertake **Wide Stakeholder Consultation** with:
  - Government Departments & Parastatals;
  - 3 Spheres of Government;
  - Private Sector; and
  - Public.

• Achieve **Integration** through the alignment policies and plans at:
  - National;
  - Provincial; and
  - Local levels.

• Create an **Enabling Environment** through:
  - Streamlined Authorisations; and
  - Infrastructure Availability.
Vision

Large scale wind and solar photovoltaic projects that contribute to the National Development Plan are supported by strategic planning, endorsed by government, embraced by stakeholders, and attractive to investors.

Mission

To identify Renewable Energy Development Zones that are of strategic importance for large scale wind and solar photovoltaic development in terms of Strategic Integrated Project 8, and in which significant negative impacts on the natural environment are limited and socio-economic benefits to the country are enhanced.
Development Potential | Highest Provincial Development Potential | Constraints Mask (Negative Mapping) | Study Areas
--- | --- | --- | ---
Solar PV | | | 
Wind | | | 

[Map images showing solar PV and wind development potential with constraints and study areas]
Study Areas

Solar PV

Wind

Industry Input (5 year)

Focus Areas

Consultation with national/provincial and local authorities and key stakeholders
Wind and Solar PV Focus Areas

8 areas over 5 provinces
~ 80 000 km²
~ 17 000 farm portions
Scoping Level Pre-Assessments

Absolute & Relative Sensitivity Layers for Wind & Solar PV for the 8 REDZs:

- Agriculture
- Landscape
- Heritage
- Terrestrial & Aquatic Biodiversity
- Birds
- Bats
- Civil Aviation
- Defence
- Telecommunication
- Weather Services
- SKA
- Mining
- Noise
- Flicker
Example: Integrated Heritage Sensitivities

Archeology & Other Heritage

Paleontology

Landscape

Combined Heritage Solar Sensitivity Classes
Focus Area 1

Very High
High
Medium
Low

0 12.5 25 km
Landscape-based development density limits of remaining areas

**Combined Sensitivities**

**Development Density Limits**
appropriate cluster size and spacing of wind or solar PV facilities

<table>
<thead>
<tr>
<th>Sensitivity</th>
<th>Cluster size guide</th>
<th>Buffer between clusters</th>
<th>Indicative overall development density</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very High</td>
<td>Further assessment required before development can be considered</td>
<td>6 km if within same viewshed as another cluster</td>
<td>302</td>
</tr>
<tr>
<td>High</td>
<td>30 turbines</td>
<td>6 km if within same viewshed as another cluster</td>
<td>208</td>
</tr>
<tr>
<td>Medium</td>
<td>60 turbines</td>
<td>6 km if within same viewshed as another cluster</td>
<td>160</td>
</tr>
<tr>
<td>Low</td>
<td>120 turbines</td>
<td>6 km if within same viewshed as another cluster</td>
<td>120</td>
</tr>
</tbody>
</table>

**Cluster**: All turbines within 6 km of each other and within the same viewshed having a valid environmental authorisation or for which an environmental application has already been lodged and the assessment process is underway.
Generation vs Transmission Evacuation Capacities

Example: REDZ7: Upington

- Wind Capacity
- Solar Capacity
- Current Evacuation Capacity
- 3-6 Year Evacuation Capacity
- 6-10 Year Evacuation Capacity

<table>
<thead>
<tr>
<th>Generation Capacity (MW)</th>
<th>Transmission Evacuation Capacity (MW)</th>
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<tbody>
<tr>
<td>16000</td>
<td>1000</td>
</tr>
<tr>
<td>400</td>
<td>1000</td>
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