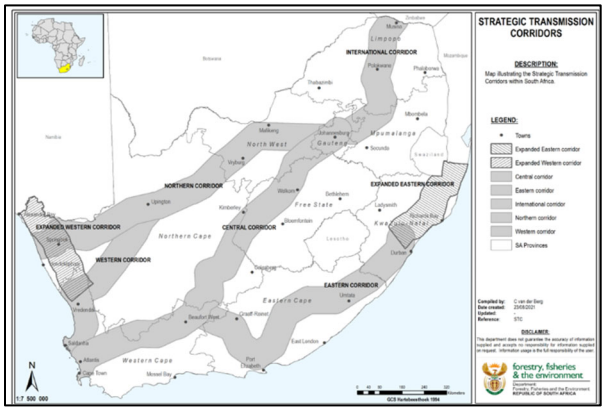
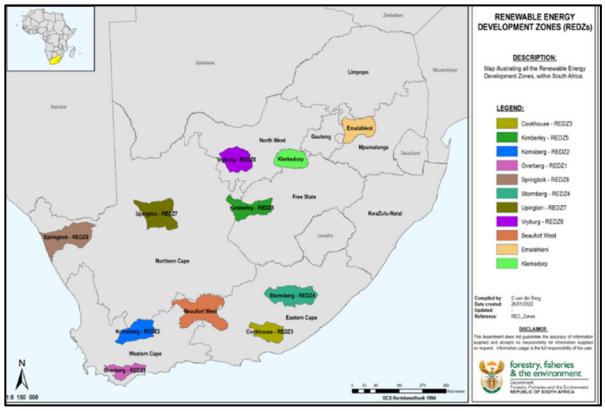
SEA for wind and solar spatial plan, South Africa

Source: Renewable Energy Development Zones (REDZs) and Strategic Transmission Corridors (2021)

Plan: In 2013, 550 projects were proposed for large-scale wind and solar PV farms. The Ministry decided that a strategic plan was necessary to guide the development of these projects. A plan was prepared to develop renewable energy development zones. This plan was subject to SEA.

Key issues/method: By making use of the Geographic Information System (GIS), a strategic country-wide and integrated approach was applied to identify the most suitable sites. The first step was identifying the suitability for wind by making use of a wind atlas and for solar farms by making use of solar radiation maps. The second step was identifying areas that need to be excluded for reasons of sensitivity, such as protected areas and biodiversity corridors. For economic reasons, areas too far away from the main electricity network were excluded (see map power transmission corridors). The loss of electricity increases considerably after several hundreds of kilometers of transport from a solar or wind park towards the main network. The third step was overlay mapping of the potential sites and the sites excluded, resulting in eleven sites. Through the SEA, a participatory process was organized in which all key authorities, the private sector, and communities were engaged in the selection of the most suitable sites. Criteria applied were loss of agricultural land, biodiversity effects (birds and bats), noise, landscape, and socioeconomic. This resulted in eight areas that were suitable for large-scale development of wind and solar farms; three sites were excluded; see map.





Result/influence: Most suitable sites were selected and mostly accepted by the key stakeholders. SEA provides guidance to the provincial authorities who are mandated to issue permits, based on an EIA, to develop wind and solar farms.