



Mapped wind resources in South Africa

WIND ATLAS

An important basis for integrating renewable energy into the electricity grid is knowing the available resources. South African wind data is mapped through a wind atlas. The programme supports further development of a wind atlas that covers most potential areas for wind power in South Africa. The wind atlas will facilitate future decisions on introducing wind power into the national electricity supply, as well as support the emerging South African wind turbine market. More information about the wind atlas is available on:

www.wasa.csir.co.za

RENEWABLE ENERGY WHERE IT REALLY MATTERS

Denmark assists South Africa in decoupling its economic growth from CO₂ emissions through the Danish-South African Renewable Energy Programme. The programme assists South Africa in its transition towards improving conditions for renewable energy and energy efficiency by drawing on Danish key areas of expertise.

South Africa is the 15th largest emitter of CO₂ emissions in the world and is responsible for nearly half of the CO₂ emissions of the entire continent of Africa. With the goal of reducing carbon emissions with 42% by 2025 South Africa is in need to move away from the almost total reliance on coal for the production of electricity, which remains the single biggest emitter of CO₂.

South Africa is not only trying to reduce the use of coal, but is also focusing heavily on renewable energy especially with deployment and integration of wind turbines. Denmark has got extensive experience in transitioning an energy sectors into using more renewable energy and these experiences are now being shared with South Africa in order to assist their energy transition away from polluting

and unsustainable fossil fuels.

The Danish-South African Renewable Energy Programme was signed in 2013 as part of Denmark's climate obligations under the global climate framework from COP15 in Copenhagen, which finances low carbon transitions in developing countries. The 40 million DDK programme (6 mio. USD) runs from 2013-2016 and is facilitated by the Danish Energy Agency. The programme is divided into three main focus areas; climate change mitigation, energy efficiency and renewable energy and is mainly centered on policy and regulatory support to enable the South African government to improve the conditions to enable an energy transition away from fossil fuels and towards renewable energy.

DANISH-SOUTH AFRICAN RENEWABLE ENERGY PROGRAMME

- Goal: decouple economic growth from CO₂ emissions
- Duration: 2013 – 2016
- Budget: 40 million DKK / 6 million USD

EXPERT ASSISTANCE TO POLICYMAKERS AND UTILITIES

Through the programme the Danish Energy Agency assists the South African Department of Energy and the South African electricity utility, ESKOM, in developing coherent energy planning, including deployment and integration of renewable energy and energy efficiency technologies. The South African goal of mitigating 42% of carbon emissions in 2025 demands competencies and know-how regarding policies and regulations, as well as expertise in planning and operation of the electric grid.



Today, around 10% of South Africans live without electricity and load shedding occurs on a regular basis due to capacity issues. The detailed Danish insight in integrating fluctuating renewable energy into the grid without, while at the same time ensuring security of supply, remains a key Danish competence. The Danish Energy Agency is through the programme providing input on technical issues and effective regulation to South African policymakers and utilities in order to support the energy sector in deploying more renewable energy to make the South African energy transition a reality.

BUILDING ON THREE BRANCHES

The programme consists of three branches, each focusing on a key area for South Africa's energy transition; climate change mitigation, energy efficiency and integration of renewable energy.

Experts from the Danish Energy Agency assist the South African Department of Energy in their efforts to mitigate carbon emissions. The programme involves assistance to develop and implement an administrative system, for assessing the setup of the forthcoming carbon offset scheme of South Africa. Danish skills and knowledge are transferred to South African energy authorities and entrenched through the programme in order to build up capacity for the South African authorities to implement and manage the carbon offset system themselves.

Energy efficiency measures are essential in mitigating climate change and have positive effects on human health, the environment, job creation, economic growth and competitiveness. Consequently, Denmark assists South Africa in drafting their post-2015 national energy efficiency targets and strategy towards 2030.

The programme also assists South Africa in energy efficiency campaigns, energy audits, consumption baselines and in developing energy efficiency instruments on the basis of Danish energy efficiency measures in public buildings and the residential sector.

REPUBLIC OF SOUTH AFRICA

- Total energy production: 165,72 Mtoe
- Share of fossil fuels in electricity: 96 %
- CO2 emissions from fuel combustion: 420,4 metric ton of CO2
- CO2 emissions per capita: 7,91 kilo of CO2

Integrating fluctuating renewable energy into the electricity grid is generally associated with a multitude of barriers. Several activities in the programme are designed to support South Africa to overcome these challenges. Technical assistance is provided on sharing experiences on the security of supply, development of scenario analyses and availability of reliable data through data collection, statistics and mapping of wind resources. The programme also supplies expertise in Wind Atlas development, grid codes, network operations and control of distribution systems with a high degree of renewable energy, which facilitates the integration and simulation of renewable energy technologies in South Africa.

FOR FURTHER INFORMATION, PLEASE CONTACT:

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