

Renewable Energy: Sere wind farm

Eskom is currently constructing Sere wind farm, its flagship renewable project, in the Western Cape, which demonstrates the utility's commitment to sustainable development and its pledge to move towards a cleaner energy future by reducing its dependence on coal and diversify its energy mix.

To achieve this, the utility is looking at a portfolio of renewable energy projects, which will provide a sustainable and clean power generation option.

Wind energy

Renewable energy is infinite, naturally replenished energy generated from natural resources such as wind, sunrays, water flow, ocean tides and geothermal heat.

Wind energy is currently the second most commercially deployed renewable energy after hydroelectric energy, although large hydroelectric energy isn't considered renewable for several reasons.

Advantages of wind power include:

- Wind is a sustainable resource and, as a primary energy source, is free
- Technology currently being developed may in future allow for the energy to be stored for use when required, for example at peak periods
- Wind is a clean form of energy without emissions or waste products
- There are growing numbers of energy users prepared to pay for the more expensive electricity generated from renewable sources

Disadvantages:

- Capital costs are high and the production cost per kWh is higher than the cheap electricity currently produced by Eskom's coal-fired power stations
- Units are of small capacity (25 to 2 000kW) and it would take hundreds of wind turbines to replace a single thermal unit (currently ranging between 200-600MW)
- Wind resources are erratic and can be used only at certain speeds
- While it is a clean source of energy, the environmental impacts of wind energy can include noise, visual pollution and negative impacts on birdlife



The Sere wind farm

The 100MW Sere wind farm takes its name from the Nama word meaning 'cool breeze' and is funded by the World Bank; the African Development Bank; French development agency, Agence Française de Développement; and the Clean Technology Fund (CTF). Construction is now underway, with the facility expected to go into commercial operation in October 2013.

Sere wind farm is being built on a 7 400 hectare site in Vredendal in the Western Cape, which is a region in South Africa which has an attractive wind resource, with wind capacity in South Africa estimated to be well over 10 000MW. The Wind Atlas currently being developed by the Department of Energy (DoE) and the Council for Scientific and Industrial Research (CSIR) will detail this capacity more accurately.

The Sere project construction is planned to start in 2012 and is expected to commission in 2013 in support of the Government and Eskom's renewable energy time targets. It is hoped the wind farm will be a transformational catalyst for the development of renewable energy in South Africa and hopefully in the rest of Africa.

The project is currently registered with the Designated National Authority (DNA) at the DoE as a clean development mechanism (CDM) project and will displace a considerable amount of greenhouse gases and particulate emissions. The project will also conserve scarce water resources as it uses little or no water in the production of clean electricity.



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