



1 Karkloof Road, Howick. P O Box 394, Howick, 3290. Tel 033 330 3931 Fax 033 330 4576 info@wessa.co.za www.wessa.org.za

October: 2012.

Wind Energy: WESSA Position Statement

This position statement is based on the principles of ecologically sustainable development, and reflects the Vision; Mission; Aim; Style and Values of WESSA.

This position statement recognises that the socio-economic and environmental landscapes are complex and so must make space for continuous change and emergence.

Contact:

Garth Barnes: WESSA Conservation Director - gbarnes@wessanorth.co.za
Avril Wilkinson: WESSA Enrgy Programme Manager – avwil@worldonline.co.za

This position statement replaces all other WESSA Wind Energy statements which were written before October 2012.

Reg No. 1933/004658/08 (Non-Profit Company)

Registration Number in Terms of the Non Profit Organisation Act 1997: 000-716NPO Tax Exemption Number: 18/11/13/1903

DIRECTORS: Messrs: Dr RG Lewis (Chairman), F van Heerden (National Treasurer), Dr JT Burger (Chief Executive Officer), Prof M Kidd, Dr RJ Taylor, Dr P Bartels, Dr H Hendricks, M Ward, M Fischer, G Barnes, A Steyn

Mesdames: DL Perrett (Vice Chairman), S Erasmus, Dr E Rosenberg

M Powell (Company Secretary)

Patrons: Simon Gear, Andile Sangqu, Braam Malherbe, Keith Kirsten, Penny Heyns, Kevin Duncan, Sango Ntsaluba, Prof. Brian Huntley, Michael Judin, Jason Hartman

FOUNDER MEMBER OF



International Union for
Conservation of Nature

INTRODUCTION

In highly industrialized South Africa, the **daily** amount of electricity drawn from the national grid rises up to 31000 - 33000MWh. Most of this electricity is generated from coal-fired power stations, significantly contributing to greenhouse gases. It is therefore an imperative for South Africa to reduce its reliance on fossil fuel power. This will, to a certain extent, be realised though the Integrated Resource Plan, IRP 2010.

Wind power features well in the policy adjusted IRP, which commits to a wind energy build in 2014 – 2015 for 800MW; and new build options in later years for 8400MW, making a total wind contribution by 2030 of 9200MW (10.3% of total mix).

POSITION STATEMENT

WESSA's position is to support the responsible planning, permitting, and production of renewable energy resources including wind energy. We believe that renewable energy resources are essential to the environmental well-being of our nation and planet.

Such facilities, however, must be conditioned to minimize adverse impacts to natural resources.

CONTEXTUAL INFORMATION

Wind energy in South Africa's new electricity generation mix

The following example is used to contextually demonstrate the scope of electricity generation from wind in South Africa

The Council for Scientific and Industrial Research (CSIR) has completed an environmental impact assessment (EIA) which evaluates the impact of putting up 70 wind turbines of up to 3 MW capacity each, in four commercial wind energy facilities near the towns of Swellendam, Heidelberg, Albertinia and Mossel Bay, in the Western Cape. The total combined installed capacity would be about 210 MW.

Other wind farms are proposed under the escarpment near Queenstown, the escarpment of the Drakensberg range and closer to the coast near Zululand, to name a few. Many more will be needed to reach the target of 9200 MW in 2030.

When calculating the electricity generated from an installed facility, a "% availability" should be factored in. The IRP has a very conservative value of 30% for wind. So 210MW of installed wind capacity will generate a much lower MWh capacity.

There will be impacts to wind power. If the consideration was only about the amount of energy generated from wind, one might be convinced that our historical, carbon-intensive coal-fired energy path should remain as *status quo*. However, when one considers the threats of climate change to our biodiversity, our society (especially the poor) and our economy, then WESSA remains in full support of the wind energy programme as part of the carbon reducing energy mix for South Africa.

Wind Energy Economics

There is much advocacy for alternative forms of energy such as wind, photovoltaic, hydrogen, biomass, *ad infinitum*, to solve the dilemma of fossil-fuel depletion. All candidates for substitution must be subjected to careful and comprehensive net-energy scrutiny to insure that we do not pour energy "down the drain" and promise more than can be delivered.

The worldwide installed capacity for wind at the end of 2007 was about 93 GW and up to 160 GW by the end of 2010. Germany, US and Spain currently lead in terms

10 ³	kWh	kilowatt hour
10 ⁶	MWh	megawatt hour
10 ⁹	GWh	gigawatt hour
10 ¹²	TWh	terawatt hour
10 ¹⁵	PWh	petawatt hour

of installed capacities while India and China are quickly catching up with open commitments of increasing wind power's share in their energy mix.

In South Africa's new energy generation mix, the additional economic factor of REFIT (Renewable Energy Feed-in Tariff) is also a contributing factor for consideration of economic impact. The cost of wind power is higher than some other forms of energy, and in order to make it a profitable business the REFIT tariff covers the additional cost (in the region of R 1.20/KWh).

Clearly the economic impact should be understood, and accepted, as part of the global responsibility in meeting our carbon reduction targets. However, WESSA notes the concern for peoples in South Africa who are still without electrical benefits and may be further disadvantaged through increased electricity tariffs.

Wind farms: Land use, Biodiversity and People

Compared to the environmental impact of traditional energy sources, the environmental impact of wind power is relatively minor. Wind power consumes no fuel, and emits no air pollution unlike fossil fuel power sources. The energy consumed to manufacture and transport the materials used to build a wind power facility is equal to the new energy produced by the facility within a few months. While a wind farm may cover a large area of land, many land uses such as agriculture are compatible, with only small areas of turbine foundations and infrastructure made unavailable for use.

There are reports of bird and bat mortality at wind turbines, as there are around other artificial structures. However it is mainly for these two species groupings that WESSA has most concern. In this respect WESSA will advocate for the protection of these (and other) species through the EIA processes for wind farms.

In the UK, the Royal Society for the Protection of Birds concluded that "*The available evidence suggests that appropriately positioned wind farms do not pose a significant hazard for birds.*" It further notes that climate change poses a much more significant threat to wildlife.

Similarly, bats may be injured by direct impact with turbine blades, towers, or transmission lines. Recent research shows that bats may also be killed when suddenly passing through a low air pressure region surrounding the turbine blade tips.

There are anecdotal reports of negative effects from noise on people who live very close to wind turbines. Peer-reviewed research has generally not supported these statements.

Wind farms: Aesthetics

Aesthetic issues are subjective and some people find wind farms pleasant and optimistic; symbols of energy independence; and local prosperity. Some tourism officials predict wind farms will damage tourism, while some wind farms have themselves become tourist attractions, with several having visitor centers at ground level and observation decks atop turbine towers. WESSA will support the cohesion of wind farms and tourism.

REFERENCES

2011 Key World Energy Statistics - International Energy Agency
Gautam Patil for Gaebler Ventures
Engineering News online
Renewable Energy Feed in Tariffs (REFIT)
Environmental impact of wind power - Wikipedia