



Wind power has the potential to generate **62% of South Africa's current energy needs. Electricity generated from wind is lower in cost and better for the environment than the alternative fossil fuel options. Here's some information about why wind energy makes sense in terms of cost and the environment.**

Will wind power help to keep electricity affordable?

Wind power will add much needed electricity to our over-constrained grid and also helps us to cut down on the fossil fuel we use, without causing pollution.

We rely on energy for almost everything we do, and as a country we are using and demanding more and more electricity in our daily lives. At the moment most of our electricity is generated from fossil fuels such as coal. This is bad for the environment, causing pollution and carbon emissions that contribute to climate change and it is also a finite resource. Many of South Africa's power stations are old and need urgent repairs but if they are taken offline there will not be enough electricity to supply the country. For this reason a number of new coal-fired power stations are being built – but the cost of the electricity generated from these will be much higher than from wind energy. Due to the competitive nature of the REIPPPP bidding rounds, the price of wind energy has decreased by 42%: in the last REIPPPP round (3) it averaged 74 cents per kiloWatt hour (kWh) – 30% cheaper than the predicted cost of new coal power at Medupi.

Why has the electricity tariff been rising in recent years?

Replacing power stations costs money, just like buying a new vehicle leads to new monthly instalments or a large cash payment while the old car may have been paid off and requiring only maintenance. South Africa has not been saving for the replacement of old power stations or the erection of additional ones. This process is requiring large investment and thus causing the electricity price to rise. Wind power is cheap, but all new power is more expensive than “old” power from power stations that have been long paid off.

Do local communities benefit from wind farms?

South Africa’s wind farms will provide significant benefits to their local communities

Collectively, wind farms presently built or under construction will invest over ZAR 5 billion of their revenue into socio-economic and enterprise development over the next 20 years. Shareholding of between 5% and 40% in the project companies is allocated to local residents on top of that. This substantial investment is accompanied by the creation of temporary and full-time employment opportunities for low, medium and highly skilled workers.

Will wind farms attract tourists?

Wind farms are likely to become tourist attractions and to co-exist with present tourist attractions.

Tourism is a vital industry in South Africa so it’s important for Wind Power to work in harmony with our natural landscapes. Because wind energy is such a new industry in South Africa, a local survey on tourism has not yet been carried out, but using an international example from a UK survey: 80% of UK residents wouldn’t be put off holidaying in the UK by wind farms, and 40% would like to visit a wind farm on holiday according to a recent VisitScotland report [1.] In fact 35,000 people take trips to Scroby Sands Windfarm in Great Yarmouth each year [2], and nearly 250,000 people have visited Whitelee Wind Farm near Glasgow since it opened in September 2009 [3].

Sources

1. <http://www.visitscotland.org/default.aspx?page=2371>
2. <https://www.eonenergy.com/About-eon/our-company/generation/our-current-p...>
3. <http://www.whiteleewindfarm.co.uk/>

Can wind farms have any health impact?

No. Wind farms have no effect on your health.

They do not emit polluting gases like nitrogen and sulphur oxides, and do not cause health problems through noise. In 2009, an expert panel from the UK, US, Canada and Denmark wrote a review entitled "Wind Turbine Sound and Health Effects" concluding "there is no evidence that the audible or sub-audible sounds emitted by wind turbines have any direct physiological effects"¹ and The Department of Energy and Climate Change (DECC) have concluded that properly sited wind farms have no direct effect on public health.² In South Africa's vast, open spaces, this is likely to be even more unambiguous.

Sources

1. <http://www.awea.org/Resources/Content.aspx?ItemNumber=4627>
2. http://tools.decc.gov.uk/en/content/cms/meeting_energy/wind/onshore/ques...

Why is wind energy better for the environment?

Wind is a clean source of renewable energy which emits no pollutants unlike fossil-fuel source such as coal and gas. Other benefits include:

- Reduced carbon emissions – one megawatt of wind energy equates to 2600 fewer tons of carbon emissions when compared to coal-fired energy generation.
- NO air or water pollution.
- Water saving – unlike most power sources, wind energy does not consume water during the generation process.

Are wind farms quiet?

Operating wind farms must meet strict noise guidelines to ensure they do not negatively impact those that reside in their vicinity. Most wind farms are built in rural areas where the ambient noise is low. In these circumstances wind farms must meet the guidelines of 35 decibels (dB) at 350m (it is very unlikely that a wind turbine would be this close to a residential property). In urban areas this rises to 45dB but generally the aim is to keep the noise from the turbines below or at the general level of background noise.

The table below shows some levels of common noise for comparison

Sound	Intensity level (dB)
Rustle of leaves	10
A whisper	15
Quiet bedroom at night	35
Average sitting room (background noise)	40
Normal conversation	60
Street traffic in large city	80
A lawnmower	90
Large orchestra, moderately loud	95
Factory floor	100
A car horn	110
Take off jet airplane	140

Source

1. <http://www.poweredbywind.co.za/dl/english/factsheet5.pdf>

Are wind farms safe?

Modern wind turbines are very safe, and the wind industry takes health and safety very seriously.

Wind farm developers stick to very strict laws and guidelines that make sure turbines are properly designed and maintained with safety in mind. In 2012, the Health and Safety Executive (HSE) in the UK concluded that no member of the public had ever been injured by a wind turbine in more than 20 years since commercial wind farms started operating in the UK; a fact that remains true to this day.

Are wind farms safe for birds and wildlife?

Many international environmental and conservation groups strongly support wind power.

They believe climate change to be the biggest threat to birds and wildlife – a threat that wind turbines are designed to help combat.

Like buildings, cars and other man-made objects, birds could collide with wind turbines, but the wind industry makes every effort to keep to avoid this and to protect all forms of wildlife. Developers work closely with conservation groups and carry out rigorous Environmental Impact Assessments (EIAs) before any work begins. Wind farm developers must often make special arrangements for wildlife in order to be given permission to build their wind farm.

Given the potentially adverse effects of global climate change on birds, BirdLife South Africa and SAWEA share a commitment to renewable energy. Their co-operation led to the adoption of a code of conduct in June 2013 for wind farm developers in South Africa. The code of conduct requires SAWEA members to follow international best practice during project development, implementation and operation. It also requires members to exercise due care to reduce the risk of negative impacts on the environment. In addition to this, SAWEA endorsed the BirdLife South Africa / Endangered Wildlife Trust best practice guidelines for avian monitoring and impact mitigation at proposed wind energy development sites in southern Africa which were developed in 2012. These guidelines are based on international best practice and are a key resource used to help minimise the impact of renewable energy developments on birds and their habitats.

How long does it take a wind turbine to recover the energy used to manufacture it?

Internationally, more people are asking the question of Energy Returned on Energy Invested. It takes energy to manufacture wind turbines and to transport them to site. According to Science Direct a wind farm will typically return the energy needed to build within the first three to six months (depending on a number of variables) of its twenty year lifetime. A wind farm therefore has a very high energy returned on energy invested.

Source

1. <http://www.sciencedirect.com/science/article/pii/S096014810900055X>

What if the wind doesn't blow?

The low cost of wind power already factors in the variability of wind and the fact that the output from a wind farm will vary from day to day. This is done by experts after measuring the wind at the project site, at the height of the prospective turbines and then extrapolating using long term weather records to "normalise" the result. South Africa already has an abundance of energy sources that can be switched on at any moment if required and wind power is an ideal complement to these. Moreover, South Africa is a large country and the geographic spread of the wind farms ensures that a significant percentage of the country's total wind power will always be available.