



SOUTH AFRICA'S WIND INDUSTRY

Background, statistics and facts on wind energy and the renewables programme in South Africa

- Today in South Africa there are 19 wind energy developments, with more than 600 wind turbines equalling 1,471MW
- 3.365 GW of wind energy have been procured through the Department of Energy's Renewable Energy Independent Power Producer's Procurement Programme (REIPPPP) to date.
- 36 separate wind farm developments have been selected by the REIPPPP.

The REIPPPP

To date there are 55 renewable energy projects, of which 19 are wind farms, that are fully operational, adding 2,942 Megawatts (MW) to the grid. Details are:

- 19 wind energy developments equalling 1,471MW
 - 31 solar photovoltaic developments equalling 1,344MW
 - 3 Concentrated Solar Power plant at 200MW
 - 2 hydroelectric power plants totalling 14.3MW
-
- Unlike many energy projects in Africa, 98% of those selected under the REIPPPP have reached commercial operation on time.
 - A total of 14725 MW of renewable energy have been allocated to the REIPPPP.
 - So far 6377MW (43%) of that has been procured over 6 bidding rounds and 3,029MW is operational.
 - The REIPPPP is bringing renewable energy to the National grid fast and cheaper than new-build coal. Construction times for projects average less than two years, and the electricity price paid to projects has declined 68% within three years.
 - REIPPPP Rounds 1-3.5 provide 11,784 Gigawatts of electricity
 - The price of wind energy in the last Round 4 expedited was R0.62/kWh more than 40% less than forecast prices for Eskom's new-build coal plants Kusile and Medupi.



Wind energy is water saving

- For each kilowatt hour of wind that displaces fossil fuels in our national grid, 1.2 litres of water will be saved. The entire portfolio the REIPPPP programme will save 52 million litres of water each year, equal to 371 428 standard sized bathtubs.

South Africa has outstanding conditions for generating wind energy

- More than 80% of SA's land mass has the wind conditions to produce high load factors (more than 30%).

Wind energy is cheap, clean and green

- Wind is a clean, sustainable 'renewable' source of energy. Using wind energy helps combat climate change by reducing pollutants from fossil fuel.

Community benefits

- Local communities (within a 50 kilometre radius of developments) are already substantial beneficiaries of renewables, with an average shareholding of 10.5% in renewable projects. This constitutes more than four times obligated minimum of 2.5% which forms part of the criteria of the REIPPPP.
- Host communities will have billions of Rand invested in socioeconomic development from funds provided by these developments.
- The total projected value of goods and services to be procured from broad-based black economic empowerment suppliers is more than R101bn.
- Across the 6 bid windows, a total of 19.3 billion (2.2% of revenue) has been committed by the Industry, for Socio Economic Development i.e. 120% more than the minimum requirement (November report indicates this at 127%). Of this, R15.2 billion is specifically allocated for local communities where the IPPs operate.
- As part of bid obligations, Independent Power Producers (IPPs) must commit a share of their revenue over 20 years to community needs (SED). The minimum threshold is 1% of revenue.
- R91.1 billion is committed to various development initiatives under the REIPPPP.



Employment

- Total commitment from REIPPPP over the life-cycle of the projects 23.1 billion to local community development that includes job-creating initiatives.
- The REIPPPP has provided 127% of planned employment during construction (26 207 actual vs 20 688 planned job years) with 125% more local community members employed than was contractually required.
- Since 2013, the construction and operation of renewable energy projects has created 111,835 job years for South African citizens (DoE, 2016).

Attracting investment

- Moody's rated South Africa's 2015 renewable energy market as the fastest growing, year-on-year in the world.
- Investment in renewables grew 20,500% in one year between 2011 and 2012 – the first year of the REIPPPP.
- 92 projects have been selected as part of the REIPPPP, attracting R198bn in private sector investment totalling a contribution of 6 376 MW of capacity to the national grid. 28% of this total comes from foreign investment – R53.2bn.
- The REIPPPP has attracted R135.6 Billion since inception. R35 Billion of this is from foreign investment.

Country-specific achievements

- South Africa has a world-first wind atlas – a high-definition map which shows Independent Power Producers the best sites for wind energy development, allowing them to short-cut access to data to help them identify potential wind farm sites. The map was produced by South African National Energy Development Institute (SANEDI) and is available here: www.wasaproject.info
- Renewable energy production so far has cut the equivalent of 4.4million tonnes of carbon dioxide equivalent (CO₂e).
- The REIPPPP is also stimulating local manufacturing and creating sustainable jobs. By March 2016 over R30 billion had been spent on local content and a further R65.7 billion is expected to be spent by projects that have yet to commence construction. Twelve new industrial facilities have been established as a direct result of the programme.



- According to a report by the Council for Scientific and Industrial Research, wind energy produced net savings of R1.8 billion in the first half of 2015 and was also cash positive for Eskom by R300 million. During the highest periods of load-shedding, collectively wind energy and solar power (photovoltaic) saved R4 billion from January to June in 2015.
- South Africa is the largest wind energy producer in Africa.

Background to the REIPPPP

- In 2010, the Department of Energy, the Treasury and the Development Bank of Southern Africa collaborated to set up the Independent Power Producer (IPP) office and designed the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP). At the heart of the programme was the provision that Eskom enter Power Purchase Agreements (PPAs), ensuring that investors could forecast accurately their profits and bankability – which is enhanced by having payment risk mitigated by government guarantee.
- The Department of Energy has committed to 13,225MW of renewable energy generation by 2025. This will be secured under the Renewable Energy Independent Power Producer's Procurement Programme (REIPPPP), which has been running since 2011 and has already completed 3 successful bidding rounds – The final sign off for Round 4 is being hindered by utility Eskom delaying the signing of Power Purchase Agreements.
- SA's 2010 Integrated Resource Plan (2010-2030) calls for 17,800 MW of renewable energy to be energy Nation place by 2030. That equals more than one fifth of the country's predicted demand. Commentators and industry experts expect the IRP 2016 to significantly increase the contribution allocated to wind power, leading to an ultimate industry of up to 40,000 MW installed.
- The overarching National Development Plan calls for a 'greater mix of energy sources and a greater diversity of independent power producers (IPPs) in the energy industry', acknowledging that energy market must look very different in years to come that how it appears now.
- In 2009 President Jacob Zuma committed South Africa to take mitigating action that would reduce emissions by 34% by 2020, and 42% by 2025 below "business as usual", provided the international community supported the country with financial aid and the transfer of technology. In a short space of time these goals are being realised and we now have a flourishing and expanding renewable energy sector.

*This calculation is based on household consumption of 6.000 kiloWatt hours per year (supplied by the Council for Scientific and Industrial Research (CSIR) and an average capacity factor of 35% from the wind turbines (this is a conservative figure as many turbines are performing closer to 40% plus).