

Maximising a full range of renewable technologies can tackle energy crisis

As Eskom continues to declare regular 'emergencies' and black outs persist, renewable energy has the potential to rescue the situation over the next five years – we just need to mix small and large scale technologies, says the South African Wind Energy Association (SAWEA).

Our current electricity supply cannot provide the power we need to grow the economy to its full potential. Projections show that the country will not have the energy required to fully realise its economic ambitions until 2020 or later, without intervention from a cost effective source.

SAWEA CEO Johan Van den Berg comments: "At a minimum, about ZAR 12 billion a year is likely to be spent on power generation from diesel generators, eight times the cost of recently procured wind energy. In this scenario there will be slower economic growth and a lower level of job creation than could have been the case. The ability to pay social grants will be tighter."

The country's renewable energy procurement programme (REIPPPP) has procured thousands of megawatts (MW) in the last three years at increasingly competitive rates with more in the pipeline. Many turbines are already providing power to the grid. Local content levels have been near 50% with the result that there are huge spin-offs in the supply chain to a wide variety of large and small South African companies and also individuals, boosting the flagging economy. The obstacle to filling the energy gap with renewable energy is timing.

Frank Spencer, Chair of SAWEA's Technical Working Group explains: "The disparity between the success of the REIPPPP and the energy shortage of the country relates to the time energy is generated versus the time at which it is most in need."

"Wind plants often deliver energy during peak periods but are obviously dependent on the wind blowing. Solar photovoltaic plants deliver their maximum output around the middle of the day. Solar Thermal power can be stored, but the construction time for such plants is longer than for the aforementioned technologies and there is some work to do in bringing down costs."

The solution is to maximise the energy output from renewable sources to impact the grid at peak times. Alongside commercial-scale renewable power plants there is huge potential for small scale technologies to relieve pressure on the grid. "We have one of the best climates in the world for solar energy and the potential to install millions of solar water heaters at very affordable rates in a short period of time. Letting sun heat our water instead of diesel will drop the electricity demand curve over the entire course of the day so that we won't need to use diesel peaking plants as often," says Spencer.

Rooftop Solar PV can store power in batteries to feed back into the grid during peak hours at significantly less than the cost of power generated from peaking plants. "Solar water heaters and solar rooftop can address the bulk of the peaking problem and utility scale wind and solar (both PV and solar Thermal) will deliver the extra capacity required. This is how we can resolve our energy shortage while boosting local manufacturing and job creation and enabling the economic growth envisioned in the National Development Plan," concludes Van den Berg.