

## FOCUS ON ENERGY

Wind energy need not be a pipe dream for South Africa, writes **Yolandi Groenewald**

# Building in the wind

In Denmark building blocks are big. But although kids worldwide adore its Lego blocks, it is the country's investment in building a sustainable wind energy industry that will be one legacy for future generations.

The wind power industry has become the second biggest export for Denmark, which has one of the most competitive economies in the world. The Danes have created a green economy that South Africans would be well advised to follow.

In the 1970s the country developed wind technology that provides 27% of Denmark's electricity today — by far the most in the world. More than half of the world's wind energy is produced by Danish manufacturers.

The industry employs about 20 000 people — green jobs as US president Barack Obama has labelled them — and has a turnover of about €3-billion. Germany's wind turbine industry employs 64 000.

Thomas Becker, the Danish lead

negotiator for the UN's climate talks, says the country is proud of its wind industry and the role it is playing in facilitating a world green economy.

On a visit last week to South Africa, Becker encouraged South Africa to start thinking green.

South Africa purchased its wind technology from the Germans for its wind farm near Darling, which began operations last year. This R75-million farm consists of four turbines, each producing 1.3MW and generating a total of 5.2MW.

The Darling farm has signed a long-term power purchase agreement with the city of Cape Town, reportedly at a premium of 25% above the Eskom electricity price. The Danish government also funded a third of the project.

But what stifles wind development in South Africa is the lack of a proper feed-in tariff. Though South Africa's national regulator is trying to draw up regulations, it is a painful process and analysts believe there is not

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mation technology company ABB reveal a single machine installed today can have blades longer than a football field and be capable of generating 7MW of power — enough to meet the yearly power needs of 4 250 average European homes.

Encouraging renewable technologies such as wind power is one of the ways the European Union plans to cut greenhouse gas emissions by 20% by 2020 from their 1990 levels.

Some of the best wind harvesting is found in remote places, with no infrastructure linking it to the grid. In Europe almost 40% of the wind farms planned will be offshore in the next few decades.

The new plants also have to contend with old electrical infrastructure in many countries, which is in some cases more than a century old.

Many transmission lines and interconnections are too small to accommodate the amount of electricity power companies would like to push through them, ABB has found.

"That impacts on wind-generated power in the sense that the best sites are as yet barely tapped, because there is no way to move the electricity from where it is generated to the load centres that need it," says ABB South Africa's sustainability manager Chesney Bradshaw.

New technologies are available to provide solutions to these challenges.

## Welcome to 'Focus on energy'

Debate and discussion about energy, particularly electricity, has grown considerably with higher demand, shortages, the imperative to use energy more efficiently to mitigate CO<sub>2</sub> emissions and the need for renewable energy.

The *Mail & Guardian*, in association with power and automation technologies company ABB South Africa, presents "Focus on energy", which aims

to keep readers up-to-date with energy trends and issues, new technologies and practical solutions.

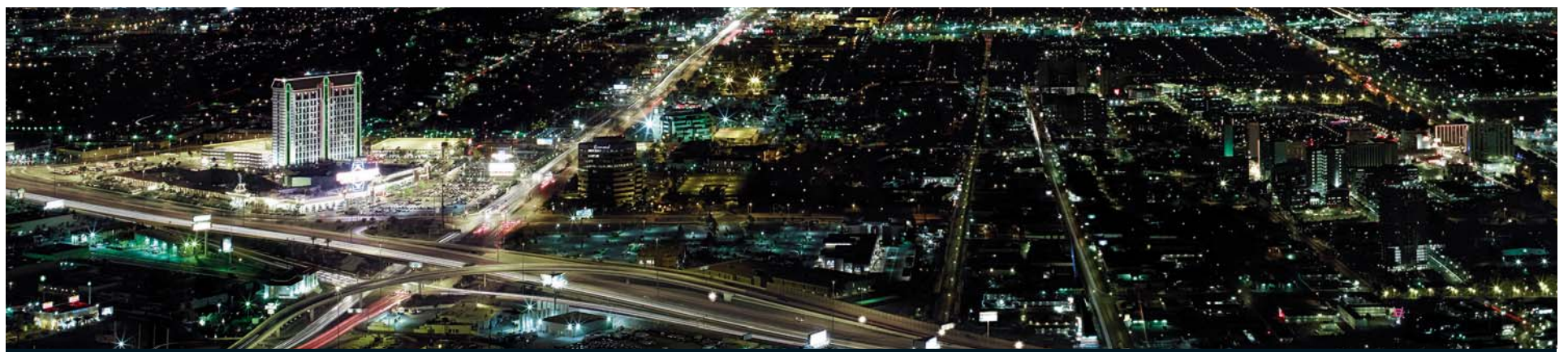
These pages are a platform for debate on critical issues in energy. Please send suggestions or comments to Yolandi Groenewald, Mail & Guardian, at YolandiG@mg.co.za or Chesney Bradshaw, ABB South Africa, at chesney.bradshaw@za.abb.com

**Powered by nature: off-shore wind turbines in Denmark and their familiar South African counterpart.** Photo: SA Tourism

much buy-in from the department of minerals and energy.

It is a missed opportunity as more and more countries are trying to harvest wind. At the end of 2007 a total of 94GW of wind power had been installed globally and wind power accounted for 40% of all newly installed generated power.

The industry has changed significantly in the past few years, as have the turbines. In the beginning, turbines were a few storeys high and could generate about 50kW of power. Statistics from power and auto-



Cities that consume 30% less energy?

Certainly.

