

Building industry goes green

With green consciousness growing around the world, the spotlight is falling on inefficient buildings and aging infrastructures that are hampering organisations' ability to become as environmentally sustainable as they would like.

Fortunately, there are many techniques available for retro-fitting existing buildings – although this isn't as effective as developing and designing new buildings that are as efficient as possible.

Warren Gray of Solid Green Consulting presented a paper on the practical implementation of green building technology on behalf of Ron Henderson at the recent Champions of the Environment (CeF) climate change conference.

Gray points out that most of the climate change focus to date has been on lowering emissions by switching to renewable energy sources.

However, studies show that the world simply won't be able to meet its energy requirements through different fuel sources, which will only comprise a small percentage of the total energy mix in the medium term.

There should be a greater focus, therefore, on using energy more efficiently in order to lower greenhouse gas emissions. And, with cars and planes already running about as efficiently as they can in the short-term, the built environment offers the biggest potential for increasing efficiency.

In South Africa, the Green Building Council rates buildings on their management, indoor environment quality, energy, transport water, materials, land use and energy, as well as on emissions and innovation.

The council has had a fair success rate, with more than 60 projects certified since its inception in 2009, and two six-star buildings have already been built in South Africa.

In fact, Gray points out that green building has taken off in South Africa even while the overall building industry has experienced a slump.

However, he says, designing buildings is a moving target.

Buildings are surprisingly heavy polluters, producing about one-third of the world's carbon emissions – and the energy that goes into producing these gases is expensive.

Since most companies are concerned about their bottom lines, controlled office spaces are getting more attention from C-level executives than ever before. Not only can efficiently-designed buildings save money on energy use, they can help to increase staff productivity by as much as 5%, thus increasing profitability as well.

Although there are many good examples of green building in South Africa, Gray highlights the Hotel Verde, which aims to be the greenest hotel in Africa by the time it is completed.

This project is using a wide range of techniques to provide itself with sustainable energy.

Among the elements it is implementing are vertical access wind turbines, photovoltaics and geothermal energy.

The use of geothermal energy is fairly novel, but Gray believes it could be well suited to a project such as the Hotel Verde.

He explains that it works by drilling wells into the ground and then storing energy – either warm or cool – underneath the building, then draw upon it when needed.

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The call for companies and individuals to reduce their carbon emissions is becoming louder, and there is a real appetite among South African companies to do so. However, it's impossible to properly plan and manage such an exercise without knowing exactly where people stand in terms of emissions.

Alex Hetherington, of Carbon Calculated, points out that a number of policies relating to carbon emissions, taxes and national commitments are starting to filter down to company level.

However, he says, no one can manage something that hasn't been measured and so companies are urged to start their green journey by determining their carbon footprint.

Emissions can be direct or indirect, he points out, and so it's important that a proven methodology be used.

South Africa is currently in a period of voluntary carbon disclosure, where the country's biggest companies have been asked to measure their emissions. Soon, large companies will be required to do so, and eventually all companies will need to make some kind of carbon disclosure – even if it's just to prove themselves exempt from the proposed carbon tax.

Hetherington explains that carbon footprint is measured on three planes.

Scope one measures carbon generated directly by the company, from its facilities and vehicles; scope two measures the company's electricity usage (which could be as much as 80% of a company's carbon footprint, depending upon the industry); and scope three measures indirect emissions from the company's supply chain.

The last scope, which is voluntary, measures both upstream and downstream

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supply chain emissions, factoring in things like business travel, paper consumption, employee commuting, couriers and logistics.

Hetherington points out that there are many sound reasons for measuring a company's carbon footprint. The sustainability angle is obvious, and this will become more important in the future - especially when the carbon tax becomes a reality.

However, measuring carbon footprint also has important financial implications. With energy becoming a more costly resource, financial directors will also benefit from information that points to energy usage, and recommends ways of reducing it.

"If you bring a financial modelling component into your carbon reporting, it will get the interest of the top managers," he says. "Companies can start looking at their carbon footprint not just from a sustainability perspective, but from financial perspective as well."

Some examples of unexpected benefits can be found in the healthcare industry, where heavy emissions in a particular region or pertaining to a particular activity have helped companies pinpoint where there are operational inefficiencies.

Currently, however, he warns that most South African companies are completely oblivious to their own carbon footprints, and are in no position to start managing emissions.

"Most companies are driving blind," says Hetherington. "They have no measurement, no management and no cost control. They are completely unprepared to start managing carbon emissions."

Most are in a state of ignorance simply because there is no incentive to unravel the truth, he says. However, this may well change once the proposed carbon tax is implemented, but there is little clarity yet on which companies will be affected.

A few companies are reporting their emissions to comply with regulations like King III, but few are managing or monitoring reductions.

What's needed, Hetherington says, is for companies - especially the largest companies - to not only measure their carbon footprint, but also to manage it.

Robbie Louw from Promethium Carbon adds that managers need to start getting to grips with their companies' carbon emissions soon - or they may be out of a job.

If companies don't do the reports, they can never get to the point where they can take action. The manager who doesn't know about carbon cannot be a manager in two or three years' time - and this includes CEOs and financial managers.

"Climate change is the biggest dilemma mankind has ever faced," Louw adds. "It's about the survival of the species."

Africa gets the ball rolling

A number of projects are underway in Africa to help minimise the negative effects of greenhouse gas (GHG) emissions.

The African Development Bank's Financing Change: The AfDB and CIF for a Climate-Smart Africa is the bank's second semi-annual report on its work to implement the Climate Investment Funds (CIF) in Africa, covering July to December 2012.

The report showcases expected results from projects underway in Kenya, Morocco, Mozambique, Niger and South Africa, backed by \$420-million in CIF funding and \$1,1-billion of the bank's own funding.

Through the eight projects under implementation, it is expected that 6,9-million tonnes of CO₂ emissions will be avoided every

year, 1,3-million households and businesses will get new access to power, nearly 42 000 hectares of land will be newly dedicated to climate-resilient activities, and 150 000 farmers will gain access to climate information - including 50 000 female farmers and 3 000 villages.

A publication of the African Development Bank's Energy, Environment and Climate Change Department (ONEC), the report features a review of the bank's support to 17 African countries through its CIF portfolio, which is channelling \$1-billion - more than a third of all CIF investment in Africa - to Africa, with the Energy, Environment and Climate Change Department leading the institutional charge.