



2015 AFRICA ENERGY INDABA

Firing up energy discussions for Africa

The 2015 Africa Energy Indaba which took place in February at the Sandton Convention Centre in Johannesburg, is said to have smashed its previous records and achieved over 30% growth in delegate attendance for a programme that boasted 130 speakers.

Among the delegates were several African energy ministers and energy experts from around the continent, as well as senior officials from the World Energy Council (WEC) to commemorate the start of the Council's "Year of Africa" programme. Such delegates included WEC chair, Madame Marie-José Nadeau and WEC Secretary General, Christoph Frei. MEC for Gauteng Department of Infrastructure Development, Ms Nandi Mayathula-Khoza, gave the welcome address and the Department of Energy's Director General, Dr Wolsey Barnard, gave the opening keynote address on the Tuesday morning.

Former British Director General for Energy, Joan MacNaughton, who heads the WEC's Trilemma Studies, spoke on how to position Africa as a destination of choice for energy investment. "This was the opportunity for Africans to tell the African story, to challenge and clarify misperceptions about the continent," said Brian Statham, steering committee chair of the Africa Energy Indaba.

The indaba featured plenary sessions as well as 12 breakaway panel discussions. The event was complemented by an exhibition of various energy-related technologies that seek to provide alternatives to conventional power generation and solutions to the ubiquitous energy crunch.

FOOD AND ENERGY FOR THOUGHT

Of interest to TAPPSA was a session on the development of bio-energy in Africa, moderated by Jason Schäffler, of

RECSA (Renewable Energy Certificate market participants association of South Africa).

An important newcomer in the renewable energy space of South Africa, bio-energy is typically defined as the conversion of organic waste to energy using engineered reactors, with waste sources being municipal solid waste, sewage sludge or agricultural residues. This would include biomass recovered from timber-related operations.

The panel concentrated largely on the agricultural side of bio-energy which still requires impetus and investment. Schäffler notes, "Bio-energy perhaps represents the best African option for a long term sustained advantage in renewable energy conversion processes."

“ The UN is finally poised to add energy to its post-2015 development agenda, and the UN recognises the key role for energy as a driver for economic development. This will provide a boost to the UN Sustainable Energy for All (SE4All) initiative, which aims to provide universal access to modern energy services, double the global rate of improvement in energy efficiency, and double the share of renewable energy in the global energy mix. It is only by developing comprehensive, clear, transparent energy policies that Africa can move ahead. ”

MARIE-JOS. NADEAU
CHAIR, WORLD ENERGY COUNCIL

Not only is this avenue of energy production set to play a pivotal role in addressing the energy demand in a rapidly urbanising African context, it could significantly boost food security on the continent while doubling the share of renewables in the South African energy mix.

The panelists asserted that there is a direct relationship between the development of bio-energy and agricultural and rural development, not to mention to the creation of quality jobs and the upliftment of communities.

While bio-energy is very context specific, there are a number of international case studies to support the assertion. The development of ethanol bio-energy programmes from crops in Brazil and the US was driven by the need to boost agricultural development as well as reduce dependence on fossil fuel imports in the '70s.

As a result of the 40-year bio-ethanol energy programme, Brazil has become a leading exporter of sugar and soya beans. To date, the bio-ethanol programme supplies up to 20% of the country's energy needs, as well as helping to create jobs in the agricultural sector. In addition, the programme has created close to 1.6 million jobs. Another benefit is that of agricultural innovation in the form of mechanised tools and systems to facilitate agriculture-related work processes.

Of course, developing bio-energy is dependent on national policy goals. The National Biogas Platform in South Africa, comprising government departments, private sector partners, international organisations (eg. GIZ and research institutions) has an important role to play in developing the production and use of biogas production in the country.

Gerald Ostheimer* noted, "A lot of work has been done since 2007 – we have the tools to deploy bio-energy in an efficient way."

SEWAGE SHOULD NO LONGER GO TO WASTE

Presently, tonnes of sewage produced in cities in South Africa that can be used to generate power simply goes to waste. The same case applies to flared natural gas. Flared gas lost to the atmosphere in Africa in 2012 could have met up to 35% of the continent's energy needs.

Bio-energy production will be crucial in meeting the burgeoning demand of energy in rapidly expanding cities more especially in rural areas where the power grids have failed to provide electricity to the majority of rural denizens. In this respect, the abundant supplies of sewage in cities as well as other wastes provide a source for localised bio-energy production.

Energy can be produced from waste in rural areas where

“ Africa is making progress in addressing infrastructure development, but it is not consistent and not yet where we would like to be. In 48 countries there are 138 million people, yet the continent's electrical capacity is equivalent to Spain, which only has 47 million people. This must be fixed, as it has a severe effect on consumption, demand, and growth rates. ”

DR WOLSEY BARNARD
ACTING DIRECTOR GENERAL, SOUTH AFRICAN
DEPARTMENT OF ENERGY

there is a serious need to reduce dependence on using biomass for fuel.

Growing crops for energy production has better economic outcomes than growing producing food crops for sale. Kenny Gaynor* alluded to the Umtengi plant in Baringo, Kenya which has an alien invasive species that is being used for bio-energy production. It is cut down and taken to power plants built by Cummins Power Company, where it is used to produce energy. A 12 MW plant is already being built to use the Umtengi plant as an input in power production processes.

SMALL BUT POWERFUL

The shift to distributed power generation is another key driver. Small-scale, decentralised bio-energy power plants closer to consumers are easier to build, manage and finance as opposed to mega projects. These smaller plants are attractive in that they can easily be located in a community or town where the biogas produced can generate electricity of around 600 MW while also offering flexibility and mobility. Their scale may also be more appealing to investors contrary to mega plants which take too long to commission, attract tender irregularities and require costly project management.

There is a three megawatt bio-energy plant nearing completion in Bronkhorstspuit but it has taken seven years to develop and complete. Mark Tiepelt* pointed out that we cannot build an industry in those timeframes, adding there is an inherent lack of sharing in the sector. "We need to create an information hub so we don't duplicate efforts." ■

*Panelists: Dwight Rosslee, Selectra BioEnergy; Gerard Ostheimer, Novazymes & Sustainable Energy High Impact Opportunity; Prof. Luis Cortez, São Paulo Research Foundation (FAPESP); Mark Tiepelt, BiogasSA; and Kenny Gaynor, Cummins Power Generation.