

Our first newsletter is well received

WE have received positive feedback to our first energy newsletter. We continue in this second edition to cover latest developments in government energy strategy with a review of a workshop hosted this month by the Department of Energy, at which an unprecedented number of stakeholders participated in discussions on electricity policy.

Planning electricity 20 years ahead

ENERGY sector stakeholders ranging from green activists to nuclear energy proponents, presented their comments on future South African electricity strategy at a conference in Pretoria in June.

The Department of Energy hosted a two-day session at the CSIR on June 7 and 8 to allow "every shade of technical input" on the government's Integrated Resource Plan (IRP-2010) for electricity. More than 400 written responses were received and more than 30 organisations made public presentations. Initially planned as a single day session, the conference was expanded into two days following unprecedented public interest, with a wide range of industry leaders, investors, NGOs, consultants and academics, eager to present their perspectives. Each organisation was given fifteen minutes.

Integrated Resource Planning is the process to determine future investment in electricity capacity. A first plan, developed in 2009, was updated in January 2010 and is to run for an initial four years. The aim is to answer three questions:

- What are South Africa's future electrical energy needs?
- What capacity is required, by what date, to meet those needs?
- What is the best mix of technologies to meet those needs?

The IRP plan has been divided into 29 "parameters", each the responsibility of a different government department. The National Treasury, for example, oversees such parameters as Price Elasticity of Demand, Rate of Inflation, Funding and Financing. The Department of Energy oversees, among others, Energy Conservation, Location of Generating Plants, and Demand Management. The first stage of consultation was to discuss each of these parameters, which would form the input into the modelling exercise. Opening the session, Ms Nelisiwe Magubane, Director General of the Department of Energy, said: "When you are asked about the 2010 World Cup you will no doubt answer: 'I was there!' And when you are asked about who contributed to the drafting of the country's most profound electricity plan, you will respond with the same answer: 'I was there!'"

"We have reached a moment in history," Ms Magubane said, "where we have to take bold and decisive decisions about the quantity and type of the current and future electricity infrastructure for our country. We need to decide on the timing, quantity and the type of investments we need as well as identify the type of technologies that will accompany the eventual investment decisions. All of this is to be done whilst we are mindful of the concomitant impact on the environment."

"We want to hear every shade of technical input that there is available in this plenary hall so that we can factor these when we embark on the cyclical modelling process."

Ms Magubane outlined the context. Eskom, fully owned by government, was until recently held solely responsible for electricity supply in South Africa, and for determining future needs. This responsibility is now the responsibility of the Minister of Energy.

Twenty to thirty years ago, Eskom enjoyed reserve margins higher than 30%, which is why it was not necessary to build new power stations - the last new generation plant was built 15 years ago. Eskom announced that the reserve margin is currently 16% - already an improvement over where it was two years ago. In the interests of future energy security, South Africa now has to ensure that 40 000MW of new capacity are available over the next 20 years. At the same time, the country is obliged to reduce its carbon footprint in terms of the commitments it made at the Copenhagen Accord in 2009. As a result, the IRP process must be open to all possible permutations of energy, not just coal, but wind, solar, small hydro, gas and nuclear.

Stakeholders at the conference were unanimous in their support for the transparency of the process, welcoming the opportunity to present their

PLENTY OF WORK, NOT MUCH TIME

THE conference at the CSIR was the first stage in a consultation process over the next three months.

Interested stakeholders were invited to submit written reports by the 11th of June. More than 400 responded.

During July, the Department of Energy and other departments - particularly the National Treasury - will consider the public inputs and begin the modelling process and evaluation of scenarios.

Revisions may be made to the parameters, and these will be made public. The department will also publish a broad response to the stakeholder's comments.

In August, a further stakeholder session will be convened at which proposals based on stakeholder feedback will be presented. A refined version of this will be submitted to the cabinet in September.

This kind of consultation process is likely to be repeated every two or three years.

THE LEAST COST PLAN

PREDICTING the future course of electricity supply is difficult and contentious, due to a lack of data or agreement over computer modelling techniques. At the core of the IRP is a model known as the Base Plan, a method of developing future scenarios by seeking out the least costly options.

The method begins by considering only the

positions. Delegates included green activist groups like Earthlife Africa, Climate Justice Now, and Sustainable Energy Africa. Also there were the South African Wind Energy Association, the Institute for Democratic Alternatives in South Africa (Idasa), the South African Gas Development Company, Tongaat Hulett and the Nuclear Energy Corporation SA (Necsa). Here are some of the points that were made:

- The global energy giant Alstom, said it had been operating in South Africa for a century and had supplied 80% of turbine generators and 30% of boiler capacity. Its strategy was now adapted to all energy sources. In 2030, it expected that 60% of carbon emissions would come from power plants that exist today. A quick and cost-effective solution was plant retrofitting. Plant optimisation would reduce carbon by five percent; turbine retrofit would reduce carbon by a further five percent, and boiler retrofit would reduce carbon by three percent. The UK's largest coal-fired plant was recently switched over to co-firing with bio-mass, reducing carbon emissions by up to 20%.
- Biotherm Energy, which specialises in sustainable energy technologies, presented statistical charts to demonstrate that sustainable sources such as wind would be competitive within five to six years if the real environmental costs of carbon pollution are taken into account. Biotherm argued that the IRP's base starting point - electricity at least cost, adjusted for risk factors like climate change - was flawed, because the 'least cost' failed to find the right balance of quantitative and qualitative inputs. Eskom's real funding gap, says Biotherm, is more like R190 billion, not R14 billion.
- The giant sugar company Tongaat Hulett argued that sugar cane was an under-exploited source of renewable fuel throughout the SADC region. We have the potential to match Brazil, world leader in agri-fuels. Sugar cane fuels could generate a million new jobs across the region and generate 20 billion litres of ethanol, while requiring only two to four percent of the cropland. It would reduce migration to crowded cities, substantially lower the carbon footprint, and increase both energy and food security.
- The Nuclear Energy Corporation of South Africa (Necsa), argued that fuel-free sustainable technologies such as wind and solar power would never provide sufficient energy to meet South Africa's growing needs and that "any disruption in generation capacity will be catastrophic for the economy." Nuclear power could play a significant role in reducing carbon emissions while providing the only reliable alternative to coal. However, given the high startup cost of nuclear, coal was likely to remain the significant power generator for South Africa in the foreseeable future.
- Nuclear energy was widely criticised by the sustainable energy lobby. Sustainable Energy Africa called for more realistic costing of nuclear power plants, including the long term costs of radioactive waste storage. Others argued that social costs and the risk of accidents had to be factored in. Smart Green Prosperity argued that if the cost of externalities were realistically accounted, "renewable energy will always be cheaper than carbon and fossil fuel technologies, socially and economically."
- Alison Hughes of the University of Cape Town's Energy Research Centre said the participative IRP planning process marked a significant advance on previous electricity planning processes in South Africa. However she was concerned at the lack of integration between different planning processes in the electricity sector. There had been a Renewable Energy White Paper review, an Integrated Energy Plan, there was a climate change policy process and there was an already-completed nuclear energy policy. She also felt that the process was rushing along too swiftly to allow time for careful comment.
- The South African Wind Energy Association, representing over 70 members, noted that the areas with the most potential for wind power, mainly along the Western and Eastern Cape coasts, were also furthest from the country's coal mining centres. Wind was the lowest cost alternative energy option available at scale, but there was a tendency to discriminate against technologies that were variable.

The Director General, Ms Magubane, said the government had no preconceived ideas about what forms of energy should be favoured, but the key principle was to emerge with a plan that is affordable and able to ensure that there is energy security. "Reducing carbon emissions is perhaps the single biggest factor that will influence the IRP that will ultimately emerge from the process that commenced today."

The department made particular note of several key issues raised by stakeholders:

- The need to ensure alignment between the IRP development and the Integrated Energy Plan (IEP) development.
- The need to ensure that the IRP process was in line with the Renewable Energy White Paper review.
- More details were called for about implementation of a private sector, independent power producer known as the Independent System and Market Operator (ISMO).
- The need to develop a risk management plan as part of the IRP process

direct costs rather than 'externalities' such as social and environmental factors. The Base Plan is then adjusted for the most probable risks, which either place limits upon the technologies or add to the costs. The primary external factor for the IRP is carbon emissions.

GREEN LIGHT FOR GREEN BUILDING

THE Department of Trade and Industry (DTI) this week published groundbreaking regulations which enforce energy efficient construction techniques in all new buildings, and make solar water heating compulsory.

Roofs, walls and windows will have to meet strict standards to minimise heat loss in winter and heat gain in summer. The public will benefit from savings on energy expenses, and from reduced pressure on the national electricity grid. DTI has invited public comment on the regulations, published in the regulations section of Government Gazette No. 33265.

SOLAR HEATING CORRECTION

IN our previous newsletter we said Eskom had calculated that solar water heating could cut domestic electricity bills by up to 70%. In fact the 70% refers only to the water heating component of the bills.

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