SANEA
The South African National Energy Association
Energy People Working Together

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Summary of the main themes:

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Board Members of SANEA who were present at the Congress

Overall:
The Congress was characterised by the pragmatic recognition of a need to provide for rising energy demand which will support all people's legitimate aspiration to have access to a reasonable amount of energy, while underpinning economic development and meeting environmental requirements. This will require a global approach to solve the global problems rather than a nationalistic approach. The WEC "Lion" Scenario, published in 2007, remains valid today

All forms of energy will be needed for the solution – there is no "silver bullet". Fossil fuels will continue to play a major role in meeting this increased energy demand and India and China, in particular, are expected to make full use of their fossil fuel resources.

Energy efficiency is seen as a critical and essential part of the way forward and is one of the easier and quicker ways to reduce environmental impacts. Generally a change in lifestyle has to be accepted, including more efficient use of energy, moving to greater use of public transport etc.

Financial pressures will be all pervasive and it will be incumbent upon the energy industry to find affordable ways of addressing energy poverty and maintain cost effective operations. It is estimated that the Capital required to support this increased demand (without environmental spending) will be >$26 trillion. To reduce the environmental impacts will require another ~$10 trillion

To achieve the objectives we will need strong government leaders, sufficient qualified people to deliver the requirements, and a step change in innovation.

The energy industry is characterised by long time lines and currently risk and uncertainty is increasing within the industry. Flexible and stable policies, that do not diminish free trade, will be required to help mitigate the risk and ensure delivery of viable energy systems

Accessibility and Availability:
The next 20 years will be characterised by rising energy demand, particularly in emerging economies. India, for example, needs to increase energy supply by a factor of 6 but only increase environmental emissions by a factor of 3. There will be energy hot spots – mega cities – that will have to be supplied. Urban growth estimates are equivalent to "10 x London" every year

Energy poverty will remain a challenge. Currently there are about 2 bn people who do not have access to commercial energy and about 1.5 bn who have poor access. Energy access is of course vital for health, education and development. Energy poverty has traditionally been a rural issue but with rapid urbanisation it is now also a problem in large urban areas

Global energy demand will be ~40% higher in 2030 and, notably, ~75% of the increase will be fossil fuels (IEA study) and they are in fact currently the only base load power that is generally affordable, but they have to meet the environmental requirements. CCS is a key technology to make this possible but this will come with an energy and economic penalty.

Energy systems will become much more sophisticated and it is notable that Electricity demand will be rising faster than the Energy demand. At the same time there is growing insensitivity to the oil / energy price changes

Long lead times are a common theme in the energy industry and we need to gain time [eg efficiency programmes] as delivering environmental solutions with renewables will take time. The long lead times are evident in the time taken to develop shale gas, electric vehicles and CCS. The role of new technologies is expected to be positive but the timing and extent of their contribution forms part of the unprecedented uncertainties in the energy industry [eg Fusion, Super conductors, Smart grids, Fuel cells, Hybrids]

The role of public policies must not be underestimated. They need to be long term (i.e. > 4 years and ideally > 15 years), flexible [but consistent and rational] and they need to clearly set targets and shape the environment to allow the market to deliver requirements. It is expected that public-private partnerships will be a critical vehicle for successful delivery.

There is a growing need for pro-active electricity infrastructure management and the synergistic relationship between viable water systems and energy security is increasingly demanding attention.

Grid infrastructure [pipelines and transmission lines] is under strain all over the world but there is very little investment in this area.

There are unrealistic propositions by many political and environmental groups. [E.g. it is claimed that Desertec could deliver 20 000MW of solar energy to Europe but the current European grid can only accept a few hundred megawatts through Spain, Italy and Turkey. Ironically, expansion of the grid will be very difficult because of environmental concerns.] There is urgent need for integrated systems thinking.

Acceptability:
There was no doubt that the environmental pressures and concerns are real and must receive attention.

Impacts of climate change could be dramatic e.g. could dramatically impact food security of many nations (for every 1 degree increase in temperature there is a 10% decrease in grain yields). Need to track grain prices, number of hungry people in the world and the number of failing states

While Copenhagen delivered no binding targets, no common base or set of assumptions to measure from and no international methods of measuring or monitoring it was the largest gathering of global leaders ever on this matter. Also some countries have made commitments (although these are non-binding). The US role in this process is considered to be critical – until they come fully onboard the matter will not get traction. It is expected that COP16 (Cancun) and COP17 (SA) will need to focus on implementation plans and not just on setting targets and making commitments.

Currently there is mistrust between governments and private business which will need increased dialogue to resolve. There are disconnects between what the public want and what the industry can deliver. Governments need to formulate public policy that is clear on regulations, standards and incentives and that assists in releasing the substantial funding that is required.

Energy Efficiency on both supply and demand side is essential. It is the easiest way to release energy for other applications. The correct pricing of energy will also be very important in encouraging the appropriate use of energy.

New business models that value environmental performance will be required.

The evolution of China's energy systems will be an important indicator of trends that could be expected

There is optimism that innovation and technology developments will assist
a. Batteries
b. Infrastructure to deliver new transportation solutions
c. Creative partnerships are required to bring new breakthroughs and new models
d. Smart grids
e. Hybrid systems
f. Biological breakthroughs in crops for biofuels
g. Improve efficiency of fossil fuels

On the other hand, tar sands and shale gas are attracting a lot of opposition from environmental and political lobby groups

Accountability
The issues are very complex and politically sensitive.

Deregulation of the financial sector led to disaster. The economic crisis of recent years has led to mistrust of large corporations and increased protectionism. Some are questioning whether de-regulation of the energy sector is leading us in the same direction? Re-regulation may be as appropriate for the energy sector, as it has been for the financial sector, but will we wait for a collapse before acting?

The financial crisis destroyed orders of magnitude more value and jobs than did the B.P. oil spill. And yet this spill has been seen as a major crisis because of emotional and media frenzy. If the existence of a BP can be called into question with a single event, so can that of any other company. It has become difficult to estimate the frequency of dramatic events [typically 1 serious event in ten years for each of the large players] and therefore we are seeing more risks in the energy industry that cannot be covered by insurance.

If the decision is to increase regulation then we have to find the balance point that will not discourage private investment. This is particularly true in the area of trade agreements and protocols. The impact of trade barriers on industry is not always considered and the indirect and unintended consequences of legislation may be problematic. Improved world trade rules and regulations on energy trade are required, including tariffs on equipment, rules on energy services etc. National Energy Policies have to be consistent with the rules of trade.

High tariffs simply increase the cost of delivery of energy solutions to countries, decrease delivery speed, and decrease employment; often negatively impacting countries that are most in need of enhanced energy systems. Of course the protection of intellectual property has to be an integral component of any free trade agreement or protocol.

It is unlikely that there will ever be total free trade as some regulation has to remain to ensure accountability

There is a general mistrust of the capability of the energy industry and it is difficult to ensure rational responses to crises. The way forward must involve better relations between governments, industry and technology providers. The energy industry needs to regain the trust of the public

Nuclear Industry practice of self-regulation and self-insurance was cited as a good practice [WANO, INPO, and INNES]. The oil industry, in particular, was challenged to consider introducing something similar.

In terms of communication the emergence of “social networks” has made it very difficult to shape public perceptions and manage communication. Vast amounts of mis-information circulate on these networks with ‘apparent’ credibility. The industry has to review and overhaul its communication and stakeholder management strategies and practices. There is a desperate need for “Fact-based” advocacy.