

Keynote Address by Minister of Energy Honourable Jeff Radebe, MP

At Africa Energy Indaba 2019

Sandton International Convention Centre

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Ministers present here today,

Distinguished Guests,

Members of the Media,

Ladies and Gentlemen.

It gives me great pleasure to again welcome all our visitors to Energy Indaba 2019, in the City of Johannesburg. For us as South Africans this conference takes place as we reflect on the burning issues regarding South Africa's energy future and it is apt that the thematic heading is "Attracting Investment into the African Energy Sector". Improved Energy Security, the diversification of our Energy Mix, increasing Access to modern energy carriers, Energy Efficiency and lowering the Cost of Energy, are some of the topical issues on our burning platform, with apologies to Daryl Conner, because we do not want to imply that we are panicking about this burning platform. I am certain that I speak for a whole lot of other African countries, because South Africa's

energy challenges are reflected in other SADC countries as well, albeit on a smaller or bigger scale.

Let me begin by first reflecting on South Africa's energy landscape, electricity wise, including some of the lessons we have to factor into consideration going forward:-

Our reality

Approximately 3 million households in this country still do not have access to electricity. Our subsidy-based electrification programme forms a critical pillar of our energy policy and we have to date managed to provide access to approximately 8 million households since the advent of democracy in South Africa.

Electrification through grid connections has been effective in providing lighting and small power, but it is inappropriate for providing thermal energy for cooking and space heating. A significant thermal energy load still needs to be provided for, by providing solutions side by side by with off-grid technologies, particularly in those areas that are too remote to build grid-based infrastructure.

Whilst South Africa has acceded to the Paris Agreement, and the protection of our citizens through environmentally responsible development is enshrined in our Constitution, we cannot ignore the

fact that we have abundant coal reserves and the price of local coal remains relatively low.

The energy sector alone, contributes close to 80% towards total emissions of which 50% are from electricity generation and liquid fuel production alone. While a paradigm shift is required for these emission reduction targets to be realized, as government we cannot do this in a manner that is unjust relative to those that would be negatively affected by these adjustments. Our vast coal deposits cannot be sterilized simply because we cannot exploit technological innovations to exploit them. The timing of the transition to a low carbon economy must be in a manner that is not insensitive to the potential impacts on jobs and local economies.

Carbon capture and storage, underground coal gasification, coal to liquids and other clean coal technologies are critical considerations that will enable us to continue using our coal resources in an environmentally responsible way.

If one considers the events of last week, our generation capacity was operating at a 40% deficit when we experienced load shedding; this excludes all the “suppressed demand” that is unaccounted for. We have to instill confidence in our ability to provide reliable power, lest we undermine the efforts of President Cyril Ramaphosa to entice investment into our country.

We need to arrest the steady decline in electricity demand over the past few years, and the lower economic activity coupled with rising electricity tariffs that has tended to put Eskom into an untenable situation, characterized by increasing debt and increasing tariffs.

A deteriorating Eskom plant performance driven by old generation infrastructure, confirm that we are now in need of more investment in new generation capacity to replace the old power plants. This happens at a time when Eskom's balance sheet is at its weakest in a long time.

That is our reality in South Africa, and I am sure there are parallels in other African countries as well.

The green economy is a game changer that we have been very successful in adopting through the Renewable Energy IPP Programme. Since the inception of the programme government has been successful in increasing the contribution of clean energy from zero percent in 2010 to over 4.5 percent within 5 years. Investment in this sector will now exceed R250 billion, with the signing in 2018 of an additional 27 projects representing roughly 2000 megawatts.

The lessons

For emerging economies like South Africa and other African countries, the high cost of energy reflects a number of perceived or actual risks,

including regulatory, financial and administrative barriers and their associated investment risks.

We need to address these issues so as to build infrastructure timeously to meet the energy demands required for our industrialization.

It is evident that over the years the traditional power delivery model has been unsettled by technological developments. We cannot assume anymore that future power systems will be premised on large centralized power stations, delivering electricity over large distances to a captive consumer base at a load centre. Instead more and more alternative energy models have come through, all competing for the same demand. As government we are forced to accept that the economic dynamics posed by distributed generation and smart grid systems, affect the way we deliver power to municipalities and other key industrial customers.

If we are to attract investment into Africa generally, a reliable, sustainable, competitive and secure electricity supply sector is crucial. It is therefore inevitable that we have to plan ahead and to coordinate our activities in a manner that improves our responsiveness. History is full of examples which demonstrate the need to take timeous long term decisions, which might seem ill-advised at the time we take them. We cannot afford the luxury of indecision.

Energy Planning

The 2007 power crisis in South Africa emphasized the need to coordinate the planning and timing of new power investments. In response, government put in place a planning framework for the energy sector, and post-2008 the Integrated Energy Plan, the National Energy Efficiency Strategy and Action Plan, the Integrated Resource Plan, the Gas Utilization Master Plan and the Liquid Fuels Master Plan became planning instruments to drive government's objectives in the energy sector.

With the generous endowment in natural resources, Africa needs energy planning policies that facilitate the development of an appropriate energy mix that includes nuclear, coal, gas, renewables and cross-border hydropower.

It is prudent that we recognize that energy efficiency and demand side management (or EEDSM) are the cheapest and quickest interventions that could be deployed in any energy plan. Africa has not fully taken advantage of the opportunity to create jobs through EEDSM at the same time as balancing the electricity system. Awareness building regarding the need to conserve energy and to use it efficiently, should be the cornerstone of our strategies.

Ensuring our energy security

The attainment of our goals depends largely on the extent to which more developed countries meet their commitment to provide

financial, capacity-building, technology transfer to developing and emerging economies such as ours. Closer to home, partnerships between the private sector and government need to be intensified.

With respect to the South African example, we might have attained some success in public-private partnerships in the infrastructure sector, yet there is still opportunity to be innovative in the areas of energy research, in financing, and in localization of value chains.

In order to balance seemingly competing requirements, including environmental and socio-economic imperatives, we have adopted a number of objectives that inform our approach to meeting our energy needs in a developmental state. These are:-

- Ensuring security of supply;
- pursuing economically available energy resources;
- affordability;
- driving universal access;
- improving social equity;
- creating employment;
- environmental prudence;
- honouring our international commitments;

When the State of the Nation Address was delivered last week, President Cyril Ramaphosa enjoined the private sector to collaborate with government as we strive to increase investment in our country, and a target of USD 100 billion has been set. The power sector is very

well positioned to leverage investment into our country, given the opportunities I have referred to.

With the increasing availability of gas in Southern Africa we will be able to expand electricity generation through the use of gas. There is enormous potential and opportunity in this respect and last week we excitedly learned about the Brulpadda gas resource discovery in the Outeniqua Basin of South Africa. Imported liquefied natural gas (or LNG), piped natural gas, imported liquefied petroleum gas (or LPG), indigenous gas like coal-bed methane and ultimately shale gas, are part of our strategy for regional economic integration within the Southern African Development Community, in order to provide the energy infrastructure to support economic growth.

Interconnection with our neighbouring countries also gives us an opportunity not only to improve our energy mix by harnessing the hydro-potential in these countries, but is also bodes well for economic development in the Southern African Development Community (SADC) as a whole. As you might be aware, the department is leading discussions with our regional neighbours on hydroelectricity, notably from the Democratic Republic of the Congo (DRC) in terms of the Treaty on the Grand Inga Hydropower Project.

Since the granting of a concession to the Sino-Spanish consortium developing the hydropower project, commercial negotiations will commence to procure power from Phase 1 of the Grand Inga Hydropower project. The project has the potential to provide up to 13 000 MW of clean energy specifically to South Africa, in addition to the power shared within the SADC. The potential is huge for various economic spin-offs to be harnessed from the project, including industrialization due to supplying goods and services, skills development relating to various aspects of hydropower development, and job creation. The Treaty makes provision for a preferential dispensation regarding the procurement of goods and services from SADC-domiciled enterprises.

SADC has recognized the strategic need for a regional Gas Master Plan, given the recent gas discoveries in parts of SADC. Mozambique and Tanzania gas resources in particular, are well positioned for cross-boundary development of gas pipeline infrastructure. It is important that gas demand in the region is serviced from regional gas resources, so as to increase the opportunity for intra-African trade and economic collaboration. The planned gas pipeline from Rovuma Basin in Mozambique through South Africa and possibly beyond, are supported.

Municipal infrastructure

The so-called last mile for the delivery of electricity occurs at municipalities. The municipal electricity business model has invariably come under severe financial pressure as wholesale tariffs increase, as residents fail to pay for services, and as municipal revenue collection systems prove even more inadequate. Unless the problem relating to municipal financial viability is arrested, we run the risk of more and more African municipalities failing to provide basic services.

Municipalities are also keen to generate their own power albeit on a small scale. As wholesale electricity tariffs rise, or as we fail to provide electricity for the residential sector, we can expect more rooftop PV systems, biogas, waste to energy, and wind turbines to be installed at municipal level.

Research into indigenous systems

Embedded generation systems based on solar and wind technologies are tricky to manage in a power system, given the variability of their energy production. One cannot order the wind to blow, neither can we rely on PV energy on a cloudy day or in the night. As such, across the world storage technologies have seen billions of dollars of investment in research and development.

South Africa's specific focus is more on the hydrogen economy rather than battery storage technology, and the progress achieved through this effort is epitomized by the hydrogen initiative (or Hy-Sa) based at

the University of the Western Cape. This is a collaborative effort between South African and international research agencies, industry and government. Amongst the Hy-Sa programmes is the development of hydrogen and Fuel Cell systems, prototype development, technology validation and system integration.

One can only marvel at the positive impact a successful energy storage could do to improve the lives of those that are currently dependent on firewood, cow dung and other traditional energy carriers for their survival.

We see the development of very sophisticated energy technologies, like hydrogen economy, as potential game changers in the current ecosystem for access to energy and for African development.

Embedded generation

South African municipalities struggle to keep up with their payments for bulk electricity purchases from Eskom, and as at March 2018 Eskom's Chairman indicated that the debt burden stands at over R17 billion. This is unsustainable.

In November 2017 we promulgated amendments to Schedule 2 of the Electricity Regulation Act, relating to circumstances under which a generation licence may not be required.

The Schedule 2 amendments address the constraints related to licensing of potentially hundreds of thousands of rooftop PV systems, biogas and other small scale embedded generators. Critically, we provide the policy and regulatory framework for municipalities to develop their own generation, and we enable the orderly development of alternative energy systems, which municipalities are developing already anyway.

As this programme unfolds, one has to reflect on the future energy infrastructure we are likely to have, and how this is likely to be managed by technology.

Fourth Industrial Revolution threat or opportunity

This brings me to the subject of the 4th Industrial Revolution. It is inevitable that more and more, the traditional energy delivery system will not be insulated from technological disruptions. Instead of resisting this change and engaging on the basis of fear, we should take the opportunity and prepare our youth for this future.

The training of African human capital is a big opportunity, given our demographics. We are the youngest continent, in terms of the median age of our population. The World Population Review (2015) confirmed the African median age at 19.5 years, when compared to the world median of 30 years. We should turn this to our advantage, by preparing our youth to become active participants in the future world economy.

Conclusion

In conclusion, the provision of a reliable, efficient and continuous supply of electricity is the missing link that is essential for African economies to develop and flourish. We have to be honest and acknowledge that the challenges with electricity supply have had a stunting effect on our economies and we have therefore not fully exploited the potential for job creation. Our communities are also demanding adequate service delivery including the supply of affordable electricity. We are duty-bound as government leaders.

I thank you.