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THIS WEEK:

- * Electricity Crisis I: Save electricity now, for our future
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ELECTRICITY CRISIS I

Save electricity now, for our future

The most effective way of tackling the energy crisis in the weeks and months ahead is for the whole country to use electricity more efficiently. Until new electricity generating capacity becomes operational, South Africa will need to use less electricity to prevent the load shedding that has affected most parts of the country in recent weeks.

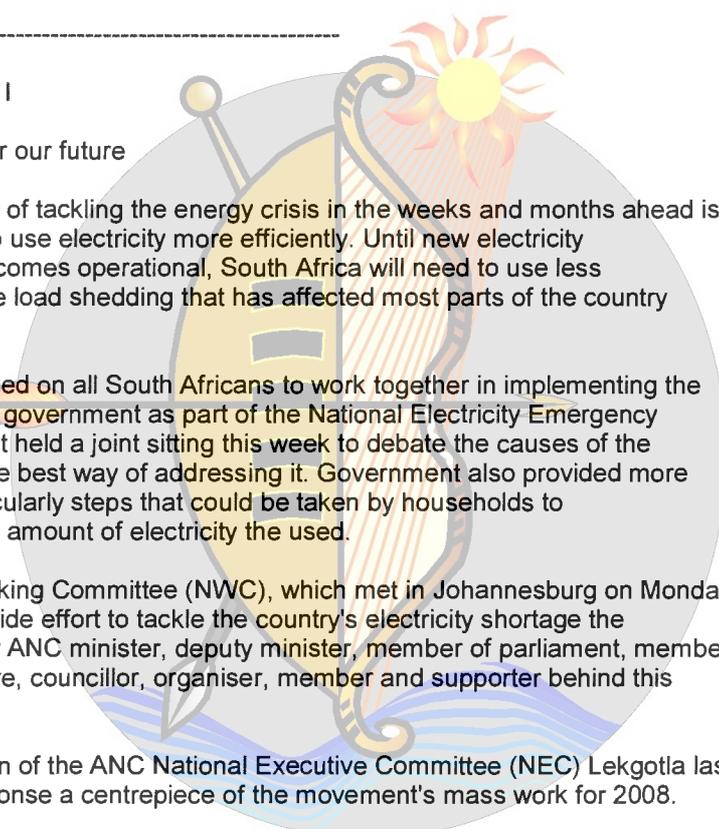
The ANC this week called on all South Africans to work together in implementing the measures proposed by government as part of the National Electricity Emergency Programme. Parliament held a joint sitting this week to debate the causes of the current situation and the best way of addressing it. Government also provided more details of its plan, particularly steps that could be taken by households to immediately reduce the amount of electricity the used.

The ANC National Working Committee (NWC), which met in Johannesburg on Monday, said: "As part of the nation-wide effort to tackle the country's electricity shortage the ANC will mobilise every ANC minister, deputy minister, member of parliament, member of a provincial legislature, councillor, organiser, member and supporter behind this effort."

This follows the decision of the ANC National Executive Committee (NEC) Lekgotla last week to make this response a centrepiece of the movement's mass work for 2008.

The meeting noted the massive investment already committed to significantly increasing generating capacity, but recognised that immediate action will need to be taken in improving energy efficiency to ensure the power remains on until the new generation capacity comes on line.

The load shedding that has been experienced in recent weeks has been brought about by a shortage of generation supply capacity and is a last resort measure to prevent a collapse of the national electricity supply system. Releasing its emergency programme last week, government said the underlying problem was the very significant rise in demand, particularly over the past few years, resulting from an



economy working at full capacity and the rising standards of living, with close on 3.5 million homes having access to electricity from 1994.

While there has been rapid growth in the demand for electricity, the task of building new generating capacity was more complex and slower than envisaged. "The decision to charge Eskom with the responsibility to embark on a large and urgent build programme in 2004 was in hindsight late. The President has accepted that this government got its timing wrong," it acknowledged.

A massive investment in building new electricity generating capacity is underway. This includes bringing back into service power stations that were 'moth-balled' at a time when the country had excess capacity. This will provide some additional power in the next few years, but will only begin to make a significant difference from 2012 onwards. Until then, South Africa needs to reduce the demand for electricity. The country needs to seize this opportunity to move very quickly to become more energy efficient.

Improve efficiency

Among the measures that will be implemented to improve energy efficiency, and reduce the consumption of electricity, are:

* **Efficient lighting roll-out programme:** This involves a shift to the use of energy-efficient compact fluorescent light fittings (CFLs). It has been established that of the 10 million-plus electrified households in South Africa, on an estimate of eight ordinary (or incandescent) lights per household, about 800 megawatt (MW) could be saved by shifting to CFLs. The final target is to reduce demand by 750 MW by 2010. The programme also accommodates a free CFL exchange for low income households until 2015. To ensure this rollout is sustained, government intends to issue a restriction on the manufacturing of incandescent light bulbs. There will be certain exclusions granted for lamps for ovens, microwaves and for sensitive buildings and special cases.

* **Solar water heating programme:** The programme is in progress with a target to install one million solar water heaters over the next three years. The current cost of the solar heater is high. It costs between R7,000 and R20,000. South Africa's manufacturing capacity is also quite low, at about 10,000 heaters a year. To eliminate these barriers, there is a subsidy of 20-30% depending on the cost of the unit. The potential savings of this programme is 650 MW. The programme is targeting households, group housing (like army bases and mine residences), and commercial and industrial applications.

* **Smart metering for residential customers:** Smart metering involves the use of wireless technologies, which have to be retrofitted to existing conventional and pre-paid meters. The utility - either Eskom or the municipality - is able to remotely manage customer load. While smart metering can be initiated in the short term, the benefits will be reaped in the medium to long term. Improved communication between the utility and the customer meter will result in big energy savings during the peak demand. The programme will need extensive human resources and provides an opportunity for training and job creation.

* **Fuel switching:** This refers to the substitution of electricity as a domestic energy source with liquefied petroleum gas (LPG) to lower the burden of electricity generation. It is also more energy efficient to cook with gas than with electricity. Switching to gas reduces the strain on the electricity network during peak times when domestic users are cooking at the same time. Two challenges have to be overcome in switching to gas - there are problems with the supply and pricing of LPG. To overcome these challenges, the Department of Minerals and Energy has initiated a programme where concessions are issued and suppliers bid for these concessions. The regulated

pricing regime for LPG will be completed in the next two months. The opportunity to import the gas during supply shortages needs to be explored more, because the gas is actually a by-product in the oil refining process and is readily available in the global market. It is expected that this programme will save 500 MW.

* Traffic lights and public lighting: All traffic lights and public lights will be converted to solar power with a battery backup. This is another extensive project that will cost approximately about R400 million. It will be another opportunity for employment creation and skills development.

* Hospitality industry: The Department of Trade and Industry will proclaim that the hospitality industry convert all water heating to solar power. The water heating method can be in the form of solar pre-heaters, ensuring that electricity is not used whenever there is enough solar radiation available to heat water.

In the medium to long term measures will include the implementation of the Electricity Regulation Act to reduce consumption by 10-15% over time. Targets will be set for each sector of the economy according to their specific needs and circumstances. There will be exemptions for special cases like hospitals, essential services and security installations.

There would also be adjustments to the tariff regime to reflect the actual cost of providing electricity. Among other things, this will encourage more prudent use of electricity. The NWC underlined the need to ensure that these and other measures do not adversely affect the poor or limit the access of previously under-served communities to this basic need.

Another measure that will be pursued is co-generation, whereby companies produce their own electricity through, for example, converting into electricity any energy released in the normal course of their operations. Any surplus electricity could be sold to the national electricity grid.

A people's contract to conserve

All of these measures will require that all sectors and all citizens work together in a concerted effort to reduce the amount of electricity consumed.

The ANC has been encouraged by the positive response from stakeholders and, in particular, from members of the broader public, who are determined to ensure that the country overcomes this challenge. It therefore calls on all South Africans to rally behind these energy efficiency initiatives to ensure the current electricity shortages do not stand in the way of the growth and development of our nation.

MORE INFORMATION:

National Electricity Emergency Programme
<http://www.info.gov.za/speeches/2008/08012511151001.htm>

ELECTRICITY CRISIS II

An urgent national priority

The challenges facing the country's electricity supply system should be seen as an urgent national priority that must be tackled with serious and determination. This was the central message emerging from a parliamentary debate this week. For the benefit of ANC Today readers we reproduce below extracts from selected speeches made

during the debate.

A partnership between government and the people

Addressing the joint sitting of Parliament, Minister of Minerals and Energy Buyelwa Sonjica said:

"We would like to thank all South Africans for the overwhelming response to our calls to save electricity. The main contributing factors to the challenge facing us today are the unprecedented and unanticipated rate at which we are economically growing as a country; to a certain extent, the expansion of electricity services to previously unserved areas in the context of ensuring a better life to all South Africans.

"When we took over the country in 1994, growth had stagnated, with over 3000 MW excess capacity of plant in a mothballed state after they had been decommissioned. Our emphasis as the ANC in line with our vision was to use the excess supply for growth but also to turn excess into access for those who needed this basic service. A legitimate question that always arises is 'why did we not foresee this problem?'

"The major task of the ANC when it took power in 1994, was to revitalise the economy and extend services to the majority of our people. When we experienced electricity demand growth of 3.34% and 7.1% in 2002 and 2003 respectively, projections were revised and it was confirmed that new power generation would be required in 2007. In September 2003, the department informed cabinet that South Africa was running out of excess capacity faster than expected and that additional capacity would be required in 2007. The lead-time for such projects is approximately three years and therefore a decision was required as soon as possible.

"Cabinet approval was subsequently acquired for proposals that were geared towards ensuring that South Africa had adequate electricity supply going forward. The key decisions made by cabinet included that:

- * Eskom should be instructed to ensure security of supply up to 2007, including the building of new power stations if necessary in the short term;
- * 70% of new capacity required beyond 2008 would be commissioned by Eskom. For the remaining 30% of required capacity beyond 2008, a process to bring independent power producers (IPP) into the system would be started in 2005;
- * Eskom be instructed to aggressively pursue demand-side management strategies, with clearly defined targets.

"We are all aware that we have a national emergency which calls upon each and every one of us to contribute towards the management of this situation. We are calling for a partnership between the people of South Africa and government. We have had a series of meetings with stakeholders, discussing approaches to dealing with this problem. We have since put together a National Electricity Emergency Programme which speaks to the supply and demand side management of the situation. In our view, the demand-side management can be a quick win because it entails using energy efficiently and this can be done now.

"I would like once again to thank the South Africans for helping us thus far. We thank them for their patience and support. We acknowledge that some of these tips are being practised, but we would like all of us to continue with even more consciousness. We are confident that we have the ability to turn the situation around. We reassure the South African community and the world at large that the 2010 FIFA World Cup is not under threat.

Promoting sound energy policies

In his contribution to the debate the newly-appointed chairperson of the portfolio committee on minerals and energy, Nqaba Ngcobo, said:

"Energy is crucial to the economic progress and social development of nations. The development of new technologies and emergence of new production processes during the 19th and 20th centuries enabled an increase in productivity through the substitution of mechanical power for human and animal power. This in turn led to unprecedented economic growth and improved living standards as well as, of course, large increases in energy consumption.

"Electrification has played a pivotal role in social development and welfare by making possible greater access to information via radio and television, providing a cleaner, more efficient means of storing and preparing food, and controlling enclosed environments to provide warmth and cooling. In the industrialised society of the 21st century, energy is necessary in order that modern economic activity would not cease and modern standards of living would not diminish. Due to the importance of energy to economic and social progress, it is difficult to separate an input on energy demand from energy policy. In fact a reoccurring theme in energy economies in general has been that of energy security.

"Thus projections of energy demand are necessary to develop national energy policies aimed at minimising exposure to international price fluctuations and maximising energy availability. On a less global scale, projections of energy demand are also important to the development of corporate business plans and the establishment of operational parameters for public utilities such as the Eskoms of our country that must develop strategies to fulfil public service obligations. Thus the modelling and projection of energy demand is very important in the formation of policy in general at both national and local levels as well as in the private sector. Sound energy policy must be predetermined by an adequate understanding of the economies of energy.

"The projections of energy are generally concerned with the manner in which both non-renewable and renewable energy resources are allocated over time and across space. A resource is considered non-renewable when the sum over time of the services it provides are finite, or at least not replaceable in a reasonable time frame. Energy economists have been largely concerned hitherto with the allocation of non-renewable resources simply because global energy consumption has consisted largely of the consumption of fossil fuels. There have been numerous classic papers as well as theoretical studies of optimal depletion rates associated with pricing rules given different sets of assumptions as well as empirical studies designed to test such theories. In all these assumptions and theories there has been an apparent disregard for the impact of still under-appreciated factors such as technological change in the extractive industry, development of lower cost alternatives, an expansion of the resource base through exploration activities, influenced predictions by many scholars and industry analysts in the late-1970s and early-1980s that oil prices would top \$100 a barrel by 2000.

"If these observations and international experiences can be taken on board by our public utilities in collaboration with the Department of Minerals and Energy, as well as Parliament, over and above what our ANC-led Cabinet has recommended to our society as a 10 point plan to save energy, we will again emerge as a winning nation ready to host the 2010 World Cup with expected success."

Other countries have done it

...with the 2010 World Cup with expected success.

Other countries have done it

In her address to the joint sitting, chairperson of the portfolio committee on public enterprises, Fatima Chohan, said

"The load shedding we have all experienced over the last few weeks are at the very least irritating, aggravating and frustrating. But to some, particularly those who are shift workers and those who own small businesses, the outages mean the loss of essential income required to make ends meet. These are the people that we are most concerned for during this time.

"I would like to share a conversation I had with the chairman of the Public Utility Commission in the state of Pennsylvania, Mr Wendell F Holland, who is currently visiting South Africa. He said, 'what your country is experiencing is not blackouts of the nature of a systems failure. You are experiencing load shedding - which is an engineering solution to an engineering problem.'

"He said 'these are no way near the blackouts experienced in some major cities globally'. He reminded me of the fact that some major cities were without any power at all for two weeks. He said if you think people are angry in this country imagine the rage when the national power grid collapses and people in a major city in America have no power for two weeks without respite. Load shedding prevents the collapse of the national power grid - it is a preventative intervention.

"If we recall the so-called Northeast Blackout of 2003, that occurred in parts of North-Eastern and Midwestern United States and Ontario Canada on 14 August 2003, it affected one third of the population of Canada and 40 million people in eight US states.

"The cause of the blackout was the shutting down of 265 power plants; 22 of which were nuclear stations. The incident was referred to as 'Power meltdown 2003'. Although more people were affected by blackouts in Italy six weeks later, I use this example to highlight that the power suppliers in the US are in fact private players. This idea being mooted by the Democratic Alliance (DA) that Eskom should be privatised immediately and that will bring an end to our woes, is a deeply flawed argument. The US/Canada Task force report found that the cause of "power meltdown 2003" was found to be the First Energy Corporation's failure to trim overgrown trees that had come into contact with the high voltage transmission lines, as well as a malfunction in the early warning system. Generally then the problem was a lack of maintenance.

"The fall-out was huge - transportation failures, communication failures, sewerage flowed into rivers; Manhattan, including Wall Street and the United Nations, was completely shut down. Six-hundred subway and railcars were trapped between stations, and in Ottawa water pumps stopped working. Emergency services responded to 80,000 calls for help and 3,000 fires caused mainly because of candle use.

"Capital markets are the lifeline of utilities like Eskom. These markets are highly attuned to perception and speculation. We must be alive to the perceptions we create when we make reckless statements and hysterical comment does harm to investors confidence and the pliancy of capital markets. It is up to us - all of us as policymakers - to inspire this confidence while not being complacent about any challenge faced by the utility.

"And there is much to be confident about. Eskom is one of the top 10 utilities in the world by generation capacity and among the top 11 by sales. There have been insinuations and distortions in the media about neighbouring countries. Eskom generates approximately 95% of electricity used in South Africa and approximately 45% of electricity used in South Af

of electricity used in Africa. We were assured in the portfolio committee hearings that customer states are treated like all customers. Some contractual agreements allow Eskom to cease supply during critical periods while other more firm obligations visit the same conditions on customer state as would be experienced by any South African consumer. So if there is load shedding in Cape Town, there will be load shedding in the customer state.

"As far as supplying energy to the neighbouring countries is concerned this amounts to approximately 4% of the energy generated and most of this relates to 'unfirm contractual' obligations, which means essentially that when the country experiences a shortage we very quickly stop electricity supplies to our neighbours. This no doubt results in hardships in those states and we are fortunate to, through sound management of our bilateral relations, still continue to enjoy good neighbourly relationships and we do have to thank those countries for their understanding and their sharing of the burden with us.

"The issue of skill shortages at Eskom has also been raised. No doubt that while skill shortages are generally experienced, Eskom will not be immune to these challenges. The current load exercise is hardly due to a lack of skill staff though. It is important that this Parliament extend its gratitude to those people who operate power stations and the national grid and to ensure that during this time of high volume maintenance and high operating demands that they diligently do their jobs.

"Electrical power can't be stored over extended periods of time. Electricity is generally consumed less than a second after being produced. The demand load on any power grid must be matched by the supply to it. Any under or overload to a generator can cause costly damages and hard to repair damage so the power grid is disconnected if a serious imbalance occurs. To revive the system can take up to six weeks. The prospect is one that we should do well to consider in our usage of this commodity over the next few weeks. We need to succeed in this national effort. Other countries have done it before. Brazil did it in the 1980s and so can we.

MORE INFORMATION:

Speeches from Parliamentary Debate, 30 January 2008
<http://www.anc.org.za/caucus/list.php?type=Speeches&year=2008>

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