COP27 and South Africa – a basic introduction 23 November 2022

Now that COP27 in Egypt is over we can look at how it affects South Africa.

Background (and jargon)

COP – or the Convention of the Parties – is the annual climate change conference held under the auspices of the United Nations. South Africa has been a participant since COP 1 in 1993. In 2011 the country hosted COP 17 in Durban. SA also hosted the World Sustainability Summit in Johannesburg. The country has a long political commitment to the climate change process.

COP21 in Paris in 2015 marked a breakthrough in negotiations, when most governments in the world agreed a climate change accord. South Africa, then led by President Zuma, was among them. The late minister Edna Molewa signed the official document on 22 April 2016 at the UN in New York.

Agreement to the Paris accord is voluntary. Each country decides on a reduction target for its Greenhouse gas emissions – a nationally determined contribution (NDC). It is important to note that this target is set by the country itself. It is not imposed from outside.

In 2021 the South African government set the country's contribution at 350 million to 375 million tons of carbon equivalent by 2030, consistent with limiting climate change to 1,5 °C. Currently our emissions run at about 450 million tons, so this target requires a reduction in emissions of about 17%.

South Africa is the 13th largest emitter in the world. Our 450 million tons compare to a global average of 172 million tons per country. Per capita we emit about 7,5 tons against a global average of 4,8 tons. Measured per capita, we are the 15 largest in the world. Whichever metric, we are a big emitter.

The rest of Africa has not contributed much to Greenhouse gasses. When talking emissions some African leaders are indeed quick to say "Africa, South Africa excluded …". We thus cannot hide behind Africa.

Why is South Africa such a big emitter?

Most of our electricity and all the synthetic fuels are manufactured from coal, contributing 57% of the country's Greenhouse gasses. Transport (cars, trucks, busses, planes, trains and ships) contribute 11%, industry 13%, other energy (diesel and gas) 11%, agriculture & forestry 4% and waste 4%.

Coal is one of the seven main minerals that helped South Africa to industrialise. Economically, it has served the country very well. But coal has a downside – carbon emissions, pollution, damage to the soil and water, poor air quality and adverse health consequences.

In March this year the High Court ruled that the poor air quality in South Africa's Mpumalanga Highveld region is a breach of residents' constitutional right to an environment that is not harmful to their health and well-being. The Minister of the Environment has denied several Eskom power stations exemption from maintaining minimum air standards. They will have to shape up or close down.

Thus, quite apart from COP and the Paris Agreement, the country needs to tackle the pollution and health effects of

using lots of coal.

Just energy transition

A 17% reduction in carbon emissions will obviously not happen by itself. Government's road map for getting there is called the Just Energy Transition (JET), published this November. Travelling along that road will require a lot of money, hence the Just Energy Investment Plan (JET IP).

Just energy transition investment plan

There are three priority areas in JET – electricity, new energy vehicles and hydrogen. The budgeted cost comes to about R1,48 trillion over five years. R1,37 trillion (92%) will be spent on infrastructure, boosting South Africa's investment numbers considerably. (As a reference point, South Africa's gross domestic product is about R6 trillion a year.)

Electricity will get 70% of the JET money, new energy vehicles 8% and hydrogen 22%. A cross-cutting priority is skills development, for which R2,7 billion is earmarked.

Electricity

The 70% for electricity translates into more than R1 trillion - R475 bn (46% of the electricity spend) will be on renewables. As is already the case, the private sector will fund those investments. Another R131 bn (or 13%) will go towards upgrading the country's transmission grid so that all those renewables can be accommodated. R319 bn (31%) will go towards municipalities, the bulk of the money earmarked for distribution systems.

Eskom is scheduled to close nine of its 15 coal-fired power stations by 2034 (now 8 of 14 because Komati officially closed 3 weeks ago on 31 October). This will cut coal demand by 50% - from 113 Mt to about 57 Mt. Coal's place will be taken by many thousands of MW renewable, gas and nuclear power to be installed over the next years. The country will still use coal for a long time to come – Medupi and Kusile will run for 40 years. But the swing away from coal is undeniable.

New energy vehicles (NEVs)

Globally the auto industry is transitioning to electric vehicles. Work is also going on to use hydrogen in heavy trucks, buses and aircraft.

At its Mogalakwena mine Anglo Platinum is already using hydrogen to power giant mining trucks, which previously spewed fossil fumes into the air.

Anglo American has set itself the goal to use renewable sources for 100% of its energy needs in South Africa by 2030. It has already achieved that for all its operations in South America. It is thus doable.

Green hydrogen

The third priority of the JET IP is the hydrogen sector. Worldwide there is a big push to expand the use of hydrogen and the war on Ukraine has given it new urgency. (The war also caused temporary reversals in the move to green energy, but there is no denying which way the trend is.) Apart from price and safety, the big issue with hydrogen is to move from 'grey' hydrogen (using fossil fuels to produce it) to 'green' hydrogen (using renewable energy).

(A little colourful aside: if biomass or nuclear is used for production, it is called 'pink' hydrogen, 'blue' when fossil fuels are used, but the carbon captured. There is a whole world of colours and acronyms!)

The two key players on hydrogen in South Africa are the IDC and Sasol. The latter needs to get out of synfuels and is

very actively pursuing hydrogen, in some cases in partnership with German agencies.The IDC is the lead agency in the commercialisation of hydrogen technologies.

Funding

South Africa's Investment Plan is a first in the world and was warmly welcomed at COP27. It will not remain the only one – at its recent summit in Bali the G20 offered a similar deal to Indonesia, but that plan still has to be developed. Having a clear plan with a budget unlocks financing: so far 57% of the JET IP has been financed.

The International Partner Group or IPG, comprised of the EU, France, Germany, the UK, US and the Climate Change Funds administered by the World Bank, is providing 8,6% of the JET budget. That translates into some R128 bn and the first money has started flowing ($495 bn to Eskom for Komati, E600 bn to National Treasury, and monies for training centres at Komati and Grootvlei.)

Developmental institutions, multilateral banks and philanthropies (the not-for-profit private sector) are also contributors.

The bulk of the funding will come from the private sector. Private companies have already earmarked R500 bn (34% of the JET IP total) for investment in electricity, adding to investments to date. Last week I met with entrepreneurs who are into biomass and waste – investing their own money to convert waste into watts. The auto industry is likely to invest in the transition to electric vehicles. We have already seen private companies experimenting with hydrogen in transport.

Komati - making the transition

If all of the above sound like so much theory, it is useful to look at Komati power station, where the process has started playing out.

Komati was officially switched off on 31 October this year. The World Bank has provided about R9 bn to re-purpose it. A 150 MW solar plant and a 70 MW wind plant will be built on the property, supported by 150 MW of batteries. The transmission lines are right there and the power can go straight into the grid.

Eskom signed an agreement with the South African Renewable Energy Technology Centre at the Cape Peninsula University of Technology to run a training centre at Komati. They have developed the curricula and course material. The training facility itself was funded by the Global Energy Alliance for People and the Planet (GEAPP), which in turn is funded by the philanthropies referred to above. Eskom has also established a containerised micro-grid assembly factory on the Komati premises. Some of those micro-grids have already been installed in the Eastern Free State.

In the closing days of COP 27 Andre de Ruyter raised R180 m for a similar training centre at Grootvlei, a power station that will close down in 2026. De Ruyter observed that there are 16 000 vacancies right now in the solar and wind industry in South Africa – considerable scope to train/retrain people and employ them in a new industry.

Energy politics

The government's intent and direction are clearly set out in the 216 pages of the JET IP road map. It is furiously contested from both left and right.

On the one side is what is jokingly called "the Green Taliban" – people completely opposed to anything but renewables. A Wits academic has started a NGO to lobby for the view that no climate money should be advanced to South Africa because the government still allows exploration for gas and the continued use of coal. In his view, that should all be banned.

On the other side is the coal lobby, lamenting that the switch to green energy will result in people losing jobs and small towns dying off. That is of course true. That is why skills development, alternative economic activities and social support are so important. Many more jobs than those at stake in coal mining were lost as mining in general declined (remember gold mining?); as agriculture was deregulated after 1996; as the clothing and textile industries declined; as mobile technology overtook Telkom … the list goes on. The rise and decline of industries are part and parcel of economic life. The only question is how best to manage it. We have a better chance with coal than we had with gold, or agriculture or textiles/clothing or telecommunications, which all happened largely by default.

So what?

- This piece is no more than a brief and no doubt inadequate summary of a 216-page road map traversing a very diverse and complicated field. Hopefully it gives a feel for the issues at stake.
- In one of those big ironies of history, the catastrophe of load shedding is actually galvanising the transition to green energy. Without load shedding it would have been much more difficult to make the change.
- Despite criticism from both sides, the current just energy transition plan is a middle-of-the-road option towards South Africa's target of a 17% decline in carbon emissions.
- The just energy transition is a multi-project: it will take multi-decades, involve multi-transitions in different industries, utilise multi-technologies, affect multi-towns, cost multi-millions and so on. It is neither linear nor a once off job. In many ways we will have to learn as we go along. The trick will be to keep an open mind and constantly improve.
- As the transition proceeds, Eskom's role will change substantially. To be deliberately provocative, it may be, just may be 'finish and klaar' for Eskom, we will see; BUT electricity is by no means finished. It is important to distinguish between the two.