IRP: The Integrated Resource Plan 21 October 2019

One of the most important policies of the Ramaphosa government, the Integrated Resource Plan (IRP), has been approved and made public. It covers the decade to 2030 and gives clarity on and direction for energy investments in South Africa.

These investments could be considerable. South Africa's successful renewable energy programme received investment of R210 billion for 4 000 MW connected to the grid and 6 000 MW procured. Of this, R42 billion or 20% was foreign direct investment. The new IRP envisages new capacity of 29 488 MW – five to seven times more!! The plan brings South Africa one step closer to President Ramaphosa's goal of a R1,2 trillion investment.

Big swing to wind, solar and gas

Nearly half (48%) of the new energy capacity will come from wind. The second largest source of new capacity will be solar with 6 000 MW (20%), then gas with 3 000 MW (10%), hydro with 2 500 MW (8%), storage with 2 088 MW (7%), and lastly coal with 1 500 MW (5%).

Wind and solar are the cheapest forms of new energy. The 5% coal is included because of expected long lead times on developing gas and because government does not want to 'sterilise South Africa's coal reserves.

In addition to the 29 488 MW, the IRP also allows for some 4 000 MW of own-generated or 'embedded' electricity to be installed by 2030. Most of this will probably be small-scale solar, but some wind and hydro will also be included as will other technologies. This follows the announcement in May by Jeff Radebe, former Minister of Energy, that self-generation up to 10 MW no longer need ministerial approval. It still, of course, requires registration with NERSA.

Re-negotiating those contracts…?

We know government is talking to current independent power producers about how much they are paid for generating power. During the media conference, the minister let it slip that the talks are with producers from 'bid windows one, two and three'. However, four bid windows – in fact 4.5 – have been completed, yet discussions are only with the first three bid window producers…?

The minister quoted a price of R4,25 per kWh currently being paid to producers from bid window one. Eskom is charging an average of R1,07 per kWh. There's no doubt that the minister chose an extreme example to bolster his case, but it does illustrate the need for re-calibration. Similar discussions are ongoing with coal providers. Once those reductions have been negotiated, NERSA will be approached to lower the price of electricity, at least to some sectors in the economy. Lowering the price of electricity has been a consistent theme of President Ramaphosa's State of the Nation speeches.

Gas

The minister of energy and officials made it clear that the resource they are pinning their hopes on is gas. The IRP provides for only 10% of new capacity over the next decade coming from gas. The reason for the low percentage is simply that South Africa's gas infrastructure is weak and underdeveloped and will take time to build up. Initially gas will be imported and over time South Africa can exploit its own gas reserves. Mozambique is an obvious import source, also promoting regional trade.

Gas is a logical complement to sun and wind as it is easy to turn on and off. It can be used to supply power when the sun is not shining or the wind not blowing; and it can be used during peak demand hours. It is the ideal standby.

The enthusiasm for gas fits with previous announcements already made. In July 2019, the minister announced that Coega in Nelson Mandela Bay is the preferred location for a liquefied natural gas (LNG) power plant. In August, an environmental impact study for that project was initiated. Transnet has already announced that it will put out a tender in 2020 for a gas terminal in Richards Bay.

As an interim measure and to support the development of gas infrastructure, the IRP recommends that all diesel-

fired power plants (so called 'peakers') on the East Coast of the country be converted to gas-fired plants.

Coal

Currently coal provides more than 70% of South Africa's energy needs. By 2030 that will decline to 59%.

There are huge disruptions behind this shift. More than 11 000 MW of coal capacity will be closed by 2030, having reached the end of their design life. A further 24 000 MW will be decommissioned between 2030 and 2050. That amounts to 35 000 MW decommissioned of a current base of less than 40 000 MW. The decline in coal is going to be huge.

Whole communities, particularly in Mpumalanga, is dependent on coal power stations and closing them down will also close whole towns down. The IRP recommends that a 'just transition' team is put in place to plan the decommissioning and transition.

The IRP concedes that due to public pressure and financial institutions turning their back on financing coal projects, the 1 500 MW from coal may not be developed. Power will then be bought from renewable sources.

Nuclear

South Africa's only nuclear station, Koeberg in the Western Cape, is coming to the end of its life by 2024. Government is in talks with the owner, Eskom, to refurbish the power station and extend its life for another 20 years to 2044.

The IRP does not envisage any new nuclear built until 2030. After 2030 modular nuclear stations will be built at a pace and cost the country can afford to replace the 24 000 MW of coal-fired power stations that will be decommissioned. This 'modular approach' is in contrast to the 'fleet approach' (or big stations approach) pursued in the Zuma/Russian deal (as with Medupi and Kusile). The IRP argues that the country needs a source of clean energy to meet its international emission obligations and to provide base load to the economy in place of the decommissioned coal stations.

Hydroelectricity

South Africa has signed an off-take agreement with the Democratic Republic of the Congo to buy 2 500 MW from the Grand Inga scheme by 2030. South Africa is responsible for developing the transmission infrastructure to import the power from Grand Inga across the transit countries to South Africa. That can create considerable opportunities for South African companies. It will also help develop a cross-border market in electricity.

The IRP acknowledges the possibility that the Grand Inga scheme may not come off the ground – 2023 is the date when pre-conditions must be met. It recommends that the preparatory work to procure 2 500 MW from nuclear must commence, so that 2 500 MW supply is secured by 2030 should Grand Inga not come off the ground.

And what about load shedding?

The IRP estimates the current power shortage as 2 000 MW (corresponding to stage two load shedding) and recommends that an immediate power purchase programme be initiated to acquire the same. It also recommends that generation for own use must be encouraged. The policy is clear – it now comes down to the speed of implementation.

On this, a criticism of the IRP announcement is that the minister should also have announced some steps to plus the 2 000 MW gap in supply. For example, he could have announced bid window five for 2 000 MW and instruct the Independent Power Producer Procurement (IPP) office to run a tender; or he could allow big users (more than 10 MW) to go and find solutions and implement them, rather than first coming back to the Department. That would have sent a constructive message amid last week's load shedding.

So What?

- South Africa is continuing with a major change in its energy industry: from coal-fired energy to a more diversified energy mix; and from Eskom as the monopoly supplier to a range of suppliers.
- Investment in 29 000 MW of new capacity over the next decade (on top of some 4 000 MW of embedded or small-scale capacity) will be a considerable boost to South Africa's investment ambitions.
- The renewables industry built up since 2010 will expand further, significantly bolstered by wind and more self-generation.

- Gas will become an additional big frontier for energy and investment, expanding a currently small local industry.
- Not everybody will be happy with the IRP. Anti-nuclear lobbyists will object; the coal lobby will be disappointed with the small allocation; environmentalists will be unhappy that coal has 5% at all; the solar lobby will be disappointed because they do not get more than 20% (although they will through the expansion of self-generation), and so on. But at least there is clarity on where the country is going with energy, even though there won't be consensus on this.
- It is a missed opportunity that the minister did not issue an invitation for new investment as he released the IRP. No doubt he will be under big pressure to do just that. We could therefore see some action in the coming weeks.
- The energy picture is not complete without a future path for Eskom – for now the two are still like Tweedledee and Tweedledum. This announcement is expected in the next two weeks.
- Watch the energy space.