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SOUTH AFRICA ENERGY ROUNDUP

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Creamer Media's South Africa Energy Roundup – September 2018, covering activities across South Africa for August 2018

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ENERGY PLANNING

Updated Integrated Resource Plan open for public comment

Energy Minister Jeff Radebe has released the much-anticipated draft updated Integrated Resource Plan (IRP) for a 60-day public comment period, providing insight into South Africa's electricity generation plans for the next 12 years. The IRP's time horizon has been trimmed to 2030, from 2050 in the initial draft update of November 2016. The document states that the "least-cost plan" to 2030 contains only solar photovoltaic (PV), onshore wind, and gas, and, thus, included no new nuclear and new coal. Nevertheless, five policy adjustments have been made to the least-cost path, including:

- The retention of yearly build limits on renewables until 2030.
- The inclusion of 1 000 MW of coal-to-power in 2023 and 2024, based on two coal independent power producer (IPP) projects already procured by government.
- The inclusion of 2 500 MW of hydropower in 2030 to facilitate a treaty signed by South Africa and the Democratic Republic of Congo for the Inga hydro power project.
- Using existing solar PV, wind and gas allocations to enable, through Ministerial determinations, IPP procurement.
- The allocation of 200 MW a year for certain categories of 'generation-for-own-use' of between 1 MW to 10 MW, starting in 2018. These allocations will not be discounted off the capacity allocations in the plan, but will be considered during the issuing of Ministerial determinations.

As a result, the policy-adjusted plan includes the following new additional capacity by 2030: 1 000 MW of coal, 2 500 MW from hydro, 5 670 MW of solar PV, 8 100 MW of wind and 8 100 MW from gas. Should the new capacity be introduced as envisaged, by 2030, South Africa's electricity will comprise: 34 000 MW of coal (46%); 1 860 MW of nuclear (2.5%); 4 696 MW of hydro (6%); 2 912 MW of pumped storage (4%); 7 958 MW of solar PV (10%); 11 442 MW of wind (15%); 11 930 MW of gas (16%) and 600 MW of concentrated solar power (1%). However, owing to the variability of supply from wind and solar PV, 65% of actual energy arising from this installed base will arise in the form of coal, while nuclear will contribute 4% of the electrical energy generated in 2030. A major new inclusion is 2 600 MW of embedded generation between 2018 and 2030, while the other big winner is gas, the capacity of which is assumed to grow to a material 12 000 MW by 2030.

Industry's feedback on the draft IRP

The solar photovoltaic (PV) and wind industry bodies have broadly welcomed the draft Integrated Resources (IRP) document, but have raised concern about the three-year gap during which no allocations have been made for new renewable-energy capacity additions. The South Africa Photovoltaic Industry Association points out that there is a lag period from 2022 to 2025, where the committed solar PV capacity ends and the new additional capacity will be procured. The South African Wind Energy Association also noted the allocation gap in its reaction to the draft document and has indicated that it will seek clarity on the "planned sequence" of wind investments. The gap coincides with years when it is envisaged that 1 000 MW of new coal-fired capacity will be added. Both coal projects – the 300 MW Khanyisa development and the 557 MW Thabametsi project, located in Mpumalanga and Limpopo respectively – are facing material resistance, with the Life After Coal campaign slamming their inclusion in the draft IRP. Citing research conducted by the Energy Research Centre, the anticoal lobby group argues that the projects will cost South Africa close to R20-billion more than a least-cost solution of solar PV, wind and gas and undermine government's climate change mitigation plans.

ESKOM GENERATION AND SALES

Eskom pilots incentive designed to claw back 5 TWh of energy-intensive demand

State-owned electricity producer Eskom has confirmed that it has entered into a sales incentive pilot programme with nine large industrial customers in a bid to stabilise sales to electricity-intensive industries. The two-year sales incentive pilot programme, which started on June 1, has the potential to stimulate additional sales of up to 5 TWh and generate revenue of R3-billion over two years. The cash-strapped utility has been haemorrhaging energy-intensive customers over the past ten years, during which industries were forced to adjust to load-shedding and surging tariffs. Under the pilot programme, dubbed 'the offer', large customers are incentivised to increase their base sales, compared with a historical baseline, while tariffs and tariff structures remain unchanged. The pilot programme is a standard offering to all customers whose current consumption is more than 100 GWh/y.

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ZEST WEG Group

In parallel, Eskom is investigating a new 'Industry Tariff' intended to facilitate the stabilisation and growth of sales to electricity intensive industries. The proposed 'Industry Tariff' will essentially involve a shift to more cost-reflective tariffs by recognising the high load factor impact on Eskom's unit energy cost and minimising cross-subsidy contributions.

ESKOM CORPORATE AND FINANCES

Energy expert Anton Eberhard on Eskom's structure

A leading electricity expert is warning that there is little or no prospect that State-owned Eskom can trade itself out of its current financial difficulties and that restructuring – including a vertical separation of its cash-guzzling generation assets from its transmission, system operator and distribution units – is now urgent and practically implementable. Likening the generation business to a 'bad bank', University of Cape Town Graduate School of Business' Professor Anton Eberhard has argued that the power stations should be "ringfenced" to prevent ongoing financial contamination of the "heart of the system" - the grid and the system operator. He states that the vertically integrated utility model is no longer fit for purpose, particularly in light of the "unprecedented" rate of change under way across the global electricity industry. The failure of South Africa to keep pace with market changes has resulted in an electricity supply industry with serious operational and capital investment inefficiencies, primarily at the Medupi and Kusile coal-fired power stations.

Eskom begins stakeholder interactions on 'Strategy 2035'

Electricity utility Eskom has initiated a series of interactions with stakeholders as part of a review process designed to deliver a new long-term strategy, dubbed 'Strategy 2035', for the beleaguered organisation. The new leadership at the State-owned company, together with Public Enterprises Minister Pravin Gordhan, have formally acknowledged that the group's business model is no longer sustainable, or fit for purpose, particularly in light of material technology changes in the electricity sector. Gordhan has, thus, mandated Eskom to revise its short-term corporate plan before the end of September, while simultaneously undertaking a review aimed at defining the long-term strategy and architecture of the business. A dedicated team, comprising functional and subject experts, has been established to oversee the review and ensure that the immediate corporate plan is aligned with the longer-term strategy. The review will assess the appropriateness of the current vertically integrated design, which embraces the full electricity value chain of generation, transmission, system operations and distribution.

Eskom 33% overstaffed

State-owned power utility Eskom chairperson Jabu Mabuza says the utility is up to 33% overstaffed at all levels and may need to be "rightsized" in time. "We don't know whether we will downsize but we are determined to rightsize. We will do that within the confines of the Labour Relations Act," Mabuza said in Parliament in August. He was responding to comments from Members of Parliament that Eskom was "bloated" and needed to cut staff. The World Bank has benchmarked Eskom with other comparable utilities around the world and found that it was 50% overstaffed, although Eskom believes the number is "closer to 33%".

Eskom's debt to equity conversion plan shelved

Power utility Eskom has shelved plans to ask the Public Investment Corporation (PIC) to convert some of its debt to equity, as it may send an "alarm signal to other creditors", chairperson Jabu Mabuza has said in Parliament. Eskom floated the idea earlier this year of asking the PIC to convert some of the R84-billion it holds in Eskom bonds into shareholding in the company. However, Mabuza said it sent a clear message to investors on recent roadshows to London and New York that it was not going to ask bondholders to convert debt into equity.

Eskom, unions settle on salary adjustments

State-owned power utility Eskom has reached a three-year wage agreement with trade unions the National Union of Mineworkers (NUM), the National Union of Metalworkers of South Africa and Solidarity. In terms of the agreement, Eskom's bargaining unit permanent employees will receive salary adjustments of 7.5% for 2018/19, effective July; 7% for 2019/20; and 7% for 2020/21. Additionally, there will be an adjustment in terms of yearly cost of living to employees' housing allowance, as well as a one-off cash payment of R10 000 after tax to be paid imminently. NUM commented that the last negotiation round had been the most difficult in the union's history, owing to Eskom initially tabling a 0% wage increase offer at the start of negotiations.

Gupta-linked Trillian to be sued

Power group Eskom will sue Gupta-linked Trillian in a bid to recover R600-million it is owed and will continue to tighten the screws on implicated former and current employees who have drained the utility of its resources and plunged it into debt. CEO Phakamani Hadebe has indicated that Eskom will go to court in December to demand its money back. Trillian was paid R698-million by Eskom in 2016, at the instruction of consulting firm McKinsey. Eskom has recovered R1-billion from McKinsey, including interest. McKinsey earned the money from Eskom without a valid contract.

PRIVATE COAL

New coal-fired plants must have emissions technology

Energy Minister Jeff Rabebe has said South Africa's first privately built coal-fired power plants must have the latest technology to reduce harmful emissions. His comments come as a wave of court challenges threaten to derail the new Thabametsi and Khanyisa coal-fired projects. The two projects have been in the works since 2016 and form part of an initiative to increase baseload generation capacity. Asked about Thabametsi, which is expected to produce about 9.9-million tons of carbon dioxide equivalent a year once Phase 2 of the 1 200 MW plant is built, Radebe has said that any concerns about the plant will need to be fixed. Thabametsi, situated in South Africa's northern Limpopo province, and Khanyisa located in Mpumalanga province, are backed by local consortia and developers from Korea, Japan and Saudi Arabia, including Marubeni and Saudi Arabian power company ACWA. Their development is being challenged in the High Court by environmental groups groundWork and Earthlife Africa, represented by the Centre for Environmental Rights. Failure to secure regulatory approval for the two projects, which are initially expected to add more than 850 MW, will potentially halt funding.

Study initiated to assess conversion of Kelvin power station from coal to gas

A $1.3-million feasibility study has been initiated into the prospect of converting the coal-fired Kelvin power station, east of Johannesburg, into a 450 MW to 600 MW gas-fired power station. The study will also assess the potential for developing the Kelvin site into a gas distribution hub for Gauteng, South Africa's industrial heartland. The 12-month study is being funded by way of a US Trade and Development Agency (USTDA) grant, which has been awarded to NOVO Energy, a South African integrated natural gas company, owned by Harith General Partners. USTDA sub-Saharan Africa regional manager Jacob Flewelling says the study will be conducted by EHS Support, of the US, in partnership with Prime Africa, of South Africa. The Kelvin power station was initially developed and owned by the City of Johannesburg in the 1950s and 1960s. The two-station facility has a nameplate capacity of 600 MW, but only one of Kelvin's two stations is currently operational. NOVO Energy CEO Andri Hugo says gas sourcing will form a major portion of the study and that various options will be examined, including tapping into the Rompco pipeline, which transports gas from Mozambique to South Africa. Rompco is a joint venture between Sasol, Companhia Mocambiçana de Gasoduto and the State-owned South African Gas Development Company, or iGas. However, the study will also assess prospects for using liquefied natural gas which could, in future, be imported through Richards Bay, in KwaZulu-Natal. Pipeline and rail logistics solutions will be assessed for transporting the gas from Richards Bay to Kelvin, situated in Kempton Park.

RENEWABLE ENERGY

AfriForum launches petition against planned CSIR biogas plant

Local lobby group AfriForum has launched a petition against the planned new biogas plant that the Council for Scientific and Industrial Research (CSIR) intends to build at its campus, in Pretoria. AfriForum, as well as residents, are concerned that the plant might be unsafe and pollute the area, which borders various residential areas. It is proposed that up to 45 000 t/y of organic feedstock will be processed at the plant. The plant will supply the CSIR with electricity and serve as a pilot on sustainable power supply. The CSIR says the plant can generate up to 3 MW of power from feedstock sourced from the Tshwane metropolitan and local shopping malls. The CSIR is busy with a scoping and environmental-impact assessment process, as well as a waste management licence application, for the proposed project.

Floating solar PV solution could hold benefits for South African end-users – Black & Veatch

Floating solar photovoltaic (PV) solutions, which make use of a flotation system on which the PV modules are attached, addresses the shortage of reasonably priced land, as well as the need to reduce the rate of evaporation from precious freshwater reservoirs, such as dams or lakes, says Black & Veatch sub-Saharan Africa business development director Webb Meko. Floating solar PV, he pointed out in an interview with Engineering News Online, should be viewed as an evolutionary application, particularly in instances where there is a shortage of suitable land to install a land-based PV system. A secondary benefit is the reduction in the evaporation rate of freshwater resources. For example, a 1 MW floatovoltaic system, covering a 3- to 4-acre area of water, could reduce losses owing to evaporation by up to 70%, saving between 15 Mℓ and 18 Mℓ of water a year. "[This] will be a good solution to consider, since South Africa is a semi-arid country and has had its own challenges with droughts in recent years," Meko said.

Salt melting starts at Kathu CSP project

Engineering and technology group SENER, together with Acciona Industrial, have achieved a milestone with the start of the salt melting process at the Kathu Solar Park concentrated solar power (CSP) plant. The molten salt will be used to store heat from the solar field that can later be recovered to produce steam and generate electricity in the absence of solar radiation, extending the operational capacity of the plant after sunset and during cloudy weather. The molten salt storage system allows for four-and-a-half hours of thermal energy storage. The plant uses SENERtrough-2 collectors – a parabolic trough technology, which enables power supply during sunny periods as needed to satisfy the peak of demand, without the considerable expense of battery storage. The joint venture between SENER and Acciona Industrial was appointed by the Engie-led consortium to provide engineering, procurement and construction services for the project. The project is due for completion within the next few months.

Solar PV plant to be installed at Liberty Midlands Mall

Liberty Two Degrees, in partnership with Liberty Group, has announced the first solar photovoltaic (PV) installation at the Liberty Midlands Mall, in Pietermaritzburg. The solar PV plant is being commissioned on the roof of the mall's 22 000 m^2 Phase 3 extension, which was launched in March. Installation is set to start in September, with completion scheduled for the first quarter of 2019. The plant will be a grid tied, roof-mounted PV installation comprising 2 900 panels, which will supply about 1 MW of energy to the mall.

juwi to build, operate three REIPPPP Round 4 solar PV projects

Solar energy equipment supplier juwi Renewable Energies has concluded three engineering, procurement and construction and operation and maintenance contracts, with a combined value of R3-billion, with African Infrastructure Investment Managers (AIIM), which will deliver 250 MW of additional solar photovoltaic (PV) electricity to South Africa's power grid over the coming few years. juwi has been contracted to build the 86 MW Waterloo Solar Park, situated near Vryburg, in the North West; the 78 MW Bokamoso Solar Park, situated near Leeudoringstad, in the North West; and the 86 MW Droogfontein 2 Solar Park, situated near Kimberley, in the Northern Cape. Financial close on all three projects was achieved during July, enabling the projects to move into the construction phase. Construction will start at Droogfontein 2 in the third quarter of this year, at Bokamoso in the fourth quarter of this year and at Waterloo in the first quarter of 2019. Under the deals signed, AIIM's IDEAS Managed Fund is a 50.01% shareholder in the three projects, which were signed by juwi, under Round 4 of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). Debt funding has been provided by financial institutions Absa and Nedbank.

Vantage provides R2bn for six renewable-energy projects

Fund manager Vantage has provided R2.05-billion of funding to six solar and wind energy projects in South Africa with a combined capacity of 433 MW. The projects, which are part of the Renewable Energy Independent Power Producer Procurement Programme, reached financial close in July. Vantage GreenX MD Alastair Campbell states that the fund hopes that the conclusion of this round of projects represents a watershed moment for the South African renewable-energy industry, which has experienced difficulties over the past two years. Vantage GreenX is part of Vantage Capital, which manages more than R11-billion in five distinct mezzanine debt and renewable-energy debt funds.

OIL AND GAS

Competition Commission approves Glencore's bid for Chevron assets

The Competition Commission has given Glencore's bid worth about $900-million for Chevron's local and

Botswana assets the green light. However, a number of conditions were placed on the approval, including the preservation of jobs after the deal and establishment of a fund to develop small businesses.

Sasol FY18 headline earnings fall 22%

Integrated chemicals and energy company Sasol has reported a 22% year-on-year decrease in its headline earnings a share to R27.44 for the financial year ended June 30. Core headline earnings a share decreased by 6% year-on-year to R36.03, while earnings before interest, taxes, depreciation and amortisation rose by 10% year-on-year to R52-billion and the company declared a dividend a share of R12.90. Sasol states that higher sales and production volumes, particularly in the second half of the year, underpinned its 2018 performance. Unplanned Eskom electricity supply interruptions and two internal outages at Secunda Synfuels Operations, however, negatively impacted on volumes.

This report has been compiled by Creamer Media's Research Unit, based in Johannesburg, South Africa. It forms part of a monthly series that is available for purchase, as well as free of charge to subscribers to Creamer Media's *Research Channel Africa* and *Mining Weekly Research*. The information has been drawn from sources believed to be reliable, but no warranty is made on the accuracy of such information. The report covers activities across South Africa for August 2018.

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