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A monthly review
of energy-related news

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ENERGY ROUNDUP

Creamer Media's African Mining Roundup – December 2015, covering activities across South Africa for November 2015

Energy regulation and planning

DA urges Energy Minister to table Integrated Energy Plan

The Democratic Alliance (DA) has urged Energy Minister Tina Joemat-Pettersson to table the Integrated Energy Plan (IEP) 2015 as a matter of urgency to allow Parliament to scrutinise key issues contained in the document. The purpose of the IEP is to provide a roadmap of the future energy landscape for South Africa to guide energy infrastructure investments and policy development by providing an analysis of competing technologies to provide sustainable and cost-effective electricity. The IEP 2015 is currently before Cabinet.

Fossil fuels to remain key component of energy mix

The Department of Energy energy planning chief director Tshilidzi Ramuedzisi has reiterated that fossil fuels will continue to play a prominent role in the country's energy mix, albeit it at a declining rate. South Africa has to reduce its reliance on fossil fuels for the country to meet its emissions target. Therefore, nuclear and renewable energy have to play a more prominent role in the country's energy mix. Gas is considered the biggest game changer and the price of gas will determine its future role. Citing assumptions made by the US Energy Information Administration, Eskom research GM Barry MacColl has also stressed that coal will continue to play a "significant" role in the energy mix in the foreseeable future.

Coal

Eskom insists weak demand not only cause of fall-off in load-shedding

Electricity utility Eskom insists that the performance of its generation fleet is on an improving trend, rebuffing arguments that its newfound ability to avoid load-shedding is primarily the result of sharply lower demand from industry. Speaking at a quarterly state of the system update in November, CEO Brian Molefe acknowledged there being "some truth" in arguments that demand had been lower in 2015 than during the previous two years. However, he insisted this was only for periods, with the electricity demand profile having remained relatively similar over the August-to-October period for the past three years. During that time, Eskom has resorted to only two hours and twenty minutes of load-shedding. Molefe also indicated that the prognosis remained encouraging for the rest of summer and beyond, unless a confluence of unplanned events affected output, as had been the case ahead of the September 14 load-shedding incident.

Eskom won't budge on coal deal with Glencore unit

State-owned utility Eskom will not pay Glencore's South African unit more than R150/t when a temporary coal contract ends on November 30. Under that contract, Optimum provides Eskom with ten-million tonnes a year at R150/t, a rate the mining company says is less than the cost of production. In previous contracts with coal suppliers, Eskom paid for the running costs of mines for a guaranteed supply of coal at a predetermined price, which CEO Brian Molefe says is not sustainable.

Majuba coal silo design to blame for collapse

A design flaw resulted in the collapse of Mpumalanga's Majuba power station's coal storage silo in 2014. Eskom CEO Brian Molefe has explained that US design standards were used, which were of much lower standards than current ones. The investigation found that there was no negligence by contractors. Eskom has constructed a temporary conveyor belt to ferry coal to the power station as an interim solution. Designs for the permanent solution, which include the reinstatement of the damaged silo and associated coal conveyor system, have been completed. Eskom has curtailed the use of trucks to transport coal from an average 1 060 trucks before the implementation of the interim solution to an average 90 trucks.

Nuclear

Eskom CEO: South Africa needs new nuclear plants urgently

Eskom CEO Brian Molefe believes it is urgent and feasible for South Africa to obtain more nuclear plants. Addressing Parliament's Portfolio Committee on Public Enterprises in early November, Molefe said that a nuclear programme was feasible in South Africa as nuclear plants typically had a life of more than 60 years and that the payback period, irrespective of what the amount was, typically was about 20 years. Molefe was responding to questions from MPs about government's plans to procure additional nuclear energy capacity to add about 9 600 MW to the country's electricity grid by 2030.

France woos South Africa on nuclear energy
French special envoy for the French-South Africa nuclear partnership Pascal Colombani visited South Africa in early November, punting his country for the highly anticipated nuclear programme. During his two-day visit to the country, Colombani was scheduled to have meetings at political level, as well as with relevant public enterprises such as Eskom and the South African Nuclear Energy Cooperation. France wants to advance the cooperation between the two countries into a strategic long-term partnership, by supporting the development of South Africa's new nuclear programme. Technology, training and safety are at the core of this partnership.

Nuclear advocate urges South Africa to consider emerging reactor designs
Independent nuclear expert Tom Blees, who is president of US-based nongovernmental organisation the Science Council for Global Initiatives, believes that the South African government should leave room in its procurement programme for emerging reactor designs, rather than committing the full 9 600 MW designated for nuclear to established systems. Blees, who visited South Africa in late October at the invitation of Nuclear Africa, says domestic policymakers have to keep themselves informed about nuclear developments, as there is a strong likelihood of fast reactors and molten-salt systems being commercialised in the coming few years. South Africa has signed intergovernmental agreements with a number of nuclear-vendor countries, the majority of which are expected to offer their latest pressurised water reactor designs.

Renewable energy

DoE satisfied with boost in South Africa's wind energy
Wind energy is growing rapidly in South Africa and has helped to boost electricity generation during peak hours. Department of Energy (DoE) renewable energy director Karen Breytenbach says 15% of wind energy's overall contribution to electricity generation was delivered during peak hours over the last six months, debunking scepticism that renewable energy will not add much to the grid during peak-hour time. Wind energy contributes 3 357 MW, or 53%, of the overall 6 300 MW of renewable energy that the DoE has procured to date. Under the increased capacity of 13 225 MW in government's Renewable Energy Independent Power Producer Procurement Programme, 6 360 MW has been allocated to wind.

Eskom has to become part of renewables 'in a big way'
A senior Eskom official has made the case for the utility playing a more active role in deployment of large- and small-scale renewable-energy solutions in South Africa, suggesting that previous arguments against its participation in the sector are becoming less relevant. Eskom GM for research, testing and consulting business Barry MacColl says the State-owned utility's very survival will depend on its ability to adapt to changes being brought about in the electricity sector as a result of the rapid growth of renewables, as well as by the increased integration of information and communication technologies, and changing customer preferences. Historically, it was argued that Eskom's large balance sheet allowed it to borrow money cheaply and, therefore, would give the utility an unfair advantage if it was allowed to compete in the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). Opposition is likely to persist, as Eskom is the single buyer of the electricity produced by REIPPPP projects and is also responsible for connecting the projects to the grid. MacColl agrees that the current monopoly market structure has to eventually make way for competition.

Gaia Infrastructure Partners concludes wind farm equity transaction
Fund management firm Gaia Infrastructure Partners has concluded a landmark equity transaction in the Dorper wind farm project, in the Eastern Cape, which forms part of Round 1 of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). Gaia has submitted a proposal to the Department of Energy (DoE) for a 30% equity stake to be assumed by a South African pension fund. The DoE has approved the proposal. Gaia CEO John Oliphant says the initiative brings investment in renewable energy back home and provides more opportunities for pension fund investors to match this asset with pension liabilities. It is the first transaction of its kind and Gaia believes

it will have long-term benefits for the REIPPPP, as it opens the market to new investors.

Gold company invites solar PV tenders for mine

Gold mining company Gold Fields has invited tenders for a 40 MW on-site photovoltaic (PV) power installation with an option for energy storage at its South Deep gold mine, west of Johannesburg. Gold Fields recently revealed that a study of solar solutions is under way aimed at putting renewable energy at the disposal of the South Deep mine. The proposed solar project is one of the key recommendations of a review of its energy security plans across all its operations, to evaluate the potential for the further adoption of renewable energy.

Northern Cape wind farm turbine foundations among world's greenest

The Northern Cape's Loeriesfontein wind farm is believed to be among the world's greenest in terms of the turbine foundations. Murray & Roberts' Concentre Centre for Excellence research scientist and head of engineering Cyril Attwell states that the foundations' concrete formulation comprises low quantities of Portland cement. The first two bases, which were completed on October 13, used a concrete formulation that replaced 80% of Portland cement with ground granulated corex slag (GGCS), while the remaining foundations used a unique design comprising 35 kg of high-grade Portland cement per cubic metre – an 89% reduction in Portland cement from a standard concrete mix. Attwell says this composition has resulted in the wind farm's carbon footprint being reduced to about 90.7 kg of carbon dioxide a cubic metre. GGCS, a by-product from the iron industry, was used to replace 89% of the cement.

Siemens provides 157 wind turbines for South Africa wind farms

Electrical engineering and electronics company Siemens would have supplied 157 wind turbines to projects in South Africa by 2017. The company was awarded a contract in 2014, which committed it to supplying turbines to Mainstream Renewable Power's Khobab, Loeriesfontein 2 and Noupoort wind farms, in the Northern Cape. Of the 157 wind turbines, 35 turbines are destined for Noupoort, while the balance will be shared equally between Khobab and Loeriesfontein.

The contract followed the successful commercial operation of the Jeffreys Bay wind farm in the Eastern Cape – which became fully operational in July 2014 – for which Siemens supplied and installed wind turbines. The contract includes a service and maintenance agreement for a period of ten years.

South Africa a 'globally significant' renewables investment destination

South Africa has sustained its top 10 ranking as an attractive renewable-energy investment destination in the Climatescope 2015 index, confirming its status as a "globally significant investment destination", having attracted more than $11-billion in clean-energy investment since 2012. The country ranked fourth in an index comprising 55 emerging markets and came in behind only China, Brazil and Chile and ahead of India and Mexico.

Compiled yearly by Bloomberg New Energy Finance (BNEF) on behalf of the UK and US governments, as well as development agencies, South Africa ranked third in the 2014 version. The slight decline relates mainly to delays in closing deals in 2014, which have subsequently been concluded in 2015.

The decline in investment levels in 2014 has been nearly fully compensated for by higher deployment levels during the year. By the end of 2014, South Africa had 1.2 GW of operational solar capacity and 1.1 GW of onshore wind projects.

Gas

AfriForum and TKAG move against fracking regulation

Civil rights group AfriForum has taken its fight against hydraulic fracturing (fracking) a step further. Together with the Treasure the Karoo Action Group (TKAG), AfriForum has submitted documentation at the North Gauteng High Court challenging the regulations with regard to petroleum exploration and production. The regulations were promulgated on June 3, 2015.

TKAG CEO Jonathan Deal says "the regulations are wholly inappropriate for the purposes of regulating a technology such as fracking", and that "licences or permits issued pursuant to the regulations may themselves be flawed". The Department of Mineral Resources has stated it will issue exploration licences to various applicants, including Shell SA, Challenger Energy of Australia and Falcon Oil & Gas, by the end of 2015.

Eskom tariffs and funding

Eskom applies to claw back R22.8bn

State-owned electricity utility Eskom has submitted a R22.8-billion regulatory clearing account (RCA) application to the National Energy Regulator of South Africa (Nersa) for the first financial year, or 2013/14, of the third multiyear price determination (MYPD3) control period, which runs from April 1, 2013, to March 31, 2018. The application was submitted on November 10. Should the application be approved, it will result in a tariff increase of 16.61% from April 1, 2016, inclusive of the 8% already sanctioned for the year. In February 2013, Nersa approved yearly increases of 8% for the five-year MYPD3 period, having received an application from Eskom for yearly increases of 16%. Following a RCA application for the MYPD2 control period, Nersa granted Eskom a 4.69% upward adjustment to the tariff from April 1, 2015, which resulted in a hike of 12.69% in 2015. RCA applications are allowed for under the MYPD methodology, which enables the utility, once its financial statements have been audited, to claw back prudently incurred revenue not recovered during a specific period.

Eskom's liquidity outlook improves, but still faces funding gap

State-owned electricity producer Eskom says it should end its current financial year with a cash balance of between R10-billion and R15-billion and that its liquidity outlook for its 2016/17 financial year has also improved, with its funding requirement having narrowed from R47-billion to an estimated R30-billion. However, the utility still faces a material funding gap of R280-billion over the medium term and is looking at various mechanisms, including the issuance of an international bond, to help address the shortfall. An equity injection of R23-billion from the South African government has buoyed the utility's immediate liquidity. Facilities approved by the Multilateral Investment Guarantee Agency and the African Development Bank have also helped improve the immediate liquidity position of the group.

Eskom plans ten-year tariff submission

State-owned electricity producer Eskom plans to make an early fourth multiyear price determination (MYPD4) application to the National Energy Regulator of South Africa (Nersa) and also extend the tariff horizon in the submission to ten years. The current MYPD3 determination runs for five years and is scheduled to continue until March 31, 2018. Eskom has not given any indication as to the timing or size of the MYPD4 submission, saying only that the MYPD4 application will allow for an 18- to 24-month adjudication process. The new application will be pursued in parallel with two Regulatory Clearing Account (RCA) submissions to claw back unrecovered revenue for 2013/14 and 2014/15. If approved, the 2013/14 RCA application could result in tariffs rising by nearly 17% from April 1, 2016, instead of the 8% already sanctioned.

Eskom primary energy costs up by 8%

Power utility Eskom's primary energy costs increased by 8% to R40.9-billion in the six months ended September 30, despite reporting a 1.7% period-on-period decline in electricity sales. Diesel accounted for 16%, or R6.5-billion, of the primary energy cost bill. Sales slumped to 107 307 GWh from 109 168 GWh in the comparable period of 2014, while the energy availability factor (EAF) of the State-owned utility's coal-dominant fleet fell materially to 70.39% from 76.77%. The EAF has since recovered marginally, with Eskom reporting that it has reached 74.4% on November 16, which remains well below the 80% target set by the Electricity War Room. Production from the diesel-fuelled open-cycle gas turbines, in the Western Cape, rose sharply to 2 961 GWh during the six months, from 1 164 GWh during the same period in 2014. The plants, nevertheless, produced less than 3% of Eskom's output during the period, despite their 16% contribution to overall primary energy costs. However, their cost of production fell to R2 273/MWh from R3 112/MWh, owing to the decline in diesel prices. Coal costs increased to an average of R345/t from R305/t and Eskom burnt 57.27-million tons during the period.

Eskom secures R2.3bn in development finance from French agency

Electricity utility Eskom has secured a R2.3-billion (€150-million) long-term loan from French development financier Agence Française de Développement to support distribution projects in Eastern Cape, KwaZulu-Natal and Limpopo. The 25-year facility has been secured on favourable terms, which will help lower the group's average borrowing costs at a time when it is exploring various options to help it close a R280-billion funding gap. CFO Anoj Singh has said that the development finance is a critical component in the utility's larger funding programme and that further announcements will be made as and when deals are consummated.

Moody's, S&P ratings on Eskom unchanged

Ratings firms Moody's and Standard and Poor's (S&P) have kept South African utility Eskom's credit status unchanged, as recent cash injections by government have eased a funding crunch. Moody's affirmed the Ba1, or speculative grade, rating of State-owned Eskom's senior unsecured credit rating with a stable outlook, while S&P also kept the power utility's local and foreign currency corporate credit rating unchanged at BB+, with a negative outlook. The State has provided Eskom with R10-billion in equity, with an additional R13-billion expected by March 2016.

Demand-side management

Esco model still central to Eskom's demand management strategy

The Energy Services Companies (Esco) model funding programme remains integral to efforts by electricity utility Eskom to promote the retrofitment and replacement of energy-intensive technologies with energy efficient technology solutions, despite recent funding cuts to the parastatal's overarching Integrated Demand Management (IDM) programme. Eskom senior GM Andrew Etzinger has appealed to larger, more established energy service providers to support the entry of smaller Escos, to the market. Eskom in 2014 placed several elements of its IDM programme on hold, owing to budget cuts. The IDM model includes a residential mass roll-out of efficient lighting solutions, the standard offer programme, the standard product and performance contracting programmes and the Esco model. The programme still has R1.7-billion of funding available to achieve targeted energy savings of about 975 MW.

Transmission and distribution

City of Johannesburg to spend R500m on power substations upgrade

The City of Johannesburg's power utility City Power will spend about R500-million over the next three years to upgrade six power substations, adding 1 000 MVA to its capacity. The existing network, which is more than 40 years old, has limited capacity to meet Johannesburg's increased power demand. The substations are in Roodepoort, Wilro Park, Kloofendal, New Fleurhof, Tshepisong and Princess. The Roodepoort distribution network will be upgraded from the current 33/6.6 kW to 88/11 kW.

Eskom upgrades Mpumalanga electricity infrastructure

Eskom has installed and commissioned a new transformer at the Acornhoek substation in Bushbuckridge as part of its plans to upgrade electricity infrastructure and boost the power supply in northern Mpumalanga. The R144-million project started in September 2014 and consists of two phases, the first of which includes the replacement of two transformers with new, larger transformers to meet the growing electricity demand in areas such as Bushbuckridge, Acornhoek, Hoedspruit, Hazyview and Phalaborwa.

The second phase of the upgrade at Acornhoek is under way and involves civil works and the assembling of the second transformer. The second phase is expected to be completed by April 2016.

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