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# A just transition toward sustainable energy security for South Africa

*“The anti-nuclear lobby group, over the last two decades, has only successfully kept the share of fossil fuels in our global energy mix above 80%”. Unintended consequences?*



AOW

AFRICA OIL WEEK

North African oil and gas producers move on energy transition

SEVERAL players active in North Africa's oil and gas space – producing countries, independent oil companies (IOCs), service-providers and others – are already signed up for Africa Oil Week in November this year, unfazed by and supportive of the event's temporary move to Dubai as a COVID-19 safety measure. They look forward to Africa Oil Week moving “home” to Cape Town, South Africa next year. The clean energy transition is squarely on the agenda for this year's conference.

Says Mohamed Boussaïd, Tunisia's Minister of Industry, Energy and Mines: “We are determined to accelerate our energy transition over the next decade to achieve energy security through a diversified energy mix and to improve our economic competitiveness.”

Decarbonisation

Decarbonisation is instrumental for North African countries to achieve their climate and economic development ambitions. Change will not be easy though, as North Africa relies on energy exports to drive its economy, meaning that any substantial shift will require investment from more developed countries.

“The only way to move along... is a dramatic surge in clean energy investment,” says Tim Gould,

Continued on P2

By Michael Shellenberger – Climate Journalist and Author

OVER the last decade, South Africa's “just transition” toward clean energy has put the Country's economy at considerable risk by depriving it of energy security, industrial growth, and an effective transition from fossil fuels. South Africa has not met its Paris Agreement goals on decarbonisation and, for consecutive years, has been recording an increase in carbon intensity. To meet these goals, South Africa needs to cut its CO<sub>2</sub> emissions by 60% to 70% by 2050, which could deindustrialise our economy, if we continue getting it wrong. If Africa contributes less than 3% of global CO<sub>2</sub> emissions, then how did we get so distracted, at

the expense of our economy, when more viable and proven solutions are at hand?

## Our Energy Security:

Due to South Africa's aging generation assets, we should anyway, see a rapid decline in coal-fired power generation in our energy mix over the next decade, with probably only 10 gigawatts running by 2050. “Clean Coal” could extend its participation but, like most technologies working outside their comfort zones, coal could eventually price itself out of the market.

Similarly, the high volumes of toxic waste being generated by renewable energies globally is putting pressure on the industry to recycle its waste, instead of transferring it to landfill sites. Should these decommissioning and waste management costs

be added into its energy production costs, as nuclear energy does, we could also see the cost of renewables escalating exponentially.

South Africa's coal power decommissioning programme would reduce our generating capacity by over 1 000 MW of base-load capacity per year over the next two decades. Eskom's declining Energy Availability Factor (EAF) has already started that trend.

The DMRE's Integrated Resource Plan (IRP 2019) does not adequately address the replacement of this base-load coal power, at a pace and scale we should be implementing. Therefore, beyond 2030, South Africa should be in chronic load-

Continued on P2

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Sephaku heads to Western Cape

SEPHAKU Holdings, the cement company that owns Métier and is a joint investor in Sepahku Cement, looks determined to break into the competitive Western Cape market.

“...Sephaku Cement’s revenue in the year to end March showed increase of around 10% year-on-year...”

Sephaku is a relative upstart in the cement game, and has Nigeria-based Dangote Cement in its ambitious Sephaku Cement venture. But recently the group indicated that a restructured Métier cement business was well positioned to be profitable and competitive in new markets such as the Western Cape.

Sephaku indicated a plant would be constructed in the Western



Cape with production targeted to commence during financial 2022. There is not much detail to hand at this early juncture - but this would be the first time Métier breaks out of its traditional Gauteng and KwaZulu-Natal markets. The location of a new cement plant would be an interesting decision, and this will hopefully be confirmed shortly.

At the moment the big market players in the Western Cape are PPC, LaFarge and Afrisam.

One should perhaps not underestimate Sephaku’s ability to break into the Western Cape cement market. With

Sephaku Cement, the group was the first new entrant into South Africa’s cement industry since 1934 - a decision initially met with much scepticism as few believed a newcomer could shake up a well-established market.

In its recent results, Sephaku said it was pleasantly surprised by the surge in bagged cement demand in the post-hard lockdown phase - a development largely assumed to be an unexpected result of additional consumer discretionary income.

Sephaku directors said the increase in cement demand appeared to be linked to the increased home

renovations as numerous people worked remotely during the year. They added that the increase in the sales of other home improvement materials as reported by the major building materials merchants confirmed this possible trend.

For the record, Sephaku Cement’s revenue in the year to end March showed increase of around 10% year-on-year - mainly due to increased sales volumes, even though the unit price increase was unfortunately muted due to competition from other cement producers, blenders and imports.

While Métier saw

sales revenues down to R634 million (previous year R727 million), profits were up strongly to R55 million (R35 million). Most encouraging was that the profit margin was reinforced at 8.7% - much better than the more brittle 4.8% seen in the previous financial year. Interestingly Sephaku Cement’s margin is around 16%.

Of course, major cement players like PPC will not just let Sephaku stroll into the Western Cape and gobble up market share. In its recent financial report PPC noted declines in cement volumes in its coastal markets - but did explain that a muted recovery in commercial construction activity and the unavailability of slag following the closure of Saldanha steel accounted for the decrease in sales in the coastal regions.

PPC directors did note that in the last quarter of the financial year, sales trends suggested stabilisation in demand in the coastal areas.

A just transition toward sustainable energy security for South Africa

Continued from P1

shedding, unless an effective energy transition is implemented soon.

A transition to a more decarbonised energy future is possible through a balanced portfolio of energy solutions which deliver energy security, access to affordable baseload energy, environmental sustainability, and economic development (jobs), as its key criteria. All the generation technologies we have at South Africa’s disposal can achieve this together.

As demonstrated in France, nuclear energy can deliver all these

criteria on its own and should therefore be prominent in South Africa’s sustainable energy transition. All technologies can be made cleaner and more reliable with add-on technologies, but these additional costs tend to raise their cost per kWh or their overall CO<sub>2</sub> emissions. Eskom should no longer subsidise these “enforced technologies” when more effective solutions are at hand.

Had we followed through with the 2007 9.6GW nuclear procurement programme, we would have had an additional 5 000 MW of

clean baseload energy on the grid, producing 40TWh of electricity per year, which would have doubled again over the next five years. This would have avoided the devastating load-shedding and brought us a lot closer to our decarbonisation goals.

The only way to sustainably replace our retired coal fleet is with clean baseload power like large-scale hydro or nuclear energy. As we have seen since 2007, once you have broken your baseload foundation, it is near impossible to fix, unless one reduces demand through eco-

nomics slowdown, which load-shedding ultimately does.

Nuclear energy is easily funded through innovative and competitive financing structures. Small Modular Reactors (SMRs) are receiving significant global attention and investment, making nuclear energy a great catalyst to kickstart our post-Covid economy. South Africa is well positioned to implement large and small-scale reactors to achieve the best economies of scale.

Our retired coal power plant sites would be ideal locations for

SMRs. Their valuable infrastructures, including the local skilled resources that can be upskilled and re-employed, will reduce costs, and revitalise a local community. By-products like process heat and green hydrogen can also add value to those economies.

South Africa’s Renewable Energy, Gas to Power and Embedded Generation programmes, can also play a vital role in balancing our energy portfolio through distributed power systems at our load centres and beyond the grid. Environmental purists are

also finding gas generation at CO<sub>2</sub> 490 g/kWh as unacceptable, leaving renewables (without batteries), hydro and nuclear energy as the leading low-carbon technologies.

The Risk Mitigation Independent Power Producer Programme (RMIPPP) could have also considered upgrading our expensive, high-emissions Diesel Peakers to Combined Cycle Gas Turbines (CCGT), fuelled with cheaper and cleaner Liquefied Natural Gas (LNG). This would have been an investment in our existing Eskom and IPP assets by effectively

raising their capacity from 10%+ to 50%+ and providing an abundance of dispatchable power on demand. LNG could also become a domestic fuel source soon through Total’s explorations.

Only a robust and workable energy expansion plan would get South Africa on a transition path toward energy security, environmental sustainability, and economic prosperity. It is concerning that this robust plan still eludes us after two decades, even with the valuable lessons we have from the global energy sector.

North African oil and gas producers move on energy transition

Continued from P1

co-lead author of the report ‘Clean Energy Transition in North Africa’ and head of the International Energy Agency (IEA) division for energy supply outlooks and investment.

“Countries are not starting this journey from the same point. Emerging countries in particular need the financing and knowledge to build their energy systems sustainably.”

IEA programme

The IEA is expanding its engagement with African regional partners through a programme to support sustainable and accelerated development through a

varied mix of technologies, help achieve the United Nations’ sustainable Development Goal (SDG 7), promote increased energy security and affordability, and accelerate the development of clean energy

systems across Africa.

Many North African countries are expected to benefit.

Putting in place a mechanism to ensure effective and transparent hydrocarbon revenue management is

the essential first step. Maintaining upstream investment to ensure adequate production, especially for gas, also remains vital to provide economic stability.

However, this needs to be accompanied by

greater efforts to reduce the environmental footprint of oil and gas operations, given that the emissions intensities of oil and gas production in North Africa are among the highest in the world.

OUR PARTNERS





# Energy Partners turn up the heat

PSG Group, the Stellenbosch-based investment house, is renowned for backing winners.

Some of the group's most successful ventures would include Capitec Bank, private education juggernaut Curro, consumer brands conglomerate Pioneer Foods and seeds giant Zaad.

One investment that PSG have seemingly battled with is Cape Town-based Energy Partners (EP), where the group has a commanding 57.2% stake. That might be changing...for the better.

In its website PSG stresses that it was attracted to EP - which reduces the cost of energy in companies

- because of its simple and focused business model. The company is essentially a private energy utility with high barriers to entry in a capital intensive industry with high growth potential - especially in SA where renewable energy is gaining traction and government has made bolder moves in allowing private power generation.

EP is a turnkey developer, owner and operator of energy-producing assets (including solar, steam and refrigeration). Although owning and operating the energy-producing assets are less profitable than selling the assets for cash in the short term, PSG pointed out that this is significantly

more profitable over the long term and generates valuable annuity income.

At PSG's recent AGM CEO Piet Mouton said Energy Partners had done over R1bn of solar projects, and had last year completed a 22 megawatt refrigeration plant for food group Dr Oetker (which makes frozen pizzas and ready-made meals).

He did concede that it had been a bumpy ride for EP in recent years, but that the business was looking in far better shape after a rationalisation process saw non-core assets closed or sold off. "The business is now well positioned for growth with good projects on



the go."

Last month EP set up a heating and cooling plant for Global Macadamia, an international food producer, in the Alkmaar region of Mpumalanga. This is one of the largest macadamia curing and processing facilities in the world.

Dawie Kriel, head of Business Development at EP Refrigeration, said the most unique feature of this plant was the sustainable measures it had implemented to cut energy consumption for both refrigeration and heating operations." This innovation was an industry-first and will most definitely be adapted to inform future projects."

# Who really rules the roost at Quantum foods?

THE feathers are still flying at Quantum Foods, the Paarl-based agri-business, as another new strategic shareholder enters the coop.

CBN reported last year that a battle royal got underway once PSG-aligned Zeder Investments sold its 32% stake in Quantum to Country Bird Holdings (CBH). Quantum plays in the poultry, eggs and animal feeds segment - which explains why CBH, a

massive poultry producer, was keen to snatch up a strategic stake in Quantum.

CBH's advance was, however, not welcomed by all - and in particular Quantum's senior management and SA's biggest poultry producer Astral Foods.

Quantum management, IM would think, might have been worried about their future under a new dominant shareholder - especially after being left to their own devices by

**"Astral arguably had a bigger problem with CBH. Quantum supplied Astral with chicks in the key Western Cape market..."**

Zeder for so long.

Astral arguably had a bigger problem with CBH. Quantum supplied Astral with chicks in the key Western Cape market, and if CBH decided to end that arrangement it would be costly. In fact, Astral estimated it might cost as much

as R900 million to set up its own production facility in the Western Cape.

So when international private equity player Silverlands suddenly emerged as significant shareholders - with a stake roughly the same size as CBH - Quantum's manage-

ment and Astral also weighed in. Astral's management increased their shareholding in the business markedly, while Astral bought a 5% stake, which it has now built up to around 10%.

While there was no official arrangement between Silverlands, Quantum management and Astral, it does seem that CBH was stymied in its efforts to buy more shares, gain a board seat and exert any influence over

Quantum's business.

Not surprisingly CBH recently sold out most of its Quantum stake, a move made slightly less bitter by the fact that the group made a very nice profit on selling their shares. CBH now retains a 6.45% stake in Quantum.

But a new large shareholder has now emerged in the form of Braemar Trading. Braemar appears to be a nominee company, but there has been no

# More pie for RFG

GROOT Draakenstein-based food brands conglomerate has beefed up its pie segment - the first deal since Pieter Hanekom was slated as the successor to long-serving CEO Bruce Henderson.

RFG last month confirmed it had acquired Pioneer Foods Wellingtons - a division of Stellenbosch-based Pioneer Foods. Pioneer Foods was taken over by multinational PepsiCo last year, and it was largely expected that the new owners would cull some of the brands portfolio.

RFG has essentially acquired - aside

from the operations in Botswana and eSwatini - Pioneer's frozen pies, pastry, sausage rolls, pizza and party packs. These include well-known brands like Today, Mama's, Big Jack and Man's Meal.

RFG already has a meaningful presence in the local pie market, and the new brands will give it a strong presence in the frozen pies and pastry segment. The pie and pasty manufacturing facilities are located in Atlantis, but the brands are distributed nationwide.

CEO Bruce Henderson said the acquisition is aligned with RFG's

strategy of expansion through value accretive acquisitions. "The frozen pie and snack category in the top end retail market complements RFG's growing pies and pastries business. The acquisition has the potential to generate good synergies for the company while also diversifying our offering into the retail channel."

RFG owns brands like Rhodes (fruit juice, canned fruit and jams), Bull Brand (tinned meat and Magpie (pies) as well as niche brands like Squish, Bisto, Hinds and Pakco. The group increased operat-

ing profit by 14.9% to R185 million in the six months to end March.

In the interim period pies were a soft spot. RFG reported fresh foods sales down by almost 4% as the pie and bakery categories were adversely impacted by the reduced travel over the festive season (due to Covid-19 restrictions).

But RFG did report that its centralisation of the group's pies and pastries business was successfully completed, and that the group was now positioned for growth in this key category.

The proposed deal still with Pioneer, how-

ever, needs approval by the South African Competition Commission.

The proposed deal follows new that Henderson, who has served as CEO of RFG for 22 years, is to retire in September this year. He will be succeeded by Pieter Hanekom, ironically an ex Pioneer executive and brother of former Pioneer CEO Andre Hanekom.

Hanekom joined RFG in 2015 as managing director of long life beverages. He has more than three decades experience in the food industry - including 20 years at Pioneer Foods where he was managing



director of Ceres Fruit Juices and head of the Ceres Beverage Company.

Henderson, a significant shareholder in RFG, will still serve on the board in a non-executive capacity from October.

It will be interesting to see whether Hanekom keeps RFG on an acquisitive tack, and equally intriguing to see if Pioneer - as PepsiCo get to grips with operations - culls further brands in the months ahead.

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# An employer’s guide to dealing with employees during civil unrest

ON the 8th of July 2021, South Africans woke up to the news of violent Pro-Zuma protests which had started in Kwa-Zulu Natal (KZN) and soon after spread to Gauteng. What started as a political conflict morphed into an almost coun-

trywide riot crisis as protesters looted shops and shopping malls, barricaded roads, and vandalised properties. While the after-effects of the civil unrest are still unfolding, the burning question is how can employers take action to deal with

employees who were seen and caught participating in the looting. Employment Law experts Cliffe Dekker Hofmeyr has released “An employer’s guide to dealing with employees during civil unrest”, in which they explore these

questions, and look at issues where employers are able to establish a basis to discipline and dismiss employees. A CDH Employment Law expert is available to discuss the following:

- Can an employer dismiss an employee for participating in civil unrest?
- What can an employer do if its employee is seen on social media participating in the civil unrest?
- Which schedule of Labour Law is used to preside over such matters?
- What if the employee is found to have stolen property and is correctly identified?
- Can an employer dismiss an employee for having been arrested during the civil unrest?

What aspects should an employer consider including in its policy when dealing with employees participating in such activities?



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Desmond Branford, founder, and CEO of **Cool-Tranz** first opened its workshop doors in 2001 and has been a Transfrig (Valeo) agent ever since. Cool-Tranz is proud to sell, install and maintain transport refrigeration systems for our clients in the Fresh and Frozen Food, Dairy, Pharmaceutical and Medical supply chain. Valeo's range of transport refrigeration systems from Direct Drive to the Diesel Electric MT line, Kooltubes and now the VT180 trailer unit ensures that Cool-Tranz has the answer to all your cooling needs. Cool-Tranz has grown to one of the leading Transport Refrigeration Service Centres in Cape Town with the ability to service and repair not only Transfrig but also Thermo King and Carrier transport refrigeration units.

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## Cummins to test new hydrogen-fuelled ic engine

CUMMINS is set to begin testing of a new hydrogen-fuelled internal combustion engine that will support customers in meeting the energy and environmental needs of the future. Following the proof-of-concept testing, the company plans to evaluate the engine in a variety of on and off highway applications, supporting the Cummins' efforts to accelerate the decarbonisation of commercial vehicles.

Cummins states that the hydrogen engines can use green hydrogen fuel, produced by Cummins-manufactured electrolyzers, emitting near zero carbon emissions through the tailpipe and near zero levels of NOx.

This is part of an investment across a range of technologies to support hydrogen-based transportation including hydrogen engines, fuel cells, electrolyzers and storage tanks.

The joint venture with hydrogen storage specialist NPROXX adds the ability to integrate the fuel cell or hydrogen engine with the high-pressure gas cylinder tanks and supply lines on the vehicle.

### We value your input

Only through your input can we continue to improve.

- Comments
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- What would you like to hear about

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# Why nuclear energy is so attractive for South Africa's industry

**Jennifer Granholm** – United States Secretary of Energy. - “Let me say it loud and clear: carbon-free nuclear power is an absolutely critical part of our decarbonisation equation.”

**By Des Muller - Co-Spokesperson for the SA Nuclear Build Platform**



Des Muller.

SOUTH Africa has an established and experienced nuclear industry, with some of our great talents behind the development of SMRs (Small Modular Reactors) and the operation of new-generation nuclear power plants around the world. Although our industry has been geared toward operating and maintaining the

Koeberg and Safari reactors, the previous nuclear new build procurement programs and Koeberg life extension projects have kickstarted our industry with new entrants qualifying for these opportunities. During the 2007 nuclear build procurement programme, South Africa's industry was well aligned with the international Nuclear Vendors and their construction partners while localizing their offers to Eskom. Being a turn-key Engineer, Procure & Construct (EPC) solution, in partnership with competent local contractors, the risks experienced in our recent coal builds would have been mitigated. This remains the preferred project delivery strategy for nuclear energy. The 2007 localisation target would have delivered a local spend

of over R300 billion over 15 years. This would have prevented the collapse of our construction and manufacturing sectors and significantly reduced today's high levels of unemployment. For the sake of the millions of unemployed people in South Africa, let us not deny our industry this opportunity again. Let's give our youth a chance to develop decent careers for themselves and create a future for this country. Should NERSA approve the Section 34 Determination, we will have the added benefit of more nuclear vendors with SMRs included in our procurement process. Large-scale Generation III reactors are through their 'first of a kind' (FOAK) phase, with many reactors successfully connected to the grid and delivering designed

performance. Many large-scale Gen III reactors and SMR prototypes are under construction around the world, significantly reducing construction risks for South Africa. A country that is setting a great example for South Africa on localising a nuclear new build is the United Kingdom (UK). They have similarities with our industry, having last built nuclear power plants almost four decades ago. Through an innovative Government-led industrial support program and a well-gear industry, the local content for the first pair of units reached above 60% and is currently on target. The UK's nuclear fleet build programme will benefit from the experience and lessons learned from the first power plant, with significant reductions in build costs, schedule, and electricity tariffs.

A nuclear build programme has far-reaching effects across the industry's supply chain, from advanced education to apprenticeship training, with lasting jobs and careers in planning, regulatory affairs, siting studies, engineering, manufacturing, and construction disciplines, over the first 10 years, and operations & maintenance jobs over 60 to 80 years. Nuclear energy has no peers in creating decent sustainable jobs and should therefore be supported by our now transformed industries. Participation in the nuclear industry supply chain requires much higher standards in quality, safety, and workmanship. Considering the scale of the opportunity at hand, gearing your business for these standards is justified. These nuclear energy qualifications will also open our local

industry to previously denied export markets and other safety-class sectors like, Aerospace, 4IR precision manufacturing and LNG. The exact timing on preparing our local industry for a nuclear build programme is critical. Starting at the right time will optimise the local content of the build and not expose our industry to unnecessary risk. Our industry should be developed on a gradient, through nuclear industry orientation, management system assessments, and pre-qualification programmes, on which the South African Nuclear Build Platform provides guidance. For a detailed nuclear build programme, access our SANBP InfoGraphic 14 on our website: [www.sanuclearbuildplatform.co.za](http://www.sanuclearbuildplatform.co.za)

## Now, that's a good idea!

For those that subscribe to BizNews Insider ([www.biznews.com](http://www.biznews.com)), I apologise if you've read this before but for those who are not or who may have missed it, I reproduce this letter to Alec Hogg's inbox, sent on 21st July by Michael Smythe the CEO of Amagh Financial Services. Ed.

**I have a suggestion for our government:**

1. Would they please consider the implementation of compulsory National/Community service

for all young South Africans, irrespective of race, creed, wealth etc. An initial three month basic training in the fundamentals, making your bed, washing and ironing your clothes cleaning your quarters, a degree of healthy physical activity, learning the proper history of this country, taught by impartial and objective individuals, learning another language other than English or Afrikaans and most importantly

- no access to smart phones during this period.
2. During the initial three months, they will be permitted one home visit after the initial 8 weeks.
3. They will be paid a stipend which will equate to the minimum wage.
4. During the initial three months they will be exposed to and introduced to various trades, at the end of the three months they will select a trade which

- they are interested in.
5. During the next three months, they will be trained in the trade of their choice and paid a stipend commensurate with that of an "appy".
6. At the end of six months, they will be deployed under supervision to carry out their trade on infrastructural projects that have been identified by a commission consisting of all political parties and civic organizations.

7. The period of deployment will last one year, at the end of the period, if the participants wish to progress in their chosen vocation they will be given credit for any courses that they wish to enrol for at a Higher Institution, should they require funding for their studies they will be assisted on the proviso that they "give" back to the community in the form of assistance on various projects.
8. Employment will

be guaranteed by government and the private sector after the initial 18 month period has been completed AND the unions will not be allowed to interfere. I believe that a programme like the one suggested above would provide a sense of purpose and belonging to our youth and build a better South Africa for all. Maybe allocate all the cash recovered from State Capture for this purpose.

## “Life is one damned thing after another”

**Expounds Jacques Moolman, President of the Cape Chamber of Commerce & Industry**

ALTHOUGH the source of the above quote is somewhat vague, the continued pressure that business is under – the majority being man-made - has led to the apt response of South African private enterprise being “We are gatvol”. I apologise if this raw emotive language is considered unbecoming from the President of an organisation that has represented business for 218 years, but that's the bottom line. To those organisa-

tions that have suffered the brunt of the recent looting, we cannot imagine the frustration of seeing your hard work literally go up in smoke. Although we are removed from the orgy of looting and destruction, we were buoyed to see that it ignited a positive patriotic spirit that had been lying dormant for some time. It is our intention to support this ethos to rebuild an economy that serves as a platform for business. This perspective might be a healthy one for our future, but it is disconcerting to have experienced the litany of 'one damned thing after another' resulting in the most tortuous

situation for individuals: unemployment. Gainful employment for the people of this country will be the barometer of whether we succeed. What we are seeing is true community spirit, not the manufactured solidarity of the political mob or the common objective of looters. This, plus the entrepreneurial spirit for which all South Africans are known the world over, is what we need to harness for the task of recovery that we face. We cannot afford the negative view. There is no mystery as to how it can be done. The solution does not rest in the ivory towers where utopian theories rule over common sense.

It rests in unleashing the human mind, giving it the liberty to make and sell things, to trade and construct, to make a future for its owner and its offspring, secure in the knowledge that an honest day's work will not be taxed to feed a gargantuan unproductive bureaucracy - or be stolen by criminals. We need now more than ever the protection and strengthening of private property rights; a repeated demonstration of and emphasis that no one is above the law, especially corrupt politicians and civil servants. We need to be seen to be stripping away regulatory burdens on small to medium busi-

nesses like the licensing overload. We must end labour laws that protect the few at the expense of the many willing to work even for less than the national minimum wage. Since when was no hope better than some hope? We must end threats of expropriation of private property without compensation, strip out taxes on business that only end in higher prices, and finally we must have a complete re-set of government thinking on a par with that which wrenched China out of poverty enforced by ideology into the first league of world economies. We have the people.

We know how to do it. We need to give full rein to the entrepreneurial spirit South Africans have in abundance. It will be the quickest way to haul ourselves out of the historical and economic dead-end we have been cornered into. Let others rationalise. Nothing they can say will drown out the thunderous shout of common sense: Only the private sector can get us out of the morass of incompetence and inefficiency into which we have been driven. We must roll up our sleeves and seize the opportunity. By standing firm. By standing together. And by standing up for what is right.

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# Poised for further growth, Chryso SA group celebrates silver anniversary

THE Chryso Southern Africa Group, which in July 2021 celebrates its 25th anniversary and has a production plant in Cape Town, has in recent years made rapid progress in establishing itself as a leader in construction chemicals not only in SA but in many other countries on and around the African continent.

“Chryso’s impressive growth in the past 25 years has been driven organically...”

Norman Seymore, CEO of the Group and vice-president of Chryso globally, says despite current challenges that include domestic unrest, a serious shortage of raw materials, and the slow release of new infrastructural projects by many local authorities, he is confident Chryso



has the resources and expertise for more major growth in future. “Chryso’s impressive growth in the past 25 years has been driven organically through innovation, technology and expansion into South Africa’s major industrial hubs. Increasing our pres-

ence into the mining and cement markets have also aided growth. Chryso has introduced a variety of new technologies in the cement and concrete additive market and pioneered the introduction of synthetic fibre reinforcing and cement/fly ash/slagment activation in

the cement industry,” Seymore stated. “The products that Chryso supplies to the cement industry have assisted this sector to increase its extender content while maintaining cement performance. This has also helped the producers to significantly

reduce CO2 emissions. Chryso always considers the environment in our product development and the pioneering concept of dustless cementitious products, now available from the Group subsidiary, a.b.e. Construction Chemicals, provided an invaluable compet-

itive edge in a ‘green’ market.”

Seymore believes the acquisition of a.b.e. in 2010 was a vital move for growth as it made the Chryso SA Group a “one-stop-shop” for construction systems and played a major role in developing export markets. The Group’s products are now available through distribution outlets in all the neighbouring states, as well as Ghana, the Indian Ocean islands, Madagascar, Nigeria, Zambia and Malawi. Sub-Saharan production facilities were also established in 2015 with the opening of Chryso East Africa in Kenya, and the Group now has direct representation in Namibia.

“South Africa is very advanced when it comes to concrete technology and construction methods. We have the skills and capabilities to serve areas beyond our borders and Chryso has shown this by our

important contribution to major infrastructural projects on the African continent. Chryso places heavy emphasis on research and development to maintain product status and diversification to meet African conditions. In fact, we invest at least 4% of our sales revenues into R&D annually,” Seymore added.

Chryso Southern Africa currently operates three factories and five branches nationally, 14 distributors on the African continent, and employs close to 100 people.

“The recently announced acquisition of the Chryso Group globally by Saint-Gobain is another exciting development for the Group. I am very confident that our growth initiatives will be accelerated worldwide by this development and that Africa will continue to be a focus area for expansion,” Seymore predicted.

## INNOVATIVE CHEMISTRY FOR SUSTAINABLE CONSTRUCTION

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THE BEE IN MY BONNET COLUMN

It's a no brainer

IT's quite incredible that one man can have such a destructive influence on a country of more than 50+million people. Sure Hitler did it, and Mao Tse Tung, Kim Jong-un and a whole raft of dictators of the 20th century, but you would have thought that we would have learned our lesson by now.

I speak of Jacob Zuma whose influence on the country's energy sector is perhaps his greatest act of destruction and exploitation – has all but brought Eskom to its knees.

Not only permitting and benefiting from

the looting of Eskom and the appointment of incompetent crony cadres into positions which required experienced managers and technocrats, has robbed the country of an essential power supply.

His dalliance with the Russian nuclear industry and the suspected kickbacks involved in a nuclear build programme fed fuel to the anti-nuclear brigade, all but scuppering a nuclear base load power programme although there are stirrings of the proposed reactor installation at Thyspunt.

Once nuclear had

been relegated and BBBEE policies entrenched, the door swung enticingly open for the politically connected to acquire interests in the coal mines from willing sellers keen to divest in yesterday's problematic energy source.

What a wonderful scenario for the cadres – player and referee in the same sector! And from that unassailable position came the coal supply industry as well – creating kilometres long road trains of coal carrying trucks, destroying the road infrastructure, polluting the atmosphere

with diesel fumes and CO2, while wasting valuable foreign exchange on imported trucks and diesel fuel.

But why worry, it's all being paid for by the inexhaustible revenue from you and me, the South African tax payer! Don't rock this lucrative boat with other forms of cleaner energy.

Regrettably common sense or the rule of law doesn't prevail where widespread enrichment, corruption and looting succeed. Who in their right mind would give up a lucrative coal mine or transport contract for

another energy source that would benefit the country and reduce global pollution and warming?

Leadership, then and now is non-existent.

The article A Transition Towards Sustainable Energy Security for South Africa that appears on the front page of this edition and issued by the South African Nuclear Build Platform (SANBP) provides insight on the need for a transition towards sustainable energy security for SA and why nuclear energy is so attractive to South Africa's industry sector.

The arguments in

favour of nuclear as a base load technology are indisputable – over 32 countries produce 10% of the world's electricity from 445 power reactors and there are about 50 reactors currently under construction in 19 different countries, mostly in Asia. Even Bangladesh, globally recognised as a poor country, has two nuclear power stations under construction which are due to come on line by 2024, each delivering 1 200MW. Our great mentors, China (!) have 17 reactors under construction each producing 1 200MW and

Cuba - great suppliers of water engineering expertise (!!) has two (now abandoned and unfinished) nuclear stations.

Why are we not building a stable, sustainable, non-polluting nuclear base load energy source here, repurposing existing defunct coal fired power station infrastructure and where waste heat from the nuclear fission could also be put to good use in the production of hydrogen - an advanced, non-polluting future fuel source? A rhetorical question.

Eish

BEE isn't working, so scrap it

By John Endres

THE recent upheaval in KwaZulu-Natal and Gauteng underscores an unmistakable truth: far from uplifting black South Africans and putting them on a par with their wealthier white compatriots who benefited from apartheid, over two decades of social engineering under the guise of Black Economic Empowerment (BEE) and related racial policies have produced dismal outcomes.

The headline stats tell a sorry tale: 78% of Grade 4 pupils cannot read for meaning. Out of a given school cohort that starts in Grade 1, under 5% make it to matric and achieve a mark of 50% or higher in maths. Youth unemployment under the expanded definition, which covers school leavers younger than 25 years and includes those

who have given up looking for a job, stands at an unbelievable 74.7%; and even in the general population, unemployment under the expanded definition stands at a record-beating 43.2%.

Almost half the adult population (49.2%) fall below a poverty line set at R1,183 per month (around \$2 per day). And far from reducing inequality, government policies such as BEE have created a small, wealthy black elite and a very large, poor, jobless and mostly black underclass, with the result that inequality within the black population group now outstrips that between it and any other population group.

Proponents of BEE point to the small wealthy elite as proof that the concept works. But they shamefully avert their gaze from the vast majority of the black population, who have not benefited and

never will. Worse still, BEE policies are actively sabotaging the prospects of South Africa's mostly black poor and unemployed citizens to navigate a way out of their dire situation.

The reasons are two-fold. Firstly, BEE acts as a curb on productive economic activity and investment. It has created a superfluous tangle of verification agencies and government departments whose strident demands steal business people's time and money, diverting their attention from what should be their core job: creating quality products and services that people want to buy, supplying them to the market at a profit, at prices consumers can afford.

**Exasperated and confounded**

All the while, BEE and related policies

also discourage foreign investors, who are exasperated and confounded by the need to navigate labyrinthine, shifting racial regulations and in many cases simply don't bother, taking their money elsewhere.

To make a dent in poverty, joblessness and inequality, South Africa needs to take the brakes off when it comes to economic growth – and that means dispensing with BEE and the entire raft of race-based policies.

Secondly, BEE and its cousins, such as affirmative action, cadre deployment and preferential procurement, have cast South Africa's state institutions and state-owned enterprises into collapse and chaos. The government and its associated organs are barely able to deliver services in any field

anymore, be it health-care, education, water, electricity, transport or safety.

State failure hits South Africa's poorest the hardest, because they do not have the means to purchase quality services on the open market, as their better-off compatriots do. Where the state should be an enabler of social mobility, it instead keeps the poor shackled to their condition, with no prospect of escape – all as a result of misguided race-based policies.

After two decades, the proof is in. The ANC's race-based policies haven't worked, and doubling down won't make them work. It is time to scrap them and consign them to the dust heap of history. A fresh approach is needed: one that focuses on actual disadvantage instead of skin pigmentation

and that is effective in increasing upward social mobility for the millions of South Africans currently stuck at the bottom.

The Institute of Race Relations has developed such a policy. EED, or Economic Empowerment for the Disadvantaged, incentivises companies to invest, grow, pay taxes and increase exports and employment. It also includes proposals on how to fix education by putting school choice in the hands of parents rather than government bureaucrats, by converting much of the basic education department's budget into school vouchers which parents could spend at any school of their choice. This would encourage schools to compete for parents' custom by offering better teaching, better facilities and better

outcomes – all under the watchful eye of parents, who would thus be able to exert a great deal of influence over the education of their children.

**Shameful**

That South Africa displays shameful levels of black poverty and lack of progress is undeniable. It is equally undeniable that the race-based policies intended to alleviate the situation have failed wholesale.

The conclusion is inescapable: to give South Africa's poor a path to prosperity, BEE and its associated race-based policies must be scrapped and replaced with a policy such as Economic Empowerment for the Disadvantaged.

*This article was first published in The Daily Friend 27 July 2021*

Cape Town approves a further R3,6bn worth of building plans

Statement by the executive mayor, Dan Plato

Between May 1 and July 15 2021, the City of Cape Town approved a further R3,6bn in building application approvals, leading to a total of nearly R21bn in approvals since the start of the national Covid-19 lockdown. The City continues to lead the way to economic recovery and has ensured the planning office remains open to assist with economic recovery, which leads to job creation, despite the challenges and economic impact of Covid-19.

investment by the private sector in building approvals between March 2020 and April 2021 would lead to 40 000+ job opportunities, despite Covid-19.

In addition to the major infrastructure projects such as the R14bn Harbour Arch, the R4bn River Club development and the R3.9bn V&A Waterfront expansion, the City of Cape Town approved 22 658 building plans to the value of more than R20bn between March 2020 and July 15 2021.

With these major infrastructure developments and the significant job creation opportunities it offers,

it is evident that both local and international investors have continued confidence in doing business in our city. In addition to the general building plans, these large construction projects in Cape Town are expected to:

- Create more than 19 000 much-needed jobs during the construction phase. A further 19 000 indirect and induced jobs after construction is complete.
- 5 000 permanent jobs in the hospitality and retail sector

Significant and sustained investment facilitated by the City of Cape Town, will ensure the long-term sustain-

ability of Cape Town and the upliftment of residents through job opportunities. It is the responsibility of any capable government, to create the environment for job creation, and at local government level, we are doing our part by attracting investment in this regard.

The City of Cape Town has approved roughly 4 000 building plans since March 2020 in the Mitchell's Plain and Khayelitsha precincts of which 1 745 are residential in nature, and 1 176 for additions and alterations to existing buildings. This indicates a significant investment in residential properties in Mitchell's Plain and

Khayelitsha. Since May 1, plans for residential and non-residential developments worth nearly R400m (or R397 434 028) in the Mitchell's Plain and Khayelitsha areas have been given the go ahead.

The Mitchell's Plain/Khayelitsha district makes up half (680) of the total new building plan approvals between May 1 and July 15. It also counts among the top two planning districts in Cape Town in terms of the number of building plans approved, indicating a lot of building activity is already ongoing, or imminent for the area, all of which is funded by residents and the private sector.

The Southern area accounted for just over half a billion in approvals, while the Cape Flats totalled more than R200m in building plan approvals between May 1 and July 15.

The City of Cape Town has continued to place economic recovery as one of the central goals and prioritised projects which boost the economy and offer job creation, in line with Covid-19 regulations and protocols.

The city has put systems in place to ensure that building plans and development applications submitted by the public, will see a turnaround time for assessments of about 30 working days for building

plans, and 90 days for land use applications, pending statutory and other requirements in terms of the Municipal Planning By-law.

The national lockdown has had a major impact on cities across the world in 2020. However, the City of Cape Town has shown its dedication to doing all it can to ensure our local economy makes a strong recovery.

However, the continued national lockdown places strain on this recovery and we hope that with a ramped-up vaccination process to protect lives, we can move towards the end of a need for a lockdown, which negatively impacts livelihoods.

IT was previously announced that



## Public sector wage agreement isn't all good news

**Explains Jacques Moolman, President of the Cape Chamber of Commerce & Industry**

SOME are hailing the wage dispute between the Government and the public sector trade unions as a triumph. Cosatu has patted its affiliates on the back for accepting the new deal, no doubt with one eye on it getting a slice of what little will end up in workers' pockets after the usual deductions.

The award is also said to have the approval of the Treasury, but probably given through clenched teeth seeing as it endorsed the original offer which sent union negotiators scaling new heights of outrage.

This is praise for what amounts to extortion of the public purse.

Why? The award fails to consider properly the priorities that face the country: a sluggish and almost moribund economy; a horrendous unemployment rate; the appalling state of the majority of local authority infrastructure; the poverty of most of the population; the R20 billion damage wrought by the looting wave to Kwa-Zulu natal and Gauteng. And that list omits the state of the railways and the state-owned enterprises.

The original 1% wage offer made sense. This settlement does not. Why should government employees whose performance is a hindrance rather than a help to wealth creation and, in the case of those in public policing and state education, a general disgrace, be

awarded more money?

Public servants have enjoyed a 40% increase in wages and salaries in the last ten years. That is not the experience of people in the private sector whose pay is tied directly to the state of the economy, not to some magic money tree watered by the delusion that there is such a thing as "Government Money".

All money that is worth anything is created by buying, selling, and manufacturing, all of which can only be done efficiently and profitably by the private sector.

Only when everyone in society grasps this simple truth, will we get ourselves out of the mess we are in. Everywhere governments or political theorists meddle in a free economy

the result is a disaster.

Caving in to the public sector unions at a time like this is not only weak, it is foolish and destructive, smacking of political expediency. What South Africa needs is less government, not more of the same, and particularly not more of a civil service staffed by people who do not know what they are doing.

For all that, they will now get taxpayer's money (not the Government's) amounting in total to R18 billion.

In no way can this be a triumph for government or an example of sound economic sense on the part of the unions.

If, as seems likely on the evidence, the local government unions achieve similar awards, the damage and the public outrage will be inevitable.

## Future energy and fuel retail

**Kyle Durham: Head of Alternative Energy Solutions at FNB Business and Ronél Fester: Franchise: Fuel Industry Specialist at FNB Business**

IT has been a difficult few years for South African fuel retailers. The market has been shrinking since 2016, and COVID-19 has accelerated this trend. Alongside a slowdown in economic activity as a result of national lockdowns, lifestyles have changed. More people working from home and increased computing and network penetration mean less traveling. This suggests that even as economies begin to recover, demand for fuel is likely to lag.

Since the price of fuel is regulated, and retailers are given a fixed cents-per-litre margin, it's a volume-driven business, and reduced demand is making it tough for fuel retailers. So, what can they do to cut costs and become more self-sufficient?

One option is to embrace advances in energy technology. The rise of fuel retailing demands on energy supplies. Refrigeration, in particular, is an energy-hungry process. But fuel retailers and forecourt operators in South Africa face two acute challenges in this regard: high energy costs, and low energy certainty.

Electricity is expensive, and its supply uncertain. In addition to load shedding, many areas are structurally power constrained, and an aging infrastructure continues

to add pressure to the grid. South Africans have lived with this reality for many years, and retailers of all types have invested in diesel generators. But they are costly, noisy and inefficient.

Grid-tied solar systems are simple, comprising nothing more than solar panels and an inverter linked to the municipal electrical grid. The panels convert sunlight into useable alternating current when it's available. They aren't connected to batteries, and so switch back to the municipal grid at night or when the sun is obscured. During the day they can easily produce enough energy to power fuel pumps, a retail store and an administrative backend.

Capital investment of R500 000 to R1 million in these types of systems will typically allow an owner to save 30-50% of their energy costs. This coupled with incentives such as the Section 12B tax benefit, which allows for the tax deductibility of certain assets used in the production of renewable energy, means that payback periods are shorter than ever before. Regulations have also relaxed, and suppliers of these systems will be able to guide purchasers through the process of registering with municipal grids, and with health and safety requirements.

The worldwide shift towards electric vehicles (EVs) and other alternative fuel technologies is slow but accelerating rapidly.

More alternative-fuel vehicles on the roads will place demands on fuel retail-

ers; some obvious and some less so. Batteries will be required to address spikes in demand, especially in the first phases of electrical vehicle adoption, and provision made for LNG or hydrogen fuelling capacity where warranted. But charging an electric vehicle is not like pouring petrol into a tank. It takes time: Tesla's most powerful chargers, the 150 kW Supercharging stations, take 30-40 minutes to charge today's Tesla Model S to 80% capacity.

Forecourts will increasingly be built to accommodate longer visits, becoming convenience hubs where refuelling is offered as one service amongst many. Shopping, entertainment, and pick-up services (such as online retailer lock boxes) will proliferate. Your children will play while you work and your EV charges. Partnerships with retailers, restaurants, and quick-service food chains will be key to developing convenience ecosystems, and they'll all be tied together through digital networks and associated payment and reward schemes.

The forecourt of the future will probably look remarkably different. For owners and operators, preparing for this future begins with taking a clear-headed look at their current energy circumstances. An appraisal of energy cost and availability allows them to take control over these variables, giving them an advantage when planning for the continued sustainability and cost effectiveness of their businesses.

## Capitec recruiting 300 employees of the future



CAPITEC Bank is looking to fill around 300 positions over the next few months.

At a time when many companies are shedding jobs in the wake of the COVID-19 pandemic and incessant low economic growth, Capitec is making room for more appointments.

"We're rapidly growing our team. South Africa's response to our simple, transparent and affordable banking solution has been overwhelmingly positive. We now have over 16.3 million clients. They span across a diverse set of income groups, ages and cultures, it's been incredibly encouraging. But we've only just begun and much work still lies ahead. We continue to challenging the norms to ensure our clients live better," says Gerrie Fourie, chief executive officer at Capitec Bank.

The bank's digital offering has also seen rapid uptake and now totals over 8.8 million digital banking clients.

Capitec doesn't see digitalisation as a threat to employees, but is instead strengthening its specialist employee force while continuing to prioritise personal service in its branch footprint.

"South Africa is a unique environment and while our digital offering is growing at an immense pace, we recognize that our over 840 branches are incredibly important. Many South Africans still need or prefer face to face interaction. We've used technology to remove mundane tasks from branches, allowing our employees to focus on delivering world-class personalised service.

At the same time, we've bolstered our digital offering. The team launched 7 new digital products in the last 12 months helping our clients to bank better during the pandemic. These include a fully digital account opening process made possible by a selfie, which includes card delivery, in-app scan-to-pay functional-

ity as well as our virtual card, amongst others. And there are still many more on the way," Fourie adds.

The positions Capitec looks to fill over the next few months, range from jobs for graduates to senior professionals as business analysts, developers, analyst developers, data engineers and scientists and BI analysts, amongst others.

Fourie says the pandemic has led people to rethink every aspect of their lives, including their careers. "Building the bank of the future is not only an exciting vision, but means our employees get to work with industry-leading technology and tools.

"The high growth environment also creates significant opportunities for Capitec employees. We've granted over 1 100 internal appointments over the past 12 months and over 290 bursaries to further develop our employees."

Driven by the strong client and digital growth, Capitec has steadily

increased its workforce since its inception 20 years ago. Starting with just a handful of employees, the bank now has a staff complement of over 15 000.

Capitec recently purchased Mercantile Bank as part of their journey to building a digitally-driven business bank based on the same fundamentals that made Capitec a success. This means they have campuses in both Stellenbosch and Sandton, making it convenient for talent to work from either hub.

"We're fortunate to be growing and continuously hiring new employees at a time when there is a great hunger for job security. This allows us to provide hope, inspiration and to attract talent that wants to shape the future of banking," Fourie concluded.

To apply or for more information on the vacancies available visit: <https://careers.capitecbank.co.za/>

## 'Petrol Index' report

PICODI.com analysis team checked how petrol prices increased and which country has the best petrol price to average wage ratio. According to Petrol Index 2021:

- South Africa noted a 12.1% increase in prices, ranking 3rd among considered African countries
- For the 3rd year in a row, South Africa

is the undefeated leader of the Petrol Index among African countries with 1,237 litres of petrol

- Still, it's 108 litres less than last year
- In the world ranking, the Gulf countries are consistently on the podium



For more information, check out the whole report here: <https://www.picodi.com/za/bargain-hunting/petrol-index-2021-who-can-fill-up-the-most-amount-of-petrol-for-the-average-wage>



# SAB turns brewery waste into spinach for the sake of local communities

SAB, in collaboration with its partners, WWF South Africa and The Nature Resource Management Programme, has released approximately 2.5 billion litres of water into rivers and basins over the past 6 months through watershed investment. SAB is proud to launch a one-of-its kind initiative, Project Popeye.

Just like the cartoon, hero and sailor man Popeye saved his beloved Olive Oyl with a healthy dose of spinach, so too is the South African Breweries (SAB) providing economic salvation to a local start-up Business near its Ibhayi Brewery in the Eastern Cape.

SAB, through its Ibhayi Brewery and the Project Eden Water Conservation Park (another SAB initiative that involved the construction of an artificial wetland), will be developing a commercial 2000m2 drip irrigation system, that will help a local business sustainably grow spinach in raised beds.

The unique value of Project Popeye is that the water and



nutrient requirements of the crops are fully provided for by the wastewater generated in the brewing process, with no requirement for additional water or fertilisers. The spinach beds only “use” roughly 10% of the water flowing through it, with 90% still available for reuse and this “polishing” of the water allows the brewery to recover more water through its water recycling plant. The losses from production normally become a waste management liability for a business and, all too frequently, society or the receiving environment. In SAB’s unique approach these nutrients can be transformed into a new

agricultural product. This turns a potential loss into a sustainable business with a literally green product – true circularity in action.

To comprehend the depth of impact of Project Eden, and in its wake Project Popeye, one needs to travel back to 1998, when Mr Martin Davies of Rhodes University was involved in conceptualising the innovation. 10 years later, SAB made an initial investment of R1 million towards Project Eden and over the following 13 years, the University’s Prof. Cliff Jones from the Department of Ichthyology and Fisheries Science has led this research and development as a joint

project with SAB. In collaboration with crop scientists from University of KwaZulu Natal and with financial support from the Water Research Commission (WRC), they developed and tested these innovations on experimental and pilot scales. “This is the triple helix at its best. SAB is leading the way for the sustainable use of our limited water resources while creating significant and tangible social benefits through the incorporation of the circular economy and water energy and food nexus principles.” Mr Dhesigen Naidoo, CEO of WRC.

# Research identifies barriers to funding for early-stage social enterprises

By Bridgit Evans, Director, The SAB Foundation



Bridgit Evans.

OVER the last ten years, the SAB Foundation has invested in over 200 social enterprises. We define social enterprises as businesses solving social problems. In order for SAB Foundation to invest, there must be ability for them to employ innovation to address a social issue at scale and become self-funded or profitable over time.

Both locally and globally, there is such significant recognition as to the importance of these kinds of businesses that many universities and business schools around the world - for example Oxford, Stanford, University of Cape Town, Gordon Institute of Business Science and University of Johannesburg - have either curriculums or entire centres dedicated to their study and development.

While South African universities have recognised their importance and many social enterprises are started at universities, the challenge then becomes one of funding. SAB Foundation’s experience over a number of years has been that while it provides the very early stage grant funding, there are very few avenues for entrepreneurs to go down next.

We initiated this research along with the Bertha Centre for Social Innovation at UCT GSB, because as an important first step, we need to understand the funding gaps and barriers as experienced by entrepreneurs, so

we can figure out how to address them.

## Findings

From our research it is clear that the largest reported barrier to raising funding is a lack of networks. By enabling social entrepreneurs to reach them more easily, fund managers can establish more robust and diverse pipelines.

We also found that traditional funding instruments are less effective for social enterprises. More than two-thirds of social enterprises report unpredictable or seasonal cash flow and this prevents them from accessing conventional funding in order to expand their businesses.

Most social enterprises are also self-funded. The gap in early stage funding within the local ecosystem for potentially talented entrepreneurs who do not have savings or the risk appetite for using their own savings could be a lucrative area of investment for fund managers.

We identified that there is also limited funding available for businesses that turnover up to R5 million. In our sample, social enterprises have raised relatively small amounts of money, with 69% surveyed having raised under R1 million.

Building an impact fund that invests with ticket sizes between R100 000 and R1 million could strengthen the pipeline of investable deals at a later stage and provide capital to early stage social enterprises with high growth potential. By utilising innovative finance instruments that take into account uncertain cash flow, investors can open a box of new investable opportunities.

The high demand for small ticket sizes further reaffirms a need for more early stage funding for social entrepreneurs. With almost two-thirds of entrepreneurs looking

to raise between R100 000 up to R3 million, there is an opportunity for investors to expand their offerings to accommodate smaller investments.

The research demonstrates that a significant amount of funding raised comes from overseas. Twenty-nine percent of social enterprises that have raised between R500k and R5 million have done so internationally and for larger ticket sizes of over R5 million, it increases to 75%. There seems to be a mismatch in that many South African investors struggle to find great deals, yet so many of these innovators have had to seek funding outside the country. It could be worth asking the question: what do international investors see that local investors do not? Is our investment environment too risk averse?

Given the importance of this kind of innovation to the country, we need to eliminate the barriers for social innovators to widen their funding sources. We also need to make more funding available at the early stages. Regulatory reform is required to improve access to financing for social innovation enterprises, as well as the regulatory framework for both banking and alternative funding sources and thankfully, this work is already underway.

The results from this research will, we hope, assist foundations, investors and government stakeholders to better understand the funding hurdles that these innovators face. We hope that it will encourage more funding providers to venture into this interesting field.

To access the research report please visit: <https://sabfoundation.co.za/resources> For more information on SAB entrepreneurship programmes, visit <https://sabfoundation.co.za>

# SBI’s business chambers collaborate with municipalities

BUSINESS chambers affiliated to the Small Business Institute (SBI) have partnered with GalaxyNova systems to facilitate collaboration between the business sector in local communities and municipalities.

“A significant number of our municipalities are experiencing financial, political and management challenges. Covid-19 also presents a deep and long-lasting economic crisis throughout South Africa’s economy and as it affects businesses, it has also impacted our municipalities. Revenues from rates and taxes are significantly affected as a result of the inability of households and businesses to pay these taxes. If we imagine a best-case scenario of about 40% loss in electricity revenue, this will significantly contract municipal budgets and therefore spending on essential services,” says Winda Austin-Loeve, President of SBI chambers.

Effective collabora-

tion between the community, business sector and municipalities, instead of fighting legal disputes in court, is far more productive in addressing the basic needs of local communities and regenerating the growth of local economies.

However, a number of the SBI business chambers have experienced difficulty in dealing with their local municipalities as public participation and collaboration with local organised business and communities is lacking in finding sustainable solutions. “According to business chambers there is a governance deficit in most of their municipalities. A contributing factor is a lack of consequences for transgressions and irregularities, resulting in uncontrollable corruption in municipal procurement systems,” she says.

The SBI chambers are taking the lead to start assisting local communities through the establishment of local data centres using

the GalaxyNova system to facilitate data collection that provide a clear understanding of the basic challenges faced by the community. The data collected is used to inform planning and actionable strategies for sustainable development and growth, fostering resilience in local economies.

Data collected include unique crime trends emerging in each community and is used to identify and address the root causes and assist in crime prevention.

Since crime is the major contributor to unsecure and unsafe communities, which leads to poor economic growth, addressing crime through proper reporting and analysis of all available data is a crucial building block in creating safe cities across South Africa.

A safe city is a community-based initiative that unites law enforcement, businesses, residents and city officials with the intention to maximise safety and

minimise theft and other crimes in communities. It has an urban development vision to integrate information and communication technology in a secure environment to manage a town’s/city’s assets to improve the efficiency of services.

“We can, however, not remotely manage the collaboration between Municipalities, business sector and the community on behalf of local forums in a community. It is important that local forums take ownership and manage their own affairs in the best interest of the community and businesses. We will provide support to gather initial data/information and establishment of a local data centre with access to the GalaxyNova system, but from there the local entity must take charge and take part to ensure the accurate collection of data and implementation of the strategy and local economic plans, in partnership with the local municipal council, continues,” she says.

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# Innovation at Paarl Rock

CONSTRUCTION is underway at Paarl Rock, the fifth building in Concor's 22-hectare Conradie Park development in Cape Town.

Piling for the eight-storey block began in May 2021, marking the start of a one-year building programme, according to Mark Schonrock, property development manager at Concor. Paarl Rock will comprise 266 architecturally designed apartments in an affordable model for first-time home owners.

The block is underpinned by 158 continuous flight auger (CFA) piles, which present a quicker solution than bored or driven piles. With depths of 8 to 11 metres, the piles could be completed in just three weeks, Schonrock says.

Horizontal concrete slabs will all be post-tensioned, a current efficiency trend which reduces the amount of costly rebar required. The planned slab thickness has also been slightly reduced, from 285 mm to 255 mm. While a relatively

small reduction, this will allow a saving of some 450 m<sup>3</sup> of concrete over the planned area of 15 000 m<sup>2</sup> of slab work.

"Pouring of slabs will be conducted by a truck-mounted boom placer, which enhances construction efficiency especially where large continuous pours of 200 to 220 m<sup>3</sup> are required on this project," he says.

The Paarl Rock block will include ground floor retail space, two lifts and a roof top deck on the sixth floor looking westwards at Devil's Peak and over the Cape Town central business district towards Signal Hill. To minimise the cost of long-term maintenance on the outside walls, the design makes use of face brick – but with a difference.

"Different colours and shapes of face brick have been specified to create texture and variety in the façade," he explains. "Patterns are also created with rustication, using bricks of different shapes or with varied orientation."

A perforated design

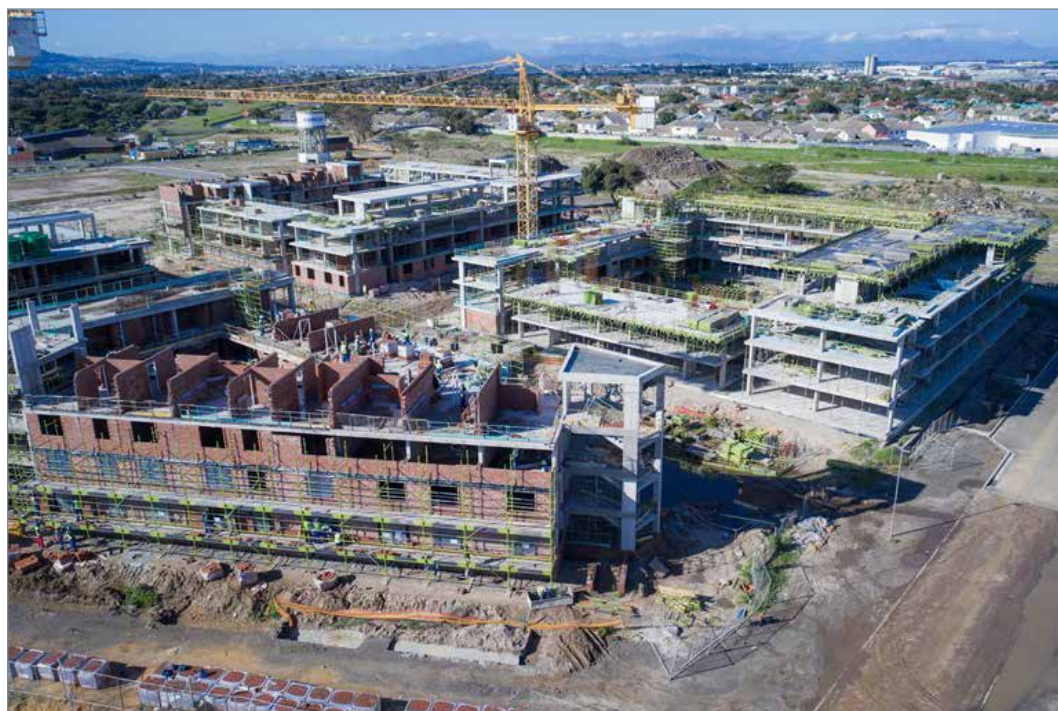
is also used for the brick walls in front of drying yards, letting through light and air while also giving an attractive texture to the building façade.

Schonrock notes that Cape Town still offers a good pool of bricklaying skills, but the long period of depressed conditions in the sector is going to be felt in skills supply as building activity improves.

"Through the National Youth Service programme, we are training six local bricklayer learners," he says. "Beginning in November 2020, they completed a six-month training course and were then placed with selected sub-contractors to work on the current project."

Paarl Rock's innovations include an energy-efficient hot water system for residents, lowering their cost of living and taking load off the national grid.

An on-roof solar generator will assist in 'over-heating' water during the day in a specially-designed storage vessel to around 85 to 90 C.



Construction underway at the Conradie Park development.

"Tapping into off-grid power in this way means that residents can save on what they pay in water-heating bills," he says.

The development is also conserving water and reducing water costs by supplying its own irrigation needs from a master incoming line of treated effluent – at just five to 10% of the cost of pota-

ble water. The water quality from this line, which is clean enough to be discharged into river systems, is further treated on site and also used for all irrigation and cleaning purposes.

Concor has been on site at Conradie Park – where the old Conradie government hospital closed about a decade ago – for about two and a half years, preparing

the infrastructure for the developments.

Roads have been installed, along with stormwater drains and a dedicated sewage reticulation system. A pump station was installed to move sewage over the Elsie's River canal to the main Athlone sewer system and three new electrical substations were constructed.

The Conradie Better Living model is one of seven 'game changer' projects which has been prioritised by the Western Cape Government. This aims to improve the lives of citizens through the Finance Linked Individual Subsidy Programme, providing affordable housing situated near the city's main arterial routes and job opportunities.

## Inclusionary housing: addressing the elephants in the room

COMMENTS recently closed on the Western Cape Government's (WCG) draft Inclusionary Housing Policy Framework.

One of the organisations that have delivered comment on the WCG's inclusionary housing policy is the Western Cape Property Development Forum (WCPDF), an organisation that has been actively engaging with various public and private role-players on the topic since 2018. Yet the organisation's members – drawn from the full spectrum of professionals involved in the production of property – are concerned that, to date, all inputs and practical considerations raised by the industry have either been misunderstood or fallen on deaf ears.

### Government's own failures to address spatial injustice

According to WCPDF chairperson, Deon van Zyl, three critical issues exist for the WCPDF "Top of the list is government's ongoing failure to



release well-located urban land that could be used for affordable or inclusionary housing in the first place.

"Then there is the failure to facilitate the development of new economic nodes in previously disadvantaged areas and, finally, a fundamental failure to develop viable, affordable public transportation systems that would link people from where they currently live to economic opportunities."

Van Zyl refers to these as the "elephants in the room" which government refuses to acknowledge, and which will only result in a policy framework that cannot be taken seriously: "The fact that a topic of this magnitude is addressed in isolation and not in an integrated, holistic economic growth strategy confirms the intent of government to shift its social and constitutional obliga-

tions onto the private sector."

Among the WCPDF's concerns around the policies being formulated (including the City of Cape Town's, yet to be released although already more than four years in the making), is that they're reactive rather than proactive, and were it not for the efforts of activist groups would never have seen the light of day.

Yet another tax on an

### already over-taxed industry

Van Zyl explains: "The point of departure on the inclusionary housing policy framework is the concept of land value capture (LVC), whereby government is the owner of the development rights on a particular piece of land on behalf of society. The release of such rights to the private sector will come in the form of a levy to be paid by the developer and the

cost passed onto the end user and market in general."

In the policy framework, payment of cash taxes is replaced with "payment in-kind".

Adds Van Zyl: "If not a tax, then the granting of rights in lieu of payment would equate to the selling of development rights, which is not allowed in legislation however, the only alternative description for the concept of LVC can therefore be that it is a taxation on property development, which ultimately increases costs to the open market's tenants or purchasers of residential property."

Paying for efficiencies which government should already be delivering

"As if these weren't enough," says Van Zyl, "our sector is encumbered by extreme inefficiencies in government which, on the one hand, is incapable of proactively creating infrastructure capacities while on the other suffers from an inability to process the plethora of statutory applications preceding any fixed capital investment."

"Government should seek to co-opt these private sector skills and resources to fill the gap left by government's own nature and characteristics," says Van Zyl. "Only when government understands the contribution and qualities of the private sector can it start to consider the roles and responsibilities of a partnership relationship."

### The proposed solution

"The only way forward," says Van Zyl, "is to go back to the drawing board with a four-phase approach that should be the guiding principle in any policy framework document of this kind."

The approach recommended by the organisation is as follows:

1. Lead by example:
2. Explore relationships between employers and employees:
3. Incentivise rather than tax the private sector:
4. And only then, when all else fails and as a last resort: tax the private sector.



## Retail Business Funder of the Year announced

CAPITAL Connect, a member of the Connect Group, has won the Retail Business Funder of the Year title in the 2021 Wealth & Finance FinTech Awards. This title was awarded to Capital Connect in recognition of the innovative business finance solutions it provides to the South African retail sector since its launch in 2018.

*"...access to funding as their largest challenge."*

The awards from media and research organisation, Wealth & Finance International, rewards the excellence, creativity and innovation of FinTech companies across the globe. Wealth & Finance International is dedicated to providing fund managers and institutional and private investors around the world with the latest industry news across both traditional and alternative investment sectors.

Capital Connect is

a much-needed alternative business financing option for retail merchants in South Africa. As an unsecured, short-term B2B lending business, it provides retail merchants with access to business finance by approving credit based on a review of proprietary data points. This disruptive and unconventional approach reduces the red tape normally associated with SMEs obtaining finance, including the need for management accounts and audited financials.

Capital Connect provides merchants with quick access to hassle-free business finance of up to R2,5 million – allowing them to be agile and capitalise on opportunities in the fast-paced retail industry.

At the heart of its success is innovative technology. Retail merchants can apply for an unsecured business loan within minutes, simply by using an app (iOS / Android). Capital Connect taps into insights from analytics and data modelling

to offer near-instant approvals to companies that qualify and can deposit the funds in their bank accounts in under 24 hours.

"We are proud to have received this award in the face of strong local and international competition. In a time that the Covid-19 pandemic and national unrest has changed mindsets and shifted paradigms on how business is conducted, we will work with the retail industry to rebuild in the months to come," says Steven Heilbron, CEO of Capital Connect.

"Providing SMEs with working capital is one of the best ways to enable them to unlock their full potential. Yet a 2020 study done by global firm PWC highlighted that 22% of South African businesses that participated in the study ranked access to funding as their largest challenge. Our goal is to empower retail entrepreneurs in South Africa with the financial tools they need to grow and thrive," concludes Heilbron.

## Insurance cover proves its worth after July riots

By Aimee Clarke, CBN

The widespread unrest seen across KwaZulu-Natal and in parts of Gauteng in July has given the insurance industry a lot to think about. The sector was already facing a vastly disrupted industry amid the pandemic; the riots, fires, theft and vandalism means both private insurers and our state insurance body are now looking at billions of Rands in payout. The concern is that current reserves may not be enough to cover the costs of the damage.

While the unrest was devastating, the good news is that – since the 1976 Soweto uprisings – businesses in South Africa have had the option to secure insurance coverage for special risks such as civil commotion, public disorder, strikes, riots and terrorism. This thanks to the formation of the South African Special Risks Insurance Association (Sasria), a state-owned entity which provides cover to all people and businesses that have assets in South

Africa. While Sasria does not work directly with the public, they enter into agreements with other short-term insurance companies in South Africa who then represent and sell Sasria's products to the end-customers. Many effected businesses have this cover, and have been able to submit their claims.

Vivienne Pearson, CEO of the South African Insurance Association (SAIA) says "Sasria's team of claim adjusters are still counting the cost of the damage that has left more than 200 shopping malls and 3000 stores destroyed. Sasria has been working with National Treasury and the government to prepare for the claims. We therefore welcome the recent announcement by the President, and the Minister of Finance, Tito Mboweni, on 28 July that government will be making a provision of R3.9 billion to assist Sasria, and this may be revised as events unfold." With an extensive membership reach, SAIA has been encouraging its members to

expedite and settle claims on behalf of Sasria and within the mandate given to insurers by Sasria, where possible. "However, we recognise that they also have a duty to properly assess and determine pay-outs that protect all their policyholder's interests."

While Sasria does cover loss caused by political unrest, government protest, riot, strike and public disorder, it does not cover looting and theft, unless caused by any of the covered events. This means that despite some claims that the looting had nothing to do with former president Jacob Zuma's imprisonment, the link between the two is vital if victims of theft are to stake their claim.

Fortunately, Sasria recently made a public statement that damage and looting as a result of the July riots are claims that fall into the ambit of Sasria perils. "Sasria has been consistent that all valid claims submitted to Sasria will be paid," the statement said. It also said: "In our 42-year history, Sasria has not witnessed any incident



Vivienne Pearson.

of this magnitude."

While cash reserves are tight, it appears that National Treasury is committed to ensuring claims being settled. For the moment, small claims under R1 million are being expedited to help small businesses start rebuilding.

Pearson says that the events of July have surely highlighted the importance of insurance. "Insurance must be viewed as a necessity, not a grudge purchase or a luxury good. Insurance adds greatly to your financial sustainability and will be vital in the rebuilding of businesses after the July unrest. Without it, many businesses would never recover," she concludes.

## 'Considering selling your business?'

THE decision to sell your business could well be the most important decision a business owner will make. While there is plenty of information available on starting a business venture there is little advice and guidance on when and how to exit a business.

"The sale of a business can be a very complex and time-consuming activity and, as such, it is vital that a qualified and experienced professional be appointed to advise on the transaction" says George New of Horizon Capital Corporate Finance, a Cape Town based 'boutique' corporate finance house, specialising in the sale and acquisition of medium sized enterprises. George touches on certain of these considerations:

- Timing the sale of your business in terms of your personal objectives is critical. Considerations are retirement, part-retirement, personal asset diversification, a new venture, or merely a lifestyle change. From the business perspective one must also consider the stage of the business in its life cycle, industry

activity, as well as its capital requirements for further growth.

- Value maximisation - there are various business valuation methods that must be considered when determining the true value of a business. Which is most applicable to your business to result in the highest valuation? It also requires a sound knowledge of the industry, the

market positioning of the business, and its future prospects.

- Compliance and deal structure - A business can be sold under different types of sale agreements each having very different tax, risk, legal and accounting implications.
- Business sellers must fully understand the deal structure, as well as

any risks associated with any earnings warranties and/or other guarantees.

- To maximise value the buyer should be a good strategic and cultural fit. In most cases the seller will be required to stay on for a period of time and so needs to align with the new owners in terms of goals, objectives, ethics and values.

George New adds

"Horizon Capital Corporate Finance provides a full turnkey solution for the seller from the initial preparation of the business for sale to the facilitation of the purchase payment. The service commences with Horizon Capital Corporate Finance obtaining an understanding of your business as well as the owners personal objectives; it assists in preparing the business for sale, wholly or par-

tially; undertakes a valuation of the business; prepares a comprehensive Information Memorandum; approaches potential buyers in a discreet and selective manner; identifies the optimal deal structure and negotiates a 'fair' price. Thereafter it oversees the preparation of the Sale Agreement and supporting documentation as well as facilitating the payment".

Horizon Capital

Corporate Finance is actively looking for businesses for sale across all industry segments. It has built up sound relationships with corporate (listed and unlisted), medium enterprises and private investors who are looking for investment opportunities.

For more information:  
email gnew@horizoncapital.co.za  
Cell 083 452 5872.

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Should you be considering the sale of your business, or seeking acquisitions, please contact our Corporate Finance team on **021 425 8586** for a confidential chat.

George – gnew@horizoncapital.co.za | Cell: 083 452 5872 | www.horizoncapital.co.za



# Crypto Arbitrage: A low risk, high yield investment opportunity

C R Y P T O C U R R E N C Y is a hot topic in the modern financial sector, but there's still a veil of misunderstanding that shrouds what it is, how it works and what its investment opportunities are. With the volatility and high-risk associated with cryptocurrency, it's understandable that modern investors are nervous to make it commonplace in their investment portfolios.

There is, however, a low risk trading strategy which allows individuals to profit off of inefficiencies in the crypto space without being exposed to the associated cryptocurrency

risks. Crypto arbitrage is the process of buying cryptocurrency (most commonly Bitcoin) on an offshore exchange, immediately transferring it to a South African exchange and selling locally at a profit. This is possible because Bitcoin typically trades at a 2 - 4% premium in South Africa relative to abroad – like the US.

“With Bitcoin arbitrage you're not directly investing in Bitcoin, but rather capitalising on inefficiencies that exist in the local market,” says Josh Kotlowitz, Chief Technical Officer at Future Forex. “These inefficiencies exist because of South

African capital controls which limit the flow of funds across South African borders.”

In 2017 Future Forex founders, Harry (CEO) and Josh, discovered this arbitrage opportunity in the Bitcoin space. Motivated by their shared client-centric values, and empowered by their combined knowledge and complementary actuarial and engineering skill sets, they set out to remove the technical barriers associated with investing in Bitcoin arbitrage. And so, Future Forex was founded with the aim of making the same low-risk, high-yield returns easily accessi-

ble to discerning South African investors.

Thousands of hours of development, research, experimentation, and meetings with compliance and legal experts allowed Future Forex to develop a streamlined service that leverages their proprietary software and hands-on relationship management team to facilitate the entire investment process. While they have optimised this to minimise the overall risk in their arbitrage process, there is still risk involved – albeit very low.

Through the use of tracking software and data-driven insights,

Future Forex determines the best time to initiate the arbitrage trades for clients. But processing times for Bitcoin means that client funds are temporarily exposed to Bitcoin fluctuations, resulting in the possibility of reduced returns or even losses.

A second risk-factor that needs to be considered is the fluctuation of the US Dollar to Rand exchange rate when funds are sent abroad to purchase Bitcoin. If there is a major exchange rate fluctuation on the day which funds are sent abroad, then the trade will be exposed to reduced

returns or losses. For example, if the Rand significantly strengthens against the Dollar. Apart from these very minimal trading risks, there is a limitation to investing in crypto arbitrage under current regulatory conditions. The arbitrage makes use of an individual's foreign exchange allowance and is therefore limited to a maximum expected return of ~R200,000 over the calendar year.

Overall, the chances of making a loss off an arbitrage trade are extremely low. Future Forex has processed over R300 million worth of trades and

boasts a 99% profitable trade track record while maintaining 100% client profitability due to Bitcoin and US Dollar/Rand fluctuations balancing out over multiple trades.

Future Forex has been able to help hundreds of customers generate exceptional profits from this market inefficiency which doesn't seem to be disappearing anytime soon.

*Become a client or find out more about how Future Forex consistently generates exceptional returns at <https://www.futureforex.co.za>*

## Redefining insurance

*COVID-19 has prompted great changes in society and business. Insurers must take this opportunity to re-imagine how they serve their clients, and ensure they continue to prosper.*

**By Jason Mellow,  
Head of MiWay  
Business Insurance**

THE insurance industry has been in a state of disruption for the past few years as agile new fintech companies enter the sector and disturb long-standing business models. But it's safe to say that COVID-19 has been an even more profound disruptor because it has changed the way businesses see risk and shown just how rapidly firm ground turns to jelly. SMEs, long recognised as the vital engine of growth and South Africa's best chance of creating inclusive economic growth, have arguably borne the brunt of the pandemic and the wide-rang-

ing measures taken to curb it. The insurance industry's imperative to change how it approaches its clients is nowhere more important when it comes to these businesses.

Insurers have traditionally seen their role as basically confined to helping their clients recover from loss. Over the past several years, more innovative companies realised that clients were looking for a more proactive approach, and began piloting ways to help clients avoid losses, primarily by helping them to understand the particular risk landscape they must confront, and what mitigation measures they need to take. This kind of approach has subtly been altering the dynamics of the

insurer/client relationship – insurers have to become more informed about the nuances of their clients' businesses in order to provide this kind of help. I believe that this trend will strengthen as SMEs regroup and the economy returns to normal. At this point, it's worth reminding ourselves that insurance is built on the legal concept of uberrima fides, utmost good faith. Trust is obviously crucial to a long-lasting relationship between the insurer and insured, and one way for insurers to build this is to show a commitment not only to understanding their clients' businesses but to developing the products and services they need, and at the right price. In so doing, one might add,

insurers will go a long way towards repositioning themselves less as commodity providers (where price is the deciding factor) to true service providers or business partners.

Here are some of the factors that are shaping these trends in the insurance industry:

**Better products.** The risk landscape has become far more volatile as the world has globalised and digitalised. Insurers need to be much more active in developing new products in line with where business is going. A good example is the fact that digital businesses need proper advice and protection against system outages. Compliance risk relating to data privacy is also another key area.

**Promote understand-**

**ing of products.** SMEs are often short of resources, both in terms of money and talent – a surprising number simply don't have the time or skills to understand the cover they have in depth. This gap between what is assumed to be covered and what is actually covered is a significant contributor to the negative perception of insurance companies. Helping clients align their risks and cover is a great builder of trust. **Expand the service offering.** One way of positioning the insurer as a true business partner is for it to offer value-added services that are not directly related to risk identification or management, but that contribute to the business's viability. Innovative insurers have

already begun to construct such offers, often in partnership with the third-party supplier. Examples include offering financial, legal and labour advice, office emergency assistance and an IT help desk. Basic marketing services (such as setting up Facebook and Web pages, and a direct e-mail marketing campaign), as well as a telephonic concierge-type service for procuring goods and services, arranging bookings and making calls. In the current circumstances, guidance about how to apply for COVID-19 relief is an obvious service.

A final point is that in order to respond to



*Jason Mellow.*

new market imperatives, insurers are also going to have to collaborate more widely with other members of the financial services – and other – value chains. In particular, brokers, with their intimate knowledge of their clients' businesses look like natural allies for insurers and could really be coming into their own.

## Six common financial mistakes to avoid in your retirement years

RETIREMENT is of one of the greatest age milestones and financial transitions one can achieve after many years of employment service or of running their own business.

Himal Parbhoo, FNB CEO of Cash Investments says, “When entering retirement, you are shifting to measured spending and retirees need to have a clear game plan in mind on how they will manage their money and stretch it till the end. Even though many have planned and saved for years, entering retirement is not a time to set autopilot on your finances, but a time to understand your finances and develop a personal relationship with your money”.

Parbhoo shares six common mistakes retirees make during their golden years:

### 1. Overspending in retirement

Many retirees start by pursuing all the things they didn't get to do while working such as traveling, picking up a new hobby or renovating their homes. Retirees underestimate the amount of money they'll spend in those first few years of retirement.

To avoid this mistake, create a detailed but realistic budget and stick to it. Be sure to work with your financial advisor to find a withdrawal rate that will stretch your money for as long as possible.



### 2. Withdrawing large sum of money

Withdrawing large sums of money from your pension can put your portfolio in jeopardy of running dry. If you withdraw large amounts of money frequently, you may suddenly need to make major changes in your lifestyle and spending just to get by. On the contrary, if you start out with a modest retirement life-

style, you'll have a much easier time sustaining it without the need for drastic cutbacks.

### 3. Investing in high risk investment solutions

Retirees need to consider their risk profile when looking at suitable investments post retirement. Unfortunately, time is limited to make up capital losses should they occur in high risk

investments. Investing in a diverse range of medium to low risk investments is the key to success when looking to grow wealth sustainably into your golden years. Having a basket of asset classes that move in different directions to each other is one way to shelter wealth against market volatility. Retirees should look to spread risk through a well-balanced and diversified portfolio of assets.

### 4. Falling prey of scams

Retirees unfortunately are amongst the most targeted for scams. Fraudsters are always on the prowl, eagerly waiting and looking for ways to scam retirees of their pension pay out and contributions. Always know who you

are dealing with, sometimes people claiming to be phoning from the bank might not be from the bank. For instance, FNB will never ask you to share your username, password or OTP (one-time pin).

### 5. Cashing out pension too soon

South Africans can retire from as early as 55, 60 or 65. However, the biggest drawback to an early pension is that it will reduce the amount of money you receive each month. At the age of 65, when others are enjoying a higher monthly pay-out, you may regret the decision to start taking payments early especially if you did not save enough. It is essential to talk to a financial planner to

help you break down how much you'll get each month if you take your pension now versus waiting till you are 65.

### 6. Misconception about paying tax

Most forms of retirement income are taxable. Many retirees are of the impression that their money does not get taxed when they retire leading them to withdraw large sums of money frequently. Speak with a financial planner or tax advisor about creating a tax-efficient distribution strategy for retirement. This professional will look at your tax bracket, retirement accounts, tax free accounts, and pension funds to help you withdraw money in the most tax-efficient way.



# SAFETY ISN'T NEGOTIABLE

## The Southern African Gas Association ensures the safe operation of gas systems

South Africa has its fair share of gas-related incidents reporting fires and explosions costing domestic, commercial and industrial facilities millions of rands. However, these statistics say nothing of numerous other smaller events that occur and go unrecorded, such as boiler fires, process oven failures, piping ruptures, non-conforming installations, and non-suited/non-approved equipment among others. These have been the cause of unpublicised damages and injuries. Unfortunately, action is often only taken on these issues after some large and tragic event occurs.

The **Pressure Equipment Regulations (PER)** Reg. 17 states: "No person shall . . .

- (a) handle, store or distribute any gas in any manner, which includes the filling of a container, other than in accordance with the relevant health and safety standard incorporated into these Regulations under section 44 of the Act;
- (b) install or remove an appliance, pressure equipment or system for gas in any manner other than in accordance with the relevant safety standard incorporated into these Regulations under section 44 of the Act;
- (c) install or remove a gas appliance, or a gas system or a gas reticulation system, unless such person is an authorised person."

Taking the above regulations into consideration, one needs to consider the experience, knowledge, qualification and competency of any person, whether internal or contracted, working in the gas industry or with gas-related equipment. Unless properly trained and qualified, no personnel or operator should be permitted to attempt repairing/replacing pipes or pressure equipment, tune burners, work on or replace burner management/control systems.

The intent of Reg. 17 is also to ensure all persons working on gas systems are registered and licensed with the registration body, namely the South African Qualification and Certification Committee for Gas (SAQCC Gas).

Combustion equipment safety is critical to the daily operation of all facilities and the safety of every employee, yet awareness on this topic is lacking simply because it is deemed too 'complicated'. It takes diligence and understanding to protect employees, facilities and industrial organisations from combustion-related incidents involving fuel-fired equipment. Being competent in only a specific field (silo approach) is not enough; persons working on gas systems should have a total understanding of the complete and integrated philosophy and functionality of gas systems (lateral approach).

Once again, understanding the gas system or specifically combustion equipment safety is very critical from a performance and maintenance perspective. An equal degree of emphasis should be placed on the importance of using compliant equipment, which also conforms to the required health and safety standards.

There is typically no screening for how far away from the most recent health and safety standards the old 'grandfathered' technology has become. Passing a statutory inspection sometimes means you could be 'technically' in compliance with archaic and antiquated equipment that is 50 or more years old. This could be equipment that requires many manual steps to operate safely and presents serious risk of improper manual startup or shutdown daily. Equipment could be 'in compliance' with this kind of inspection, but quite far from the current health and safety standards "level of safety".

Should grandfather equipment be progressively upgraded in line with newer technologies? Possibly. From a financial perspective, probably 'no or not now'; from a safety perspective, a definite 'yes'. The risk assessment of current gas equipment and gas systems needs to be ongoing and analytically direct the way to concrete affirmations of upgrading the site's equipment.

Once an incident occurs, it means years of court cases, job losses and changes, higher insurance rates, and maybe even criminal litigation. It also takes years to overcome the stigma of possible safety credibility to employees, industry and the community at large.

### HOW SHOULD ONE ENSURE THE SAFE OPERATION OF GAS SYSTEMS?

Start with a review of the equipment's state of protection relative to current health and safety standards: an equipment gap analysis. Prioritise your needs and address them at a comfortable pace. Conduct a human gap analysis to identify the state of knowledge and skills regarding your operations and maintenance staff. Make training a regular and serious effort. The bottom line is that by ensuring persons are competent and implementing comprehensive equipment safety programmes, lives can be saved. The right thing to do is to be proactive and at the very least ensure persons working on gas systems are licensed to operate and that manufactured, imported and supplied equipment conforms to the required regulations. Ensure equipment permits are obtained from the required authority, in this case, the Southern African Gas Association (SAGA).

### SAFE GAS EQUIPMENT

SAGA also verifies Natural and Liquefied Petroleum Gas Industrial Equipment locally manufactured, imported and supplied prior to being placed in the market. This covers all equipment operating above 0.5 GJ/h or 10 kg/h or 140kW in the commercial, industrial and specialised environments. The Equipment Mandate has been expanded to include Biogas, natural gas vehicles (NGV), natural gas fuelling stations, compressed natural gas (CNG) and liquefied natural gas (LNG) industrial applications.

The intent is to prevent the import and supply of non-conforming equipment and that all equipment sold or placed in the market meets the Pressure Equipment Regulations.

### AUTHORISED PERSONS FOR SAFE OPERATIONS

#### Using registered Gas Practitioners

Never do gas work on piping, appliances or equipment yourself – always use a registered Gas Practitioner. Unregistered gas work is illegal and can be extremely dangerous, resulting in serious injury or even death. Registered Gas Practitioners have the necessary experience, competency, equipment and system knowledge to do the necessary work safely.

- Insurance companies may not cover fire or public liability claims caused by do-it-yourself or non-registered persons, as the gas installations will be deemed illegal.
- When using a Gas Practitioner, you need to ensure:
- the person is in possession of a licence issued by the registrar, being SAQCC Gas; and
  - the person issues the correct Gas Certificate of Conformity (CoC) to the user on completion of all gas installation work. This applies to all gas work on your property, regardless of whether it is a residential, commercial or industrial property.

A Gas Practitioner is responsible for selective or all the work commencing at the gas meter outlet or reticulation shut-off valve and all the piping, safety and pressure accessories including the appliance/ equipment downstream thereof.

If you notice something potentially dangerous, or any of the following, stop what you are doing and immediately call a registered Gas Practitioner or your gas distributor: Gas appliance/equipment burning incorrectly e.g. yellow or uneven flames, pungent odours, black carbon soot, appliance going out regularly, visible damage to gas pipes.

If you smell gas and you suspect it's a gas leak, or are unsure, shut off the main valve of the gas system, phone the Gas Practitioner and/or gas distributor to report the matter.

The main natural gas distributors in South Africa – Sasol (Gauteng, Mpumalanga, KZN), Spring Lights Gas (KZN) and Egoli Gas (Gauteng) – are responsible for work on gas meters and the gas distribution and reticulation system. Virtual Gas Networks also form part of the distribution system and transportation of compressed natural gas.

One can check if your Gas Practitioner is registered to work in South Africa by searching the register of SAQCC Gas at [www.saqccgas.co.za](http://www.saqccgas.co.za) or contact the registrar on +27 (0) 11 285 0038.

### Receipt of a Gas Certificate of Conformity (CoC) by the user

A Gas CoC is an assurance that:

- the Gas Practitioner is appropriately registered;
  - the work completed has been inspected and tested and is proven to be safe;
  - the work complies with the requirements of South African legislation such as the Occupational Health and Safety Act, the Pressure Equipment Regulations and respective South African National Standards;
  - the Gas Practitioner has officially informed you of the safety procedures as to your gas system; and
  - you have met your legal obligation to own a safe gas installation and have a permanent legal record for the job done.
- A Gas CoC shall be provided to you after commissioning of the gas system, but no later than 7 days after completion of the following gas work, but not limited to:
- installing new gas pipe work;
  - extending or repairing existing gas pipe work;
  - installing new appliances/equipment;
  - replacing an appliance/equipment;
  - maintenance and/or repair to the pipe work, equipment, pressure and safety accessories; and
  - converting a gas system or appliance/equipment for use of another fuel.

### A NEW FORM OF COC HAS EMERGED

The gas industry is moving away from the hard copy (pre-printed) CoC toward an electronic version that was phased in from 1 March 2021 over a six-month period, whereafter the hard copy will come to an end.

Bringing new technology to the gas industry adds a lot of value especially from a safety and compliance perspective and ensures ease of doing business straight from a tablet or smartphone. The CoC needs to be signed by both the Gas Practitioner and the user to be valid.

If you do not receive a Gas CoC, this could jeopardise your insurance if a gas-related incident subsequently causes fire or damage to the property or injury to a person.

If a Gas Practitioner fails to issue the user with a Gas CoC, or refuses to do so, contact the SAGA office. Always remember that Safety Isn't Negotiable. Ensure the right things are done right the first time.

### ROLLOUT TO THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY (SADC)

SAGA ensures all persons working in the methane-based environment are competent to undertake work that complies with the relevant legislation and national health and safety standards to provide safe and efficient operations from point of supply to users in the domestic, commercial and industrial markets within southern Africa.

It covers industrial thermoprocessing, CNG, LNG, NGV and biogas by:

- providing training to persons working in the gas industry to become competent gas practitioners;
- developing skills and competencies and ensuring knowledge sharing throughout the industry;
- assisting industry to comply with legislation;
- educating stakeholders in safety and standards;
- advocating the safe and efficient use of gas and pressure equipment; and
- interfacing with government on regulatory issues.

### SADC PARTNERING PROSPECTIVE

- Engagement in bilateral partnerships;
- Involvement in the Southern African Development Community Co-operation in Standardisation (SADCSTAN);
- Expansion into NGV and CNG/LNG/Biogas environments;
- Collaboration with stakeholders on the adoption and development of Health and Safety Standards;
- Ensuring safety through training and skills upliftment;
- Registration of competent persons to work on gas systems; and
- Practical assessments of competencies and compliance requirements for gas systems: installation, operations, maintenance, commissioning, startup and shutdown activities and much more. ■

### SAGA MEMBERS ACTIVE IN THE SADC REGION



### SAGA contact information

**Address:** 27 Princes Avenue, Windsor West, Randburg, Gauteng, South Africa, 2194  
**Tel:** +27 11 4312016 or +27 11 476 4403  
**Email:** [care@sagas.co.za](mailto:care@sagas.co.za)  
**Websites:** [www.sagas.co.za](http://www.sagas.co.za) and [www.safegasequipment.co.za](http://www.safegasequipment.co.za)



## ECSA outlines the importance of professional registration

IN light of the recent reports in the media on the deployment of international engineers into the country, the Engineering Council of South Africa (ECSA) as the regulator of the engineering profession in South Africa seeks to highlight the importance of professional registration even for international counterparts.

ECSA is mandated by the Engineering Profession Act (EPA), 46 of

2000, to perform the core functions, which include the accreditation of engineering programmes, registration of persons as professionals in specified categories, and the regulation of the practice of Registered Persons.

According to the Act there are policies and pre-scripts that the Council subscribes to, to ensure that all engineering practitioners who apply to be professionally registered with ECSA meet all the

outlined requirements to be recognised as professional engineers in a specific category.

While the Engineering Profession Act has not made registration mandatory in South Africa, operating as a non-registered person limits the scope of engineering work an engineering professional may perform. These restrictions include not being able to sign off on engineering projects and having to

work under supervision of a professionally registered engineer across all professional categories (Pr Eng, Pr Tech Eng, Pr Techni Eng, Pr Cert Eng). These boundaries of scope of work apply to both local and international engineers who come to South Africa for work purposes.

International engineers who come to South Africa for employment for a brief period may apply for professional

registration with ECSA, as there are policies that make provision for professional registration. However, these applications must be assessed to determine if they meet the ECSA criteria for registration and the first step would be to consult with the South African Qualifications Authority (SAQA) to evaluate the qualifications, and issue an outcome founded on an academic evaluation of qualifica-

tions as provided for in the NQF Act.

The evaluation by SAQA will form part of the ECSA education evaluation process. The Council conducts education evaluation according to Policy E-17-P (found on the ECSA website) in order to determine if the application is substantially equivalent to the base qualifications according to the ECSA qualification standards.

This process is particularly important for countries who are not signatories of the International Engineering Alliance (IEA), which ECSA representing South Africa is a member and a signatory of three accords namely the Sydney, Dublin and Washington Accord that govern the recognition of engineering educational qualifications and professional competence.

## A guide to the new gas digital CoC

THROUGHOUT 2021, gas practitioners will be switching to using an electronic system to issue gas COCs (Certificate of Competence) to the end-user.

### The dynamics of the COC App

All registered Gas Practitioners will have access to the electronic COC according to their skill and scope of work which they have been registered for.

### How to log into the APP

You will be required to enter the following information:

- South Africa ID/Passport
  - Password (This is generated when you register an account)
- Once logged in, if the Gas Practitioner is registered with one association, they will have access to the COC for that specific Association. However,

if the gas practitioner has multiple qualifications and is registered with more than one association, they will have access to all the relevant skills' category for COCs. The gas practitioner will then click on the relevant association that regulates the installation and gas work completed.

If a Gas Practitioner was assigned several COCs and their registration expires, they will no longer be able to issue those COCs.

### Purchasing a COC

Gas Practitioners who are employed with a particular gas contracting company will not have a "Purchase COC" button. This is because each company will administrate the purchase and then allocate the COCs to the gas practitioner's account.

### Creating and Issuing a COC to the end-user

**Step 1:** The Gas

Practitioner will register their details on the SAQCC Gas App

**Step 2:** The type of equipment installed, modified, repaired or maintained will be specified (description of work completed)

**Step 3:** There will be the option to upload picture of the work completed

**Step 4:** Signature Panel- Gas Practitioner signature and Customer signature (with geographic location and date automatically set)

### Recipients of the COC

The following parties will each receive a copy of the COC:

- Customer
- Gas Practitioner
- Contractor company
- The relevant Association
- SAQCC Gas

If for some reason, the gas practitioner loses internet connection while filling out

the COC on the App, the COC can still be completed while offline or saved to be finished later.

When a Gas Practitioner acquires additional skills and qualification, they can have their scope of work updated on the system.

*For more information on the electronic COC and the functionality, contact SAQCC Gas on 011 285 0038 alternatively; send an Email to [info@saqccgas.co.za](mailto:info@saqccgas.co.za)*

# WHY COMPLIANCE MATTERS

**Compliance matters, because together we want to build a world-class gas industry.**

SAQCC Gas is mandated by the Department of Employment and Labour to ensure that any person installing, repairing or maintaining gas equipment is compliant.

Gas practitioners should ensure that their registrations are up to date and enjoy the full benefits of belonging to a regulated industry.

Avoiding the registration process and entering the industry, a non-compliant gas practitioner is effectively putting industry at risk.

Non-compliance will be followed by the required legal action taken against the gas practitioner and in certain instances the customer.



[www.linkedin.com/company/saqcc-gas](https://www.linkedin.com/company/saqcc-gas)



[www.facebook.com/saqccgas](https://www.facebook.com/saqccgas)



[www.saqccgas.co.za](https://www.saqccgas.co.za)

**SAQCC GAS**  
South African Qualification and Certification Committee

For further enquiries please contact us on 011 285 0038



# 'Marshal plan' needed to avert water disaster - SAWC

OUR water sector is in disarray. Reports from the Auditor General show the extent to which the Department of Water and Sanitation has been rendered technically bankrupt and institutionally weakened. This speaks to a process of institutionalised corruption that has paralysed the service providers – consulting engineers, equipment manufactur-

ers, system integrators, financiers – reducing many companies to a state of virtual collapse. This has hit South Africa at a time of crisis. That crisis is driven by complex external forces over which government has little direct control. Deep and protracted drought has exposed the vulnerability of local economies to the risk of endemic water scarcity in a climate

rapidly changing but in unpredictable ways. Coastal cities downstream of major water users in the hinterland that now constrains their own developmental aspirations. Human health risk is growing by the day as the more than 825 wastewater treatment works (WWTW's), mostly managed by distressed municipalities, are collectively discharging

more than 4.3 billion litres of untreated sewage into rivers daily. Bulk water treatment plant run by large SOE's are increasingly unable to process highly contaminated feedstock sourced from polluted rivers. Service delivery failures have now rendered Makhanda, Emfuleni, Malutia-Phofung and Ugu paralysed, simply unable to generate viable solutions to their individual water crisis. Then we have two new challenges of monumental proportions – COVID-19 and the looming fiscal cliff.

The economy is in tatters, technical capacity is fractured, unemployment is growing and the fiscus is unable to fund the almost one trillion Rand needed to stabilize the water sector. Clearly this is in nobody's interest. What is needed is a Marshall Plan type of program designed to create an enabling condition for 5% plus economic growth to restore stability. That program has taken the form of the

Public Private Growth Initiative (PPGI) that creates a platform for the sustained engagement between the public and private sectors in their mutual best interest. However, without water none of those economic development plans can amount to anything. Water is an economic enabler, so for every Rand spent in rejuvenating the sector, more than R4 is unlocked somewhere else in the economy. This multiplier is vital for sustained rejuvenation. This multiplier is unlocked in a circular economy where water is managed as a flux and used multiple times for different purposes and at different costs to different users.

This is where the SA Water Chamber comes in. It creates a formal platform specifically for water and sanitation that to date exists as only chapters within larger business associations. Each have insufficient focus and outcomes as the lack of progress clearly underpin. Those



South African  
Water Chamber

entities engaging in the business of water service provision are able to rapidly deploy their skills and capacity into a range of programs aligned with the National Water Master Plan, and the National Planning Commission, topped by the current development of the Implementation Master Plan being driven by the SAWC with all the relevant public and private stakeholders. The water chamber is an aggregator of skills, technologies and capital, to be deployed in a structured way in the national interest. An NPC has been created and registered with three Directors tasked to create the shell structure as a legally compliant instrument. An interim Steering Committee has been created to drive the process as far as is needed o rollout that is man-

dated by the inaugural founders of water and sanitation sector private stakeholders gathering in November 2019.

The Chamber has been fully represented on the PPGI and presented to all formal partners including the Presidency, NPC, Treasury, WRC, COGTA, DTIC and DBSA as well as existing formal structures such as the SWPN and NBI. We have aligned with the Chemical Association (CAIA) who will become the front end of the on boarding process as they have the capacity we lack at present. This will ensure full legal accountability and good corporate governance as we become an island of integrity powerful enough to counter the culture of impunity that has paralysed our country.

## Achievements by newly-launched CCSA

CEMENT & Concrete SA (CCSA), launched on March 1 this year, following the amalgamation of The Concrete Institute (TCI), Concrete Society of Southern Africa (CSSA), and Association of Cementitious Materials Suppliers (ACMP), has already shown the merits of unification by completing noteworthy projects in less than five months of operations, says Hanlie Turner, Business Development Manager of CCSA.

Turner says one of the cement and concrete industry's highly-anticipated initiatives came to fruition in June when CCSA launched the 10th edition of Fulton's Concrete Technology, commonly regarded as the South African "concrete bible" and globally recognised as a definitive handbook on concrete. "The latest edition of Fulton's Concrete Technology, with 37 chapters dealing with topics such as materials and mixes, concrete properties, manufacture, site practice, quality control and testing, as well as special concrete and techniques, has been widely praised and welcomed," she says.

Then, in July, CCSA launched a significant event aimed at encouraging vital industry research when it hosted the two-day Young Concrete Researchers, Engineers and Technologists Symposium (YCRETS) online. The symposium, scheduled to become a biannual event, created a forum for young individuals involved in research, design, and application of concrete and cementitious-based materials. Papers covering diverse areas of research carried out by young people from countries such



Hanlie Turner.

as South Africa, Germany, India, Nigeria, Namibia, Finland and Sudan, were presented at the virtual event which culminated in Dr Benedict Olalusi, lecturer at the University of KZN's School of Civil and Environmental Engineering, being named as South Africa's top Young Concrete Researcher for 2021.

CCSA's KZN branch recently launched a "Careers in Concrete" initiative in which two University of KZN civil engineering students were selected to do experiential work at concrete-related enterprises in the province. The students will gain hands-on experience during university vacations at Contest, a leading KZN service provider in concrete testing and technology, and Naidu Consulting, a respected national consulting engineering firm.

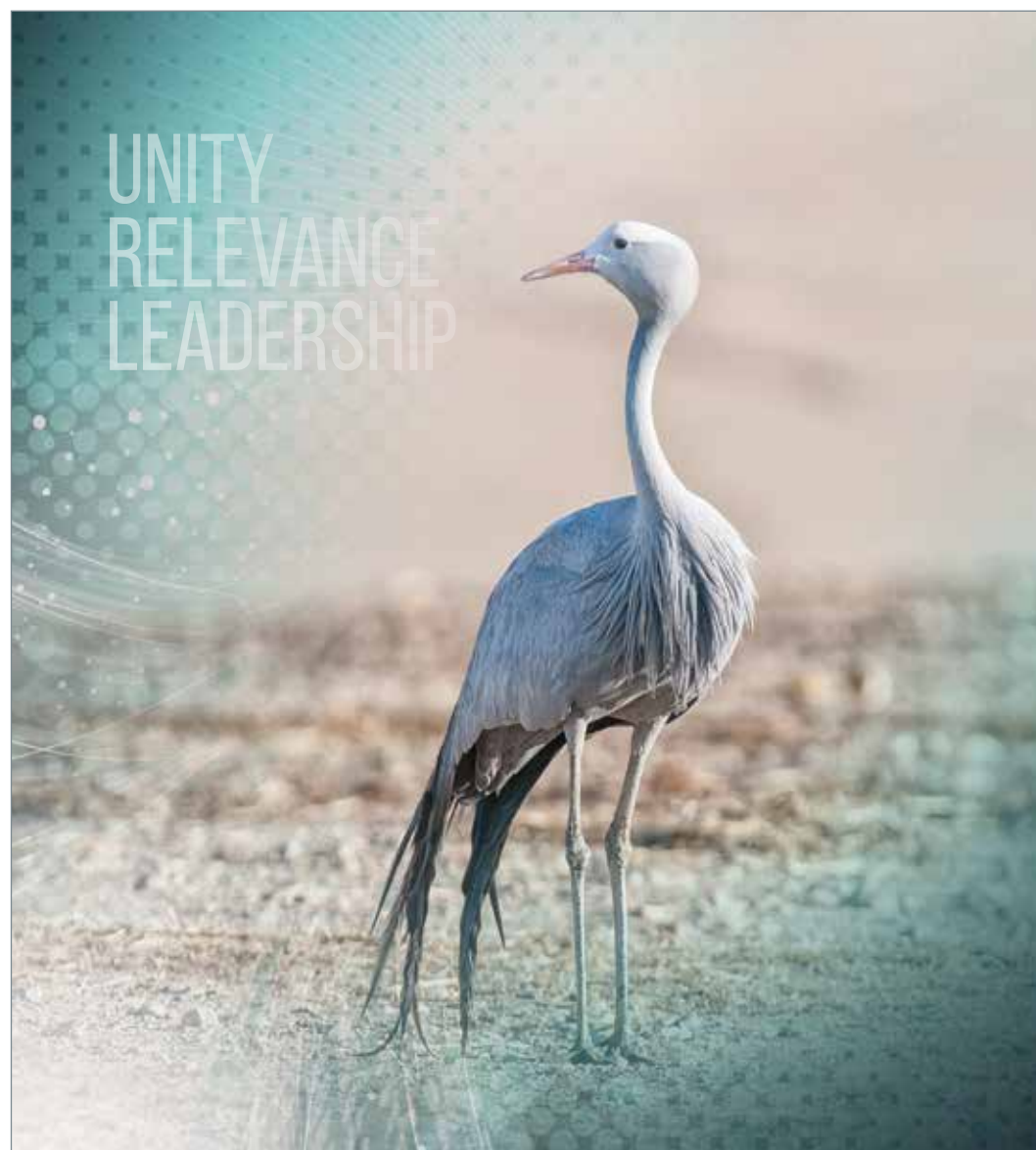
Looking ahead, Turner says the Fulton Awards will take place next year. "This prestigious event was initially scheduled for this year but had to be postponed until 2022 because of COVID-19 lockdowns. We are all set to host the respected event to showcase and reward excellence in concrete which adds immense stature to winning companies," she states.

There are currently three active

CCSA branches: Inland, KwaZulu Natal and Western Cape. "The branches ensure that CCSA has concrete ambassadors in key parts of the country and interact with tertiary organisations in their respective areas. The committee members - all volunteers - will arrange area-specific events. Following the CCSA Western Cape branch's successful webinar in June, many more interesting initiatives are sure to follow in the Cape," Turner predicts.

"There has already been strong interest in companies becoming members of CCSA and numbers should swell even more once pandemic obstacles have been overcome. The CCSA membership model makes it easy for potential members to select a category in line with the size of their particular businesses, with various cost and benefits structured to suit specific needs. The model makes it convenient for SMEs to find appropriate levels of engagement and a special category for emerging contractors is included. Members will be entitled to many services either free of charge, or at discounted rates. Free services for members include access to the comprehensive CCSA Information Centre and free advisory services. Training by the CCSA School of Concrete Technology, consulting services, attendance at events, and purchase of publications, are available at special member discounted rates," Turner adds.

For more information visit [www.cemcon-sa.org.za](http://www.cemcon-sa.org.za)



The face of a unified South African industry  
Become a member – be part of the future



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# Register with the right PRO before 5 November

TAKING practical or financial responsibility for the disposal of one's products is no longer a nice-to-have or a tick-box exercise. Extended producer responsibility (EPR) by producers and importers in the electrical, lighting, and paper and packaging sectors has now been made mandatory by the

South African government.

On 5 May 2021, the Department of Forestry, Fisheries and Environment (DFFE) gazetted the amended EPR regulations under Section 18 of the National Environmental Management: Waste Act.

These regulations

aim to provide the framework for the development, implementation, monitoring and evaluation of EPR schemes, to ensure the effective lifecycle management of the identified products and to enable the implementation of circular economy initiatives.

The regulations also

make the producer or group of producers responsible for the establishment of an EPR scheme, the development and implementation of an EPR plan and compliance against annual recovery and recycling targets.

According to Francois Marais, manager of Fibre Circle, the

producer responsibility organisation (PRO) for the paper and paper packaging sector, EPR will enable collaborative investment in collection and recovery infrastructure, in terms of more convenient recycling facilities for consumers and improved recovery at pre-consumer or post-

industrial phases.

Fibre Circle is calling on eligible and obliged paper producers, which could encompass manufacturers and importers of paper and paper packaging as well as brand owners and retailers, to join its ranks. Any South African company or brand that makes or imports

paper or paper packaging (whether primary or secondary) for distribution in South Africa is required to belong to an approved EPR scheme and to pay an EPR fee per sales tonne of product.

In collaboration with its members, Fibre Circle will establish and manage the EPR schemes for the identified paper products of newspapers; magazines; office, graphic, mixed and other papers; corrugated cases and kraft paper; liquid board packaging; labels and paper sacks.

"It makes commercial sense to belong to an existing scheme that has been established by a registered PRO such as Fibre Circle," notes Marais. "Tackling EPR alone could become onerous and costly."

"By joining Fibre Circle and doing so before 5 November, your paper and paper packaging interests can be collectively represented and you will be compliant with EPR regulations," says Marais.

He adds that Fibre Circle will identify shared problems and opportunities for collaboration among member companies, municipalities, other PROs and the informal sector, all in support of a thriving circular economy.



Make the circle bigger...

Effective Extended Producer Responsibility requires collective thinking and collaborative effort.

Join now to make a difference.



**CHOOSE PAPER**

• PAPER • BOXES • BAGS • BEVERAGE CARTONS •  
LABELS • PAPER CUPS • CARTONS • SACK KRAFT •

**Fibre Circle is the producer responsibility organisation for the paper and paper packaging sector.**



[www.fibrecircle.co.za](http://www.fibrecircle.co.za)

## Awards entries open

THE South African Plastics Recycling Organisation (SAPRO) is proud to announce that entries are now open for the 2021 Best Recycled Plastic Product of the Year Awards.

According to Phil Sereme, General Manager of SAPRO, this biennial competition aims to raise awareness and showcase the wide variety of ingenious products that are locally designed and manufactured using recycled plastics.

For more information about the SAPRO Awards for Best Recycled Product of the Year, to download entry forms and rules as well read more about previous years' winners, visit <https://www.plasticrecyclingsa.co.za/best-recycled-product-awards>.

Alternatively email Phil Sereme on [GM@plasticrecyclingsa.co.za](mailto:GM@plasticrecyclingsa.co.za) or call him on (067) 310-6999.



# Plasma cutting: a closer look at the process



CUTTING through metal efficiently has always been a challenge for fabricators. It's tough finding equipment that factors in safety, efficiency, and ease of use all in one package. The good news is that metal cutting technology has become far more advanced than it used to.

One of the top pieces of equipment used for metal cutting in various industries currently is plasma cutters. These high-tech tools have everything that you need to look for when cutting metal. While a bit more expensive than other types of metal cutters, the payoff in investing in this tool makes the expense worthwhile.

Plasma cutters sound advanced and complex by their name alone – and that's because they are. If you want to fully appreciate plasma cutters, then you should begin to understand the science and technology behind this modern-day marvel that has been saving fabricators time for years now.

### What is a plasma cutter?

The idea behind plasma cutting comes from plasma welding, which has been a staple fabrication technique since the 60s. Since being introduced years back, it has become very popular simply because many saw it as the perfect cutting method for many reasons.

Plasma cutting itself is a process used to cut metals like aluminium, steel, copper, and bronze just to name a few. The process makes use of plasma arcs to cut through the metal using heat created between the electrode and the workpiece itself. What results is a cutting technique that is very accurate and that leaves no metal chips.

When they were first introduced, plasma cutters were large

machines used primarily by big factors for the mass production of goods. However, there are now other models like fast CNC plasma cutting machinery that come in more accessible forms. These can also be used for mass production as well

### Benefits of plasma cutters

There are actually many pros to using plasma cutters. First is that they are highly functional and valuable additions to any factory. Aside from being productive when it comes to metal cutting, these tools are actually very easy and safe to use because of their precision.

Speaking of precision, plasma cutters are

also some of the most accurate metal cutters out there. Whereas other metal cutters leave metal chips and other flaws on the cut surface, plasma cutters provide a cleaner and more accurate cut. This makes them suited for metalwork that requires a lot of precision.

The only downside to plasma cutters is that they are simply used for metal cutting. If you don't fabricate or work with metal regularly, then it would be wiser to invest in cheaper metal cutting tools instead.

*This article has been shortened and originally appeared in <https://netherlandsnewslive.com/plasma-cutting-a-closer-look-at-the-process-and-equipment-considerations/205630/>*

# Babcock improves large bore welding efficiency by 50%

ON the back of recent successful welding trials at a major power station, Babcock's engineering business is ready to roll out a semi-automated welding solution for high pressure pipe welding that doubles process efficiency by drastically reducing welding time, and process-related wastage.

The culmination of three years of developmental trials sees the introduction of this semi-automated welding process set to massively improve the efficiency of traditional high integrity pipe welding while maintaining a quality weld. It offers a radical, innovative solution to large bore welding in the power generation, oil and gas, as well as industrial sectors, utilising the Miller PipeWorx's Regulated Metal Deposition (RMD™) MIG welding process.

Babcock welding technologist Conn Roux says that Babcock is the first company in South Africa to apply this repeatable welding solution, developed in collaboration with Afrox, the exclusive supplier of Miller welding machines in the country. "The new process is a breakthrough for the South African welding industry and offers a better solution in terms of cost, efficiency, pro-

ductivity and quality without any of the drawbacks associated with conventional GMAW welding," says Roux.

"Traditional methods of pipe welding rely on the use of gas tungsten arc welding (GTAW/TIG) for the root pass, followed by shielded metal arc welding (SMAW/stick) for the fill and capping runs. These processes are time-consuming and require specialised welding skills which are in short supply in South Africa and often have to be sourced from other countries," continues Roux.

Babcock's innovative approach therefore offers an excellent solution for localisation of labour. Tendani Manenzhe, welding manager at Babcock, says that the company will initially concentrate on improving in-house skills, and later train external welder resources. "By implementing this process, Babcock not only

can offer our customers improved efficiencies, but can also contribute to skills development and employment creation in South Africa," she says.

After many trials to perfect the process, Babcock was able to produce qualified and repeatable procedures that significantly increased the welding deposition rate and reduced welding time by 50%. Improved travel speeds and deposition rates resulted in faster weld completion times, thereby lowering the cost per weld.

Miller's Regulated Metal Deposition (RMD™) & ProPulse MIG welding process makes it much easier to improve the root and subsequent weld run quality and productivity of pipe welding with a precisely controlled metal transfer that makes it easier for the welder to control the puddle which minimises heat input.

Babcock training manager and expert welder, Houston Isaacs, took part in the trials and says that the improvement of heat input allows for continuous welding, reducing the frequency of stoppages due to interpass temperature being reached. "As opposed to conventional GTAW and SMAW welding, there is no need to pause during the welding process, allowing the welder to complete the weld faster and reducing welder fatigue," says Isaacs.

With more than 125 years' experience, Babcock is one of the most established and experienced steam generator and industrial plant suppliers in Africa. Babcock's specialised engineering business provides safe, effective solutions for the entire lifecycle of industrial plant, from design and build, through operation and maintenance, to decommissioning.



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# ESAB launches new FE300 and ProStage gas regulators

**Eugene van Dyk of ESAB describes the new range of gas regulators launched by the company**

"THE new GCE FE300 regulators meet all of the requirements of the G-series, but they come from a state-of-the-art new gas equipment factory in European Union, which offers us more competitive pricing with more consistent manufacturing quality," explains Van Dyk. "Better costing and manufacturing volumes enable us to pass on supply and cost benefits to customers. Most notably these regulators comply fully with the ISO standards that specify the safety and quality of gas welding equipment for welding, cutting and allied processes: ISO 2503 for pressure regulators, with and without flow-meters; and ISO 5171 for pressure gauges," he notes.

ESAB is the only weld-

ing and cutting equipment manufacturer with triple certification: ISO 9001 for quality management, ISO 14001 for environmental management; and ISO 18001, the international health and safety management standard.

ESAB's global triple certification is issued by DNV, the world-renowned testing, certification and technical advisory service. This triple DNV certificate applies to all ESAB's global facilities that develop, design, produce, distribute and sell welding and cutting products and associated services. "Every ESAB product that comes out of any one of our facilities is covered by the certificate, which means that, wherever a product ends up, it remains traceable back to its manufacturing origins for its entire lifetime," Van Dyk assures.

Key features of the FE300 high-performance single state regulator range include:

- Durable construction saving costs of spares and replacements.
- Encapsulated regulating technology for precise and stable control.
- Ergonomic arrangement makes for easy handling by operators.
- Side and bottom entry design variants are available to fit on all types of cylinder valves.
- Three scale pressure gauges certified to ISO 5171 are incorporated with high contrast pointers for better gas pressure

clarity.

- Gas colour-coded hand wheels are used for simple gas content and hazard identification.

These regulators are ideal for fabricators, onsite contractors, scrap metal merchants and any jobbing shop using industrial gases for cutting, welding or heating.

## GCE ProStage: the premium tier option

"The GCE ProStage is the new member of PRO-Series of cylinder regulators for industrial applications. It is two-stage regulator designed

for users requiring high accuracy outlet gas pressure and flow. This product completes our product range by providing a solution at the highest level of the industrial gas segment," notes Van Dyk.

Key features include:

- Two-stage regulation for constant and precise outlet pressure and flow.
- High-performance for the specific needs of industrial gas applications with up to 300 bar cylinder pressure.
- Designed with prolonged lifetime in mind, saving costs related to services and spares.
- Easy handling for the operator with an ergonomic arrangement of the three scale pressure gauges for better gas pressure adjustment and clarity.
- Robust rubber gauge protection for preventing damage to

gauges.

- Repairable eco-design with an available range of spares.
- An on-line manual is made readily accessible to operators on a smart phone or tablet by scanning the product-specific QR code permanently printed on each regulator.
- Manufactured in the European Union with a safety focused design that meets EN ISO 2503 specifications.

Most notable applications include: plasma cutting with modern systems from Hypertherm, Kjellberg, Thermal Dynamics and others; industrial applications of compressed gases with low working pressures of below 2.0 bar; and applications requiring precise outlet pressure settings that remain constant while the gas cylinder empties.

"As with all ESAB gas equipment, safety is

of primary importance and the main philosophy underpinning product design - all regulator components are carefully designed based on more than 100 years of experience with gas pressure regulation.

"Oxygen hazards are very well known and ProStage resistance has been tested in our newly accredited oxygen laboratory at the GCE Chotebor facility in Czechia. As well as routine ISO 2503 type testing, 300 bar cylinder pressure has been set as the standard for the ProStage range, while the robust forged brass body makes for a stable and resistant safety platform for internal parts," says Van Dyk.

"In an increasingly competitive market, the new FE300 and ProStage gas regulation products offer a full range of choices that will not disappoint" he concludes.

For more information visit: [www.esab.co.za](http://www.esab.co.za)

## 21st century grinding tech advances production

IN 1891 Edward Acheson invented Silicon Carbide, a hard grain in composition, with very good properties to cut or grind materials with low tensile strength such as Tungsten Carbide, Glass and Cast Iron. Only after Silicon Carbide was invented, fused Aluminum Oxide came to the forefront, revolutioniz-

ing the industry. Cutting or grinding materials with high tensile strength such as high-alloy steels was now possible and remained the key minerals used in the production of abrasives up until the twentieth century.

As technology evolved around specific materials used by the consumer, different types

of fused Aluminum Oxide were produced with White Aluminum Oxide being the purest and most friable of the normal fused Aluminum Oxides. Initially these grains were developed to create sharper cutting edges during cutting-and-grinding applications. In the early 1970's a new development of synthetics

brought about Alumina-Zirconia, a more friable and harder grain that brought the overall grinding performance to a new level when used in bonded wheels, especially on materials with high Chrome content.

In the early 1980's a new grain "Sol Gel" ceramic was developed. This improved the industry further by performing

even better compared to normal fused Aluminum Oxide, and mostly due to the significant self-sharpening properties of the grain, being even more durable.

With time, it was realized that combining a certain percentage of Ceramic grain with fused Aluminum Oxide in the manufacturing of abrasives resulted in

grinding wheels with extremely high material removal rates and increased tool life. Due to the self-sharpening properties of Ceramic grain both exceptional stock removal rates and cooler grinds are achieved, making it perfectly suited to materials that are hard to grind.

In the pursuit of developing material technol-


ogy in order to produce materials with better mechanical properties, such as parts manufactured from wear-resistant materials, requires precision abrasive products that produces closer tolerances with extended product life.


As these wear-resistant parts are generally harder to grind, it is essential to minimise heat input, as exposure to heat will harden these parts even more, potentially causing it to crack. Although a cooler grind is required, industry also requires to grind these particular parts at a faster rate to reduce overall production costs such as labour, electricity and machine operating costs.

Development in the abrasive industry is continually ongoing, not just on the manufacturing side with a lot more variations in grain combinations to create the ideal grinding wheel for with the "defined cutting edge", but also with significant development by machine producers to save on production times.

With Grinding Techniques Research and Development Team, it was able to locally produce Andor bonded precision grinding wheels with the latest technology in Sintered Aluminum Oxide and Ceramic grain, to support the ever-changing market conditions.

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Steinmüller Africa (Pty) Ltd. is one of the enterprises in Bilfinger Power Africa (Pty) Ltd., the South African subsidiary of German based Bilfinger. Our presence in the local market, spanning 53 years, is testimony to our unrivalled expertise in the steam generation industry. Services offered range from the design and manufacturing to the construction and maintenance of boiler pressure parts. At our South African based manufacturing facilities, we also specialise in fabrication of high-pressure feedwater heaters, pressure vessels, pipe supports and compensators. On-site maintenance crews provide support to the power generation and petrochemical sectors.

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# WE MAKE POWER WORK



# Robotics training: empowering industries and workforces

*Not only do industries evolve through the use of robotics and automation, but their workforces are also capable of developing invaluable and career-enhancing skills, says Yaskawa Southern Africa Managing Director Andrew Crackett.*

ACCORDING to Statistics South Africa, the country's official unemployment rate sits at 32.6% as of June 2021 – and it's likely to worsen as construction and trade industries continue to shed jobs. The only way to overcome this socio-economic epidemic is through education and the upskilling of the workforce, which creates new growth opportunities and makes them invaluable to employers.

More importantly, the training provided is internationally recognised and gives the students vital hands-on experience in the field. "Our training has been streamlined and set to a global standard," says Robin Malherbe, Yaskawa Southern Africa's Training Officer. "This means what you learn here is the same as what's being taught in Germany or Japan as an example. We've also seen many individuals do their training in South Africa, then take what they've learnt to further their careers overseas." Malherbe explains that there are different courses available, depending on what is required and the current skill level. "We do provide basic programming training, which demonstrates to people who haven't used robots before how to use and program them," he says. "Additionally, we have modules for welding, handling, and other specific functions."

If a learner wants to get more in-depth training on robotics and its various functions, there is also the option of an advanced course. However, Malherbe does advise that basic training is completed first and for the individual to get six months of experience before applying for this.

As more industries move towards automation and robotics than ever before, Yaskawa Southern Africa views training as a vital form of empowerment for both businesses and workers. This is why it also offers a basic maintenance course that allows individuals to trace and repair faults, helping them and their employers avoid unnecessary downtime and giving them confidence in their own abilities.

"We have witnessed some nervousness from workers and industries

that are new to robotics," reveals Andrew Crackett, Yaskawa Southern Africa's Managing Director. "For us, we want to remove any anxiety and empower them with the knowledge and skillset to embrace and understand the technology that will aid them in

their everyday work."

A 2020 report from the International Federation of Robotics stated that there will be a high demand for robotics skills in the post-COVID economic recovery. As a result, education and training are essential to the future world of work.

Right now, there's the potential to not just revolutionise the way businesses operate, but to also change the lives of the people who work in them. And that is the overall objective that Yaskawa Southern Africa's training aims to achieve.

As part of its commitment to developing skills in the country, Yaskawa Southern Africa is in dialogue with the South African Institute of Welding to see how both parties can collaborate for the benefit of technical skills training and workers.



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# Explosion-proof and smart

KSB now offers smart monitoring solutions for pumps and other rotating equipment used in potentially explosive atmospheres. Over the last two years, KSB has developed a wide range of solutions to ensure pumps are ready for the digital age, including the product portfolio for the KSB Guard monitoring solution. Both the KSB Guard data interface and the KSB Guard monitoring service were launched on the market with great success and have proven their effectiveness in countless appli-

cations. KSB has now added a new hardware version to the solution for use with potentially explosive atmospheres (ATEX zone 1 with gas atmosphere).

**Easy retrofit**

The KSB Guard smart monitoring solution is designed for monitoring already installed pumps and is thus ideal for retrofitting – regardless of pump make. A sensor unit, comprising a vibration sensor and a temperature sensor, attached to the pump’s bearing bracket and/or drive



lantern or to other rotating equipment records the relevant data. The transmission and battery unit wirelessly transmits the measurement data to a gateway which, in turn,

transfers the data via encrypted mobile communication to the KSB Cloud. This is where the data is evaluated and processed. The user can then view the information in the KSB

Guard app and on the KSB Guard web portal. A brand new feature of the KSB Guard solution is the use of ATEX-certified hardware. The KSB Guard ATEX gateway is supplied in a flameproof enclosure. The external antennas can be screwed on directly or positioned elsewhere via an extension cable if necessary. The KSB Guard ATEX sensor unit and KSB Guard ATEX transmission and battery unit are intrinsically safe (Ex-i). Both solutions are also suitable for outdoor installation thanks to robust lithium thionyl

chloride batteries with a service life of 5 to 8 years in conjunction with 60-minute measurement intervals.

**From reactive to proactive maintenance**

Users of the KSB Guard solution benefit from higher operating reliability and transparency, for example by being notified whenever limit values are exceeded. Thanks to trend analyses, impending damage can be detected at an early stage and prevented. The measured data can be viewed via the web portal or

the app any time, anywhere, enabling maintenance work to be better planned. As well as making it easy for users to change from reactive to proactive maintenance, the solution also helps to identify potential energy savings. KSB Guard paves the way for the world of Industry 4.0 which is based on innovative technologies such as artificial intelligence and machine learning. A data science team ensures that the algorithms in the KSB Cloud and the data evaluation are continuously optimised.

## In-field valve positioner checks using a handheld ProcessMeter

VALVES, the actuators that move them, and the electronic circuits that control them, are all subject to the effects of aging soon after they are installed. The valve seat wears not only from the repeated seating of the

valve, but from the liquid or gas that passes through it. Depending on the application, a valve can be stroked from hundreds to tens of thousands of times over a one-year period. To keep a system operating properly, a good

preventative maintenance programme that mandates periodic checks of valve positioners is required. These checks need to be conducted quickly to minimize down time. When these checks reveal calibra-

tion drift, recalibration of the electronic valve positioner must be performed quickly. With the varied locations in which a valve can be installed and the difficulty in removing it, the equipment used to perform the checks

must be brought to the valve positioner itself. Therefore, this “in-field” tester must be portable, easy to use and rugged. The tester, with signal sourcing, must simulate a controller connected to a valve positioner’s input. Through the controls on the ProcessMeter, the operator can set the positioner’s input current to a specified level and

visually inspect the reaction of the valve’s position using the mechanical position indicator, the valve stem position or flow indicators. In addition, the process meter must continuously adjust the source current



in a ramping or stepping fashion, allowing the user to check the valve’s linearity and response time. In most valves, there is an interaction between the zero and span settings of a valve controller. Therefore, it is best to ensure proper valve position adjustment by repeating the test of the fully closed and fully open

positions until no further adjustment is necessary. *Safety note: Always ensure that the personnel responsible for the process you are working on are informed of your intentions prior to making any checks of valve operation. Be alert when touching any moving machinery.*

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# New submersible pump for large particle handling

WEIR Minerals has launched the new Multiflo® Mudflo™ hydraulic submersible slurry pump. Engineered for abrasive applications and large particle handling, the Multiflo® Mudflo™ pump features a hydraulically driven wet-end specifically designed to efficiently

and safely reprocess and relocate tailings ponds, maintain water retention dams and manage slimes and sludge ponds.

The innovative solution combines the Warman® MGS pump-end, Multiflo® CB32 hydraulic cutters and ESCO® excavation teeth to provide effi-

cient pumping of highly charged and abrasive slurries.

Weir Minerals' unique Ultrachrome® A05 chrome alloy impeller ensures high wear resistance and the specially engineered suction strainer minimises the risk of clogging by preventing large solids & debris from

entering the pump. Drawing on decades of Warman® pump design experience, the Multiflo® Mudflo™ pump is capable of pumping between 150 and 1,200m<sup>3</sup>/h, up to 82m head.

The Multiflo® CB32 hydraulic cutters feature market-leading ESCO® Ultralok®

tooth system to prevent premature breakage, avoid tooth loss and protect the integral locking system to ensure the continuous operation of the pump.

Engineered by the Weir Minerals dewatering pump experts in Australia, it is available for global customers from July 2021.



# Selecting the right pumping solution

By Darryl Macdougall,  
Managing Director,  
Verder Pumps South  
Africa

A poorly designed pump system can lead to high consumption of power and premature wear or failure of components in the system, as this is not isolated to the pump itself and can impact on instrumentation, piping, valves and ancillary equipment too. Possibly the worst-case scenario being a complete plant stoppage.

Additionally, excessive breakdowns will

increase the risk to personnel as emergency repairs will have to be carried out over and above routine planned maintenance. It should also be noted that any of these possible scenarios are guaranteed to increase labour costs and inventory of spare parts, leading to production costs being driven up and therefore increased cost of the product manufactured.

With this in mind, the right pump for the application should be selected based on the following considerations:

- Chemical compatibility of materials of construction to the product being pumped
  - The pump design or technology should be suitable for the product being transported
  - Suitable pump design for the duty cycle required
  - The pump itself and the system design must allow for efficient operation – that the pump is selected to operate at the best efficiency point on the performance curve
  - The speed of the pump on duty point – and that the pipe work is designed around correct velocities
  - Power supply is adequately sized, and correct switch gear is utilised
  - The correct valves are in the system – and in the correct positions
- Navigating the technical details and implications of selecting the right pumping solutions for specific use applications can be complex. However, it is an important purchase decision



- as continued and sustainable optimum production performance of the plant is dependent on the longevity of the equipment.

To be assured of the quality of equipment, processors there-

fore should look to a trusted and reputable brand that can offer a wide range of integrated pumping solutions. And by providing all the necessary information upfront offers added assurance that the pump manufacturer will be able to supply the right solution that is 100% fit-for-purpose for the application, which means more plant uptime, efficiency and high-quality outputs.

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## Reducing maintenance, costs and downtime

PUMP manufacturer Goodwin Submersible Pumps Africa has made significant advances in the mining and dewatering industries since its inaugural opening in South Africa some four years ago. The growth experienced by the company has been spearheaded by the flagship 100ANZE® slurry submersible pump.

Goodwin also offer the larger 150ANZE® and 200ANZE®mm submersible pumps as well as the HNZZB configuration for higher head applications, featuring all of the state-of-the-art benefits that set the Goodwin submersible slurry pumps apart from all its budding competitors.

Goodwin submersible slurry pumps are made with abrasive resistant materials and feature over deigned electrical motors making them capable of pumping high density and abrasive slurries. The heavy-duty pumps are equipped with a patented external inducer that breaks down and re-suspends settled or compacted solids.

Goodwin submersible slurry pumps are built with twin volute casing technology, fitted with a forced convection-cooled, oil-filled motor, a non-



*Goodwin 100ANZE submersible slurry pump - cleaning out a silted sump area.*

pressurized mechanical seal, over-sized bearings and a heavy-duty cable. It is capable of operating at temperatures of up to 90°C and can even run dry for extended periods.

Typical applications include mine tailings, sump pump applications, power plant ash, hydro mining, or river and dam silt pumping.

Additional product developments like the Dirty Water High Head (DWHH) dewatering pump, has introduced a highly capable dewatering option to the range. The DWHH pump is designed to handle dirty

water with a maximum 10% solid content and an SG of 1.1 kg/l. Along with all the other features and benefits of the Goodwin range of pumps, this pump can deliver up to 215 m³/h of water to a maximum discharge head of 130 m.

Typical applications for the Goodwin DWHH pump include high wall pumping in open pit mines, pumping during dam and harbor wall construction, pumping from shaft bottoms, flood level control and pumping over extended distances of up to 4 km.

## Speedy, reliable mA loop valve testing

CONTROL valve testing has meant using complicated testers that require extensive training, the removal of the valve, and often one-to-two hours of test time on the bench. COMTEST is offering Fluke's 710 mA Loop Valve Tester. The device allows technicians to source the 4-20 mA signal while it interrogates HART data to collect critical information about the valve's position and status, providing quick checks of control valves while they are in place. With built-in test procedures and an intuitive interface, the Fluke 710 allows technicians to quickly and easily perform valve tests, while the valve test quick-check results provide at-a-glance diagnostics to make faster maintenance decisions.

With the tester's built-in HART communication function, technicians can source a 4-20 mA signal to cause the smart control valve to move, while simultaneously interpreting the valve's HART feedback signal to determine whether the valve is moving to the expected position.

In addition to positional information, the measured pressure delivered from the valve's internal I/P (which moves the valve) can be seen with the HART communication protocol.

The 710 features pre-configured valve tests for reliable and repeatable testing. The built-in routines include:

- Manually changing the mA signal and viewing the HART position and pressure variable information.
- Full range ramping of the mA signal from 4 to 20 to 4 mA while recording the 0-100-0 percent position, or the pressures applied that move the valve from 0-100-0 percent.
- Stepping the mA signal on the input to the valve in steps and evaluating the valves response to the mA input changes.
- Speed tests to determine how fast the valve can open or close.
- Bump and partial stroke tests that help test valves over a



portion of their range so they can be tested in a live process.

Test results are stored in the memory of the 710 where it can be uploaded to the included ValveTrack™ analysis software.

ValveTrack allows users to:

- Upload and plot logged valve tests taken in the field.
- Compare previous

uploaded tests to recent tests.

- View valve test history by HART Tag ID.
- Export valve test data to CSV for additional analysis in Microsoft Excel.

Contact COMTEST on: 010 595 1821, sales@comtest.co.za or www.comtest.co.za, for more information.

## Innovation cuts treatment costs

GLOBAL water technology company, has unveiled a breakthrough solution to support the

efficient removal of solids in water treatment applications. Xylem's new Leopold Tex-

ler lamella clarifier is claimed to be unique to the market as its lamellas are made from a

recyclable, hydrophobic geotextile material – a durable, high-density polyethylene (HDPE) – which reduces service and maintenance requirements while cutting solids by more than 80%.

Current lamella plate clarifiers are made from heavy stainless steel plates which require extensive support structures and significant capital investment. When exposed to sun, steel reflects ultra-violet (UV) rays and promotes algae growth in the clarifier, reducing the clarification performance and requiring regular, manual cleaning. The Leopold Texler system uses hydrophobic geotextile, a woven HDPE which naturally repels water and reduces the need for cleaning. The flexible design allows for cost-effective retrofitting by using existing rectangular basins, which significantly reduces the overall construction costs while increasing the flow capacity by up to 100%. Carbon dioxide (CO2) footprint for raw material production is reduced by approximately 80% due to a change in material from virgin stainless steel to virgin HDPE, along with reduced material weight.

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# Generate additional electricity through steam



Jonathan Probert.

THE implementation of the new 100MW licensing threshold for private generation could make it much easier for businesses reliant on steam – such as in the manufacturing sector (textiles, breweries and so on) - to use their existing infrastructure for power generation. By increasing the pressure of the steam used in one's operation, a turbine designed to generate additional electricity for the business can then be added to the existing system.

This is according to Jonathan Probert, Head of Business Develop-

ment for EP Steam – a division of Energy Partners and part of the PSG group of companies – who says that the introduction of the new private generation cap makes cogeneration (the generation of both electricity and heat simultaneously) more attainable. “This allows businesses to utilise every available opportunity to affordably generate additional electricity on their sites. One of the easiest opportunities for steam users is the inclusion of a turbine.”

Probert explains that for this to work, high-pressure boilers will need to be installed at the desired site. “Including a turbine in the system lowers the steam pressure, so new, higher pressure boilers will be required for businesses wanting to go this route. The good news is that this does not have to come at a high cost when there is the option to outsource this service.”

SOOT blowers are used to keep combustion particles from sticking to boiler tube tanks in the boiler tower in oil, coal and multi-source fuel plants. They can be retractable or rotary and help to clean heating surfaces of boilers fired with ash producing fuels. Several soot blowers are usually found on each level of the boiler tower. Given the extreme operating environment, lubricating soot blowers and other boiler-cleaning machinery requires specialist products.

“The idea behind a soot blower is to create multiple impacts of high-pressure air, steam or water from opposing nozzle orifices at the end of a translating-rotating tube,” explains Callum Ford, National Marketing Manager at Lubrication Engineers (LE) South Africa. “A travelling lance with nozzle jets penetrates the narrow openings in the boiler tube banks and blasts the tubes clean. Having clean tubes is important for optimum boiler out-

put and efficiency.”

He adds that ash-producing fuels cause a build-up of combustion by-products on other heating surfaces of the boiler, including ash and slag on the walls, screens, super heaters, re-heaters and economizers. Beyond soot-blowers, other important boiler cleaning equipment includes retractable water de-slaggers, gun blowers and water wall de-slaggers, and air heater cleaners. All of these, along with furnace probes, need to operate within extreme temperatures – an environment unsuitable for most traditional lubricants, which would burn, melt or coagulate. “LE has specifically designed specifically a range of lubrication products for high-temperature, critical applications,” says Ford. “For example, LE’s 1250 Almasol High Temperature Lubricant is ideal for travelling carriage gearbox steam blowing in retractable soot-blowers, while our 1275 Almaplex Industrial



Pump with wall blower - Soot Blower.

Lubricant is the best solution for linkage fittings in air heater cleaners. We advise speaking to a lubrication technician to find out about the best product for the specific boiler-cleaning application, which will ultimately protect boilers and keep them operating at their best for as long as possible.”

LE’s product range also offers lubrication solutions for:

- Air heater cleaners: gearbox oil reservoirs and adapter gearings grease reservoirs
- Furnace probes: power pack gearbox

- oil reservoirs
- Retractable soot-blowers: air blowing (indoor and outdoor installations, air motor air-line lubricators, revolving roller assembly fittings and traversing and rotary gear-boxes), oil reservoirs (indoor and outdoor applications, lance bearing fittings, main gearbox grease reservoir, power pack gearbox reservoirs), and motor adaptors (air, electric, grease reservoirs)
- Rotary blowers: air motor air-line lubri-

- cators, power pack gearbox reservoirs, cam follower fittings, reaction plate bearing fittings, miscellaneous linkages (hand oiled), power pack oil reservoirs, and switch gears grease reservoir
- Retractable water de-slaggers: traveling carriage gear case reservoirs
- Gun blowers and water wall de-slaggers: linkage grease fittings, rack housings (electrical), reservoirs, air motor air-line lubricators, and rotary gearboxes (air and electric)

# Simultaneously measure vibration and temperature

VIBRATION in rotating machinery is merely the back and forth movement or oscillation of a machine and components, such as drive motors, driven devices (pumps, compressors, etc.), and the bearings, shafts, gears, belts and other elements that make up mechanical systems.

Vibration itself is not a problem. Excess vibration is simply a symptom of internal issues, such as bearing failures, imbalance, misalignment and looseness – all of which shorten equipment lifespan. More than half of unplanned downtime is attributed to mechanical failures. While many things can impact the life of a machine, once the first signs of failure appear, it generally has only a matter of months before failing completely. Vibration testing provides a way to determine where a machine is on the failure curve allowing maintenance teams to react as needed. The higher the overall vibration of a machine the worse the condition is. COMTEST offer the Fluke 805 Vibration meter that measures overall vibration, bearing vibration and temperature simultaneously.



Bearing condition is assessed automatically with use of Crest Factor Plus (CF+) and temperature is often used as a second opinion that confirms the bearing assessment based on vibrations. Overall vibration values are used to create trend plots that help to predict the condition of a machine and to plan maintenance. Machine condition of most common machinery can be determined instantly with alarm levels that

are programmed in the product.

Users such as front-line mechanical troubleshooting teams and machine operators of high-end process facilities (petrochemical, pulp and paper, primary metals, utilities, food, product, etc.) are very specific about inconsistencies in results when using vibration screening devices. Fluke 805 promises reliable, repeatable results thanks to the innovative sensor and sensor

tip design that minimizes measurement variations caused by angle or pressure. This unique sensor force sensor design compensates for the pressure applied during measurement, and provides reliable results both for overall vibration (10 Hz to 1 000 Hz) and bearing measurements (4 000 Hz to 20 000 Hz).

The Fluke 805 Vibration Meter provides a four level severity scale (Good, Satisfactory, Unsatisfactory and Unacceptable) for both overall vibration and bearing condition. Rather than seeing unexplained lights or numerical indications, users can easily assess the severity of the situation with the Fluke 805’s text-based alerts.

The Fluke 805 can hold up to 3 500 measurements and if long term trending is required, users can easily export data through a USB connection. No special software is needed because the product is shipped with a disk containing pre-built Excel templates.

Contact COMTEST  
Tel: 010 595 1821  
sales@comtest.co.za  
for more information or to locate the nearest authorized Comtest Channel Partner.



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**The most reliable two-gas monitor on the market**  
**TANGO TX2**  
**TWO-GAS DETECTOR**



Size of a credit card and weighs less than a smartphone. Unlike other two-gas monitors that use combination sensors, the Tango TX2 uses individual sensors to increase alarm accuracy so you can reduce unnecessary shutdowns and improve incident data quality.

A two-year runtime from a single, replaceable battery eliminates the need for charging infrastructure and simplifies gas detector management.





# TAKING CONTROL OF YOUR BOILER AND BURNER OPERATIONS

**Combustion Technology's Boiler System Interface** solution helps restore control of equipment and facilities, enabling full management of all boiler house key functions.

Through its 12.1" user-friendly multitouch screen interface, Combustion Technology are able to log on to any equipped site and view all operational boilers and burners in real time.

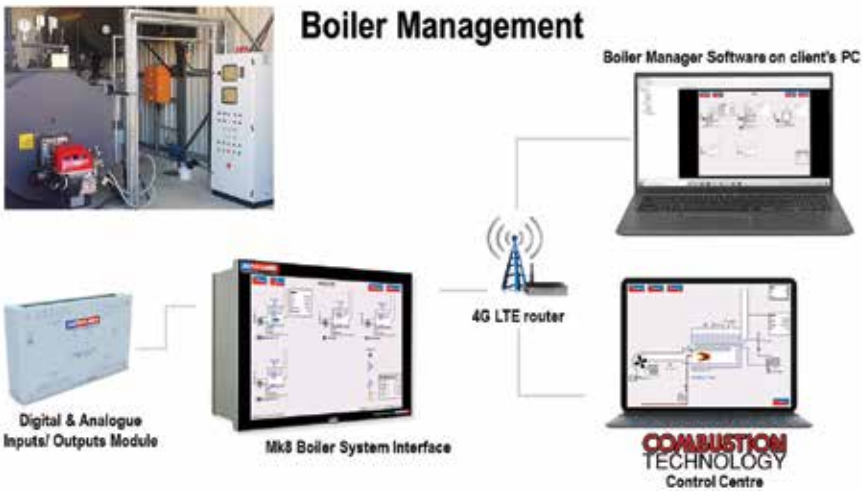
Using Combustion Technology's Exhaust Gas Analyser to sample exhaust gases, readings are fed back to the controller. Good emissions indicate good combustion, which translates to reduced fuel consumption, reduced carbon taxes and overall cost savings.

The Boiler System Interface solution allows for up to 10 boilers to be connected on a single site and enables round-the-clock management of a range of functionalities, including:

- All burner functions
- Steam flow metering
- Water level control
- Fuel consumption compared to steam generation
- Fuel pressure
- Ideal emissions (O<sub>2</sub>, CO<sub>2</sub>, CO)

## HOW IT WORKS

- The Boiler System Interface collects and stores critical data history for up to two years.
- Combustion Technology connects to the Boiler System Interface by means of a router built into its control panel.
- The central control room monitors all key parameters on a connected plant, 24/7.
- Alarms alert Combustion Technology engineers if set points drift off commissioned values.
- Interventions are actioned immediately to ensure that the highest efficiencies are maintained at all clients' boiler plants.



The Mk8 Universal Input Output (IO) module logs analogue inputs and outputs when connected through the Boiler System Interface. Digital and analogue inputs and outputs are contained in one unit and can be used for a number of applications.

### Analogue signals include:

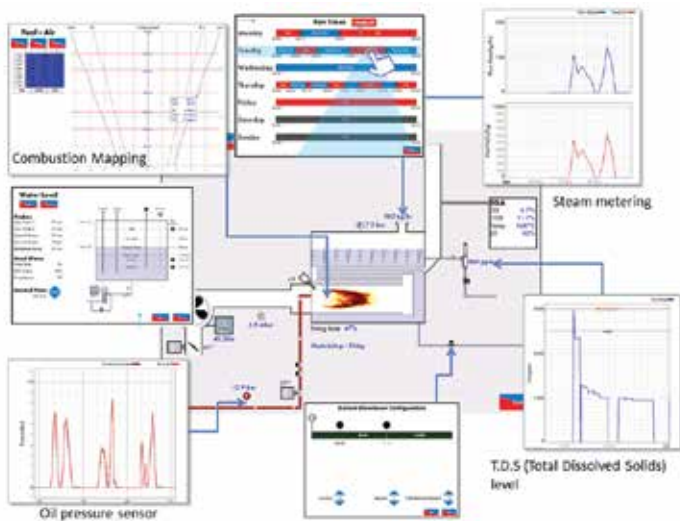
- Feedwater temperature
- Oil pump pressure
- Steam pressure
- Fuel flow rates
- Feedwater flowrates

### Digital signals include:

- Burner status
- Pump status
- Fan status
- Valve status



## BENEFITS OF COMBUSTION TECHNOLOGY'S BOILER SYSTEM INTERFACE SOLUTION



- Diagnostics of maintenance and performance issues that could affect boiler downtime or shut-down for unplanned maintenance.
- Fuel and water flowmeters monitor actual fuel usage and trend fuel to steam ratios.
- Monitoring of emissions that directly relate to fuel consumption.
- Emissions management to ensure compliance with national environmental requirements for boiler fuel gas emissions.
- 24/7 expert advice from a service provider with a best-practice Service Level Agreement.
- Monthly performance reports include data of a system's overall performance and steam production, as well as recommendations to optimize performance.
- Site's full data history stored for 2 years.
- Burner/boiler alarms, lock-out settings and 'first-outs' are monitored and timeous email notifications are sent

Combustion Technology provides modern, world-class and highly efficient environment-friendly solutions to meet any combustion and heating challenge.

**GOOD EMISSIONS = GOOD COMBUSTION**  
**Reduced Fuel Consumption = Reduced Carbon Taxes**



Contact us today to find out more

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# The vital role in local food security

THE Fishery in general and Canned Pilchards in particular play a vital role in local food security, and employ a large workforce in fishing and related industries, mainly in areas outside the major metropolitan centres.

It is estimated that at least 800 000 cans of canned pilchards are consumed daily

providing 3,2 million meals. Canned pilchards are also widely used in school feeding schemes. To put this in perspective, 25 000 tons of pilchards that is canned, will provide 400 000 meals per day.

Sardines are in demand around the world as an important food source and for bait. Locally sar-

dines are valuable as an affordable food in canned form as canned pilchards provide essential protein, nutrients, minerals plus valuable omega-3 fatty acids.

Because of their small size, most of the Anchovy caught worldwide is reduced to fish meal and oil. These are valuable feed ingre-

dients in carnivorous aquaculture and animal feed. Some of the fish oil is used in the Omega-3 market.

A consortium consisting of Sannco, Birdlife SA, WWF and individual scientists from UCT and NMMU are calling for the closing to fishing for 10 years in a 20km radius around Dassen Island,

Robben Island, Stony Point, Dyer Island, St Croix and Bird Island. This recommendation, which will have a massive socio-economic impact, is made in spite of recent analyses from ICE which do not convincingly support such a recommendation. The ICE study has closed alternate islands for the last 12 years to

fishing in order to see whether fishing is having an effect. Analysis of the results from ICE have shown both positive and negative effects of the impact of fishing on penguin population numbers, and at best there is a negligible negative impact from fishing. This effect is so small that it will not arrest the decline in

the penguin population. The major factors affecting the decline in the penguin population need to be urgently identified and appropriate action plans put in place, where possible, so that the population can start growing again.

*Reprinted from SAPFIA News.*



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## Aquaculture can benefit local ecosystem

THE aquaculture industry in Alaska has welcomed recent research showing that farmed shellfish and seaweed can have a positive impact on the environment.

Alaska has seen a significant increase in aquatic farm applications. If the state approved all the applications currently under review it would result in an approximately 850% increase in the acreage for aquatic farms over the last five years.

So the news that aquaculture can have benefits for the surrounding ecosystem is welcome indeed. A recent paper led by The Nature Conservancy in Arlington, VA, states, "A growing body of scientific evidence indicates that the commercial cultivation of bivalve shellfish and seaweed can deliver valuable ecosystem goods and services, including provision of new habitats for fish and mobile invertebrate species."

Looking across 65 studies, the researchers noted that shellfish and seaweed aquaculture were associated with higher species diversity. As well as providing habitat and food sources, shellfish and seaweed benefit the ecosystem thanks to their own biological processes.

For example, oysters are efficient filter feeders, removing nitrogen from the water and helping prevent harmful algae bloom. A farm with 100 000 oysters per acre can potentially filter twenty-five million litres of water per day, per acre.

Seaweeds also benefit the surrounding environment, pulling carbon dioxide from the water and producing oxygen, thereby reducing the harmful effects of ocean acidification on calcium carbonate-dependent species such as oysters, clams and some plankton.

Article from <https://www.worldfishing.net/news101/fish-farming/aquaculture-can-benefit-local-ecosystem>.



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Advertorial

# Southern Power: We take your performance seriously

Meet Southern Power’s Independent Executive Business Leader / Strategist: Jacques Brümmer

SOUTHERN POWER’s story has started in 1974. The company has gone from strength to strength to become one of the preferred companies that serve the marine and mobile vehicle solutions industries in Southern Africa. We have asked Independent

Executive Business Leader / Strategist Jacques Brümmer to give us some context to the company’s success.

Who is Jacques Brümmer?

Intrinsically I am a salesperson at heart

who loves engaging with clients and finding solutions to their needs. I love the outdoors, I am very conscious of the environment. One will notice as part of our rebrand exercise there is a big focus on environmentally impactful prod-

ucts that contribute to lessening the impact on our environment. The vision for the company is to continue to make strides in this arena and push and support our principal partners in developing less environmentally harmful and ultimately

emission-free products where possible to ensure we save our beautiful planet for generations to come.

What makes Southern Power different from other competitors?

I think the main dif-

ferences are that we are a small but agile company that is passionate about what we do. We believe in fair business that creates sustainability for us and makes our clients more successful. I am inspired by the Patagonia story

“Let my people surf” and Japanese business philosophy and am focused on filtering each business decision through a strategy lens that ensures we are still around in 100 years. This is quite different from most businesses’ outlook that is often focused purely on growing sales exponentially and maximising profit every year.

What excites you the most about where this company is heading?

After 9 years in this particular industry, I am still excited daily by opportunities that are presented and have embarked on expanding our product portfolio and our distribution network for some products across Sub-Saharan Africa. We are working hard at securing new Volvo Penta IPS commercial builds in South Africa which will be a first and position SA commercial boat builders a serious contender with best-in-class builders in Europe and the USA. Torqeedo, Whisperpower, and OXE are developing very exciting and broader product ranges that will cater to a growing number of environmentally conscious customers and hopefully all customers in the future.

Are you planning to bring any new brands for the marine industry or mobile solutions in near future?

We are continuously expanding our product portfolio. We have just launched a few new innovative brands in line with our strong environmentally conscious approach. We have included an environmentally friendly antifouling system SONIHULL, marine water makers FCI and wastewater treatment systems brand HEADHUNTERS.

Are you present in Africa or planning any further expansion into Africa?

We have numerous African distributors for our specific brands across Angola, Nigeria, Gabon, Ivory Coast, Senegal, and Namibia but are searching for more partners across the continent that share the same ethos as we do and are committed to serving our customers and the planet.

**SOUTHERN POWER**

## The POWER

of uninterrupted performance

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Southern Power provides marine & specialised mobile applications with technically advanced & high-performance solutions and has a service dealer network across Southern Africa. The company is the **Volvo Penta Marine Market Center** for South Africa and Namibia & official importer and exclusive distributor of other leading international brands: Oxe Diesel, Webasto, Whisper Power, Humphree, Torqeedo, Doen Waterjets amongst others.

[www.southernpower.co.za](http://www.southernpower.co.za) | 76 Marine Drive Paarden Eiland, Cape Town | 021 511 0653 | 021 510 3049





## A data-driven approach to managing COVID-19

SOUTH AFRICA is in the third wave of COVID-19, where infections in Gauteng recently saw a daily record of 10 806 new cases being recorded and attention has turned to the efficacy of the vaccination programme. But keeping track of this process is not without its challenges.

“Even without the added complications of administering the vaccine during a pandemic, the race to vaccinate the populations who need it most all while maintaining the necessary cold-storage protocols, meeting double dose requirements, and still convincing populations of the vaccine safety, is daunting,” says Greg Horne, Global Principal, Health Care, SAS.

Horne says agile, data-driven strategies are critical to optimise the available supplies and identify the location and concentration of priority populations. But beyond this, the need to reduce and potentially eliminate waste of vaccines requires close monitoring of the expiry data along with predicting demand spikes. This is vital to ensure the transportation of the most at risk supplies are done to those communities where the demand is highest.

### Analytically-driven

An analytical strategy must therefore be able to monitor the spread of the infection; model future outbreaks; uncover relevant sci-

entific literature; share real-time health insights; and optimise supply chains and medical resources.

“Globally, health-care researchers and regulatory agencies need a more comprehensive view of patients to make confident decisions about health-care, drug approvals, and policy. But clinical trial data, electronic health records, claims data, and adverse event reports are only snapshots of patients at random points in time. To provide real value, a holistic patient profile built with real world data – or observational data collected beyond controlled clinical trials – is needed to achieve the greatest effect on health and wellness and to assess the safety and efficacy of new drugs and medical devices,” believes Horne.

### South African requirements

“The importance of such a global response cannot be underestimated. However, when it comes to country-specific interventions, South Africa can learn from best practice to refine its own strategy. For one, a rapid response to not only this pandemic but other, future emerging public health threats requires a comprehensive approach to detecting and assessing outbreaks, identifying characteristics of the threat, and determining optimal intervention strategies,” says Horne.

This requires modelling the spread of infections based on up-to-date health surveillance data to help the South African government mobilise critical health care resources at all levels and understand the effectiveness of mitigation and containment efforts.

“Critically, COVID-19 has exposed gaps in the public health data systems of not only South Africa, but most other countries around the world. Unfortunately, poor data management and reporting capabilities, coupled with the inability to work between systems, have contributed to how quickly the virus has been able to spread. South Africa must now look towards upgrading infectious disease surveillance systems to an integrated platform that can deliver analytical insights for case management and quick outbreak detection.”

One of the lessons of COVID-19 is the importance of integrating data from laboratories, health information exchanges and patients, along with public health registries and other sources, to facilitate rapid case detection and investigation.

“Data on its own means little if advanced analytics are not in place for forecasting and modelling. Systems capable of anticipating trends and societal impacts are essential to effective public health responses and may prevent future public health crises,” concludes Horne.

## Telemedicine: Band-aid or long-term solution?

By Susan Meyer,  
Director and health  
and pharmaceuticals  
specialist at Cliffe  
Dekker Hofmeyr

TO do more with less, beyond the pandemic, innovative developments in technology can increase access to care (where appropriate) and lower systemic costs, particularly for vulnerable groups and those in underserved rural areas, where face-to-face care is not a viable or efficient option.

### What is telemedicine?

Terms such as telehealth services, digital health and e-health are often used synonymously with telemedicine. Examples include specialists exchanging a patient's medical history via messaging apps, telephonic or video consultations between patients and healthcare workers and remote monitoring of patients.

The aim of telemedicine is not to eradicate face-to-face consultations with healthcare workers, but to improve accessibility and efficiency of healthcare services.

### Regulation of telemedicine in South Africa

COVID-19 necessitated a relaxation of the rules governing telemedicine. As an infection-control solution, telemedicine helps reduce health care workers' contact with patients, whilst enabling vulnerable groups to receive cer-



tain healthcare services during self-isolation. Telemedicine in South Africa is regulated in terms of, amongst others, the General Ethical Guidelines for Good Practices in Telemedicine, issued by the Health Professions Council of South Africa (HPCSA) in 2014 (2014 Guidelines).

When the national lockdown commenced, and only for the limited duration of the COVID-19 pandemic, the HPCSA minimally relaxed its stance by issuing guidance which replaced the reference to “telemedicine” with “telehealth”, which definition now included telepsychology, telepsychiatry, and telerehabilitation, amongst others. The requirement for an already established practitioner-patient relationship remained, except for telepsychology and telepsychiatry. Critics referred to a lack of clarity in respect of the length of time and other requirements needed to “establish a relationship” between the patient and the physician. Despite the hard

lockdown having commenced, the HPCSA specifically advised against telephone and/or virtual consultations for new patients (HPCSA Guidance Note 26 March 2020).

### Benefits

Telemedicine is frequently judged against the counterfactual of face-to-face care, where it may fall short. In South Africa, however, the lived experience of the counterfactual is often no or less care due to access constraints. Telemedicine can enable healthcare workers, particularly scarce specialists, to reach patients in remote and rural locations which they would not normally be able to access.

An additional important benefit is the role telemedicine can play in upskilling health care workers, by using technology as a training tool; a huge gain in South Africa where we face a health-care human resources crisis and an inequitable geographic spread of available specialists, amidst a high burden

of disease.

### Challenges

Most obviously of concern are inaccurate clinical diagnoses in a virtual world, for example, if patients are unable to correctly describe their symptoms, particularly where there are language barriers, and there is no physical examination. These challenges are less prevalent for certain specialties, such as mental health consultations.

Another considerable obstacle is the ownership and transfer of patient data, in the light of the absence of an implemented system for a single electronic interoperable health record. From a pragmatic perspective, South Africa's electricity load shedding epidemic and the high costs of data may present connectivity challenges. However, this does not mean that telemedicine in and of itself is a dead-end, but rather that eradicating total inequality in healthcare delivery will be unlikely.

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The pumps are used in many applications and industries, from the



reliable transfer of bulk ingredients in the food industry to the production of cosmetics, personal care products and “over the counter” pharmaceuticals. The positive-displacement pumping action and high level of hygiene make them particu-

larly well suited to the pharmaceutical industry with applications such as blood, insulin, serums and vaccines or pumping shear-sensitive, bacteria-count critical products as well as creams, shampoo, soaps, toothpaste and cosmetics.

## Integration eases payment pain for medical practices

PAYMENT solutions provider, Netchash, and Avantedge Group member, Solumed, have announced the integration of the Netchash payments solution with Solumed's medical practice management software.

The functionality simplifies the collection and processing of payments for users of the Solumed software, which include more than 1 000 medical, dental, radiology and allied healthcare practices around South Africa.

Solumed enables medical practices to efficiently manage

their patient billing records and clinical records. The Netchash integration will make it simple for patients to pay using convenient instruments such as credit card, Ozow instant EFT, Scan to Pay, and Bank EFT. Practices simply send a Netchash Pay Now link to patients via email or SMS to make it easy to pay. Incoming payments are automatically reconciled with the correct relevant account, reducing administration.

Says Saul Jankelow, Solumed director: “Healthcare practices are embracing

digital technology to streamline admin and improve the patient experience. To help them achieve these goals, we are partnering with best-of-breed providers to extend our software with functionality such as online bookings and digital payments. This integration with Netchash addresses a significant administrative headache for healthcare practices – efficiently collecting payment and following up on overdue accounts. The integration further allows medical practitioners to access and manage payments from

anywhere in the world using the same software they use to manage their patient billing records and clinical records.”

Adds Netchash MD, Charles Pittaway: “We are pleased to partner with Solumed to provide a seamless and secure payments platform to its customers. This relationship aligns with our goal of partnering with software vendors to reach small and medium businesses across a range of industries and help them to make it easier and more convenient for their customers to pay.”



# Industrial linear LED luminaire, ideal for oil and gas applications



AVAILABLE in a 4ft and 5ft version, the locally designed and manufactured BEKA VAPOURLINE offers a robust and efficient LED alternative for replacing fixtures fitted with T5/T8 fluorescent tubes.

Designed to provide a long-term solution for harsh industrial environments, the

BEKA VAPOURLINE has a strong mechanical design that makes it highly resistant to shock and vibration while its IP rating makes it ideal for dusty and wet locations.

This high-performing luminaire provides an energy-efficient lighting solution. With a lifetime five times longer than a fluorescent tube, this

modern linear LED luminaire lowers the total cost of ownership of a lighting installation and eliminates the need for maintenance.

For the 4ft version, the LED modules are clipped into the diffuser, creating a protected and enclosed optical compartment within the luminaire. This will prevent any

premature damage to the LEDs during installation or during maintenance.

The 4ft and 5ft versions are suitable for Zone 2, 21 and 22 locations. In a Zone 2 location, operations are concerned with flammable or explosive substances, gases, or vapours or volatile liquids and which are so

well controlled that an explosive or ignitable concentration is only likely to occur under abnormal conditions. Zone 21 and 22 locations are those which are hazardous because of the presence of combustible dust and fibres.

Furthermore, the optional 1-hour Emergency version provides peace-of-mind in power outages and emergency situations, thus making this luminaire extremely suitable for escape routes.

The BEKA VAPOURLINE creates safe and comfortable working conditions thanks to its low glare and high colour rendering index to optimise productivity.

Key features include:

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- Cuts energy costs by up to 50%
- Uniquely designed optical compartment to meet LED lifetime expectation
- Easy installation and maintenance free
- High colour rendering index: CRI 80
- High luminaire efficacy (up to 169lm/W)
- Uniform luminance with low glare due to prismatic diffuser design
- Long service life: over 60 000 hours (L70B10)
- No ingress of dust and moisture into the LED and controller compartment - IP 65
- Vandal-resistant - IK 08
- Robust corrosion-resistant housing and diffuser
- Stainless steel latches
- Supplied with complete surface mounting kit
- Optional 1-hour emergency back-up
- Surge protection 10kV/10kA

The BEKA VAPOURLINE offers other suitable applications, such as for industrial halls and warehouses, car parks, public buildings, office buildings or sport areas.

For further enquiries, contact Grant Combrink at 011 238 0000 or [g.combrink@beka-schreder.co.za](mailto:g.combrink@beka-schreder.co.za)



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# Petrochemicals industry threatened by a vicious circle

By Aimee Clarke,  
CBN

HISTORICALLY, the petrochemicals sector has been a great source of economic opportunity for South Africa. In its heyday, it was a thriving sector of the economy but today it is hindered by poor cashflow, increasing retrenchments, and an ever-widening skills gap. These elements work together to create a vicious cycle which is gaining momentum, threatening the industry's ability to innovate and explore new economic opportunities.

"While oil prices are bouncing back after the negative impact of the pandemic and international trade wars, there are several challenges facing our pet-

rochemicals industry," explains Yershen Pillay, CEO of the Chemical Industries Education and Training Authority (CHIETA). "The industry is suffering, largely due to a shortage of chemical engineers, mechanical engineers, and data scientists. At the same time, investment in training and education is the first casualty when cashflow is under threat – this means there are fewer resources available to unlock the talent pipeline and invest in the engineers we need," he explains.

CHIETA is the sector education training authority for the chemicals sector, which covers nine sub-sectors including petrochemicals. They facilitate skills development in the sector and ensure that

skills needs are identified and addressed through several initiatives in partnership with higher education institutes, public entities, training providers, and private organisations. These initiatives are funded by levies collected from the nine industries, although the petrochemicals sector is the biggest contributor to these funds for the chemicals sector, with 37%.

"Levies are calculated based on salary spend. When the petrochemicals sector suffers, retrenchments increase, the salary spend decreases, and fewer funds are made available for skills development initiatives," explains Pillay. CHIETA's research into scarce skills has identified a shortage of

chemical engineers.

Why is this a problem? As the world moves towards cleaner, greener fuels, some may question the need to support the petrochemicals sector which is traditionally associated with heavy carbon emissions. The answer lies in our ability to innovate, according to Pillay. "A good example now is South Africa's drive towards creating a thriving hydrogen economy. Hydrogen is one of the most important products and intermediates of the modern petrochemical industry, and recent news points to many new opportunities in this sector."

In July, Sasol and the Industrial Development Corporation of South Africa (IDC) announced their plans



to cooperatively shape the advancement of South Africa's hydrogen economy. Amongst others, they aim to develop pilot and commercial scale hydrogen projects to pioneer viable and sustainable solutions, access local and international

financing options, and pursue strategic projects that benefit the country's energy transition and economic development goals.

Without well-trained and world-class chemical engineers, mechanical engineers, and data scientists, South

Africa will struggle to take advantage of these new opportunities. Pillay encourages companies in the petrochemicals sector to not lose sight of longer-term gains, urging them to consistently invest in education and training initiatives.

## Appeal to consider biogas potential in their NDC submission comes to nought

*Letter to the Minister of Environment, Forestry and Fisheries Ms Barbara Creecy falls on deaf ears.*

23rd March 2021

Dear Ms. Creecy,

I am writing to you to make representations on behalf of the biogas industry in this pivotal moment for South Africa as its Nationally Determined Contribution (NDC) will soon be submitted and as the Government decides how best to recover from the economic recession caused by the COVID-19 pandemic. The South African and global economies that we are hoping to rebuild

have long been under the existential threat of a climate catastrophe. A truly green recovery from the current economic crisis remains our last chance to meet the Paris Agreement targets and limit global warming to 1.5°C.

The next UN climate summit, COP26, represents a unique opportunity for countries around the world to step up their climate targets and efforts at a time in which economies and societies will need to be rebuilt. With China committing to a

net zero target and the US presidential elections' results providing the basis for cautious optimism about the future of climate policy, there is renewed hope that nations will build on the momentum to accelerate the transition to a greener and safer future. South Africa ought to play its part.

South Africa's NDC currently does not mention any biogas targets nor commitment to grow the industry. All organic wastes when left to rot in the open air, release methane

into the atmosphere. These emissions however can be avoided when these wastes are recycled to produce biogas that is a storable flexible green gas, along with a rich-nutrient bio-fertiliser, digestate. The biogas industry can therefore greatly contribute to South Africa's transition away from coal and increase its energy independence while also restore the country's soil health and displace fossil fuel derived fertilisers.

We greatly wel-

comed the Integrated Resource Plan (IRP2019) with its major shift in energy policy to the benefit of renewables, implementing the IRP2019 will enable South Africa to achieve its 2030 NDC target. Biogas should play a key role in its implementation as it can be upgraded to biomethane, a sustainable gas which acts as a direct substitute for fossil natural gas. While electrification and hydrogen are often earmarked as a future solution for

the energy transition, their implementation will be highly disruptive and costly, and in the case of the latter, remain hampered by technological barriers. Biomethane is able to decarbonise these sectors immediately. The IEA has recently published a dedicated report on biogas and biomethane that finds that the world's biogas and biomethane resources alone could cover 20% of global gas demand.

We count on your support and urge you

to include biogas in your enhanced climate plans and NDC. We would also welcome a meeting with you or relevant officials to discuss these important issues in more detail.

Yours Sincerely,

**Southern Africa Biogas Industry Association (SABIA)**  
Secretary General  
Alberto Borello

**World Biogas Association**  
CEO  
Charlotte Morton

## If you boycott Africa's oil and gas sector, Africa will boycott you

*So says the African Energy Chamber (AEC). In a move to promote development and end energy poverty by 2030, the AEC has announced that it will encourage African countries to boycott companies that boycott African oil and gas.*

WITH the international community pushing for a rapid decrease in carbon emissions due to climate change, there has been a significant decline in foreign investment directed towards the African energy sector. The global climate crisis remains a critical point of discussion and should remain at the top of the agenda with regards to energy development, however, as the international community moves to boycott investments in the African energy sector, African people and African development stand to suffer. The role of oil in Africa's energy and economic future is apparent, and consequently, should be defended as Western elites move to disrupt African progress.

Despite oil's potential to lift millions out of poverty and ensure underdeveloped African nations have a chance at economic growth and success, there has been an increasing trend by the international investment community to boycott African energy projects.

With the end of investment in African oil and gas declared by the European Bank for Reconstruction and Development, BlackRock, the Royal Bank of Scotland, the Organization for Economic Co-operation and the International Energy Agency, Africa will not be able to alleviate energy poverty. What's more, organizations such as GreenPeace and Friends of the Earth continue to cause major project disruptions in Africa, directly impact-

ing any opportunity for sectoral and economic growth.

What's even more unsettling is that for years, there has been an accelerated push by the international community for Africa to create enabling environments for investment and now that this has been established, the West is ending investment. Through the promotion and drive for amended policies, restructured regulatory frameworks and investor attractive initiatives, Africa has made significant progress in increasing ease of doing business across the African oil and gas sector. Notably, with Nigeria's recently passed Petroleum Industry Bill, Nigeria has spurred investment in its highly prospective energy sec-

tor, and countries such as the Republic of Congo, Angola, and Senegal, through transformative regulatory changes, have focused on attracting foreign investment. How is it that, upon the establishment of enabling environments in which the international community demanded, the same organizations have decided to end investment in African oil and gas projects?

No more. Africans are not going to sit back and allow African elites and financial institutions to destroy our energy industry and the opportunities for job creation, enabling the alleviation of energy poverty. We must utilize free markets and the continent's enabling environments to allow capital to come into the continent and combat cli-

mate change in a responsible manner. There is no denying that the energy transition is vital, however, someone has to pay for it. USD \$100 billion for all developing countries is essentially a non-starter, especially considering that western nations will be spending approximately \$6 trillion to transition annually.

In response to declining interest in African oil and gas projects, particularly as Western nations continue to interdict African fossil fuel developments, the AEC has declared that it will urge African countries to boycott or refrain from working with international companies that discontinue investments and reject the African oil industry. There is no reason to invest African pension funds or

conduct business with financial institutions that refuse to invest with African energy companies because of climate change. Financial institutions that discriminate against Africa's oil and gas industry in the name of climate change are wrong and desperately need to change both their mindsets and actions.

Look at the facts; we cannot expect African nations – which together emitted seven times less CO<sub>2</sub> than China last year, and four times less than the US, according to the Global Carbon Atlas – to undermine promising opportunities for economic development by simply aligning with the Western view of how to address carbon emissions. Make no mistake, the energy industry has led the world in

emissions reductions.

Making energy poverty history by 2030 should be our most urgent priority. The AEC has taken a principal position in refusing to attend Africa Oil Week in Dubai because we disagree with the London-based narrative that African oil and gas investments must end. By hosting AEW 2021 in Cape Town on the 9th-12th of November 2021, the AEC is committed to the African narrative, African voices, and African energy sector growth.

*For more information about Africa's premier energy event, visit [www.aew2021.com](http://www.aew2021.com) or [energychamber.org](http://energychamber.org) and/or email [Amina.Williams@energychamber.org](mailto:Amina.Williams@energychamber.org)*



# Logistics company expands to over 3 000 pickup points

ORDERING online should be as simple as clicking through a checkout page of an ecommerce site, but as we know, waiting on delivery can flip the convenience of online shopping into a logistical nightmare.

Even if a courier informs you that delivery will take place on a specific day, figuring out when it will actually take place generally feels impossible. So, you hit pause on your day, wait on delivery and just when you think it's ok to slip out for an errand, you get the delivery text of death — your courier is outside.

Perhaps that's why many South Africans are opting for alternative delivery methods, like Click and Collect. In 2020, one of the

largest Click & Collect providers in South Africa, Pargo reported a 153% growth in order volumes. The delivery method is likely to experience even greater popularity during the 3rd wave of COVID-19 infections as many South Africans aren't sure whether they will be working from home or at the office.

According to Lars Veul, co-founder of Pargo, the smart logistics company is fully prepared for the coming uptick in orders.

"Our PUP [Pargo Pickup Point] network is always growing. We've recently celebrated a major milestone of over 3 000 pickup points, which are currently servicing over 87% of South Africa's postal codes.



Each of our PUPs is reinforcing their strict COVID-19 protocols to foster quick, safe

and contactless parcel collections for customer convenience and peace of mind."

To further facilitate quick and seamless customer collections, Pargo has also recently rolled out new bright yellow signage at pickup points.

"The new Pargo yellow signage is the result of our effort to align our visual identity even more with our brand archetype. The signage allows passing trade to easily identify Pargo Pickup Points and makes our in-store collection counters super visible — improving customer experience," says Michaela Gabriel, Head of Marketing at Pargo.

These pickup points can be found at several popular franchises, such as Clicks, Fresh-Stop at Caltex and Lewis stores, as well as many independent retailers across the

country. The points are strategically located to give consumers, who normally don't have easy access to ecommerce, the ability to receive their orders where it is more convenient to them.

Apart from offering online shoppers the ability to collect their orders, pickup points also benefit retailers through the increase in customer footfall. Peter de Beer, Head of Pickup Points at Pargo, explains "Though shoppers visit our pickup points to collect their online orders, we often see that many of them complete their collection while doing more shopping. One of our largest pickup point partners, Clicks, estimates that around 30% of all Pargo customers who visit their stores

for Click & Collect delivery end up making additional in-store purchases."

On becoming a Pargo pickup point, he elaborates; "We are continuously looking to collaborate with the right partners - this is key for us."

Pargo has recently partnered with Global Oil petrol stations to turn more than 80 of their sites into pickup points.

"Our collaboration with Global Oil gives even more consumers convenient access to ecommerce. Through Click and Collect, our partners gain access to new customers and provide their existing ones with a new service offering. Our pickup point partners are also compensated for each parcel handled".

## Costs to consider when thinking of implementing an ERP

THINK ERP (Enterprise Resource Planning) solutions are only for large enterprises? Think again. Many ERP customers are small and midsize companies using solutions that have been designed specifically with their needs in mind. That includes the initial project cost as well as maintenance fees, which are lower than those of solutions aimed at the enterprise market.

"Although priced for SMEs, this does not

mean that these solutions are lightweight in terms of functions and capabilities," says Elaine Havenga, Head of Marketing, Seidor Africa. "They come with rich functionality and are able to support a business's accounting and financials; sales and customer relationship management; purchasing and operations; inventory and distribution and reporting requirements. Importantly, they enable a business to gain effi-

ciency and cut costs simultaneously."

"...it is a myth that ERP solutions for the SME market are not customisable or scalable."

Havenga adds that remote project implementation is also a cost-saving factor. "Off-site consultancy for ERP project implementations and remote delivery are often the

preferred approach when dealing with multi-site implementations. They can also be completed in just a few weeks, saving time as well as money."

She says it is a myth that ERP solutions for the SME market are not customisable or scalable. They can grow with the business, and contain multiple modules, covering the needs of all departments in one solution. Many also have the ability to integrate to third-party applica-

tions and data.

"Many of our clients have reported that SAP Business One enables them to run their business 20% more efficiently, which ultimately leads to greater profitability," says Havenga. "Imagine having all the tools needed to manage any area of business. This extends business capabilities beyond the core management function, enabling managers to streamline business processes and deliver value to all."



Elaine Havenga.



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## Law must prevail and key corridors protected

By Dr Juanita Maree  
– Chairperson:  
The South African  
Association of Freight  
Forwarders (SAAFF)

THE South African Association of Freight Forwarders (SAAFF) strongly condemns the recent wanton destruction of the country's key infrastructure, goods and property and the senseless loss of lives over the past week. We respect South Africa's law and the Constitution, but it is time to take action. It is time for us to work together, make plans, implement those plans and ensure that our supply chains continue to operate.

SAAFF's membership comprises freight forwarders, who are the architects of the supply chain. For the economy to function and for people to be able to survive and prosper, supply chains need to

function unimpeded.

The closure of the Port of Durban and parts of the N2, N3 and N4 as a result of the senseless looting and destruction of trucks, their cargo, shopping malls, distribution centres and beyond has severely impacted our supply chains. This has massive short-term consequences and even more devastating long-term ones for everyone in this country.

But the impact will reverberate far beyond South Africa's borders. According to The Federation of East and Southern African Road Transport Association's (FESARTA) CEO Mike Fitzmaurice: "What has happened in South Africa in this last week has also impacted hugely on other landlocked countries in the SADC region, who rely heavily on South Africa for imports of fuel, groceries, pharmaceu-

ticals, mining equipment/spares, vehicle spares, tyres and much more. Those countries that have used South Africa as a transit route for exports through the Port of Durban will now turn to alternate routes for exports such as Walvis Bay, Beira, and Dar es Salaam."

Fitzmaurice continues: "We are likely to see some large-scale disinvestment in the country, as we did have in the Apartheid Era. We can expect to see further downgrades to our junk status by the likes of Moody's, Fitch, and Standard & Poor's in the short term and the Rand is likely to breach the R15 to the dollar very soon."

### What we can do

For supply chains to operate, the national highway corridors and our harbours need to be able to move cargo

safely and securely.

As industries and communities, we need to come together to take action. SAAFF, together with other role-players in the extended community, is busy formulating a seven-point plan to restore normality and enable supply chains to continue functioning. The plan focuses on securing the N2, N3, N4 and our harbours. Cargo needs to move. Balance needs to be restored to the import and export of cargo: fluidity needs to be factored back into the system. Essential cargo needs to be prioritised. Our plan addresses these elements.

If supply chains are stopped, there will be massive blockages in parts of the supply chain, bringing about enormous unintended, incalculable consequences.



# Signal lamps and control box with IO-Link

WITH new types of its outdoor-capable E-BOX control units and TILTED DIAMOND+ signal lamps, RAFI now offers two innovative product families for the IO-Link interface. As a control box with an IO-Link interface, the E-BOX IO-LINK makes it possible to integrate switches and key switches for simple control tasks in any field bus. The slimline, rugged units feature IP65 degree of protection. The M12 terminal means even untrained personnel can quickly install them and put them into operation.

The IO-Link device identification prevents errors because incorrectly installed devices are reported to the control unit. The IO-Link Master automatically transfers saved parameters to replacement devices. Thanks to integrated tactile switches from the MICON 5 series, the illuminated pushbuttons of the E-BOX provide excellent tactile feedback. They can be customized via IO-Link with a large range of functions to suit the application.

Included among the options are night mode with various brightness levels, the flexible choice of white, red, green, blue, and yellow illumination, or three RGB colours that can be selected by the customer. Furthermore, the buttons can be configured with four different flashing modes for different application cases. RAFI supplies the E-BOX IO-LINK equipped ready for commissioning with one or two switching or indicator elements from the RAFIX 22 FS+ series. For individual marking of the control components, printed or unprinted FLEXLAB labelling sheets are available. With their compact dimensions of 123.2 mm x 40 mm x 35.6 mm, the control units are ideal for assembly on 40 mm profile rails on production lines or safety fences. The accessories include a fixing clip that can be attached to profile rail grooves and other mounting surfaces. The E-BOX simply snaps onto the clip.

RAFI has also released an IO-LINK version of its RGB-LED signal lamp from the TILTED DIAMOND+ series. Thanks to its M12 terminal and IO-Link parameterization, it is also fast and easy to install. Apart from freely configurable night settings and illumination colours,

the TILTED DIAMOND+ IO-LINK comes with further options. It can signal application-specific alarms or machine statuses with eight different flashing modes such as single flashes, continuous flashing, or

pulsating light. What distinguishes the signal lamps are exceptional brightness, vibration resistance with IP66 degree of protection, no need for maintenance, and the striking dome-shaped bezel design. The diamond-shaped

lenses arrayed all round give the bezels excellent illumination, clear signal colours, and top visibility over large distances. The accessories available include support tubes in various lengths and shapes and a mounting base.



Now available in IO-Link versions: E-BOX and TILTED DIAMOND+ signal lamps from RAFI.

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A Condra 5-ton single-girder overhead crane.

# Fourteenth crane for Black Mountain Zinc

CAPE Town lifting equipment company BB Cranes has secured an order for the fourteenth overhead crane to be installed at Gamsberg Zinc Mine in Northern Cape Province.

Placed by Mota-Engil, the order is associated with a contract signed between this Portuguese mining and construction group and Black Mountain Mining for further drilling, excavation and transportation work at Gamsberg.

Black Mountain Mining is the mine owner. The thirteen cranes already installed were designed and manufactured in Johannesburg by BB's parent company Condra.

They were installed by BB Cranes. The first eleven were delivered to the mine during its initial development in 2017, and a further two

units were commissioned as a separate order last year. There are currently two 10-ton double-girder overhead cranes in service, one 40/8ton crane also of double-girder configuration, a number of 5-ton single-girder machines and various hoists and lifting beams.

The latest crane for Gamsberg Zinc will be a 20-ton, double-girder electric overhead travelling crane once again of Condra design, but this time manufactured by BB Cranes at its Cape Town factory.

To be delivered in September 2021, it will span 18,2-metres and deliver a 12-metre lifting height over a long-travel distance of 40 metres. The crane will be used for maintenance and repair duties in Mota-Engil's workshops.

BB Cranes will manage manufacture, then deliver, install and commission its latest order as a turnkey project, supporting it with technical service and maintenance from Cape Town. The company has managed the lion's share of Gamsberg Zinc's crane maintenance requirements since the first machines were commissioned.

Three to four service teams are available to all BB customers, one of them on round-the-clock standby. The company employs two lifting machinery inspectors for certification.

Management at BB Cranes believes that the latest Gamsberg order will reinforce the attributes and benefits brought to mining by the Condra brand: robust design, short lead times and rapid service and spares back-up. For Gamsberg Zinc as the customer, BB Cranes' proximity is the most important of these, allowing the application of technical support, knowledge and service expertise more quickly than would be possible from Johannesburg.

BB Cranes has a lifting equipment history stretching back thirty years, the last five as part of the Condra group. Condra acquired a majority shareholding in BB in 2016 to expand its distribution network and achieve a closer presence to customers in the Western and Northern Cape.



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# A ‘greener’ process for extracting compounds from agricultural and food waste

By Kelly Brown,  
University of Adelaide

RESEARCHERS at the University of Adelaide have identified a ‘greener’ process for extracting health-promoting molecules found in agricultural and food waste, which can be repurposed in products such as skincare and pharmaceuticals.

In a study published in Green Chemistry, the researchers trialled the use of greener solvents to collect compounds found in apple pomace known for their powerful antioxidant, antibacterial, anti-diabetes and anti-inflammatory properties.

Co-author of the study, researcher Dr. Long Yu from the University of Adelaide’s School of Agriculture, Food and Wine said: “Apple-processing industries generate tons of waste and by-products every year.



“Currently only around 20 percent of apple waste is retrieved and used as animal feed. The rest is incinerated or sent to landfill or composting, which releases significant amounts of greenhouse gases.”

Apple pomace (consisting of peels, pulp and seeds) is known to be rich in molecules known as “flavonoids,” which help regulate cellular activity and fight off free radicals.

“Extracting the ‘goodness’ from apple pomace is one way to make better use of this waste product and could help the apple processing industry become more sustainable,” Dr. Yu said.

However, because the health-promoting extracts found in apples have low solubility in water-based solutions, up until now they have been difficult to collect without using toxic organic solvents, which generate large amounts of pollutants.

To address this problem, in their study

the researchers investigated extraction using a new generation of green solvents known as Deep Eutectic Solvents (DES). These solvents consist of natural molecules, and provide a greener alternative to volatile and toxic organic solvents due to their superior extractability, negligible volatility and non-flammability. The solvents are also inexpensive.

The researchers developed an optimized approach using the green solvent to simultaneously collect and modify the health-promoting molecules pulled from apple pomace.

Compared with traditional solvents, the amount of bioactive compound pulled from apple pomace using the DES solvent was significantly higher than that collected using traditional solvents. Professor Vincent Bulone from the University of Adelaide’s School of Agriculture, Food and Wine who supervised the

research and co-wrote the paper, says they also found the antioxidant activity in the extracts was significantly higher than in samples obtained by conventional solvent extractions.

“We can conclude that DES is a green and tuneable alternative that not only efficiently collects powerful healthy molecules found in apple pomace, but also boosts the antioxidant activity of the extract. Not only do DES provide a more environmentally friendly way to make better use of what would otherwise go to waste, but the collection method may provide a way to improve skincare, biopharmaceuticals and nutraceuticals,” said Professor Bulone.

The researchers say the same principle and approach could also be used to collect and modify other health-promoting molecules from other agricultural and food waste.

## IN THE NEXT ISSUE:

- Agri-processing Industry & Supply Chain
- Automation Systems / Instrumentation Measuring / Process Control Monitoring
- Building & Construction
- Food / Beverage / Wine
- HVAC – Heating, Ventilation, Airconditioning, Refrigeration
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# Data identifies turbine wake clustering, improves wind farm productivity via yaw control

By American Institute of Physics

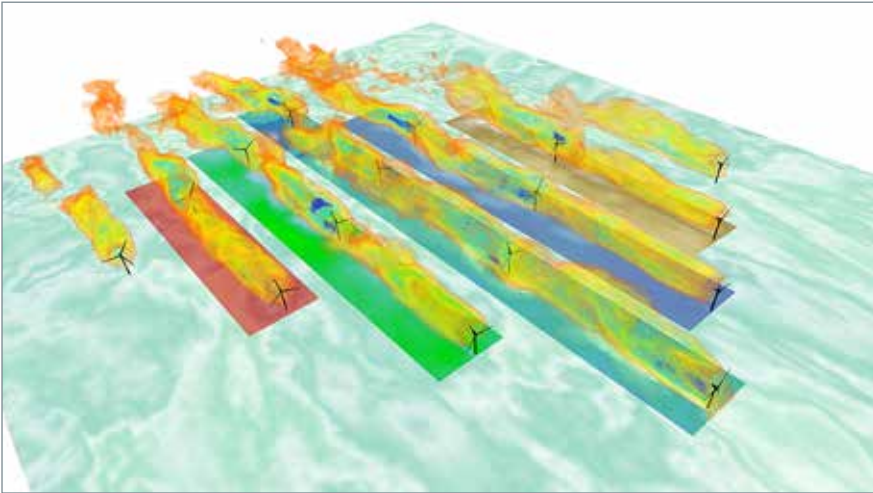
IN the wind power industry, optimization of yaw, the alignment of a wind turbine’s angle relative to the horizontal plane, has long shown promise for mitigating wake effects that cause a downstream turbine to produce less power than its upstream partner.

However, a critical missing puzzle piece in the application of this knowledge has recently been added—how to automate the identification of which turbines are experiencing wake effects amid changing wind conditions.

In the Journal of Renewable and Sustainable Energy, researchers from the University of Texas at Dallas describe a real-time method for potentially helping turbine farms realize additional power from the clustering of their turbines. Their method requires no new sensors to identify which turbines at any given time could increase power production if yaw control is applied, and validation studies showed an increase of 1%-3% in overall power gain.

“There was a huge gap in how to determine, automatically, which turbine is in the wake of another in the field with variable wind conditions,” said co-author Stefano Leonardi. “This is what we solved. This is our contribution.”

Wind farms consist of multiple turbines built close together, each converting kinetic energy into electricity. Optimizing power production from an individual turbine depends on many factors (e.g., stratification, temperature, turbulence, topography, etc.), but optimizing production of the farm as a whole also involves interactions



*Yellow areas indicate low velocity wakes that extend downstream of wind turbines, and the algorithm identifies clusters of turbines (represented by coloured rectangles) that can be optimized as a group to obtain a gain in power production.*  
Credit: University of Texas at Dallas.

between turbines. A downstream turbine in the wake of another encounters decreased wind, reducing turbine power production up to 60%.

The researchers identified how to create clusters or links between turbines by identifying correlations in data currently collected by turbine sensors. Wind farm owners can then use this automated information to guide employment of a standard procedure for yaw control, based on the past decade of studies about yaw optimization. Each 1% increase in energy production would represent 3 billion kilowatts per year.

“The exciting part about our work is that it matches reality, impacting real people,” said co-author Federico Bernardoni. “Operators can use these results

to identify when they should apply yaw control, and to which group, to maximize wind power gain.”

Since the turbines already have the hardware and sensors, and the land is already committed to the wind farm, any increase in power production using this method would be truly green energy. The method is also unique because it is model-free. It makes no assumptions about current parameters or conditions, minimizing the effects of uncertainty present in current wake models.

“By just making turbines smarter, we’re getting more energy from something that already exists,” said Leonardi. “Using just simple math, we’re increasing energy, so that’s a very clean, green one to three percent gain.”



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## Up in smoke. When one spark is enough

THERE we were, happily minding our own business after dinner at the local Fine Fare and Wine, examining the important issues of our village. It was shortly after Pres Ramaphosa had a *lucidum intervallum* (ask an older lawyer, who qualified before Latin was too hard for legal minds) and allowed civilised adults to have a taste of wine with their dinner – beer if you are Big Ben. Then, of course ... you know the story, Luke the Dude spoke up.

“So what is it,” interfered he, “did we have a failed coup in our liberated kakistocracy or did all those empowered shoppers in KwaZulu and Gauteng just become gatvol at the same time?”

Bob the Book slapped his forehead. Jean-Jay said “Merdel!” Big Ben downed his pint – all while The Prof drew deeply on his unlit pipe and then considered, “Well now, disturbing as we may well find it, young Lucas here has a valid question. One to which there has not been a cognitively satisfactory reply.”

Well, that’s The Prof for you. Always ready to defuse a possible spark, albeit by confounding the locals. Had he been present in the less urbane provinces last month, neither insurrectionist nor unpaying shopper would have been revolting. They would have been too confused to think about it.

“Oi! Boyo!” Colin the Golfer responded to Luke the Dude, “Work it out for yourself. How revolutionary must you be to nick a flat-screen TV and some capitalist sneakers, eh?”

“Boys, boys, boys,” charitised Irene the Queen. “Have a heart. If I had hungry children at home, I would also steal food ...”

“On the nobbin, Dearie,” interrupted Colin, “how hungry must you be to eat a flat-screen TV, eh?”

“If I may,” smiled Stevie the Poet, “how

about answering Luke the Dude’s question? It is begging an answer, after all.”

“I do not agree,” contributed Big Ben. “My president has said it was a failed coup, so that’s what it is. We know the answer. What greater authority do you need than the democratically elected leader of the country?”

“Useless!” revolted Jon the Joker.

“What do you mean!” challenged Big Ben, raising himself to his full, light-bulb tickling height.

“Useless!” repeated Jon the Joker. “Keep in mind that neither facts nor logic depends on your size or volume and consider that our president might have a very good political reason for his preferred opinion. Just a possibility.”

“Is that so!” challenged Big Ben – unconvincedly, for it was indeed so.

“Let’s look at what we know,” persevered Stevie the Poet. “The available facts are not conclusive. We have a bitter, ongoing ANC faction fight between supporters of Pres. Ramaphosa and his incompetents on the one hand, and on the other hand, those dependent on jailed ex-president Jacob Zuma and his deplorables – Ace Magashule, Carl Niehaus, Bheki Cele and All Looters Continua ...”

“That does not contradict the failed-coup narrative; the ‘comradely’ confrontation in fact enforces it,” opined Bill the Beard, who knows things.

“Bear with me, my learned friend,” implored Stevie the Poet, “that’s not the full story. As we also know, our country has been in a downward spiral since the palace revolution when Zuma usurped Thabo Mbeki as ANC leader in December 2007, a fortune-turning event disastrously coinciding with the Great Recession of 2008.

“The whole world was hit, the US badly

so. But when Obama became president early in 2009, he engineered a recovery (with no support from the Republicans), getting his economy up and running and on a growth trajectory that lasted well into the Trump presidency. When Zuma became president at about the same time as Obama, did he achieve anything like that here?”

“On the contrary. From the 5% growth of the Mbeki leadership, South Africa went into a long economic decline throughout the Zuma years and beyond. State capture and the deterioration of essential infrastructure such as Eskom, the roads, the railways and the ports have tightened the spiral.”

“Whoa!” complained The Beard, “Tragic and true, but not a coup. What does all that have to do with last month’s explosion and destruction?”

“Everything,” smiled Stevie. “Economic failure has consequences. And unremitting economic failure has terrible consequences. A weak economy does not generate the jobs needed. You know the stats. One in three people looking for a job cannot find one. Among younger people, to age 34, almost half are unemployed. No income means hunger and desperation.”

“Add to that,” contributed Miss Lily, “the mismanagement of the Covid pandemic. While ANC central command had harmless people arrested on beaches, no one in their well-fed midst gave a thought for the thousands of South Africans living hand to mouth – and then having even that taken away in the ham-fisted lockdowns.

“The minister responsible for the welfare of the people, Lindiwe Zulu, was genuinely surprised. She had never thought that people would go hungry so quickly... The ANC actually tried to stop the DA in the working

## OPINION

### ON THE CONTRARY



Pieter Schoombie

Western Cape from feeding children during lockdown – children desperately dependent on their school meals.”

“Correct,” nodded Stevie, “ANC cadres live an entrancingly good life – big houses, fancy cars, well-stocked pantries, wall-to-wall TV screens, all paid for by the taxpayers. And in their comfort trance, no concern that there is another world out there where South Africans struggle from day to day to keep their families fed and clothed.”

“Yes,” harrumphed The Prof. “I can see where you’re going. Desperation and a sense of betrayal smouldering ever hotter as nothing gets better year in and year out and no relief is in sight. That is an explosion waiting for a spark.”

“As you say, Prof.” winked Stevie, “we’ve seen the explosion and we don’t know how it will end – or not end. As we speak, there have been no arrests of the 12 grand conspirators Government claims to have spied. Yes, there was a spark and yes, the veld was bone dry.

“And that’s how this combustion became a runaway fire.”

E-mail: [noag@maxitec.co.za](mailto:noag@maxitec.co.za)

## Tomato fruits send electrical warnings to the rest of the plant when attacked by insects

By Frontiers

A recent study in Frontiers in Sustainable Food Systems shows that the fruits of a type of tomato plant send electrical signals to the rest of the plant when they are infested by caterpillars. Plants have a multitude of chemical and hormonal signalling pathways, which are generally transmitted through the sap (the nutrient-rich water that moves through the plant). In the case of fruits, nutrients flow exclusively to the fruit and there has been little research into whether there is any communication in the opposite direction—i.e. from fruit to plant.

“We usually forget that a plant’s fruits are living and semiautonomous parts of their mother-plants, far more complex than we currently think. Since fruits are part of the plant, made of the same tissues of the leaves and stems, why couldn’t they communicate with the plant, informing it about what they are experiencing, just like regular leaves do?” says first author Dr. Gabriela Niemeyer Reissig, of the Federal University of Pelotas, Brazil. “What we found is that fruits can share important information such as caterpillar attacks—which is a serious issue for a plant—with the rest of the



plant, and that can probably prepare other parts of the plant for the same attack.”

### A tomato’s defense

To test the hypothesis that fruits communicate by electrical signals, Niemeyer Reissig and her collaborators placed tomato plants in a Faraday’s cage with electrodes at the ends of the branches connecting the fruits to the plant. They then measured the electrical responses

before, during and after the fruits had been attacked by *Helicoverpa armigera* caterpillars for 24 hours. The team also used machine learning to identify patterns in the signals.

The results showed a clear difference between the signals before and after attack. In addition, the authors measured the biochemical responses, such as defensive chemicals like hydrogen peroxide, across other parts of the plant. This showed that these defences were triggered even in parts

of the plant that were far away from the damage caused by the caterpillars.

The authors emphasize that these are still early results. Their measurements provide a “big picture” view of all of the electrical signals, rather than distinguishing individual signals more precisely. It will also be interesting to see whether this phenomenon holds true for other plant species, as well as different types of threats.

That said, this novel use of machine learning appears to have very high potential for answering these and other future questions. The technique may also provide new—and possibly more environmentally friendly—approaches for insect control in agriculture.

“If studies like ours continue to advance and the techniques for measuring electrical signals in open environments continue to improve, it will be possible to detect infestation of agricultural pests quite early, allowing for less aggressive control measures and more accurate insect management,” explains Niemeyer Reissig. “Understanding how the plant interacts with its fruits, and the fruits among themselves, may bring insights about how to ‘manipulate’ this communication for enhancing fruit quality, resistance to pests and shelf life after harvest.”

Credit: CC0 Public Domain.