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The Province of hope

The 2023 State of the Province Address was delivered by Premier Alan Winde at the official opening of the Western Cape Provincial Parliament on 16 February 2023. Among the many topics covered by the Premier, the following are highlighted in this abridged version.

Water and health

As the Western Cape Government, we are making sure that municipalities have the resources to ensure safe drinking water and working sewage infrastructure during rolling blackouts through the release of nearly R89 million rand in emergency funding to municipalities. The money will be used to purchase backup generators for the treatment and supply of water services. Stringent checks and balances are in place to ensure the funds are used transparently, and the funds are being released in accordance with strict guidelines.

Action now

I have requested the provincial treasury to allocate over R1 billion to respond to the energy crisis in the upcoming three-year budget period. This will go towards:

- responding to the short-term impact of loadshedding now on government services;
- securing diesel to keep essential public services running during loadshedding;
- helping buffer schools from loadshedding;
- providing poorer households with “power packs” that help reduce the impact of loadshedding on daily tasks;
- assisting SMEs in assessing and implementing alternative energy options.

Municipal Energy Resilience

Another key intervention of this government in addressing the power crisis is the Municipal Energy Resilience plan, a local government-level programme that develops, supports and builds capacity at municipalities across our province to implement renewable energy projects. Across the Western Cape 6 756 PV applications have already been approved by municipalities, with a total capacity of 197MW.

The rollout of this programme is proceed-



Allan Winde.

The latest employment statistics – issued 01 March 2023, reveal that the Western Cape recorded the largest employment increase in the country, quarter on quarter, with an additional 167 000 employed persons in the Province.

ing very well and is showing results now:

The City of Cape Town:

- is the first municipality in SA to offer cash for power;
- is already protecting its residents from two levels of loadshedding;
- has allocated R132 million to diesel & R25 million for diesel storage;
- connected generators to 62 water pump stations, 26 wastewater treatment plants and 110 sewer pumps;
- is adding 70MW of solar PV generation to its portfolio, spread across the Atlantis, Athlone and Paardevlei projects; concluded the first phase of the procurement of 200MW of additional power last year; and

- is now putting out a dispatchable energy tender, expected to yield at least 500MW for Cape Town’s grid.

George is running a wheeling pilot project through an energy trader to supply power. Further municipal wheeling for other municipalities will soon be enabled;

Mossel Bay is supporting private sector energy from waste technology, as well as how they can enable the use of flare-off from Moss gas and the role that they will play in 3 000 MW of gas to energy;

Stellenbosch is working towards procuring energy from Independent Power Producers; And municipalities across our province, just like Cape Town, are budgeting for diesel. The unfortunate issue is that this money is being diverted from critical municipal services due to a national government failure and inability to act.

While this province is showing the fierce urgency, and putting more megawatts onto the grid, national government is adding more ministers.

Infrastructure development

It is noteworthy that Cape Town now spends more money on infrastructure than Johannesburg.

Some key WCG infrastructures projects include:

- the upgrading of Refinery Interchange on the N7 currently underway,
- the construction of a by-pass linking TR02101 and TR02501 including an interchange around Malmesbury,
- the Stanford to Gansbaai rehabilitation, as well as
- the Calitzdorp to Oudtshoorn rehabilitation of District Road 1688.

The Western Cape is a construction site

In 2022, 27% more building plans were passed in the province as compared to

Continued on P2

The “chickens” have come home to roost?

Benoît Le Roy, CEO and co-founder of the South African Water Chamber explains...



THE chickens have come home to roost as persisting load shedding causes the failure of municipal water and sewage systems and potential food crop failure due to inadequate electricity for energising irrigation pumps. The water-energy nexus cannot be ignored, and radical actions are required to avoid the total collapse of South Africa’s basic services. Whilst writing this short piece, the Northern Cape farmers were again experiencing massive floods resulting in crop and infrastructure destruction.

The collapse of Eskom has resulted in the opening up of the electricity market to levels seen fifty years ago and bodes well for the water sector that is also in dire need of opening up and allowing the entry of private capital and skills. The big question is when, as the water sector is in dire straits, not unlike the electricity sector, and suffers an outdated architecture, stated by government, dating back to the 1950’s with some small but largely ineffective updates in the late 1990’s that we currently experience, we are now entering the 5IR and suffer from inaction and policy paralysis. Government’s own metrics reported in 2022 that the 2021 Green Drop audits of sewage plants resulted in a Green Drop compliance of only 3%, it may as well be 100% and is confirmation of a total system collapse as seen in Emfuleni and Ethekwini on a massive scale never seen before. We cannot continue to allow this to persist

Continued on P2



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The Province of hope

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the previous year. The Western Cape recorded R25 billion worth of completed buildings between January and November last year. This represents 40% of the total value of buildings in South Africa completed over this period.

Between January and August 2022, the value of buildings completed

in the Western Cape was R19.6 billion, representing a year-on-year growth rate of 42.1%, compared to R13.2 billion in Gauteng, with a year-on-year growth rate of 8.7%.

Over the same period, the value of building plans passed in the province totalled R24.29 billion, representing a year-on-year

growth rate of 25.2%, compared to R23.3 billion in Gauteng, with a negative year-on-year growth rate of -1.9%.

Agriculture

For the current financial year, our Agriculture Department has assisted in growing 2 692 household food gardens, 185 community

projects, and 28 school food gardens, at a cost of R16 million. Our plan in the coming year is to support 3 000 household food gardens each year over the medium-term, as well as 85 community and school food gardens out of an annual budget of R32m.

The Premier also reported extensively on

Social Housing, Education, Health Infrastructure, Growth for Jobs, Youth Interventions, Crime and the SAPS Devolution issues.

The full media statement can be found on <https://www.westerncape.gov.za/news/media-release-fierce-urgency-now-media-summary-wcsopa2023>.

The “chickens” have come home to roost?

Continued from P1

as we are destroying our receiving environment that sustains our food security, fauna and flora and our water reserve. Without fauna and flora, we are an expired society condemned to a miserable extinction, not an option surely.

Having stated this bleak reality, many when confronted turn the other way, that one needs

to understand in its seriousness and the systemic risks to our society. We have to switch the action button and that is incumbent on all of us to do as active citizens and business leaving government no option but to comply. The head of Infrastructure Africa in the Presidency has published this month the dire state of infrastructure that is at

best an overall “D”, no functional economy or dignity can be had at this level. Water features prominently as a high risk failed sector as its in the five pillars of the National Infrastructure Plan 2050 phases one and two.

The NRW, Non-Revenue Water, crisis has received plenty exposure and hovers at a national

average of 41% with 90% of that, so 37%, physical leaks. So, over a third of all our precious water harnessed from our catchment areas, stored in expensive dams, conveyed and purified and distributed to users at great cost is lost by municipal delivery systems. This is the obvious national priority as it is surely waste-

ful expenditure to add new water to a leaking bucket, especially in a water scarce and under serviced country.

What is it going to take to get our water security sorted with its seriously needed economic multiplier effects and poverty alleviation. We are actually sitting on a massive economic turnaround once we start in earnest.

Reports confirm Cape Town as business relocation destination

A recently released FNB report with insights into the key drivers behind the sales and movement of commercial property owner-occupiers is a clear sign of the times - and one from which the Western Cape is perfectly positioned to benefit.

So says Brent Townes, Commercial Property Chief Operating Officer for Lew Geffen Sotheby's International Realty in Cape Town, adding that semigration is already driving the relocation of not only families, but also businesses to the region

with increased demand for business premises already being seen.

“According to the report, the primary reason for moving premises in the fourth quarter of 2022 was financial constraints (31.68%) which don't come as a surprise, however, what is nota-

ble is that the second most commonly cited reason was to relocate to an area with more reliable utilities and municipal services (23.10%).

“In 2019 and 2020, the percentage of sellers relocating premises for better service delivery hovered between 9% and 12% but in 2021 the percentage spiked to a high of 16.9% and by mid-2022 it reached 24.2%, dropping only fractionally in the fourth quarter.”



Destination of choice: A high service delivery rating, less loadshedding and concrete plans to be less reliant of the national energy provider is boosting commercial property sales in the Mother City, especially among owner occupiers.



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Nationally, the motivational ranking is as follows: Financial pressure (31.68%), the need for more reliable utilities (23.10%), bigger/better premises (22.10%), moving closer to market (22.00%), better transport access/logistics (18.40%) and down-scaling to smaller premises (3.70%).

Another recent report by the Auditor-General revealed that only 41 out of SA's 257 municipalities received clean audits and also found that many municipalities are not prioritising spending on critical infrastructure maintenance, resulting in service delivery failures.

And, considering 22 of the 41 municipalities with clean audits are in the Western Cape, Townes expects the migration of businesses to the province to increase rather than

abate any time soon.

“Cape Town not only has a high service delivery rating, it also experiences less loadshedding than the rest of the country and, with the local government on track with their scheme for commercial property owners to supply own solar generated power back to the local grid, the future is certainly looking brighter here in the Cape.”

This is already evidenced by the fact that in coastal metros, motivation to sell due to financial pressure is lower than inland metros, with Cape Town at 19.9% as opposed to the low 30%’s of upcountry cities.

Therefore, Townes believes that the Mother

City is once again marching to its own drum with the two main motivations in Cape Town for selling being to move to better or bigger premises and for better transport access.

That said, neither objective is always easily achieved: “Those looking to upgrade their premises in central sought after areas or transport logistics will be faced with a major challenge: there is very little available stock as owner occupier buildings are usually tightly held.

“There is no more available space for development in and around the city and for exports, Cape Town harbour and the airport are already busy and congested.

“This has led to new development on the Northern and Western Suburbs which is ongoing with rapid expansion on the N1 logistics corridor and as far up the coast as Saldanha where South Africa's first free port is being developed.”

And, whereas utilities and service delivery is ranked second nationally, Townes has it down in fifth place in Cape Town.

“We already have less loadshedding thanks to hydro-electricity from the Steenbras Dam and not only are solar power generation from businesses imminent, there are also tax breaks on solar and, within 12 months Koeberg will be back online.”

Energy Crisis Committee releases progress report

THROUGH the Presidency, the National Energy Crisis Committee (Necom) on Saturday, 21 January, released a six-month update on progress in the implementation of the Energy Action Plan. A series of interventions are planned, aimed at solving the country's worsening power crisis and easing ongoing load shedding.

"The declining energy availability factor of Eskom's fleet reflects the cumulative impact of historical underinvestment in maintenance and assets, exacerbated by flaws in the design of new power stations in the last decade," Necom said.

Interventions documented in the report include:

Schedule 2 of the Electricity Regulation Act has been amended to remove the licensing requirement for generation projects, which will significantly accelerate private investment.

Since the licensing threshold was first raised to 100MW, the pipeline of private sector projects has grown to more than 100 projects with over 9 000MW of capacity. The first of these large-scale projects is expected to connect to the grid by the end of this year.

Necom has instructed departments to cut red tape and streamline regulatory processes for energy projects, including reducing the timeframe for environmen-

tal authorisations to 57 days from over 100 days. Reduce the registration process from four months to three weeks and ensure that grid connection approvals are provided within six months. Project agreements for 19 projects from Bid Window 5 and six projects from Bid Window 6 of the renewable energy programme, representing 2 800MW of new capacity. These projects will soon proceed to construction.

A new ministerial determination has been published for 14 771MW of new generation capacity from wind, solar and battery storage to accelerate further bid windows.

An additional 300MW has been imported through the Southern African Power Pool, and negotiations are underway to secure a potential 1 000MW from neighbouring countries starting this year.

Eskom has developed and launched a programme to purchase power from companies with available generation capacity through a standard offer. The first contracts are expected to be signed in the coming weeks. A team of independent experts has been established to work closely with Eskom to diagnose the problems at poorly performing power stations and take action to improve plant performance.

BY 2050, it's expected that Africa will be home to 2 billion people. To secure the necessary socio-economic development of such a large population, the focus of the next few decades must be infrastructural transformation. Tapping into the continent's abundant energy resources necessitates a significant financial commitment, however the opportunities for investors are attractive, and many are taking note.

As carbon-neutral initiatives and environmental protection are top priorities for many African governments, harnessing the continent's capacity to produce renewable energy will catalyse critical improvements that help to transform Africa into a competitive, industrialised global player.

Attracting corporate investment to Africa

According to the World Economic Forum, clean energy investments in emerging markets and developing economies need to increase sevenfold by 2030 for climate change commitments to be met and the goal of net net-zero emissions to be achieved by 2050.

There has been a marked corporate com-

Accelerating energy infrastructure development in Africa



Photo by American Public Power Association on Unsplash.

mitment to transitioning to 100% renewable energy procurement throughout the United States, United Kingdom, and Europe. This trend is only set to continue across all business and industrial sectors, with recent large-scale investments from European countries into African renewable energy projects serving as evidence.

Developing Infrastructure: The role and importance of CCPAs

Corporate power purchase agreements (CCPAs) will play a critical role in helping to develop energy infrastructure in Africa.

A CCPA is a long-term power purchasing mechanism between

electricity generators and corporate customers that allows customers to buy renewable energy. The outcome is a more certain wholesale price and reassurance for the generator that a predictable energy stream exists, helping to diversify risks and ease access to capital. More importantly, developers are then incentivised to construct new renewable energy infrastructure without leaning on government tariffs.

Of course, for CCPA solutions to take effect in Africa, certain barriers typical of emerging markets need to be tackled, for example:

- Heavy regulation of power markets.
- Gating the wheeling

of power through open grid access.

- Lack of transparency in issuing, tracking and certifying renewable energy certificates.
- Availability of local developers that can execute PPA transactions.

The wider economic benefits of CCPAs are indisputable, and many African governments are open and welcoming of such partnerships. This is because they recognise that increased deployment of renewable energy and security of supply creates more favourable conditions for trade and industry. A stable energy environment will help the African corporate sector to

meet global business standards and integrate with digital supply chains - all of which reinforce investor confidence.

Africa is breaking away from stereotypes

President of the African Development Bank, Dr Akinwumi Adesina, made several important remarks at a recent international conference, highlighting that the African region has the lowest cumulative debt default rate, second to the Middle East. This serves as evidence that infrastructure as an asset class in Africa is, in fact, not only secure but also profitable.

While the task of accelerating energy infrastructure development in Africa is a mammoth undertaking, with combined efforts from investors, governments and local communities, Africa's future is certainly a bright one.

The upcoming Africa Energy Indaba is set to empower attendees with insights to leverage significant opportunities that will ultimately accelerate Africa's energy infrastructure, subsequently transforming the continent into a competitive, industrialised global player.

Have your say!

Opportunities for public comment closes 17th March 2023.

A new state-owned National Water Resource Infrastructure Agency has been proposed in a draft Bill from the Minister of Water and Sanitation, Senzo Mchunu.

The draft Bill, now open for public comment, until 17th March 2023 provides for the incorporation and establishment of the South African National Water Resources Infrastructure Agency Limited as a state-owned com-

pany and major public entity owned and controlled by the State that will administer, fund, finance, provide, operate, maintain and provide advisory services in respect of national water resources infrastructure.

Will nationalising water infrastructure solve the major problems South Africans face with crumbling infrastructure, water quality and services?

As the minister has asked the public to

voice their opinion, you are encouraged to have your say via a safe and secure participation campaign on the Dear South Africa platform.

All public comments will be considered and acknowledged before final decisions are made. The findings of this campaign will be presented to parliament along with all comments from the public, so your voice will be heard.

This is an opportu-

nity for you to drive a positive outcome on the future of our dear South Africa.

Please take a minute or two to have your say at this link: <https://dearsouthafrica.co.za/water-soe/>

As we have seen, public pressure does create impact - and your voice is a powerful influence on the direction of our democracy.

Additional information, documents and videos are available on the participation page.

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26 000 nuts, washers & bolts, 12 500 seats, 12 000 cable ties and +600 of access scaffolding required the meticulousness of a professional erection team.

The pressure for our Uni-Span team begun end November 2022 – challenges faced were like no other! Technical designs, stock orders, logistics, preparing time schedules – just a few elements in the preparation of execution strategy. Upon delivering kit to site in Jan and early Feb, it was time to erect however, due to Cape Town's magnificence capturing the desire of worldwide performances, the erection of the stands proved to be a challenging one with many changes in the stand positioning leading up to the event. Nonetheless, we are serious about service and there was no stopping us from a seamless execution for our client!

The rapid manufacturing of scaffold through our Bud Group partner, Augusta Steel was critical to successfully executing this job.

The Prota Scaffolding team were the experts behind the erection of the stands in the various areas around the track. If you think the emergency exit staircasing was the challenge, think about the bolting of 12 500 blue seats onto 600t of scaffold! Their efficiency and attention to detail was astounding.

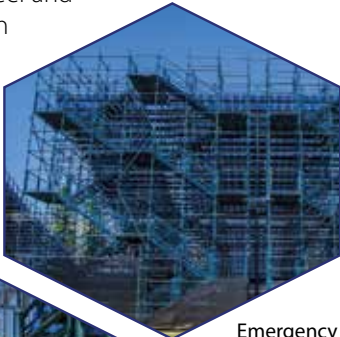
Uni-Span CEO John Damant says, "What an absolute privilege to have been part of history and be involved in staging the first-ever Formula E race in South Africa! It was an event that will play a meaningful role in helping to accelerate Africa's transition to a Green Economy. I am extremely proud of Adriaan Boswel and his brilliant Cape Town team."

Adriaan Boswel, the leader behind the brilliant execution of this project, says "This event uncovered an extraordinarily relevant opportunity for our business – one we'd never have been afforded had we not forged trusted industry

partnerships over the years. The successful execution of the project is solely testament to the ethics of our people – the unwavering care, commitment and capability represented was incomprehensible at times. I could not be prouder as a leader in this business."

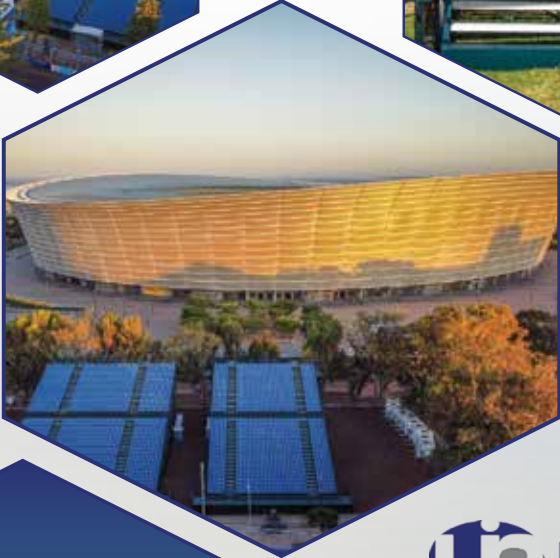
We express enormous gratitude to Augusta Steel and Prota Scaffolding – our exceptional partners in making what seemed impossible at the beginning, possible.

A huge congrats to António Félix da Costa on your win and thank you for an incredible performance!



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Beach Rd stands

Measuring flow rates without any obstacles: the SU Puresonic ultrasonic sensor

Accurate measurement data even with ultrapure water

THE SU Puresonic detects water flow rates with high precision at volumes up to 1 000 l/min. Thanks to ultrasound technology, this also applies to ultra-pure water with low conductivity as produced in reverse osmosis plants. In combination with the conductivity sensors of the LDL family, reliable quality control can be established in the filtration process. The measuring pipe of the SU Puresonic is made of stainless steel and is free of measuring elements, seals and mov-

ing parts. This means that faults caused by damage, leaks or blockages, which can occur in mechanical systems such as impellers or turbines, or, design-related pressure drops are excluded from the outset

Signal strength as a quality and maintenance indicator

The continuously monitored signal strength makes it possible to draw conclusions about the quality of the medium or the need for maintenance. A dropping value can be an indicator of an increase in particles in the medium or depos-

its on the inner wall of the pipe. The signal strength is transmitted a-cyclically via IO-Link and thus makes it possible to schedule maintenance work or adjust the process sequence at an early stage.

This guarantees a high-end product quality. This function is also implemented for conventional systems that do not yet have IO-Link. If the signal strength falls below a predefined level, the device status will change and the sensor will signal this via the diagnostic output and the operating status LED.

LED: device status according to Namur recommendation

Similarly, changes in the device status are indicated by the clearly visible operating status LED. This is how the user on site will also be permanently informed about the health status of the sensor. The colouring corresponds to Namur Recommendation (NE) 107 for self-monitoring and diagnostics of field devices.

Minimising complexity / simple plug & play system

Compared to clamp-on sensors that need to be adjusted to the application depending on their installation situation, the SU Puresonic is a simple plug & play system: Influencing factors such as varying wall thicknesses and pipe materials no longer play a role thanks

to the highly accurate inline measurement process. There is no need for time-consuming programming or adjustments, which saves a considerable amount of time during implementation.

Material and design offer maximum flexibility

The stainless-steel measuring pipe



ensures the SU Puresonic's resistance to a variety of media while the compact design makes the ultrasonic sensor very versatile and easy to use. The dimensions of the measuring and operating unit are kept so narrow that several sensors can easily be installed next to each other in a standard water manifold with a pitch of 50 millimetres.

Relevant process values via IO-Link

In addition to the flow rate and the sensor status, the total flow rate and the temperature are also available via IO-Link.

For further information, contact: ifm South Africa
E-mail: info.za@ifm.com

Africa must sustain minimum growth rate of 7-10% of GDP say experts

EXPERTS examining an ongoing study of key factors underlying development in Africa have emphasized the need for the continent to sustain annual growth rates of at least 7-10 percent over the next 40 years if Agenda 2063 is to be met.

"Africa's current growth performance is insufficient to eradicate poverty and achieve the Sustainable Development Goals..."

The session, organized by the Africa Union Commission and the African Development Bank, was held on the sidelines of the 36th African Union Summit in Addis Ababa. The study on Key Actions to Drive Inclusive Growth and Sustainable Development in Africa, was commissioned by the Chairperson of the African Union Commission, Moussa Faki Mahamat and African Development Bank President, Dr. Akinwumi Adesina.

The study will undertake a deep analysis of Africa's growth trajectory and identify key actions for Africa to double its growth rates from the current level

for the next 40 years. Agenda 2063, set by the African Union, is Africa's roadmap and master plan for transforming the continent into the global powerhouse of the future.

Acting Chief Economist and Vice President of the African Development Bank, Prof Kevin Urama, outlined the rationale for the study: "Africa's current growth performance is insufficient to eradicate poverty and achieve the Sustainable Development Goals (SDGs) and Agenda 2063 as encapsulated in the African Development Bank's 'High 5' priorities.

Columbia University professor and economist Jeffrey Sachs noted that increasing and sustaining investment from the current level of 20% of GDP to 40% would require "a deep quantitative exercise and a development strategy promoted by strategists. "This is Africa's challenge," he stressed, adding that infrastructure and human capital development would be critical.

Hanan Morsy, Deputy Executive Secretary and Chief Economist at the United Nations Economic Commission for Africa, said Africa needed macro-economic stability. "The continent must scale up the production value chain, not just export raw materials," she observed.

Other speakers listed additional hurdles the continent faces, chief among them is the cost of capital to achieve the infrastructure expenditure required for growth, the bulging youth population, and the need to fast-track technology innovation and skills.

Here are a few key goals of the planned study:

Identifying the enablers and barriers to inclusive growth, sustainable development, and structural transformation in Africa, generally, and across country classifications based on specific characteristics such as income levels

Formulate remedies to identify binding constraints

Explore the synergies and complementarities of existing policies and initiatives for all African countries to implement for inclusive growth and sustained development

Propose recommendations that will serve as a continental strategy for inclusive growth and sustainable development in Africa

Propose key actions required at national, regional, and continental scales by relevant stakeholders to support Africa's transition to inclusive and sustainable development pathways to achieve the SDGs, Agenda 2063, and the Hi-5s on the continent.



Measuring flow with ultrasound

The SU Puresonic ultrasonic sensor

The SU Puresonic detects flow rates of up to 1000 l/min with high precision. Thanks to ultrasound technology, this also applies to ultra-pure water with low conductivity as produced in reverse osmosis plants. The signal strength, which can be used as a quality and maintenance indicator, is also continuously detected.

The measuring pipe of the SU Puresonic is made of stainless steel and is free of measuring elements, seals and moving parts. This means that faults due to damage, leaks or blockages are excluded from the outset, as are design-related pressure drops.

This new product and more will be shown at the upcoming Africa Automation Technology Fair in May 2023 at Gallagher Convention Centre in Midrand, Johannesburg. Register FOC, click on QR code.



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Fabrication Solutions – A wide range of machining services, including turning, milling, boring, honing, and drilling, are provided to enable the production of low- to medium-precision components. Additionally, Armcor Dockyard runs a foundry that facilitates the casting of non-ferrous metals. The chemical cleaning bay (2m2x2m bins), spray booth (13x4.8m), and blast booth can assist parts that need surface preparation (11x6.5m).

Engineering Services – A materials testing facility is part of Armcor Dockyard and provides a variety of services, including corrosion surveys, non-destructive testing, condition-based testing, and metallurgy.

Docking and Carnage Services – The Armcor Dockyard is made up of a deep water port, covered repair sheds, graving dock, and synchro lift, all of which can provide the access needed for maintenance and where equipment must be removed and installed. The site is equipped with 2 sheds where weather critical work can be performed, and includes water and electricity supply for all vessels on the hard.

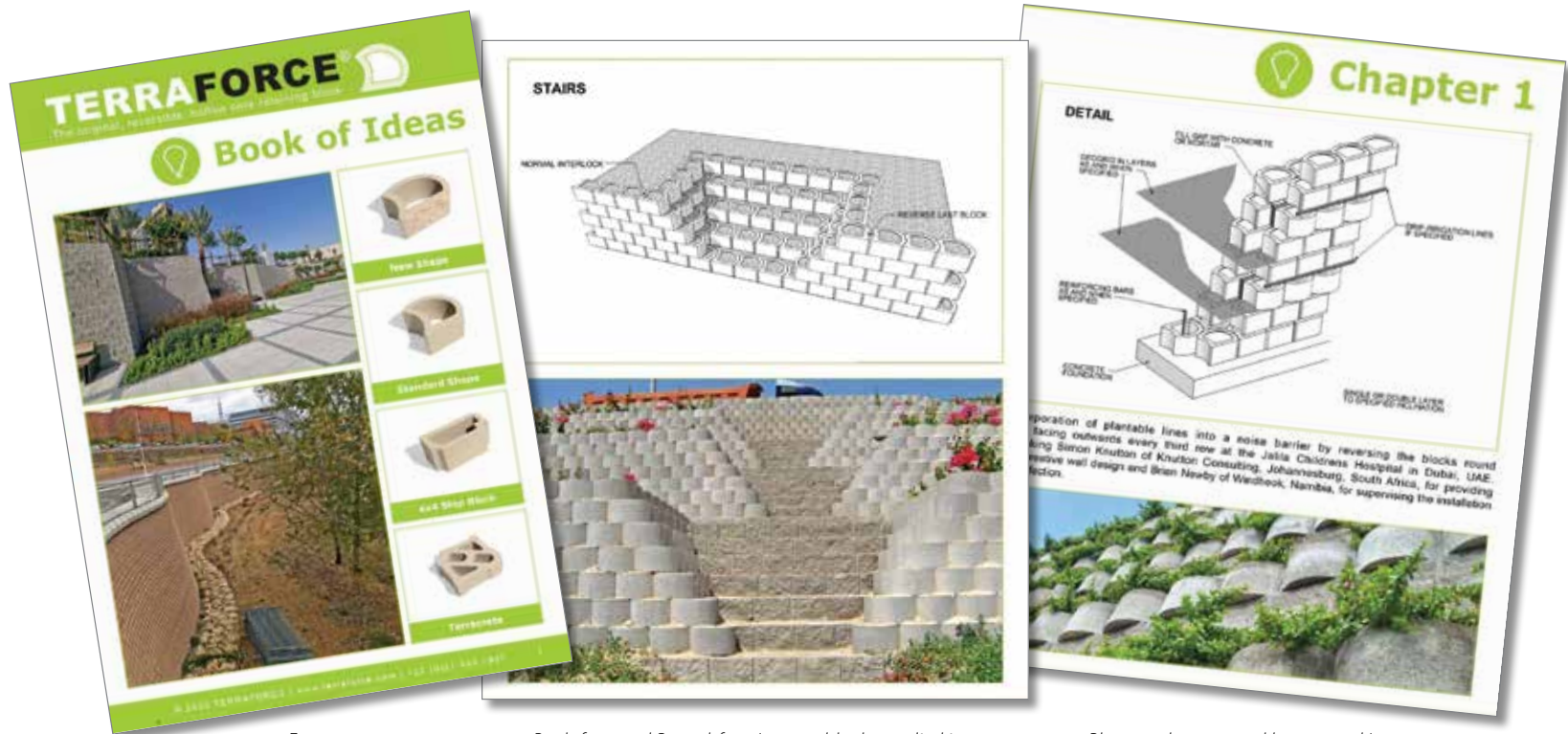


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Front cover

Rock-face and Round-face L-range blocks applied in staircase and wall construction.

Plant pockets created by reversed L-range blocks at Jalila Children's Hospital in Dubai.

Concrete Manufacturers Association member, Terraforce, has launched an on-line ideas book to showcase what can be achieved when using the full suite of Terraforce hollow-core retaining wall blocks in retaining wall, outdoor seating and staircase construction.

"Our reversible hollow-core retaining wall block is extremely versatile offering the professional designer and landscape architect almost limitless scope for design creativity and the book highlights many examples of what can be achieved," says Holger Rust, Terraforce managing director.

Comprising seven chapters, the manual covers the complete Terraforce product range, illustrated with diagrams and photography. *Patterns and Plantability; Features and Inclinations; Corners; Steps and Stairs; Seating; Typical Cross Sections; and Contractors check list* are the chapter headings.

"Besides inspiring through visual appeal, the publication plays a practical role in that if a particular design or application catches the eye, interested parties can contact us and we will supply them with the drawings in DWG files which they can then integrate with their AutoCAD software," says Rust.

Patterns and Plantability covers flat and round-face retaining wall permutations as well as rock and round-face combinations, some of which are either partially or fully planted. Pattern variations such as stretcher bond and stack bond are shown, as are stepped and straight foundations.

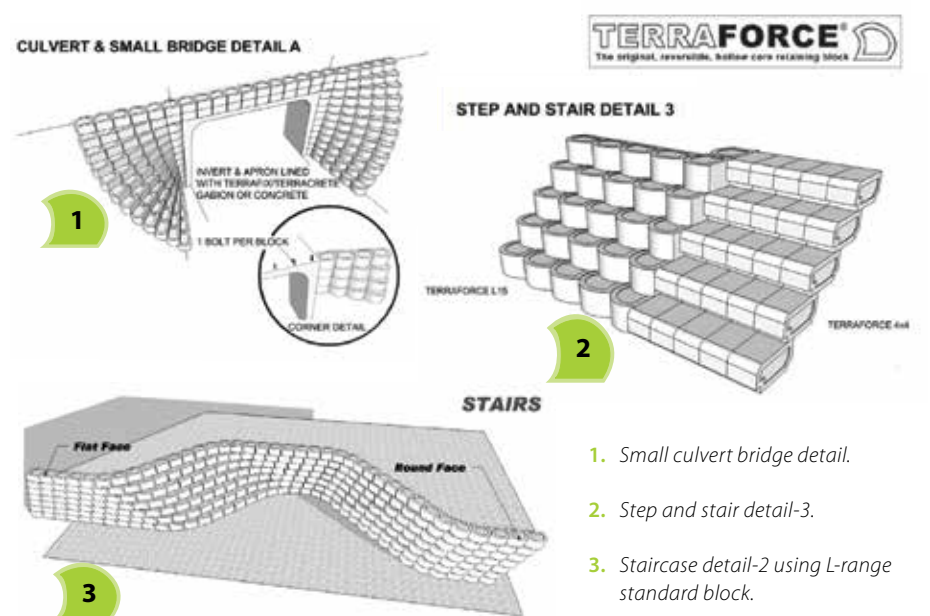
Several styles of retaining-wall construction are revealed in *Features and Inclinations* and the chapter includes culverts and small bridge details as well.

Corners presents numerous corner configurations and the internal vertical corner, corner detailing, V-shaped corners and inside corner variation, are just some examples. And photographic images of corner construction with or without cutting blocks are shown.

Seating demonstrates how Terraforce 4x4 Step blocks can be used for the construction of steps as well as retaining walls.

"While we have aimed predominantly at the design engineer and landscape architect, the book does not omit the do-it-yourself home enthusiast and instructions are given on how to build a 1m high retaining wall. Similarly, guidelines on step construction are also covered under *Steps and Stairs* and various types of Terraforce staircases are presented, as are steps constructed in combination with seating and seating arenas.

"What's more, advice is given for the construction of seating using the 4x4 Step block and some typical cross-section examples such as the Düzce University in Turkey, the amphitheatre detail at Sirte Park in Lybia, and Rhodes School in Cape Town are presented," explained Rust.



1. Small culvert bridge detail.

2. Step and stair detail-3.

3. Staircase detail-2 using L-range standard block.

Based in Cape Town for over 40 years, Terraforce maintains a strong presence in the South African retaining wall market. Moreover, the past decade has seen the brand make steady inroads into the global market; the company's international reach is extensive and includes flourishing production plants in Canada, Australia, Spain, India, Morocco, Nigeria, Swaziland, Lesotho, Ghana, United Kingdom, Namibia, United Arab Emirates, and most recently, Egypt.

The Terraforce Ideas Book can be accessed on <http://designguide.terraforce.com/download-pdf/>



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THE BEE IN MY BONNET COLUMN

I wonder if the Mayor has car problems?

AFTER an infuriating week of queueing for hours and being affected by loadshedding in Council controlled offices, I wondered if our executive mayor, Geordin Hill-Lewis has ever tried to renew his driver's licence and or re-register a car at one of his City's facilities.

My experience is hardly unique as my fellow queuers will testify.

My driver's licence renewal experience went like this:

My nearest licencing office is Milnerton, near the fire station, off the Koeberg Road. Some friends advised

that they had had a good experience there when they went along in the early afternoon.

Silly me, I didn't check the loadshedding schedule and arrived there after a 18km drive from home, 15 minutes before scheduled loadshedding at 14:00. I wondered why there was no queue... But why no standby power?

So a wasted 1½h journey and R72.00 in petrol.

Next day, I went again, this time mid-morning and had better luck only to fail the eye test after queuing for about an hour. "Go and have your eyes tested

by an optician and get a certificate "I was told – which I duly did and unsurprisingly passed with flying colours, at a cost of R99.00.

Back to the licensing department for the third time and the excitement was palpable! Papers now sorted and in the payment queue with about 30 others playing musical chairs as the conga line edged towards the payment kiosks, of which there are seven but alas only three are manned.

Well, This time I almost made it didn't we? To paraphrase the song, but face to face with the cashier and the lights go out – load-

shedding again and you guessed it, no back-up power, so "come back in two and half hours, or as that takes us past tjaila at 15:30, tomorrow".

Next day I cracked it – back in the conga line and managed to pay and receive a receipt from the same lady who advised it could take six weeks to receive my license. Still only three kiosks open out of seven, but I now have the answer. Upon enquiring why there was no back-up power after 15 years of loadshedding, I received an incredulous stare "Are you stupid or something?" was written all

over her smiling face.

She aurally confided that two of the pay kiosks were to be turned into 'generating rooms to house the invertors for solar power, but that hadn't happened yet and no one knew when that was likely...'. But what about the other two I wondered, another two cashiers would increase throughput by 66%!

A similar story awaited me at the other licensing department, for motor car registrations and rates queries in Table Bay Mall, this only 9,3km from home.

An impressive 19 kiosks are provided in this modern facility but

alas less than half were maned, meaning that I had to wait 2½h before my number was called.

Now you don't have to be a rocket scientist Mr. Mayor, to fix this problem which cost me at least R360 in petrol and a whole frustrating working day of +8h to complete simple tasks that should have been able to be completed on-line, it is 2023 after all.

And why hasn't the Milnerton licensing department been equipped with back-up power after 15 years of load shedding? Losing at least 2h of productive working time for each employee there,

each time there is a loadshedding event must be costing the Council – i.e. the ratepayer, hundreds of thousands of Rands in lost productivity. And what about the punters? Even on a good day, with no glitches and loadshedding, 3h must be a conservative amount of time, X thousands of people – time lost to the economy must be enormous, and that's just from one licensing office in what has been described as the most progressive, efficient and enlightened City in the whole country!

Eish.

Right of reply 2

In our February edition we published a right of reply from Fossil Free SA taking issue with Nick de Blocq's front page article in the November edition "Chasing the pipedream?" The topic has certainly ruffled feathers on both sides of the divide and the arguments both for and against gas versus renewables needs to be aired for the benefit of our society and beyond. Ed.

A response to the FFSA article appears below from Mr de Blocq

I appreciate the response from Fossil Free SA to my article in the November issue of CBN. It gives me an opportunity to clarify and explain our stance. Firstly, let me correct some erroneous or misleading statements made by FFSA: In paragraph two they make a presumption that we are exporting "outdated technology" to SA because Australians are done with traditional energy generation. If you had done your homework, my friends, you would know that the SA assets are the only interests that Kinetiko has. We have not operated in Australia and everything we do is towards greening the energy landscape of this country. Australia still depends on 70% of its energy coming from fossil fuels – they are far from done with it!

Paragraph 8: If South Africa manages to get 20 GW of RE installed in the next 5 years, I will personally buy the champagne! Only about 4-7 GW of that will actually be usable though, but very welcome indeed to the mix we need, if we can do it. I'll hold the money for the bubbly, but not my breath....

Paragraph 10: The SA Media, indeed global media, are actually very biased against fossil fuels, not the other way around. Very few of them are willing to report the inconvenient truths that I am happy to share in this

or other fora.

Paragraph 12: The \$8.5 billion referred to is not a local package to be approved by the SA Government; it represents an offer from foreign powers to assist us to move forward with our decarbonisation efforts. As we also play in that space, we would welcome the injection, if it ever comes; but let us not be deluded by this. Only about 4% of that lofty total represents grants – the rest has payback implications. It is less about "yes or no"; it is a function of affordability for the tax payer and finding a way for it to not creep into the wrong hands!

When discussing nuclear energy, the FFSA correctly points out that 26 of France's 56 plants were shut down at the end of last year. The reason is not dissimilar to our own supply issues – lack of investment in maintenance and new plants as demands increased. There was a lot of revenue from supplying Germany when they short-sightedly shut down their own nuclear plants. France now lacks qualified workmen who have moved on to other pastures and they have created specialised training centres for artisans like welders to keep up with the maintenance and repairs. Emmanuel Macron is also pushing for ten new nuclear power stations to be built at a cost of nearly \$10 billion a pop. One

can't blame the generating solution for unwanted manmade problems, but one has to acknowledge that France sees a great future in nuclear!

FFSA needs to be careful that they do not paint the entire industry with the same tar brush. We need to distinguish carefully between what we do in the gas industry versus the rest of the fossil fuel game. I have no doubt that we all share the same concern about the environment and the climate, and with my environmentalist's hat on, I am aligned with their sentiments. For a little more clarity, though, let us look briefly at what has gone before so we can better understand the intent in the South African context. Looking at the last 15+ years in the USA, according to the World Economic Forum, their move from coal to gas has resulted in a saving of over 500 million tons of CO₂. This is a direct result of increasing the use of gas, which has more than doubled in that time period, while dropping coal usage from 50% to about 20% of electricity generation today. Wouldn't it be wonderful to replicate those stats in SA?

The article by Smetherham and Le Page is well-written and well-intended, however, there are some headline issues and some more micro-level concerns, all of which either skew the

argument or lack pragmatism. I do not want to confuse a non-technical readership with the minutia, but rather focus on some larger issues which have been raised.

Major points:

1) Electricity comprises of only about 25% of global energy applications, and their promotion of sun and wind can only look at part solutions in that sphere. The anti-petroleum lobby has been careful to not promote this truth, with benefit being derived from confusing people between electricity and energy. What they have not mentioned is that petroleum products are responsible for a myriad of modern applications, including: Chemicals, medicines, plastics, fertilisers, clothing, vehicles, planes, trains, bicycles, fuels, mining, food production, packaging, kitchen appliances, lubricants, paints, insulation, paper/textile/leather/machinery manufacturing, cement, TVs, computers, cellphones, to name but a few.

2) There is no "clean and green" energy solution today, and wind and sun should not be marketed as such. The "so-called" renewable solutions are misnamed. There is nothing renewable about the mined ores that are required to produce the materials used to make wind turbines

and solar panels. The mining, processing, manufacturing, transportation, construction and operation required for both towers and panels are all inordinately high-carbon processes and there are places where wind turbines almost do not even reach carbon neutrality before they lose efficiency and are decommissioned and placed into ever-growing landfills where a lot of components cannot decompose in many lifetimes, if at all. Apart from getting to the finished product in the field, the next time you look a wind turbine ask yourself what it is painted with, what lubricates the moving parts, what insulates the miles of wiring, what it is set in as a foundation? Both wind turbines and solar panels are absolutely petroleum products and these much-beloved, albeit least efficient, solutions could not be possible today without fossil fuels. I maintain that the greenest solution we have on planet earth today is hydro and nuclear, not RE. Germany is seriously regretting its decommissioning of so many nuclear plants (where after they had to hypocritically import nuclear power from France) and are now forced to do things like rip up wind farms to get at lignite to power recommissioned coal-fired stations. They have even regressed to burning biomass

in Europe, all due to what? The sudden lack of a wonderful, much cleaner product called "gas". If ever there was a time for gas, it is now; even if you prefer to consider it a bridging solution while we get better at bulk supply from other sources. Or we could continue to burn coal.... not the best option for either mankind or mother earth in my opinion!

3) While methane is indeed a nasty and unwanted greenhouse gas, the assertions that this is a product of "the production, processing, storage, transmission and distribution of fossil gas" is misleading. Methane emissions are a function of leakage, not process, and responsible engineering has come a long way towards identifying and minimising or negating this issue. What my friends at FFSA skillfully do not educate the public on is the issue of nitrogen trifluoride. NF₃ is a product of the manufacturing of solar panels, and it is highly toxic to all life on earth. To quote Wikipedia: "NF₃ is a toxic greenhouse gas, with a global warming potential (GWP) 17,200 times greater than that of CO₂." One cannot point a finger at inadvertent, but traceable and controllable, release of methane (which is an unstable molecule and DOES decompose in the atmosphere) without mentioning that NF₃ is an intentional

(production-functional) uncontrolled release to atmosphere, that it is a very stable molecule that can never decompose in the atmosphere, that it has a GWP 215 times higher than methane and has quadrupled in atmospheric volume every decade since the late 1900s. Fair is fair!

4) Energy efficiency. I hope that FFSA will not try and refute the fact that globally, sun and wind have provided us with an average of not more than 20% of their installed (nameplate) capacity. Here in SA we have done better – we can reach about 30%. Last month (Dec 22) there was a week when the entire wind-based, built capacity of the UK was dribbling along at no more than 1% output. This is not an efficient, grid-level solution, whereas gas provides a steady output, 24/7 and can support both baseload and peak demand as a pragmatic replacement for coal. The real solution for wind and sun lies in the ability to store and distribute power at will. As an off-grid (eg: home-based) solution, I would recommend anyone who can afford it to put panels on their roof and batteries in their garage and get off the grid and avoid loadshedding.

For Mr de Blocq's full article visit www.cbn.co.za

Enlit Africa launches 2023 programme

ENLIT Africa (formerly known as African Utility Week and POWERGEN Africa) proudly presents its 2023 programme, which will run from 16 to 18 May at the CTICC in Cape Town. Enlit Africa 2023 returns with a world-class exhibition showcasing the latest technology and services on offer in the power and energy sector, under the theme The multi-dimensional, multi-sectoral energy transition.

In 2022, Enlit Africa focused on Africa's just energy transition, and how the \$8.5 billion Just Energy Transition Partnership (JETP) intended to contribute to the early retirement of coal plants, build cleaner energy sources and support the transition of coal-dependent regions. This year, the

Nordex starts manufacturing 6MW wind turbine

At the German OEM's Rostock facility, Nordex is ready to complete numerous orders for the new turbine model.

NORDEX has announced that its globally-successful Delta4000 platform has been extended to include a 6MW wind turbine, the N175/6.X especially designed for light-wind speeds. At typical low to medium-wind locations, the N175/6.X will achieve between 7 and 14 percent more yield compared to its sister models, the N163/5.X and N163/6.X due to its single-piece, newly-designed 85.7-metre long rotor blade and its above-average capacity factor. This additional yield is achieved particularly during times of lighter wind speeds with the turbine producing up to 22 percent more energy than its predecessors.

As part of the Delta4000 series, the high flexibility of site-dependent power modes are also applied to the N175/6.X, thus providing a wider range of options for increased suitability in terms of sound, load and power. The turbine can also be equipped with a bat module and on-demand night-time marking. A cold climate variant ensuring operation in environments of -30°C is also available.

The turbine is designed with an operational lifetime of 25 years, but will be able to reach 35 years depending on the site conditions.

lens adjusts to Just Energy Transition Investment and South Africa's JET Investment Plan, which sets out the investment roadmap for transitioning South Africa — the world's 12th biggest carbon emitter — to an energy transition that attracts investment, creates new industries and jobs and achieves

energy security and climate resilience. Understanding this plan gives context to the multi-sectoral elements that make up the overall roadmap to a low carbon future.

"We are excited to explore the various elements of Just Energy Transition investments, not only in South Africa, but across the

continent as a whole" says Claire Volkwyn, Head of content for Enlit Africa.

Join the expert panel as they discuss these questions and more in the opening Key-note session on Day 1 of Enlit Africa. Additional topics of discussions include the practical energy transition, energy access and

affordability, implementation of storage, and a number of practically focused, technical presentations.

Africa's Just Energy Transition Investment

Day 2 explores Africa's energy transition ambitions which are currently being tested in the face of a global

recession, rising poverty, unemployment and falling utility revenue.

On Day 3, the programme delves into renewables and the new landscape facing IPPs, shining a light on regional energy developments. The democratisation of energy in Africa is also a hot topic on Day 3, as the

programme explores how communities can become part of the solution through equitable access and ownership of energy, thereby building a vibrant, inclusive energy democracy model for Africa.

More information can be found at <https://enlit-africa.com/>



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3 Steps to Commissioning a solar power system (photovoltaic) for maximum performance

DESPITE great engineering, no system is failproof. That's where commissioning comes in, establishing a baseline of performance for customer acceptance and follow-on maintenance. Commissioning is important not only for photovoltaic (PV) system performance, but also for the longevity of equipment, safety, ROI, and warranties. Fluke, locally represented by COMTEST, is experiencing increasing demand for high-precision handheld devices which can measure photovoltaic (PV) systems.

Step 1: Photovoltaic system design and production

To find the expected production at the site, determine the solar resource and take into account any shading that may occur on the panels. The solar resource is measured in peak sun hours, which is the number of hours the installation achieves 1 000 watts per square meter per day. If the solar resource is good: 6 000 watts per square meter, or 6 peak sun hours. Use the Fluke IRR-1 Solar Irradiance Meter to determine the actual solar irradiance (watts/m²) and shading at the site to develop a baseline.

Let's say it's a 10 kW PV array. Calculate expected annual production by multiplying the 10-kW array x 6 peak sun hours x 365 days per year x 0.85 (15% derating due to power losses in wiring and inverter). This

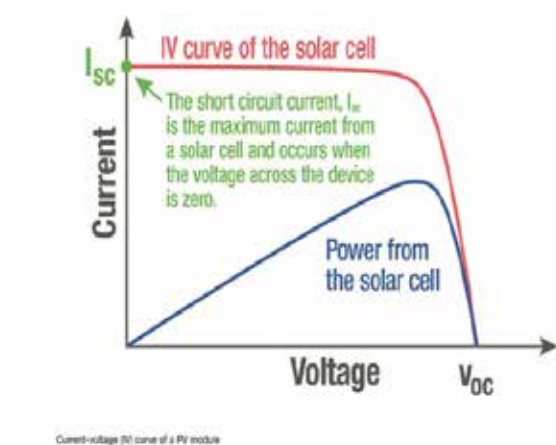


Figure 1

array should produce 18,615 kWh of energy for us per year, or 51 kWh per day.

Step 2: Measuring PV performance

Once the system is installed, make sure it's operating as designed by measuring its electrical characteristics and the actual power output of the array.

The performance of a PV array is based on its current-voltage (IV) curve. Not only does an inverter convert DC to AC, but it also maximizes its power output by capturing the current and voltage — since power is voltage x current — at which the string is producing the most power. The short circuit current (I_{sc}) is the maximum current from a cell and no power will be produced because there is no voltage difference: the positive and negative wires are touching. The open circuit voltage (V_{oc}) is the maximum voltage from a cell: no power will be produced because the circuit is open. The point at which the

module produces the most power is called the maximum power point (mpp). (Figure 1) To know if an array is working as designed, know the values of the V_{oc} and I_{sc}, listed on the module datasheet. Measure the V_{oc} and I_{sc} before and after installation.

V_{oc} is measured by using the Fluke 393 FC CAT III Solar Clamp to determine the voltage between the positive and negative terminals. The 393 FC is CAT III 1500 V / CAT IV 600V rated, making it safe and reliable for making measurements in CAT III environments like solar installations. Use the Fluke 64 MAX IR Thermometer to determine the temperature of the module to account for the effect of temperature on V_{oc} (the lower the temperature, the higher the voltage and vice versa). The 393 FC provides audio polarity warning while testing V_{oc}. If it's reversed, the combiner box or other circuits may be unintentionally connected in series, resulting in voltages

over the maximum inverter input voltage.

To test I_{sc}, disconnect all parallel circuits and safely short the circuit. Measure the current between the positive and negative terminals through a multimeter. Set the dial to a current greater than expected. Record the values of I_{sc} and V_{oc} on the Fluke Connect™ app and save them for trending and reporting.

Check the insulation resistance of your conductors, the connections between modules and between modules and racking, and your resistance to ground. Use the Fluke 1625-2 FC Earth Ground Tester to measure earth ground resistance to ensure a resistance of less than 25 ohms.

Step 3: Diagnosing variances

Even when installed correctly, a PV system may not meet the expected electrical production. It's very important for a module to have the electrical characteristics specified, because an

inverter has a minimum and maximum input current, below and above which it will have no power output.

Scenario 1: Open circuit voltage or short circuit current is higher or lower than on the datasheet

In this case, the string has one or more modules whose characteristics don't meet specification. Open circuit voltage out of range means the inverter may not output power. Short circuit current out of range indicates there may have a module mismatch, which can severely degrade the array's performance because the current of a string is limited by the module with the lowest current. Identify and replace the modules.

Scenario 2: Power output is low

If the power output is lower than expected, there may be a problem. While some fluctuation in output is expected, consistently less than predicted out-

put could be a sign of a faulty string, a ground fault, or shading.

One reason could be hot spots, the accumulation of current and heat on a short-circuited cell, leading to reduced performance and possible fire. Thermal imagers like the Fluke Ti480 PRO Infrared Camera or the Fluke TiS75+ Thermal Camera can quickly identify hot spots.

Ground Faults are another, but they're harder to diagnose and require testing the voltage and current of each conductor and the equipment ground-ing conductor (EGC), which carries stray current to the ground. Voltage and current on the EGC indicate a ground fault. Ground faults can occur due to damaged conductor insulation, improper installation, pinched wires, and water, which can create an electrical connection between a conductor and the EGC. Find the source of the problem and replace the damaged wires or improve the conditions.

Other reasons for

low power output could be shading and poor tilt and compass direction (azimuth angle) for the location. Use a solar pathfinder to find any new sources of shading and remove them, if possible. While it may not be feasible to change the tilt and compass direction of the array to point the panels more directly toward the sun, you should know the tilt and azimuth angles to establish a baseline for future reference.

In large-scale PV systems, the power from a solar system goes through transformers after being inverted to step up the voltage, then to switchgear and medium voltage cables where decreased insulation resistance is a common issue. For medium and high voltage cables, use the Fluke 1555C FC 10kV Insulation Tester, which can test up to 10 000 volts.

For systems with batteries, compare the expected battery voltage and state of charge with the actual using the Fluke 500 Series Battery Analyzer.

Contact COMTEST on +010 595 1821 or sales@comtest.co.za or www.comtest.co.za, for more information on Commissioning A Photovoltaic System for Maximum Performance, or the listed FLUKE RENEWABLE ENERGY TEST EQUIPMENT or for technical or seminar information, demonstrations or to locate your nearest authorised Comtest Channel Partner.



Commissioning a photovoltaic system for maximum performance.

Analysing South Africa's 2023's budget expectation's with PwC South Africa

By Mzwandile Mamaila

THE PwC South Africa 2023 National Budget Predictions took place on the 15th of February. Chief Economist of PwC South Africa, Lullu Krugel, highlighted South Africa's economic predictions, with concerns about decreasing GDP and unachievable goals set by Government.

According to PwC's 26th Global CEO survey, 59% of South African CEOs expect GDP to decrease, with load shedding being the main contributor. The declining GDP has brought concerns to South African com-

panies as 40% of businesses fear that they might not be around in the next ten years if there is no intervention or change in strategy.

With average South Africans unable to implement solutions, they can solely rely on the Government. In the 2023 State of the Nation Address, President Cyril Ramaphosa declared load shedding a national disaster and announced the introduction of the Minister of Electricity. An R254 billion cash injection to Eskom was announced by Finance Minister Enoch Godongwana. The Government expects this fund to decrease the R422 billion debt for the next three

years.

There has been a decrease in the compensation of employees to total consolidated expenditure from 34.5 in 2019/2020 to 31.6 in 2022/2023. The Government envisions a further decrease, to an estimated 30.8%, in 2024/2025. More ambitious resolutions to reduce the PIT rate are expected by increasing the tax base through greater economic growth, employment, and enforcement.

Even though the Government suggested these solutions, the PwC believes they might be ambitious, with possibilities of being unachievable. With South Africa consist-

ing of the highest PIT (Personal Income Tax) burden amongst upper – middle-income countries, 0% expectations of reducing taxes, an estimated 5.5% increase in Fiscal Deficit due to slow GDP growth and increased spending pressure, and an increase in inflation, it seems as if there is still a long way to go.

As expenditure restraint poses a risk to State Owned Entities (SOE) such as Eskom and Transnet, Government has called for rationalization of these SOEs. "It's a wrong assumption to make that services rendered by the private sector will always be more expensive. That is not

the case," stated Krugel, highlighting how the rationalization of SOEs might be necessary.

Furthermore, additional spending plans were implemented by Government to salvage the 2022 KZN floods. The Social Relief Distress Grant has also been extended to March 2024. "With these Grants, when they first introduced them during Covid, we were saying to each other as economists that the likelihood of Government having to turn around and say "we stopping them" is going to be very difficult," stated Krugel highlighting how it might be a challenge

for the Government to stop the rollout of the SRD Grant.

South Africa's inconsistent trend of moving figures is noticeable to international analysts. That might be cause for concern for international trade and investments.

With South Africa being grey-listed by the Global Financial Action Task Force (FATF), it will be highly monitored,

leading to a loss in some foreign investments and inevitably causing more harm to the GDP.

South Africa has failed to overcome the one-year observation warning before being officially grey-listed. Therefore, as per PwC's concerns of over-ambition, it might be difficult to remain hopeful for the Government's plans to sustain the nation.



It's time to expand your brand in the Western Cape!

RETURNING to Cape Town in October, the highly successful Propak Cape trade exhibition provides an excellent opportunity for suppliers of machinery, products and services aimed at the packaging, food processing, plastics, print, labelling and wine & olive oil production industries to connect with thousands of prospective buyers and to expand their brand in the Western Cape.

Taking place at the Cape Town International Conference Centre (CTICC) from 24-26 October, Propak Cape is recognised as the place where buyers and sellers meet. It's where the related industries come together and where new products and ser-

vices are launched. Attracting a captive audience of almost 6,000 visitors and with over 200 exhibitors, it delivers results for those serious about growing their business.

Propak Cape has been a catalyst for business in the Western Cape for over twenty years. As a major exporter of fruit, wine, vegetables, flowers and other valuable commodities to international markets, the Western Cape is heavily reliant on the packaging industry in realising the country's export potential and the region's all-important stake in earning valuable foreign exchange.

"Over 200 industry suppliers will use this unique platform

to showcase latest industry trends and cutting-edge technology, equipment and services," says Mark Anderson, Portfolio Director at Specialised Exhibitions – a division of Montgomery Group, organisers of the show.

"Visitors will be on the lookout for the latest automation systems, what's new in machine parts, components and equipment, as well as finding solutions for improved efficiency, cost containment and targeting new market segments," says Anderson.

Partnerships with leading industry associations and media, radio advertising that reaches in excess of one million listeners, print and online



advertising and editorial, 400 000+ complimentary tickets and an email visitor campaign to over 50 000 recipients are elements of a strong marketing campaign that promotes visitor attendance.

"We use data analytics to ensure we

target the right visitor profile," says Anderson. "Over 86% of visitors have purchasing authority or strongly influence the decision making process, which results in significant onsite sales and lead generation at the show."

"We encourage those who have not yet booked their exhibition stand to do so," says Anderson. "Our operations team is ready to deliver a world-class exhibition and our marketing team is ready to deliver the audience

you want to meet. It will be an exciting show and beneficial to your business."

For more information, contact Specialised Exhibitions' Keraysha Pillay at email Keraysha.Pillay@montgomerygroup.com

Aussie watchdog to probe green-washing

THE Australian Competition and Consumer Commission (ACCC) says it is going to begin an investigation after 57 per cent of the 247 businesses reviewed between 4 and 14 October last year were found to have provided misleading information regarding their environmental credentials.

When it comes to packaging recyclability and recovery, accurate labelling is critical to ensure that packaging gets disposed of in the right way.

The cosmetic, clothing/footwear and food/drink sectors were found to have the highest proportion of concerning claims. The cosmetics sector particularly stood out, with over 73 per cent of all companies raising concern.

As outlined in the ACCC's Greenwashing by Businesses in Australia report

released recently, the most common issue the sweep identified was that these businesses were using vague or unclear environmental claims, with many businesses using terms like 'green', 'kind to the planet', 'eco-friendly', 'responsible' or 'sustainable' to describe their products on packaging and other platforms.

ACCC says such vague terms are confusing to consumers as they provide no information quantifying these terms, and little to no evidence for the claims.

In some cases, the companies may be making accurate claims, but without proper evidence provided, it is difficult to verify.

Reprinted from <https://www.packagingnews.com.au/latest/accc-to-probe-green-claims-on-packaging>

Tetra Pak® SA's Pinetown factory wins prestigious Consistency Award from JIPM

TETRA Pak South Africa, the local operation of the world leading food processing and packaging solutions company, today announced that it has been honoured with the 2023 Total Plant Maintenance (TPM) Consistency Award from the Japan Institute of Plant Maintenance. This award recognises consistency in plant maintenance.

Tetra Pak South Africa received the prestigious TPM Consistency Award for its Pinetown manufacturing facility in KwaZulu-Natal, South Africa. The Pinetown converting factory is the only producer of aseptic carton packages in the Southern Africa region.

Established in 1964 by the Japan Institute of Plant Maintenance (JIPM), the various TPM Awards rigorously evaluate a company- or plant-wide fac-

tory's commitment to sustain superlative production capabilities and world-class quality standards. The awards have been instrumental in strengthening the improvement of enterprises and contributing to the development of industry by promoting the loss eradication methodologies and the development of plant maintenance strategies.

In its 43-year history in South Africa, Tetra Pak's factory in Pinetown has already achieved several certification milestones. The factory has been certified against various international standards such as ISO 9000 Quality Management System, ISO14000 Environment Management System, ISO 18000 Occupational Health, and Safety, BRC IOP Food Safety Standards. On the path to achieving this latest award

Tetra Pak introduced its World Class Manufacturing (WCM) philosophy to consciously pursue attainment of the award.

"This recognition of Tetra Pak's Pinetown factory capabilities is a testament for the maturity in improving the quality and reliability of performance. This Consistency Award shows that the factory is on track towards the next challenge," says Tetra Pak South Africa Pinetown Factory Director Waqas Ali. "We are extremely proud of the dedication of our Pinetown factory team members. This award is proof that we are serving our customers with the best service levels. This is a great honour, and it validates the team's efforts in maintaining the highest standards in plant maintenance, thereby providing world class service, and help-

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ing our customers to achieve success within their businesses."

Achieving a Consistency Award is clearly not achieved overnight – as 'consistency' must be amply demonstrated. Ali notes the journey at the Pinetown factory started quite some time ago, when the team achieved their first JIPM Award in 2019. "Since then, there has been a meticulous focus on continuing this journey – a journey which this recent achievement proves has been on an uninterrupted upward trajectory," says Ali.

He notes that the journey was achieved by having a clear roadmap, targeting every step of improved performance – and team-

work. "I believe the entire team takes credit for setting bold targets for each individual and jointly as a team to achieve this milestone. Everyone is committed to take this process of excellence even further."

Ali added, "This recognition is an extremely proud moment for all of us at Tetra Pak South Africa, particularly as a world-renowned independent expert organisation such as JIPM has certified that we have attained a benchmark standard for most effective plant maintenance systems." "At Tetra Pak we leverage TPM to continuously improve our productivity, product quality, cost effectiveness and work culture."

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Trash4Treats recycling project announces winning schools

Six Western Cape Schools receive part of R100 000 in cash for collecting recyclable waste.

TRASH4TREATS, in partnership with MetPac-SA, the Producer Responsibility Organisation (PRO) that represents the metal packaging recycling industry in South Africa, has announced the names of the six Western Cape schools who received their part of the R100 000 cash prize for participating in the exciting schools recycling programme that was launched in 2019. To create excitement, schools competed against one another to collect the most sorted recyclable waste per capita. Dietrich Mor Primary School in Highlands Estate, Phillipi, collected the most recyclables and won R40 000 towards school upgrades. Linge Primary School in Nyanga received R30 000, followed Mkhanyiseli Primary School who received R15 000 and Luzuko Primary (Gugulethu), Siyazingisa Primary

(Gugulethu) and Isikhokelo Primary School (Ikwezi Park) who each received R5 000. According to Kishan Singh, CEO of MetPac-SA, South Africa's metals packaging collection rate has consistently been one of the highest of all packaging streams, sitting at approximately 65 % for the past few years. However, the industry has set itself the task of increasing this figure to 71 % within the next few years. For this reason, it is important for the metal packaging industry to target schools with the message about the importance of recycling and their contribution towards building a circular economy. "Approximately 11% of the waste that was collected with the Trash4Treats campaign consisted of valuable metal packaging such as beverage cans, canned food, foil containers and aerosol canisters. MetPac-SA



was privileged to be part of the Trash4Treats programme which successfully reached very important demographics of our target audience, namely primary school children, their parents, educators and the surrounding communities in under-resourced areas with the message that waste has value. These neighbourhoods got to experience the principles of a circular economy in a practical and immediate way, while post-consumer packaging that might have ended up in landfill or the environment, generated much-needed funds for the schools," Kishan said. Developed and implemented by [dot] GOOD, South Africa's

leading cause-market-ing agency, the Trash4Treats campaign sent a team of educators and a mascot, called Trashy, to thirty participating schools in the Western Cape for in-person activation days. During this fun-filled and exciting visits, the team explained the value of waste and the importance of recycling. In addition, each school received educational posters, specially branded large collection bins, and bulk bags to aid in their ongoing collection efforts. Trash4Treats also connected the participating schools with local waste collectors who bought back the collected materials at the going

rate, thereby helping to form a mutually beneficial and sustainable relationship between the school and the waste entrepreneur that benefits the whole community. Proof of the success of this campaign can be seen in the fact that the Trash4Treats project engaged with over 32 000 students and collected over 55 tons of recyclable waste over the past twelve months. There are multiple benefits that this intricately woven relationship established between the project developers, schools, the learners, their immediate community and waste management companies offered, namely:

- Environmental benefits: including less waste being sent to landfills, post-consumer packaging actively being recycled, and learners being educated on the negative impact that litter and waste have on the environment by them playing an active role in the removal of the waste and litter.
- Social benefits: notable upliftment of communities by the stakeholders involved, improved facilities

in and around the schools in which the initiative was rolled out, and general upliftment of social behaviour in these communities.

- Economic benefits: an increase in job creation, new avenues for waste entrepreneurs that were established, and experiencing the financial benefits of a circular economy firsthand.

Concludes Kishan: "Our goal with this project was to make the learners and the surrounding communities realize the value that is locked in waste. We were able to inspire and educate our youth about the recyclability and value of metal packaging in addition to providing them with an incentive and a goal to work towards. By involving a large number of learners, we were able to divert an impressive amount of recyclable waste from landfill. This unique, hands-on approach created something bigger for them to be a part of and will leave a lasting legacy for their school for many years to come".

For more information visit www.metpacsa.org.za or www.trashfortreats.com



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DRIVING SUSTAINABLE METAL PACKAGING



METPAC-SA BRINGS TOGETHER THE ENTIRE METAL PACKAGING VALUE CHAIN IN SOUTH AFRICA



MetPac-SA is a registered Non-Profit Company as defined in Section 21 of the Companies Act No. 71 of 2008, registration number: 2017/216419/08. It is also a registered Producer Responsibility Organisation (PRO) with the Department of Forestry, Fisheries and the Environment (DFFE), EPR Registration Number: 19/7/5/P/PRO/20210720/005.

MetPac-SA's mission and objectives are focused on establishing the metals packaging industry as a valuable and recognised contributor to sustainability throughout the supply chain and beyond. We support and represent members on industry matters related to operational, regulatory and environmental issues.

In addition, we focus much of our resources on promoting the benefits of metal packaging and the sustainable attributes of steel and aluminium.

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W: www.metpacsa.org.za



84,642 - 500ml single-use water bottles saved at E Grand Prix

BLUEWATER,, the global Swedish water purification and beverage company that is shaping the future of sustainable hydration at the world's foremost sporting events, provided its state-of-the-art hydration stations at the ABB FIA Formula E World Championship held in Cape Town, South Africa on 25 February. Nine water stations were placed throughout the venue, including branded water stations in the Allianz fan village, enabling spectators to refill water bottles with clean, pure drinking water. Altogether 42 321 liters of water were dispensed eliminating the need for over 84,642- 500ml single-use water bottles

Janneke Brasecke, Bluewater Africa's General Manager, said, "We were thrilled to be part of the Formula E event and to provide spectators with pure, refreshing water refills. On a hot summer's day in Cape Town, a huge number



NIO333 race team drivers stay hydrated while signing autographs at the Cape Town BB FIA Formula E World Championship event.

of single-use plastic water bottles have been avoided thanks to our water stations." Bluewater is also proud to be the official water bottle supplier to the NIO 333 Racing Formula E Team, who share the Bluewater vision of ending the need for single-use plastic water bottles. Bluewater's stainless-steel bottles (see below) are made from premium grade, recyclable sustainable steel and use eco-friendly, non-toxic silicone for cap liners, loops, and the company's unique no spill sports caps. Russell O'Hagan, Chief Operating Offi-

cer & Deputy Team Principal NIO 333 Racing, says: "We are delighted to have partnered with Bluewater for the second year running to provide the team with refillable drinking bottles, supporting us in our aim to eliminate single-use plastic from the team. Sustainability is at the heart of what we do, and the partnership with Bluewater enables us to deepen the positive impact that we have on the environment."

For more information, please contact david.noble@bluewatergroup.com

Stop-start blackouts hinder SA’s plastics industry

PLASTICS SA Executive Director Anton Hanekom says, the local plastics industry is no exception when it comes to experiencing the negative impact of relentless interruptions in power supply.

“Our industry is especially exposed when it comes to loadshedding due to the fact that the processing and production of plastics and plastic products are done primarily through thermal processing. This means that high temperatures must be maintained throughout the manufacturing process. However, without power, these high temperatures cannot be effectively reached and maintained, nor is there enough time between scheduled power outages for the machines used to reach the required temperature for the processes to be restarted,” Hanekom explains.

Furthermore, when producing and manufacturing large quantities of polymer materials, the extrusion process is required, in which the materials are enriched with additives and melted in order for production to be completed successfully. This entire process comes to a halt when manufacturers experience power outages. While restarting the production process may appear simple, there are serious consequences when machines shut down unexpectedly for extended periods of time.

“During the extrusion or melting process, once the machine shuts down for a three-to four-hour loadshedding stint, the materials that were being processed solidify in the machine. This means that the time required to remove the solidified materials, clear the machine, and prepare to restart the process from scratch is added to the overall production time. A significant amount of time and material is wasted, which has a knock-on effect on operating costs, staffing, and production. Revenues are being eroded and thousands of jobs are being threatened in an industry that is a priority sector and contributes approximately 17 percent of the country’s manufacturing GDP,” Hanekom explains.

Ripple effects felt by other industries

Plastics are ubiquitous in our lives and

can be found in almost every aspect. As a result, plastic manufacturing and use serve as the foundation for other products. When the plastics industry faces such severe challenges, it quickly snowballs and affects other closely related and critical industries, such as the packaging sector,

which accounts for half of total plastic polymer consumption in South Africa, followed by the building and construction sector.

“Our country has a number of major packaging producers. However, the challenges extend beyond the financial bottom line of these producers, as

effective packaging is important to avoid food waste, extend the shelf life and prevent spoilage or breakage of certain products. We need to start talking about “packaging security” in the same breath as food security. When plastics packaging production suffers, it leads to increased

transportation costs, food waste and inflation,” Hanekom explains.

Impact of loadshedding on the recycling of plastics

During the previous reporting period, the country’s plastics manufacturing and recycling industries showed a welcome recovery from the devastating effects of the Covid-19 pandemic, indicating a 4.7% growth rate in 2021. Unfortunately, loadshedding threatens to undo these gains and efforts to recoup the industry.

“The recycling process is in essence also

an extrusion process based on thermo-processing principles. Profit margins in this industry are already marginal. Add to that rising transportation costs and the need to invest in alternative energy sources such as generators or solar power to stay operational.

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POLYMER CODE	PRODUCT	DESCRIPTION	RECYCLED INTO
 PET		Bottles for cooldrink, milk, detergent, juice and mineral water and food containers	
 PE-HD		Bottles for milk, juice and shampoo, bags, household containers, film and crates	
 PVC		Clear packaging: toiletries, food, medication, bottles and cling film	
 PE-LD		Bags for frozen vegetables, food, garbage and retail, milk sachets and soft bottles	
 PP		Bottle tops and closures, yoghurt cups, margarine tubs and ice cream containers	
 PS		Yogurt cups, vending cups, clamshells Food trays: meat, fruit and vegetables	
 SPECIFY MATERIALS		In packaging it could be multi-layer materials such as refill pouches	



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SAVA members pass international standards for health and safety

THE Southern African Vinyls Association (SAVA) is proud to announce that all three of its members who are manufacturers of PVC (or vinyl) cling film, i.e. Cibapac Packaging, Mpact Versapak and MainWrap have passed the second round of its independent audits to confirm compliance with its Vinyl Clingfilm Compliance Framework (VCCF).

Monique Holtzhauzen, Chief Executive Officer of SAVA said: "Cling film is one of the vinyl products that has frequently been criticised in the past over health concerns regarding migration levels, use of harmful substances etc. In an effort to address these issues and restore trust in the quality of cling film produced by our members, SAVA launched the a Vinyl Clingfilm Compliance Framework a little over two years ago. This initiative is based on the European Commission Regula-

tion 10/2011 for plastic materials and articles intended to come into contact with food and applies to raw material suppliers, intermediate compounders, converters or film manufacturers and distributors and importers to wholesale and retail market".

According to SAVA's VCCF cling film manufacturers or importers (who are members of SAVA) voluntarily agree to sign a Declaration

of Compliance that all raw materials, intermediates and substances used in the manufacture of their products, have been Food Approved. Moreover, the manufacturers agree to comply with Good Manufacturing Practices (GMP), to the use of correct and approved labelling codes together with "Intended Use" information and to have their products and documents at every level in

supply chain audited by an independent SAVA representative (under a signed NDA).

Because of the complexity and size of the market, SAVA decided to follow a phased approach. The first round of audits took place in 2021 and focussed on ensuring that the necessary quality management systems are in place. The second round of audits was to ensure that all the ingre-

dients are food compliant and that the necessary paperwork was in place. The third round of audits will take place during 2023 and will involve include blind sampling of products that will be sent away to an independent laboratory for testing to ensure compliance.

"SAVA's VCCF is an important extension of SAVA's Product Stewardship Commitment (PSC) as it sets standards for migration testing, migration modelling and information in the supply chain that needs to be disclosed. Members who pass these audits and meet the criteria are allowed to display SAVA's "Green Tick" on their products as proof that no harmful ingredients were used in the cling film, that their manufacturing processes are compliant, documentation controlled, and that the necessary food approvals are in place," Monique explains.

In addition to the SAVA audits, both Cibapac and Mpact Versapak were awarded BRC certification for meeting global standards for packaging materials - specifically for the extrusion and slitting of their PVC cling films - after passing the international audits by NSF Certification (LLC #1181). These are rigorous tests for global food safety standards that have been adopted by over 22 000 sites in more than 130 countries.

"We are incredibly proud of the fact that our members were awarded an A and AA classifications as proof of their dedication to safe and responsible production processes, as well as for passing our own auditing processes with flying colours. We believe this clearly sets SAVA members apart from non-members and cheap imports who could be guilty of questionable practices and ingredients because they are not being checked and audited. Seeing the Green Tick on the products is an important tool that communicates to retailers that the vinyl cling film does not contain any harmful chemicals, plasticisers of phthalates, and that the manufacturer is committed to Extended Producer Responsibility and are paying their levies to support the growth of the collection and recycling markets in South Africa," Monique concludes.

For more information, visit www.savinyls.co.za



SABS cautions against unverified claims of degradable plastics



SOUTH Africa generates 2.4 million tons of plastic waste every year, according to the World Wide Fund for Nature (WWF). This means that every South African contributes about 41kg of plastic waste per year and about 14% is recycled.

The South African Bureau of Standards (SABS), together with other national standards bodies and standardisation forums continue to work to provide standards and guidelines for environmentally friendly production and processing of plastics and plastic products.

SABS has recently published South African National Standard (SANS) 1728: The requirements for the marking and identification of degradable plastics. Degradable plastics include but are not limited to biodegradable, compostable, oxo-biodegradable and water-soluble plastics.

SANS 1728 advises consumers to recognise the correct markings and to be aware that any product that claims to have biodegradable plastic packaged, needs to be verified according to the standard, which is aligned to global requirements.

Dr Sadhvir Bissoon, Acting CEO of the SABS explains that vague environmental claims such as 'environmentally safe', 'environmentally friendly', 'earth friendly', 'non-polluting', 'green', 'ozone friendly', 'plastic free' etc, are specifically cautioned against in SANS 1728.

"Manufacturers that wish to claim their plastic packaging are degradable, need to subject the packaging to the relevant testing and certification requirements."

SANS 1728 requires that the plastic material used in the packaging must be presented

on the packaging, using a material identification code from 1-7, and contained in a triangle.

- 1 = PET (polyethylene terephthalate)
- 2 = PEHD (High-density polyethylene)
- 3 = PVC (Polyvinyl chloride)
- 4 = PELD (Low density polyethylene)
- 5 = PP (Polypropylene)
- 6 = PS (Polystyrene)
- 7 = all other materials (e.g. ABS, PLA, SAN, etc.)

Should the plastic packaging be of a degradable nature, it will be indicated below the triangle, as illustrated below (extract from SANS 1728):

"Currently, in South Africa there are no products that have been certified by the SABS as compliant or meeting the requirements of SANS 1728 and consumers are urged to be vigilant when purchasing plastic products that make false claims of being degradable or 'environmentally friendly' or plastic free.

Basically, manufacturers need to ensure that they have verified the type of plastic in their packaging before they can make any claims about their products, says Bissoon.

In South Africa, the Department of Forestry, Fisheries and Environment holds the authority and regulatory power over packaging.

In May 2021, the Extended Producer Responsibility (EPR) recommendations became regulations and include requirements for packaging and correct labelling of products and packaging.

MAKE PVC YOUR FIRST LINE OF DEFENCE

Considering that hospitals rely on PVC (vinyl) as the first line of defence to protect against superbugs and infections - shouldn't you use it for your packaging too?

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www.savinyls.co.za



Cling Film



Bottles & labels



Other packaging

Low Carbon: PVC is an intrinsically low-carbon plastic: 57% of its molecular weight is chlorine derived from common salt; 5% is hydrogen; and 38% is carbon.

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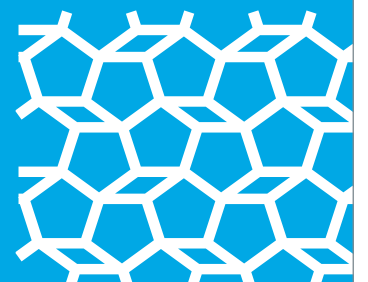
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Pollution from Eskom's failing coal fleet will continue to kill thousands

Research on air pollution caused by Eskom's ailing fleet of power stations is unequivocal: if allowed to continue, emissions from the company's fleet of ailing power plants will cost thousands more lives.



Photo Credit: Daylin Paul.

EARTH LIFE Africa and groundWork (Friends of the Earth South Africa), represented by the Centre for Environmental Rights (CER), have made a legal submission to the government appointed expert panel on air pollution, calling on the forum to consider the horrific impacts that Eskom's air pollution has on people's health and lives on a daily basis when making its recommendations.

The environmental rights groups have called on the forum to ensure that Eskom is not allowed to further postpone its compliance with minimum emission standards (MES) on air quality, particularly in the Mpumalanga Highveld region – an area identified as an air pollution hotspot.

Research on the health effects of air pollution caused by emissions from Eskom's ailing fleet of power stations shows that, if Eskom is allowed to continue as is, emissions from the company's fleet of ailing power plants will cost thousands of lives.

"This untenable situ-

ation illustrates why we need to phase out coal as soon as possible. Not only is Eskom's coal fleet unable to provide enough reliable electricity, but it is also killing people and making people sick every day," says Thomas Mnguni groundWork's coal campaigner and a Highveld resident. Recent modelling by the Centre for Research on Energy and Clean Air (CREA) shows that:

- Under Eskom's planned retirement schedule and emission control retrofits, emissions from the company's power plants would be responsible for a projected **79 500 air pollution-related deaths from 2025 until end-of-life. On a cumulative basis until the end-of-life of the power plants, compliance would avoid a projected 34 400 deaths from air pollution and economic costs of R620 billion (USD 41.7 billion).**
- **In addition, full compliance with the MES at all plants that are scheduled to operate beyond**

2030 would avoid a projected 2 300 deaths per year from air pollution and economic costs of R42 billion (USD 2.9 billion) per year.

- **Other avoided health impacts would include 140 000 asthma emergency room visits, 5 900 new cases of asthma in children, 57 000 preterm births, 35.0 million days of work absence, and 50 000 years lived with disability.**
- **Requiring the application of best available control technology at all plants, instead of the current, weak MES, by 2030, would avoid 57 000 deaths from air pollution and economic costs of R1, 000 billion (USD 68.0 billion) compared to the Eskom plan, ERP 2022.**

Abridged article reprinted from Centre of Human Rights: <https://cer.org.za/news/pollution-from-eskom-failing-coal-fleet-will-continue-to-kill-thousands>

Waste management an economic-critical pillar to sustainable development

Kate Stubbs,
Marketing Director at
Interwaste

AS a country, there is no doubt we are facing a magnitude of issues that border on human rights violation - challenges that have a long road to resolution. Not only are we in the throws of one of the worst power crises the country has seen but so too are we faced with a water crisis, a growing population putting pressure on already strained resources and of course, far reaching climate concerns. However, not all is lost, and this should be a clear message to business and government.

There are solutions that can drive sustainability within key sectors that serve South African consumers and the economy. It merely means looking deeper than the obvious solutions and finding ways to unilaterally work together to ensure such solutions become viable and cost effective, and to ensure that we drive an understanding in communities as to the vital importance of such innovations in meeting South Africa's challenges and being

these goals – where, taking the circular economy thinking into account where waste reuse and repurposing is fundamental to not only meeting these objectives but very importantly, is central to addressing environmental impact and growing ESG targets globally.

However, we have a conundrum where business, community and at some levels of government - are under informed about the potential of well-managed, compliant, and innovative waste management solutions. The reality though is that with a population of 61 million people and growing by around 1% a year, and with each person generating around 2kg of waste per day, we are heading towards a waste disaster if we don't start creating solutions and ensuring that all parties are educated as to why effective waste management is so important.

As a starting point, let's discuss the impact of wastewater management on driving sustainable water supply. With 7 of the 13 major water systems in South Africa predicted to be



Kate Stubbs.

ply that is safe and consistent.

On the other hand, waste can tackle energy crises but needs solid business, government and industry collaboration to see it to fruition. If we consider the Just Energy Transition's (JET) provision "Net Zero" carbon emissions by 2050, exploring alternative sustainable options is key and if we consider that the global waste-to-energy market is expected to grow from \$28.4 billion in 2017, to almost \$43 billion in 2024, waste presents a large economic opportunity to establish new industries and/or revenue streams and meet SDG Goals. Converting waste to energy production occurs through three key processes – thermal, biological and physical. For each process, there are a variety of technologies available to convert different types of waste to energy such as electricity, steam or gas and so, there are multiple layers to meeting South Africa's energy crisis – critical to government agendas currently.

However, let's consider the obvious. Not all waste can be reused or recycled and where it can, sometimes cost can be prohibitive. Therefore, the need for waste management strategies that look at the full value chain of waste and ensure that the growing waste generated by the very communities and businesses we serve can be best managed and disposed of, should be critical. Nobody wants to believe it but engineered landfills

and associated waste management practices remain cost effective and so are still an attractive and compliant option for managing a wide variety of waste types. However, with landfill airspace diminishing across the country – with the City of Cape Town municipality only having approximately 10 years landfill airspace capacity left in current facilities, we have to consider the vital importance of creating more space to deal with the waste generated by South Africans.

In fact, Cape Town Mayor Geordin Hill-Lewis has launched a R120-billion infrastructure portfolio which looks at creating new water sources, expanding waste collection, drop off sites and landfill capacity. A significant amount of budget is being allocated to landfill infrastructure in the region – adding 35 years of airspace. Similarly, he has committed to R5-billion to water security projects – taking up majority of the infrastructure investment.

This reiterates the importance of not only alternative solutions to meeting South Africa's challenges but indicates the fundamental role of effective, ethical and compliant waste management practices in driving South Africa's climate agenda.

The challenge is large but so are the solutions – we must create strong industry collaboration and investment projects that are supported by communities to truly change the status quo.

"A significant amount of budget is being allocated to landfill infrastructure in the region – adding 35 years of airspace."

part of the change. For us, effective waste management and the ability to use waste in creating a circular economy provides a critical pillar to such innovation. Not only does proper waste management ensure that we can reuse and repurpose the growing mound of waste but it ensures that, where waste cannot be repurposed/recycled, it can be – as a last resort – sent to landfill, but done properly.

Without a doubt the waste sector plays a fundamental role in meeting the country's Sustainable Development Goals (SDGs), tackling not one, but at least 6 of the 15 goals in total. Goals 6 (Safe water), 7 (Clean energy), 13 (Climate action) and 11 (Sustainable cities) being the most prominent in this regard. In fact, it is an integral part of

in deficit by 2040 and the demand for water expected to exceed available supply by 2030, we need to find solutions. In our experience wastewater management can result in the redistribution of water into the environment for irrigation and dust suppression, as well as to replenish rivers and catchments in our water infrastructure networks. Furthermore, treated to the required standards, we have found that nearly all effluent can be recycled, if done properly, creating a strong solution for water sustainability and access – water that was previously not deemed safe for consumption. We need to create a much more diverse water mix, including groundwater and wastewater reuse, if we hope to protect this scarce resource and create a water sup-

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What small business can do to stop organic waste from reaching the landfill

RESTAURANTS and other small businesses have several options to reduce the amount of organic waste, and associated greenhouse emissions, they produce from reaching landfills.

In August 2022, the City of Cape Town's Urban Waste Management Directorate issued a directive to all businesses generating organic waste to share their plans for reducing the amount of organic waste that is sent to landfills. While major generators of food waste are generally responding to this call, there is a noticeable scarcity of submissions from smaller restaurants, hotels, food processing facilities and similar businesses.

The City of Cape Town (CoCT) is urging these smaller businesses to ensure that they submit their waste management plans as shown below, to be compliant with its IWM By-law and avoid possible fines. All businesses are required to have a waste management plan detailing how much waste is produced on their various premises, what kind of waste is produced, and how this is being minimised. In light of the August directive, plans should specifically detail how organic waste will be reduced by 50% immediately, and by 100% before the end of 2027.

Although this may seem like a daunting task at first, the submissions the CoCT has received from bigger businesses to date show that there is a variety of options available for reducing organic waste that can be easily implemented on a smaller scale.

In addition, there are numerous emerging industries utilising organic waste, and gaining momentum as more and more businesses seek out organic waste solutions. This waste can be turned into compost for agriculture/gardening, reprocessed into industrial products, or turned into animal feed. This is a growing sector and there should be no shortage of options for small restaurants/hotels etc. to partner with. Many of these options are either included in the City's waste recyclers' map, or can be found via a simple Google search for keywords such as "organic waste recycling in South Africa". Alternatively, the CoCT recommends that businesses should contact the following non-profit industry associations or organisations that have lists of their members offering the different

processing solutions for organic waste.

Green Cape's Waste: Market Intelligence report 2021 gives great insight into the 2021 organic waste management status in Cape Town. Organic waste generators can also join the Western Cape

Industrial Symbiosis Programme (WISP), to potentially exchange their organics with industry or commercial partners who can use the material.

The reduction of organic waste is an important intervention against global warming.

When organic waste decomposes in a landfill, it creates landfill gas. Made up primarily of methane, this gas has a global warming potential that is much greater than carbon dioxide. As a society, we all need to do what we can to reduce all emissions,

and this is one area we can have a big impact with only minor changes in our habits.

Online submission of Waste Management Plans

To submit a waste management plan, go to

<http://web1.capetown.gov.za/web1/swma/Account/Login?ReturnUrl=%2Fweb1%2Fswma%2F>

Application forms are available on the <https://www.capetown.gov.za/City-Connect/Register/Business-and-trade/Register-as-an-accred>

ited-waste-services-provider

Submit written requests to: waste.accreditation@cape-town.gov.za

For original article visit: <https://www.bizcommunity.com/Article/196/703/236097.html#>



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Global clean-energy investments match fossil fuel for first time



Picture credit: Michael Probst/AP/Ritzau Scanpix

By David R. Baker,
Bloomberg News

NEW study from BNEF shows that 2022's global investments in greener energy forms reached parity for the first time with money underwriting fossil fuels – at roughly USD 1.1trn.

For the first time, the world invested as much money into replacing fossil fuels as it spent on producing oil, gas and coal, according to an analysis from BloombergNEF.

Global investments in the clean energy transition hit USD 1.1trn in 2022, roughly equal to the amount invested in fossil fuel production, according to the research firm's "Energy Transition Investment Trends 2023" report. Never before has the amount spent on switching to renewable power, electric cars and new energy sources like hydrogen topped USD 1trn.

While the amount represents a 31% jump from 2021, it's still just a fraction of what's needed to slash greenhouse gas emissions and fight global warming. BNEF estimates annual investments in the transition must triple for the rest of this decade to give the world a shot at reaching net-zero emissions by 2050.

Solar and wind power accounted for the biggest chunk of 2022 investments, reaching USD 495bn, a 17% increase from the previous year. But electric vehicles came in close behind, with USD 466bn, and the amount invested in them worldwide is growing far faster, at 54%. Nearly half of all global energy transition investments — USD 546bn — were in China, while the US came in second at USD 141bn. (Had BNEF counted the European Union as a single entity, it would

have ranked second, with USD 180bn.)

The USD 1.1trn covers money invested in deploying clean-energy technologies, according to BNEF. It does not include USD 274bn spent worldwide last year on expanding and strengthening power grids, USD 79bn invested in clean-energy supply chains and manufacturing or USD 119bn in equity financing raised by clean-tech companies. Added together, the amount invested in the transition rises to about USD 1.6trn.

That clean power investments essentially tied those in fossil fuels is notable considering investments in those older, polluting energy sources rose in 2022. Driven by high fuel prices, worldwide investment in the sector climbed a substantial USD 214bn, according to BNEF.

Steinmüller Africa celebrates 60 year milestone

STEINMÜLLER Africa, the steam generation and high-pressure piping experts, celebrated 60 years of successful business in Africa on 7 November 2022. With a very humble beginning after its registration as a South African business in 1962, the company's sole African location was a post box in South Africa which was checked only when the company's first managing director, Werner Oehler, passed through South Africa en route to Australia from Germany. It was at this location that Steinmüller Africa received its first invitation to tender – an Eskom tender for its Grootvlei Power Station – and which led to the company building its first African head office, just outside of the Grootvlei Power Station, in the 1970s.

The company has since conducted ongoing boiler and high-pressure piping maintenance at the Arnot, Camden, Duvha, Hendrina, Matimba, Kriel, Tuthuka, Matla, Majuba, Grootvlei and Komati power stations. Its milestones are many and the company's development is linked to South Africa's industrial growth. The forerunners of this development were the building of boiler plants at Hendrina, Kriel, Duvha, Thuthuka, Majuba, and Mathimba power stations from 1967 through to the early 1980s.



In 1962 Steinmüller Africa's location in South Africa was a mere post box, to the current Pretoria-based 30 000 m² facility under roof, which enables one million productive hours each year. The company also has workshops in Sasolburg and Bethal.

The 1990s saw Steinmüller Africa increase its South African footprint with the Sasol rejuvenation project, the replacement of gas boilers at Moss gas and Iscor blast furnaces. It also expanded its African footprint by undertaking work for the SAPPI Mill in Swaziland and conducted the refurbishment of the Zimbabwe Iron and Steel Company (ZISCO) plant. The South African-based entity took its footprint to Europe where it was contracted to fabricate PF boilers in Iskenderun, Turkey. The company, between 2004 and 2010, also undertook the return to service of mothballed plants at the Camden, Komati and Grootvlei power stations, and began fabrication of boilers and high-pressure pipework at these plants.

In addition to its work

for ZISCO and the Zimbabwe Electricity Supply Authority (ZESA), Steinmüller Africa also has a footprint in Botswana, Mozambique and Namibia.

Moso Bolofo, Executive Director at Steinmüller Africa, states that the company's progression has been linked to South Africa's industrial development. "Initially – in the early to mid-90s – our technical expertise was overseas-based and our offering to the African market was largely based on our local capabilities." He adds that Steinmüller Africa now employs advanced engineering tools in its South African-based design office and has invested significantly in automated welding technologies at its fabrication facilities. "Both of these developments are aligned to our drive to improve productivity,

shorten lead times and be a premier utility boiler and steam piping service provider on the African continent," he says.

Industries that have benefitted from Steinmüller Africa's progression on the continent and beyond include power generation, pulp and paper, chemical and petrochemical, and mineral beneficiation. "Our growth and sustainability, however," says Bolofo, "has remained within the power generation and chemical sectors. "Our expertise focuses on steam generation and reticulation, with an emphasis on complex, efficient high-temperature and high-pressure steam, meaning we are capable of providing solutions across the entire utility sector, where fuel efficiency is paramount." Steinmüller Africa, which has supported the lion's share of leading power generation and chemical utilities in South Africa, was one of the earliest companies to undertake transformation and localisation activities in line with the B-BBEE scorecard and has been a Level 1 contributor over the past several years. "We are proud to be a highly ethical organisation and a preferred employer in our sector," says Bolofo. "We have trained and produced a significant number of artisans and technicians for the South African industry."

In addition to its B-BBEE rating and local skills development, Steinmüller Africa has contributed significant funding to 24 tertiary institutions across Africa to benefit science and technology undergraduates.

"We have covered a great amount of ground over the past 60 years, both geographically and on the innovation front," Bolofo concludes. "We look forward to another 60 years of growth, to the betterment of our company, the communities in which we work, and the industrial sectors we serve."

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africa



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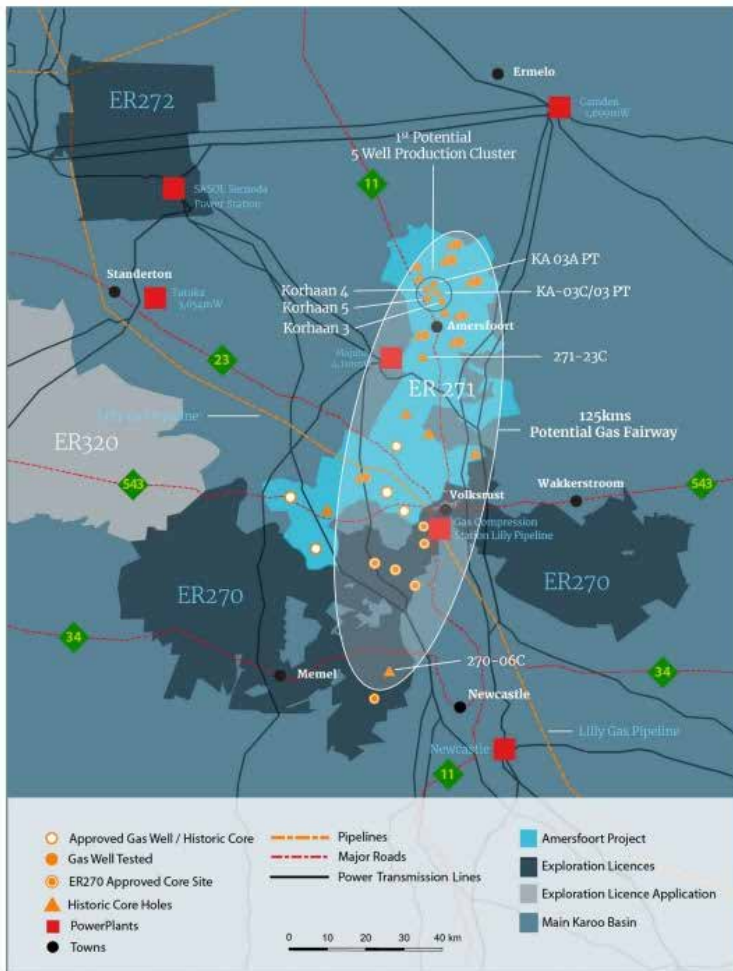


Figure 1 – Exploration success establishing a potential gas fairway through ER271 and 272

- Petroleum Agency of South Africa (PASA) has granted Afro Energy renewals on Exploration Rights 270 and 272
- The Exploration Rights have been renewed for two years
- The renewals granted by PASA supported the approved work programme Kinetiko has in place to accelerate exploration
- KINETIKO Energy Ltd the Australian gas explorer and developer focused on advanced shallow conventional gas and coal bed meth-

Status of Biogas in South Africa

From Alberto Borello,
Former Secretary
General of SABIA



A review conducted by SABIA (SA Biogas Industry Association) in 2022 indicated that during the period 2022/early-2023, the electricity demand in South Africa has increased by 20% than the current generation capacity leading to ESKOM's decision to institute progressive Stage 6-Load-shedding throughout the country. In February 2023, the government declared a state of disaster and nominated the Minister of Electricity, to tackle the electricity crisis. The small-medium and large international enterprises, communi-

ties, and governments are looking for immediate solutions to generate electricity and satisfy the energy demand.

The biogas industry has competitive, ready-to-deploy technologies to produce power with the benefit of reducing GHG emissions essential to combat global warming responsible for climate change, using organic waste. Biogas technology is easily scalable and can be installed to produce energy (electricity or methane for cooking) at the household level up to large food-processing industrial installations that can generate many MWh of energy.

For the past five years, SABIA, in collaboration with many national and international partners, has promoted initiatives to create frameworks to enable projects and attract up to R250-billion of investments. These initiatives include the development of new legislation for the management of organic

waste, new tools to evaluate investments in biogas, the characterization of various feedstocks, CPD-accredited training, market analysis, and the organization of several conferences, webinars, and workshops.

At their full potential, AD and biogas can deliver a 15% cut in South Africa's greenhouse gas emissions by 2050. Together with wind, solar, and the transition from coal and oil to natural gas, the biogas industry can transform and expand quickly without any dramatic rise in energy costs.

Decarbonising the South African economy is essential to protecting the environment, growing the economy, and addressing energy security.

The future in South Africa will be greener than ever and you can be part of the transition supporting SABIA.

To join the association, please visit www.sabia.org.za

TotalEnergies signs Renewable Power Purchase Agreements with Sasol and Air Liquide

TOTALENERGIES has signed Corporate Power Purchase Agreements (CPPA) with Sasol South Africa and Air Liquide Large Industries South Africa for the supply of 260 MW capacity of renewable electricity over 20 years.

TotalEnergies will develop a 120 MW solar plant and a 140 MW windfarm in the Northern Cape province to supply around 850 GWh of green electricity per year to the Sasol's Secunda site, located 700 kilometers further North-East, where Air Liquide operates the biggest oxygen production site in the world.

The two projects will provide compet-

itive and available renewable electricity to decarbonize Sasol and Air Liquide's production.

These agreements demonstrate TotalEnergies' positioning to contribute to the evolution of the energy mix in South Africa. The projects will have a direct impact on the local community through job creations. "Power generation in South Africa is still 80% based on coal and power cuts occur daily. With these developments we are proud to support Air Liquide and Sasol for their supply of green electricity."

"Meanwhile, we are pleased to contribute to South Africa's energy transition which consists of

increasing its share of renewables and gas as an alternative to coal" said Vincent Stoquart, Senior Vice President, Renewables at TotalEnergies.

"There is a dynamic market for corporate PPAs in South Africa and we want TotalEnergies to take a strong leadership position."

The two projects are expected to be operational in 2025.

The CPPAs with SASOL and Air Liquide were signed with a consortium of TotalEnergies Marketing South Africa1 (70%), its partner Mulilo (17%) and a to-be-announced B-BBEE partner (13%).

These projects are subject to regulatory approvals.

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Mozambique dependent on TotalEnergy’s LNG project to pay debts

MOZAMBIQUE’S ability to keep servicing its rising debt pile depends on the resumption of TotalEnergies SE’s \$20 billion liquefied natural gas (LNG) project, according to S&P Global Ratings.

The LNG project, once touted as Africa’s biggest private investment, stalled in 2021 following terror attacks by Islamic State-linked rebels in Mozambique’s northeast. Progress in containing the violence has led to speculation that work may resume in the coming months, but TotalEnergies has yet to make a decision.

Patrick Pouyanne, CEO at the French oil and gas major, said in February he’s in no hurry to resume. Yet Mozambique faces growing debt payments that might be difficult to meet without revenue it had been banking on from the project.

Yearly coupon payments on the nation’s



sole \$900 million euro-bond jump to 9% from 5% next year. Principal payments of \$225 million start from 2028.

“It’s really critical for these gas projects to come online and for them to be able to generate the revenue,” Leon Bezuidenhout, sovereign analyst at S&P, said in an inter-

view last week. “Even now there’s still pretty high debt-servicing costs before the ramp up in these eurobond payments.”

Foreign troops improve LNG project safety

Foreign troops from Rwanda and a sepa-

rate deployment from the Southern African Development Community have helped improve the security situation in Cabo Delgado province, where the Mozambique LNG project is located.

Still, frequent raids by mostly small groups of insurgents have continued as they’re able

to evade authorities in densely forested areas. At least 4 668 people have died since the violence started in 2017, according to Cabo Ligado, a website that monitors the war.

Mozambique’s euro-bonds fell 0.8% to 75.2 cents to the dollar in London on Wednesday, the lowest level since

Dec. 9. S&P rates the notes at CCC+.

The International Monetary Fund agreed last year to a \$456-million support package after a six-year hiatus, unlocking yet more funds from other concessional lenders including the World Bank.

That provides some buffer. The IMF views Mozambique’s debt as sustainable even without the revenue from TotalEnergies’ project. While Mozambique in November exported its first LNG cargo from a much smaller floating production platform that Eni SpA built, that revenue won’t cover debt payments, according to Samira Mensah, senior credit analyst at S&P.

Return to work in sight

At least one supplier for the project is optimistic that the work will gradually start.

Alessandro Puliti,

CEO at Saipem SpA, which has a multibillion-dollar contract for the Mozambique LNG project, told investors last month that he sees a gradual return from July.

TotalEnergies’ Pouyanne said he’d make a decision to return after a report by experts on the security situation that was due by the end of February.

“It’s not if, in our opinion, it’s rather when,” said Mensah. Russia’s invasion of Ukraine has upended global natural gas markets, and European buyers are searching for alternative supplies.

“With the geopolitical tensions around Ukraine, everybody wants LNG and Russia’s somewhat out of the equation,” Ravi Bhatia, director for Africa at S&P, said in an interview. “These projects have always been extremely viable. Now it’s even more viable.”



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Recent scientific research on corrosion mitigation



Credit: Australian Corrosion Association, Author: Upender Reddy (ACA Technical Services Coordinator).

CORROSION is a natural process that can have significant consequences for the performance and lifespan of various materials. The economic and environmental costs of corrosion are considerable, estimated to be around 3% of the global GDP. For this reason, it is important to develop effective techniques for mitigating corrosion.

Recent scientific research has focused on developing new and improved techniques for preventing or slowing down the rate of corrosion. Here are some of the most recent scientific research on corrosion mitigation techniques.

1. Self-healing coatings: Researchers at the University of Illinois have developed a self-healing coating that can repair damage caused by corrosion. The coating contains microcapsules filled with a healing agent that is released when the coating is damaged, repairing the damage and preventing further corrosion. In addition to preventing corrosion, self-healing coatings can also be used to repair scratches and other surface damage to materials such as paint and plastic.

2. Corrosion-resistant alloys: Researchers at the University of Manchester have

developed a new type of corrosion-resistant alloy that is stronger and more durable than existing alloys. The new alloy contains a high concentration of molybdenum and tungsten, which improve its resistance to corrosion in harsh environments. The Titanic, which famously sank on its maiden voyage in 1912, was constructed using a type of steel that was not corrosion resistant (Excessive sulphur in The Hull Steel).

3. Advanced monitoring systems: Researchers at the University of California, San Diego have developed an advanced monitoring system that uses sensors and data analysis to detect and monitor corrosion in real-time. The system can identify potential problems before significant damage occurs, allowing for more effective preventative measures. Corrosion monitoring systems can use a variety of techniques to detect corrosion, including electrical resistance, ultrasonic waves, and spectroscopy.

4. Plasma electrolytic oxidation: Researchers at the University of Cambridge have developed a new technique called

plasma electrolytic oxidation, which can be used to create a highly corrosion-resistant layer on metal surfaces. The technique involves immersing the metal in an electrolyte solution and subjecting it to a high-voltage electric current, which causes a layer of oxide to form on the surface. Plasma electrolytic oxidation was first developed in Russia in the 1980s for use in the aerospace industry.

5. Corrosion inhibitors: Researchers at the National Institute of Standards and Technology have developed a new class of corrosion inhibitors that are more effective and environmentally friendly than existing inhibitors. The new inhibitors are based on organic molecules and work by forming a protective film on the metal surface. Some of the earliest known corrosion inhibitors were simple chemicals such as sodium bicarbonate (baking soda) and sodium chloride (table salt) and they can also be found in some everyday products, such as chewing gum, which contains a small amount of antioxidant which prevents the gum from becoming brittle due to oxidation.

New mixer line for increased application coverage

INGERSOLL Rand's Milton Roy Mixing, a global provider of mixing and agitation solutions for numerous industries, has launched its re-designed and extended HELISEM® line of top-entry mixers that can now be used in a much broader range of applications. The new models meet customers' expectations for flexible flow rate capabilities, achieving low, medium, and high mixing levels in a large variety of tanks.

"We are convinced that this newly launched extended range of mixers matches even better customer needs and will demonstrate its superior efficiency compared to what is currently available on the market," said Gaël Poulleau, Global Technical Leader, Mixing, at Milton Roy.

The new HELISEM® line comprises five distinct



mixer series – VDA, VRP, VRH, FRH and the new VRG series – and features a total of 133 models. Suitable for applications with fluid viscosities of up to 1,000 cP, these models provide high mixing levels in up to 8m diameter tanks and medium and low mixing levels in up to 11m diameter tanks. They can support dilution, dissolution, flocculation, homogenization, solid suspension, and other processes in sectors such as chemical, water treatment

and general industries. A premium motor and optimized proprietary propellers deliver highest efficiency, which translates into significant energy savings during mixer lifetime. The new mixers are easier, safer and less expensive to install and use, with numerous models requiring no maintenance under normal operating conditions. Standard HELISEM® mixer models offer stainless steel construction for wetted parts and

are equipped with one or two propellers, 50 or 60 Hz power supply, and an upward or downward flow option. Among custom features are alternative mounting options, including a square baseplate and a circular baseplate for ASME tank flanges, and optional ABCITE® high-strength powder coating (now available on 67 models) that provides outstanding corrosion protection and best-in-class salt spray resistance.

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This process is extremely suitable for the pharmaceutical and automotive industries. Actually, for any industry where corrosion resistance and acid

resistance, but also wear resistance and anti-galling are important.

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2023 WCPDF Conference, 8-9 June at the CTICC

THE 10th annual conference of the WCPDF (Western Cape Property Developers Forum) is being held under the theme: "Western Cape Investment: People, Purpose, Pro[s]per[i]ty. The Cape Town International Convention Centre (CTICC) will once again be the venue having proved to be very popular with 2022 attendees.

Discussing the theme this year, WCPDF Conference Chair and COO of AL&A, Alwyn Laubscher explains: "Property inspires people by giving them a purpose and a place in which to prosper. While the rest of South Africa seems to be suspended in a political and economic holding pattern, the Western Cape is rapidly moving forward under its own steam, with the huge

contribution made by the property development and construction industry being acknowledged as a catalyst towards this.

"We create the spaces in which people do things, and increasingly people from other parts of South Africa and abroad are turning their sights onto the Western Cape, seeking safer investment opportunities and better lifestyles."

Adds Deon van Zyl, Chairperson of the WCPDF: "The programme is a microcosm of what we are seeing in the Western Cape. Regional and local governments are really starting to invite industry to

the table to partner around infrastructure, affordable housing and innovative sustainability. Private equity financiers are stepping forward into the vacuum being created by banks. Developers are acknowledging the critical importance of effective community engagements. And tertiary institutions have become key players on the property development stage. This year's WCPDF conference highlights all of these to guide investors."

With the programme already fully established in terms of session topics, ongoing and emerging details of speakers and panelists are being updated in

real time as confirmations come through. This, together with delegates' registration fees, as well as exhibition and sponsorship opportunities, are now available, visit: <https://sbs.co.za/wcpdf2023/> for details.

There are substantial discounts for existing WCPDF Members (if you are not yet a member, please visit: <https://www.wcpdf.org.za/become-a-member/>) with even better discounts available for Group and Early Bird registration (before 30 April 2023).

The 2023 conference is a partnership between the WCPDF and SBS Conferences & Exhibitions



How do we fix SA's critical water challenges?

By Chetan Mistry,
Strategy and Marketing
Manager at Xylem
Africa

IT's not difficult to find examples of water problems across South Africa. The most current and stark situation is in the Eastern Cape, where senior citizens have to walk kilometres to find water when their local taps run dry. Johannesburg is struggling to maintain supplies as power failures and infrastructure demands cause distribution shortages.

Yet more South Africans today have access to water than ever before. If we can tackle our most crucial local water challenges, we can secure this precious resource for generations. How do we do that?

Unpacking the challenges

SA is a water-scarce country, prone to droughts and highly dependent on water distribution—a situation that will only grow more acute as climate change affects rainfall patterns. As a nation, we have very high water consumption levels—235 litres per person daily, well above the world average of 185 litres.

Rapid urbanisation is adding significantly to that consumption rate. Since 2016, Gauteng has grown by at least a million people, and the Western Cape's population has grown by 79 percent between 1995 and 2018. Yet neither region's infrastructure has kept up, nor have other places. Experts estimate only a third of SA's water infrastructure is operational.

Failing water infrastructure results in significant financial losses. Over 40 percent of water piped by local municipalities (around 70 million litres per day) doesn't reach its destination, costing local economies more than R7 billion annually. And while we worry about the rising electricity costs, water costs are outpacing those and have increased 1 270 percent since 1996, compared to 1 120 percent for electricity tariffs.

Fixing SA's water

All the above makes for bad news, but cooperation can deliver several overlapping fixes. There isn't much we can do about droughts, but we can hugely improve our water efficiencies. On an individual level, we can save a lot of water through water awareness education, particularly at schools and among communities. The more local people become custodians of their water supply, the more they will protect it. Part of that process is to popularise water tanks, rainwater capture, and recycling grey water to sustain gardens, household activities, car washes and numerous other uses.

Such good habits can extend into different industries. Water's rising cost makes efficiency a priority. Fortunately, modern water technologies are up to the challenge. Farmers can invest in improvements such as drip irrigation and create mini



Chetan Mistry.

earth water breaks to prevent excessive run-offs. Mining and manufacturing groups can recycle water and use data analytics to reduce water costs and wasteful consumption.

The water industry helps

Water technologies and their ecosystems play a big role in supporting public infrastructure. Since 2022, emergency measures have fixed over 9 700 leaks, often using modern leak detection systems. Infrastructure is also being revitalised, such as modern, efficient and environmentally-friendly UV sanitation upgrades to Cape Town Strandfontein Wastewater Treatment Works. Yet we can do more. Many cities and towns cannot keep up with water infrastructure's skills and financial demands. The water industry can provide affordable access to equipment through rentals and repairs, and reduce costs by manufacturing some components inside the country. We can help stem the losses from non-revenue water resulting from leaks and water theft.

Our partner networks have many skilled professionals who can collaborate with local municipalities, helping them fix immediate problems, recoup financial losses, and retrofit older sites with new efficient enhancements. And water companies can proactively inform people about water through community events and fun youth education.

South Africa has the tools to address our water challenges. We can create a future where people don't have to walk kilometres to find a working tap, towns make reliable revenue from water, and the State meets its constitutional promise that everyone deserves access to water.

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Construction sector waits for game changing action



Dr Azar Jammie, Econometrix Economist at the AfriSam Budget Breakdown event.

THE outlook for South Africa's struggling construction industry remains uncertain, hovering between the massive infrastructure expenditure figures being publicly mooted and the State's seeming inability to implement its economic recovery plans.

At this year's AfriSam Budget Breakdown event, now a regular highlight on the construction sector calendar, Econometrix Economist Dr. Azar Jammie pointed to raised expenditure targets for infrastructure. Dr. Jammie said he was encouraged by the growth from R812 billion to R903 billion in the estimates for public sector infrastructure expenditure from the 2023/24 to 2025/26 financial years.

"These numbers are so big that if we were to see their full implementation, it would be a game changer not only for the construction sector, but for the entire economy," he said. "Where the real hope lies is in government get-

ting its act together and starting to implement its capital projects."

He noted the importance of how Finance Minister Enoch Godongwana dealt with plans to restructure Eskom's capital debt, as any worsening of the energy crisis could undermine the economic predictions in the budget speech. If loadshedding was exacerbated, he felt that the country may not even reach its meagre 0.9% growth target for the year. In such a scenario, government's own spending plans would be further dampened by lower tax revenues.

The question he posed was whether there was the political will within the governing party to allow Eskom's debt restructuring to take place. Such a move was inevitable, however, as he foresaw a complete realignment of politics in the general elections of 2024.

Focusing on the construction industry, Dr Jammie once again painted a sobering pic-

ture – but highlighted the sector's potential to deliver economic benefits. He reminded his audience that construction provides 7.8% of the country's employment, even though it makes up just 2.6% of GDP.

"Implementing government's infrastructure projects would spark massive job creation, and the economy would grow by 5-6% a year," he said. As it was, business confidence among building contractors continued to deteriorate, although last year this deterioration had slowed.

Commenting on Dr Jammie's presentation, Richard Tomes, Sales and Marketing Executive at AfriSam said: "Although the operating environment remains challenging, one of the positive elements AfriSam has noted is the increase in the infrastructure spend budget allocation, and we remain hopeful that the implementation of the infrastructure projects will gain momentum and start delivering true

value for the construction industry."

Considerable overcapacity was still evident in the non-residential building sector, especially commercial office and retail space. The value of non-residential building plans passed averaged just about R1 billion in value compared to R3 billion in 2016. The brief recovery in the residential building sector – as homeowners renovated for home offices – had tailed off. Cement demand suffered negative growth in 2022, and was expected to improve only marginally over the next few years, he said.

AfriSam SA Budget Breakdown Event

About this annual event itself, Tomes remarked that AfriSam's purpose is to make valuable information available to the various stakeholders that interact with its business. "With many of us operating in the same industry, material matters such as the external environment we operate within not only relates to AfriSam but also to our stakeholders' businesses."

We hope that the information being shared at an event like this will not only provide them with insight about some of the decisions that AfriSam takes but will also provide them with valuable insights to enable decision-making in their own businesses or organisations to ensure their future success and sustainability.

For more information visit: www.afrisam.com

The state of the WC property development and construction industry

TWO reports launched last year were the bellwether indicators of the state in which the property development and construction sectors now find themselves, and demonstrated just how far down the economic scale this industry had fallen – already prior to Covid-19.

According to Deon van Zyl, chairperson of the Western Cape Property Development Forum, the first of these was the 2022 Infrastructure Report Card (IRC), published by the South African Institute of Civil Engineers (SAICE), which rated the overall condition of South Africa's infrastructure as a "D – at risk of failure" – the lowest since the IRC first launched in 2006.

The second was the Statistics SA June report on the Construction Industry, which showed that employment in this sector had contracted by 25% already pre-Covid-19, with 118 000 jobs lost between June 2017 and June 2020.

Joe de Beer (Deputy Director General, Economic Statistics, StatsSA) attributed the decline largely to the lack of government procurement, and Van Zyl concurs: "It has taken a State of Emergency just to beg the national energy provider to do its job – to maintain let alone renew, its energy infrastructure."

"Without a solid plan and platform for all public-driven, crucial infrastructure, our industry has no stage on which to play out the vast contribution we make to the economy, particularly in terms of job creation."



Deon van Zyl, chairperson of the Western Cape Property Development Forum.

Adds Bafikile Bonke Simelane, Managing Director at Cape Town-based project management company AL&A: "These reports all prove that our industry's current woes predate the advent of Covid-19, but which in turn then saw associated lockdowns exacerbating an already deteriorating situation."

"Therefore, it's a misnomer to speak of a 'post Covid-19 recovery', especially when the much-vaunted but persistently stubborn 'infrastructure-led' recovery of our country remains elusive with specific reference to Built Environment-related public-sector projects."

There are, however, lights on the horizon, one of these being the recent launch of City of Cape Town Mayor Geordin Hill-Lewis's Infrastructure Report.

Forming the foundation for economic growth over the next 10 years, Van Zyl notes that the report is also "refreshingly honest" about the City's past infrastructure shortcomings and shows a change of attitude from within the City's executive management team.

Other sectors within

the industry are also cautiously optimistic, including commercial developments. Riaan Munnik, Western Cape-based Regional Development Manager for Growthpoint Properties, 2022 had seen a bottoming out during which the confidence in the property sector had dipped drastically and the result seen in many of the listed share prices. All of this had been exacerbated by a general negative sentiment towards the

South African economic and political environment. There is light now, at the end of the commercial tunnel, notes Munnik: "Office is making a huge comeback. We are excited."

For many private residential developers such as the Rabie Property Group, the growing challenge will be increases in interest rates which always immediately contract the residential.

The bottom line is that it can no longer be business as usual. Simelane agrees: "The name of the game is agility, resilience and collaboration because there are still opportunities out there, even though they may now take much longer to materialise due to long gestation periods brought about by budget cuts, capital expenditure deferrals and a very competitive environment."

Van Zyl concludes: "Indeed, one of the biggest messages of hope emerging from the industry is the feeling that – while 2023 will still be a tough year – there was strong light on the horizon and even an anticipated boom across the marketplace from 2025 onwards."

Quality shortcuts not good for future of construction



Avi Bhoora.

WEAK economic conditions in construction have led contractors to find new ways of surviving, and some strategies could undermine the longevity of roads and buildings, says AfriSam Construction Materials Executive Avi Bhoora.

In the past, G1 aggregate was the main base course for roads, with G2 as the sub-base, and

G4 and G5 used for the selected layers. Bhoora says that recently there are efforts to substitute these, using products with names like G4A or G4A Special, for instance. Specifications are being adapted possibly because of cost pressure, but have not yet stood the test of time.

"I have been involved in projects building roads that have outlasted their expected 25 year lifespan by a decade or more," says Bhoora. "It is uncertain whether the new specifications will be as effective, especially with the much heavier loads on our roads today. This route might be short sighted in the long run."

Turning to the ready-mix market, he says the average strength of concrete supplied has been

gradually declining.

"There are also signs of users 'buying down' when it comes to ready-mix," he says. "Whereas 35 MPa was the average strength we supplied until recently, that average is now closer to 28 MPa. This is concerning, as skimping on concrete strength is certain to have long term consequences for buildings' longevity."

He notes that there is still insufficient work entering the project pipeline throttling, holding back the potential of the construction sector to create jobs and build valuable infrastructure. Contractors and their supply chain remain under pressure, with low margins leading to the demise of amalgamation of important industry bodies.

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Important Cape training course to boost concrete skills

WITH natural disasters and maintenance issues continuing to threaten the condition and safety of South Africa's infrastructure, one of Cement & Concrete SA's School of Concrete Technology's most important training courses, 'SCT30 Concrete Technology', deservedly should attract record enrolments in Cape Town this year, predicts John Roxburgh, senior lecturer at the School.

"Technical skills in concrete are extremely scarce in South Africa..."

The five-day course – one of the most important for infrastructural preservation in the School of Concrete Technology's 2023 Training Programme – will be presented in Cape Town from November 20 to 24 with other venues

such as Gauteng and Durban also scheduled for 2023.

Roxburgh says the provision of durable new infrastructure, as well as the competent maintenance and repair of existing infrastructure, have become vital for the economic welfare of the entire sub-continent as climate change and global warming take their toll.

"Industry professionals and their employers have seen unprecedented devastation first-hand in recent years and months. A sound theoretical knowledge of concrete will enable construction practitioners to solve and prevent many problems - before it happens. They will be able to ensure that the specified concrete's properties meet the needs of the size, shape and type of structure, and consider external ambient and internal thermal conditions. The professionals will be able to advise on placement



John Roxburgh.

techniques and other good concrete site practices – particularly curing requirements. Also, their concrete knowledge will help ensure that the concrete's strength, durability and surface finish specifications are met.

"By enrolling for one of the SCT30 Concrete

Technology courses, the professionals need only devote five days this year for intensive training in concrete technology to help ensure that the structures they design and build have maximum sustainability and create an improved urban and rural infrastructure throughout

South Africa."

He adds: "Technical skills in concrete are extremely scarce in South Africa and with what appears to be an increasing number of natural disasters such as flooding and a crumbling national infrastructure, there is now more than ever a dire need for competent concrete practitioners. SCT30 is an excellent medium for gaining detailed knowledge on a broad range of concrete topics."

The five-day training course, with laboratory sessions, cover important aspects such as:

- Properties of concrete;
- Concrete mix design and production;
- Mix design for specialised applications;
- Off-shutter and architectural finishes;
- Formwork, reinforcement and joints;
- Defects, blemishes and repairs;

- Mixing water and chemical admixtures;
- Temperature's effects on concrete quality; and
- Placing, compaction, protection, and curing of concrete.

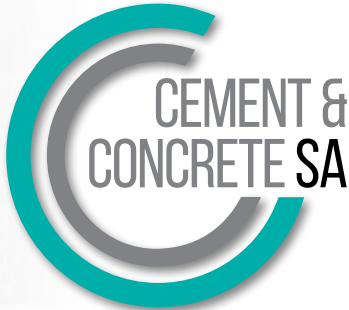
Roxburgh says professionals who successfully completed the School of Concrete Technology's SCT30 training course could increase their concrete skills even further with more advanced training, culminating in the globally-respected Advanced Concrete Technology (ACT) certification. But, importantly, even if armed only with a SCT30 certification, professionals will command respect in the construction industry and their services in demand both in the public and private sector opportunities.

"Municipal and government departments dealing with infrastructural development, construction companies, cement

producers, admixture suppliers, ready mixed concrete companies, concrete testing laboratories, pre-cast concrete factories, structural consulting firms, architectural and quantity surveying businesses, as well as project development and management businesses these days cannot do without the input and services of a person competent in concrete technology. Our SCT30 Concrete Technology course could be the launching pad for all industry professionals," asserts Roxburgh, who feels the importance of this course – which carries five CPD points - cannot be overstated.

For full details about qualification for SCT30 as well as other courses planned by the School of Concrete Technology in 2023, phone 011 315 0300, email rennisha.sewnarain@cemcon-sa.org.za or visit www.cemcon-sa.org.za to access the entire 2023 Training Programme.

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Quality concrete that meets all strength and durability requirements are critical for success.

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Training professionals for a Green Economy



THE National Cleaner Production Centre South Africa (NCPC-SA) invites companies interested in improving their resource efficiency and saving money to register their in-house representatives and/or consultants for upcoming NCPC-SA training courses.

Since establishing the trainee programme in 2010, the NCPC-SA has invested a considerable amount of time and effort in training and developing green economy sector professionals specialising in:

- resource efficient and cleaner production (RECP) interventions,
- energy management systems (EnMS),
- energy system optimisation (ESO),
- renewable energy, and
- power quality.

The investment has yielded positive results, with over 8 600 professionals trained and equipped with the knowledge needed to

assist their companies to operate in an efficient, sustainable, and competitive manner.

Wendy Da Cruz, an Energy Management Consultant, joined the ranks of professionals trained by the NCPC-SA in 2011 and has not regretted her decision since. She contends that with the skills that she gained from attending NCPC-SA training courses, “I have a broader base of services I can provide to my clients.”

Da Cruz doesn’t only assess and implement EnMS interventions, she also facilitates training and conducts energy management audits. “Doing this type of work is a feel-good thing. There are very concrete rewards,” she explains.

From when she started the introductory training through to expert-level in energy management, Da Cruz affirms that “the coursework was absolutely invaluable.” She credits this to both the national and inter-

national elements of the coursework that she received.

NCPC-SA training course material is based on the United Nations Industrial Development Organisation and the United Nations Environmental Programme’s RECP global network toolkit.

The Engineering Council of South Africa accredits all NCPC-SA courses. Candidates that attend all their training sessions receive Continuous Professional Development letters.

The NCPC-SA is a national resource efficiency programme of the Department of Trade, Industry and Competition (the dtic) that is hosted by the Council for Scientific and Industrial Research on behalf of the dtic.

Registration:

Registrations are open for introductory, end-user or expert-level training courses; visit: <http://www.ncpc.co.za/>

Equipping South Africans with the necessary skills and training

By Mzwandile Mamaila, Cape Business News Journalist

SOUTH African SETAs increase skills development and training. This initiative enhances the chances of employability and brings structural transformation and growth to the economy.

The lack of skills and training contributes to South Africa’s high poverty and unemployment rate. Fortunately, some initiatives seek to train and equip people who lack practical skills and training, increasing their chances of employability.

In March 2000, Sector Education and Training Authorities (SETA) were introduced to assist with developing the skills of unemployed South Africans. SETAs identify a person’s theoretical skills and aim to improve those skills by providing practical training. When participating in a SETA programme, new skills will be taught or enhancement of already existing skills.

SETAs provide skills development and training through Learnerships, Skills Programmes, Internships, Apprenticeships, Bursaries, Candidacies, and Adult Education. There are various sectors that SETAs offer training in, such as Agriculture, Hospitality, Busi-



CATHSSETA Hospitality students conducting their practical training. Source: CATHSSETA website <https://cathsseta.org.za/>

“We receive our funds from the levies, and we have lost funding from some businesses due to COVID-19...”

ness, and Banking.

South Africa consists of 21 SETAs funded by the Skills Development Levy (SDL). The SDL is a 1% fee paid by businesses. This fee is subtracted from the total annual salaries paid to employees. The SDL was introduced after the Skills Development Act 97 of 1998. This act encouraged the growth of knowledge and competencies in workspaces and aimed to improve productivity and employability. Working coherently with this act is section 11 and 12 of the SDL acts. This section states that companies that fail to pay the SDL on time should be fined, with 10% added interest to their SDL payment.

According to CATHSSETA Regional Manager for the Eastern Cape, Northern Cape, and Western Cape Region, Martha Collet, there has been an increase in the demand for SETA training programmes and an uptake in participants in the past few years. Unfortunately, there are not enough funds to cater to every applicant. “We receive our funds from the levies, and we have lost funding from some businesses due to COVID-19,” she stated, highlighting how businesses have stopped paying the SDL due to Covid – 19.

Even though employers received a four-month payment holiday, which excused

them from paying the SDL from the 1st of May 2020 to the 31st of August 2020, some businesses required an extended holiday. “We are recovering. It’s an industry recovery, so it’s quite normal,” Collet added with hope, believing that all companies will recover from the harm caused by COVID-19 and disputing that some companies intentionally stopped paying the SDL for personal reasons either than COVID-19.

It is still questionable whether the fines and added interest to late SDL payers have been charged to businesses who have stopped paying the SDL, as stipulated in sections 11 and 12 of the SDL acts. However, Collet stated that they increased their stakeholder base, highlighting how CATHSSETA has tried to find alternative funding.

A lack of solar skills can hamper rooftop solar uptake

With dire warnings that load shedding – back-outs – will be a constant reality for South Africans for the foreseeable future, rooftop solar power for residences and businesses is seen as a feasible answer to our failing national grid. However, a lack of the requisite skills and knowledge is hampering many photovoltaic (PV) projects in the country.

“We have seen many companies entering the market recently, and it is quite clear that the relevant skills are lacking. Furthermore, the high demand for solar power – particularly residential – means that the lack of skills in the industry will not be bridged quickly.”

These are the words of Svilen Voychev, CEO of Valsa Trading.

Valsa has been in the solar manufacturing industry since 2009 and evolved from a solar photovoltaic (PV) mounting structure manufacturer and installers to a now being a fully-fledged turnkey solar product and solution provider.

Valsa’s solar products and solutions are based on their experience in the South African solar market – and it is this experience that Voychev says gives them an edge in the local solar PV industry skills, or lack thereof.

Regulations are essential in ensuring that solar products are manufactured with quality and installed appropriately. The municipalities share the compliance oversight to ensure quality instal-

lations. “The insurance industry is very clear that they will only approve claims from professionally installed solar solutions” he warns.

Voychev notes that the lack of skills in the industry is a big challenge. “We are seeing a few initiatives to promote education, but the only way to bridge this gap is constant work with the sector to provide training and support. As such, Valsa has extending its services to make installation teams more knowledgeable. We support our partners with product and installation training to ensure skills improve and that compliance is understood, as ultimately the customer will benefit. Valsa provides free training courses to

prospective installers to assist them in familiarizing themselves with the company’s products and services. This training is complimented by installation and maintenance manuals, engineering drawings, and specifications to aid installations.”

He notes that the SAPVIA (South African Photovoltaic Industry Association) sponsored PV GreenCard is a good start to ensure responsible and sustainable growth of the industry. The PV GreenCard is an as built report for the solar PV system owner and a checklist for the installer, which qualified installers provide to their clients on the completion of a project. The PV GreenCard contains details of the installa-



Typical Valsa training session.

tion such as, what sort of PV modules and PV inverters were used, as well as a checklist of all of the necessary installation steps that were completed.

For those considering switching to solar energy, Voychev recommends that they adopt a

cautious approach. He suggests that potential buyers research their preferred installer, including verifying their credentials, their company history and ability to provide references. He warns against opting for the cheapest solution and instead sug-

gests seeking reliable installers with a proven track record. “Be aware of what you’re investing in and conduct professional due diligence. The correct decision will undoubtedly pay off, and you will benefit from your investment.” Voychev concludes.

High efficiency valves for safe use in industrial flow control applications

BMG's Fluid Technology division supplies and supports an extensive range of components for fluid technology systems and general industrial applications. These products include valves, hydraulic hoses and fittings, accumulators, cylinders, heat exchangers, hydraulic motors and hydraulic plumbing, as well as pumps and reservoir accessories.

Important valves in BMG's portfolio include InterApp Bianca and Desponia butterfly valves, which are recommended for high efficiency and safe use in demanding industrial flow control applications.

"Robust butterfly valves are designed for dependable shut-off and control of corrosive fluids, as well as high-purity applications," says Willie Lamprecht, BMG's Business Unit Manager, Fluid Technology Low Pressure. "Compact butterfly valves, with good flow characteristics and low maintenance requirements,



are extremely versatile and ensure dependable operation, even in the toughest environments.

"Unlike a ball valve, the discs of butterfly valves are always present in the passageway within the flow. This means a pressure drop is induced in the flow, regardless of the position of the valve. Ball valves should only

be used for isolation, whereas butterfly valves can be safely used for isolation and control of flow.

"An advantage of using quarter turn butterfly valves rather than any other type of valve is the simple, wafer-shaped design, with fewer parts, for easy repair and minimal maintenance."

BMG's InterApp Bianca centric butterfly valves, with durable PTFE liners, are built for long service-life and are suitable for aggressive and corrosive fluids and for applications where absolute purity is essential.

These high-performance valves, which are available in sizes between DN 32 and DN 900, are manufactured with a ductile iron, carbon steel or Stainless Steel body, to

suit the requirements of all industries. Bianca butterfly valves can be individually configured by BMG to ensure dependable operation and optimum safety in specific applications.

BMG stocks a wide range of semi-finished components to offer short delivery times, even on large sizes of the Bianca series up to DN 900.

The Desponia range ensures safe operation in water treatment processes, as well as in power generation and for demanding chemical processing applications. These valves can also with-

stand operation in the steel industry, where shut-off valves used to gas molten steel, are exposed to harsh conditions. These valves, with specially-coated discs, are also suitable for mining and slurries, for use in extraction processes which require valves with the highest abrasion and corrosion-resistance.

BMG's strategy to enhance its fluid technology services to meet growing market demand, encompasses the introduction of new products, with the latest developments in design technologies, materials and coatings.

Fluid technology services also cover project engineering and consulting, cylinder design and manufacture, training, repair and testing, as well as on-site container services. BMG also offers total process and lubrication management solutions throughout Africa.

Blend welds like a master with Superflex



AFTER completing various sections of welding metal together, the next step is achieving a seamless finish.

Grinding Techniques advise that blending welds is the action of combining two metal pieces together through welding and the grinding down of the weld to produce no visible seam.

Before welding can commence, the workpiece needs to be cleaned to remove any rust or mill scale that has formed. For this application, the Superflex rough cleaning, or non-woven flap disc is ideal. Once the cleaning process is completed you can determine the type of weld that is required.

Two types of welds can be distinguished. MIG welding, also known as Gas Metal Arc Welding and TIG welding, known as Tungsten Inert Gas Welding. Where MIG welding is known to be a low cost yet highly productive method of welding, and mostly used on common metals like Carbon Steel and Alloys, TIG welding is a more precise form of welding and requires a bit more skill, as it results in a neater and smaller weld.

The choice of weld will be dependent on the required finish, which is determined by the original material of the

workpiece. Carbon steel is almost always painted after welding, where Stainless steel usually requires a polished finish. If working on Carbon steel, not all welds need to be removed, as the seam will not always be visible. Stainless steel, like elevator panels, or handrails on the other hand requires a highly refined finish to disguise scratches.

When preparing to blend a weld, it is important to ensure that you are working with a clean, good weld, free from air bubbles or porosity. There should also be no undercut for example edges that doesn't intrude or fold into the surface of the material.

The Superflex range consists of different product options when it comes to blending weld applications. Removing the weld can quickly be accomplished with our AS30R Professional grinding disc.

We recommend, a criss-cross motion to knock down the high spots when grinding, as you will remove stock quicker and easier without damaging the workpiece around the weld.

It is important to refrain from too much pressure when using a grinding disc, as you wouldn't want to grind into the weld causing damage that could

potentially weaken the weld leading to it needing to be redone. In some cases, a used grinding disc might offer the perfect solution, as it will be less aggressive on application. It is important to note that the final required blend will require further rework with a finer grit abrasive product after grinding.

If opting to use only one product, the Flap disc, is ideal to remove both the weld and produce the final blend.

As a third option to blend welds, Superflex Fibre Discs can be used. A P80 grit used at a really low grinding angle of about 45 degrees, will blend the weld perfectly. Once satisfied with the finish, you can use a finer grit fibre disc, either P120 or P150, to remove the scratch marks either. Take care not to use excessive pressure during this application.

The surface is now perfectly prepared for painting, however if a mirror finish is required, we suggest using a Superflex Non-woven Medium Flap disc followed by a Superflex Non-woven Fine Flap disc.

For further information contact +27 11 271 6400 Email: info@grindtech.com or visit: www.grindtech.com

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Tsubaki SJ3™ sealed chains endure the harshest environments

BMG's extensive range of Tsubaki high performance chains comprises engineering class SJ3 sealed joint chains, with improved sealing technology, designed to improve the reliability of many mechanical components exposed to harsh environments.

"An important feature of the Tsubaki SJ3 series, is that extended bushing barrier seals prevent abrasive materials from entering and attacking chain joints, thus reducing wear and extending service life of chains," explains says Marthinus Janse van Rensburg, National Product Manager – Tsubaki, BMG.

"Tsubaki's patented SJ3 labyrinth structure keeps each pin and bushing assembly, free and clear of contaminants. This multi-seal combination inhibits fine particulates from entering critical bear-

ing areas. As a result, the risks of premature elongation, joint lockage and dry cavitation are reduced, allowing for more effective chain performance and longer life.

"The Tsubaki SJ3 design comprises three distinct seals. Although independent of one another, the seals complement each other to provide secure bushing and pin protection. The first seal is an industry standard extended bushing that limits the clearance between the ends of the bushings and the mating sidebars. This provides a highly effective first layer of protection.

"The second seal is a polymer face seal placed around the extended bushings. These polymer face seals are available in various performance materials and can withstand temperatures up

to 204°C. The final seal is a patented labyrinth seal that inhibits any remaining fine particles from entering the critical bearing area. The labyrinth is formed by a stainless steel ring attached to the pin, which rotates freely in a finely crafted groove in the bushing."

BMG's durable Tsubaki SJ3 series, has been designed for dependable operation in harsh environments, including mining, cement, paper, sugar and grain, chemical and petrochemical, as well as asphalt applications.

Successful installations of Tsubaki's SJ3 technology include:

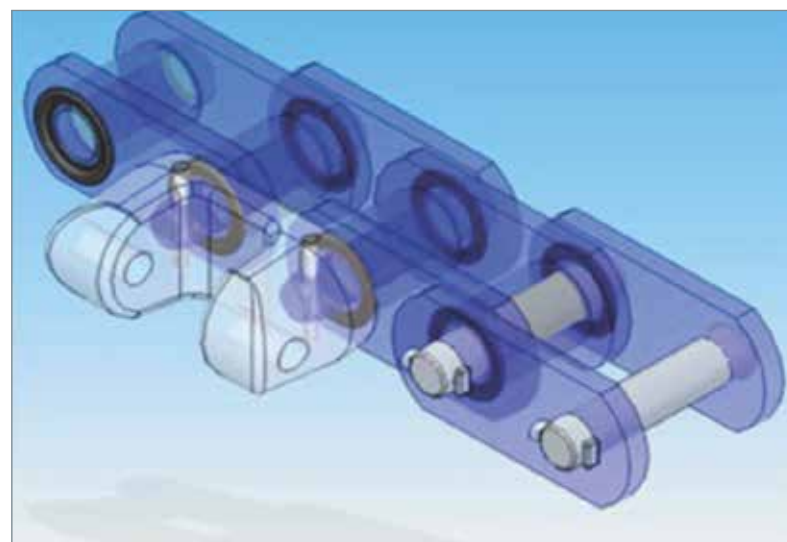
A synthetic gypsum feeder breaker, where the user was struggling to get more than four months of use from an OEM chain. Since the installation of SJ3 chain with stainless steel pins, service

life of chain has been extended to more than 36 months.

The user of a carbon coke bucket elevator initially installed a non-sealed elevator chain that lasted 12 months. Replaced with the installation of a Tsubaki SJ3 chain, and then a non-sealed chain with hardened stainless steel pins, which lasted double that period.

Lifespan of the chain increased to 56 months after the chain of a potash feeder, with packed joints that kinked and eventually failed, was replaced with a Tsubaki SJ3 chain with Stainless Steel pins and component lifespan trebled.

In a fly ash bucket elevator, standard elevator chain lasted approximately 12 months. Service life of the chain has increased to more than



BMG's Tsubaki SJ3 sealed joint chain series has extended bushing barrier seals that prevent abrasive materials from entering and attacking chain joints, thus reducing wear and extending service life of chains.

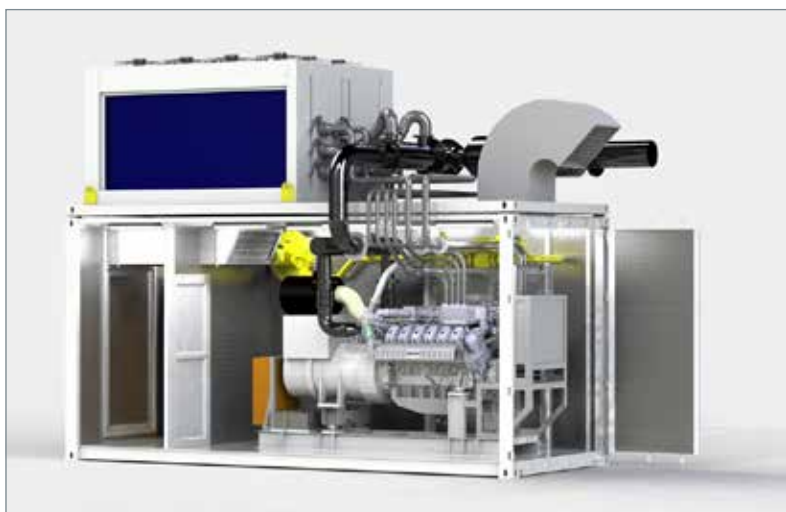
36 months, since the installation of Tsubaki SJ3 chain.

BMG's total plant management solutions encompass a technical advisory service on correct chain selection - a critical factor in any

power transmission system. The complete range of Tsubaki power transmission components is available from BMG's national branch network, which offers a 24-hour back-up service.

For further information contact Marthinus Janse van Rensburg, National Product Manager – Tsubaki, BMG, Mobile: +27 82 456 1803 Tel: +27 31 492 5701 Email: marthinusj@bmgworld.net

Mixing energy sources pays dividends for businesses



Schematic view of gas to power CHP unit.

REMEMBER the time before loadshedding when we had an abundant, reliable and stable electricity supply and we could plan our expansion and production schedules with certainty?

We didn't have to make allowances for outages, at least not often and the price of electricity wasn't an issue, although it did fluctuate depending upon consumption and the time of the day.

Fast forward to today when outages are commonplace, costs have skyrocketed and gone is the certainty of a continuous supply on a given day, despite loadshedding schedules.

Often, the level or stage of loadshedding changes with very little notice when Eskom experience an 'unplanned breakdown' irrespective of the schedule, so how do you run a business that is dependent on a stable power supply?

This is particularly onerous for businesses that require a continuous

supply as a fundamental for their process – such as plastic extrusion, glass or ceramics manufacture, bakeries or CNC machining of 'widgets'. In the latter case, unless there is a UPS (uninterrupted power supply) powering the machine tool, all software programming information can be lost, and a UPS for such a process requires many more kW than to power a computer or IT network.

Sudden loss of power won't just result in spoiled loaves when the oven is switched off; it's the consequential loss and disruption to production that can put a business under.

"There are several ways to mitigate this scenario" explains Ames Martin, founder and co-director of the Sustain Group which as the name suggests is in the business of supplying sustainable power through its three group companies; SustainPower, SustainSolar and SustainStorage.

"There is seldom just

one solution to grid failure and even if you are blessed with a reliable supply, there are cost effective measures available that allow the switching from grid power to other forms when tariffs peak.

"This could be by gas to power generators, solar power or battery back-up or by various combinations of all three. While a substantial part of our business is the supply of gas to power generators, solar and storage options are available to not only keep the lights on but to provide reliable, stable and continuous power supplies, including peak shaving, tailored to a customer's requirements.

"It's not a one size fits all solution – each application is different if not unique, depending upon the nature of business, production, product process and throughput. What differentiates us from other energy companies is that we can analyse a client's needs

and come up with a single or multi-faceted solution.

While the majority of SustainPower's business is in regions where there is a supply of cheaper, natural gas, its gas engines can run equally well on a variety of gaseous fuels such as biogas, flare gas and landfill gas, with emissions half that of coal fired generation, and substantially less than diesel or petrol fuelled generators.

Capacities start around 100kW and rise to many MW depending upon application. Turnkey units provide power for commercial and industrial back-up, standby and peak shaving and where combined heat and power is required. The more continuously an operation can run its gas generators or CHP's, the better it's pay-back.

Gas engines are sourced from either Germany or the USA while local suppliers provide alternators, control systems and mounting systems – all assembled in Sustain's workshops in Paarden Eiland, Cape Town. From there they are transported all over the Republic and to other country destinations throughout sub-Saharan Africa.

"One of our first projects was to supply a microgrid application to a remote girl's school in northern Malawi" says Martin. "Solar powered microgrids are becoming more commonplace and the answer to reliable electrical power in Africa's remote villages, schools and clinics" he concluded.

MOU signed to speed renewable role out



HITACHI Energy has signed a memorandum of understanding with Sun Africa and its sister company, UGT Renewables, to collaborate on utility-scale solar photovoltaic power generation projects in emerging and developing markets worldwide. The partners are currently completing their first project together: a 370MW solar photovoltaic power plant across seven sites in Angola, the largest of its kind in sub-Saharan Africa. They also have several utility-scale projects under negotiation, totalling more than 12GW in capacity, with various governments in Africa and Eurasia.

"We are delighted to be working with Sun Africa and UGT Renewables to bring utility-scale emission-free energy projects to a growing number of countries in the world," says Johan Soderstrom, Executive Vice President, Head of Regions, Europe, Middle East and Africa of Hitachi Energy. "The combination of their business

model and our solutions help countries develop their economies, progress toward net zero, and provide their people with access to clean and reliable electricity."

"Our first collaboration with Hitachi Energy in Angola was a huge success, both for ourselves and the Government of Angola on behalf of whom we developed the project," says Adam Cortese, CEO of Sun Africa and UGT Renewables. "We have developed a relationship of trust with Hitachi Energy and an efficient and effective way of working that benefits all the stakeholders with whom we work."

Hitachi Energy is providing complete engineered solutions for optimised power collection packages and high-voltage grid connections, ensuring safe and reliable aggregation and transmission of power from the solar arrays to the power grid. Grid-eXpand™ grid connection solar solutions span the entire electrification of

large-scale photovoltaic plants. They are engineered, assembled and factory-tested before delivery, ready for speedy and easy energisation on-site while reducing site-based construction risks.

The scope also includes an advanced supervisory control and data acquisition system that monitors the grid connection to help increase the flexibility of the energy system that is key in the integration of renewables. Advanced power consulting studies will also ensure grid code compliance and system-wide optimisation.

Sun Africa and UGT Renewables will develop the projects, which after construction are transferred to the designated operator for continued operation. Each project will have a competitive levelled cost of energy, will be fully financed, and have an operations and maintenance plan in place to ensure the efficient and effective transfer of knowledge and technology.

From office administrator to company director - blazing a successful 30 year career path as a woman in industry



Fiona Jacobs.

MEET one such woman - Fiona Jacobs, wife, mother of three, and Director of Procurement, International Trade and Business Development at EMVAfrica. Round bar, stainless steel, specialist metals and valves – it is in this non-traditional female

environment where Fiona has thrived for the past 30 years. Her passion not only for the business but also for her colleagues is unmistakable. Sales, accounts, software development, the products, employee support and not forgetting, customer service – this is what motivates Fiona to come to work every day.

“I admit that it is more difficult for women to work in a male-dominated field. As a woman in industry you may not always get the necessary support. It was particularly tough during the 1990s when I was calling on customers. I encountered a lot of gender bias and dismissive attitudes. However, as more and more companies embrace diversity & inclusion, I can honestly say that, with the odd exception, it has certainly become easier to excel in this largely male dominated environment. I find that my seniority, experience and directorship certainly help to earn respect. I can say without any doubt that EMVAfrica is a

company that is both diverse and inclusive. It stems from Hugh who believes that as long as the person can do the job, their gender, race and religion are irrelevant.

In a nutshell ... where does your learning journey lead?

“The knowledge and experience that I have gained over the past 30 years is invaluable and it still continues to serve me today. In addition to growing my own abilities, I am able to pay it forward, adding value to the company as well as to my fellow employees who are my extended family. I am passing my know-how on to the next generation - the future of EMVAfrica.

A lasting thought:

“Most of us have to work and we spend a large part of our lives at the office. So make it your happy place. A positive environment nurtures growth and forges successful careers.”

We value your input

Only through your input can we continue to improve.

- Comments
- Suggestions
- What would you like to hear about

editor@cbn.co.za

Women are inclusive, compassionate and believe in the power and efficiency of team work

PACE Valves was founded by Anthony Haldenby in 1981 during a time in which the industry was predominantly male driven. From the outset, PACE Valves adopted the philosophy of providing an avenue for our customers to acquire fit for purpose products at a competitive price and within a defined timeframe.

This philosophy still holds true today. When Charlotte Vaughan, daughter of Anthony Haldenby, took ownership of the business three years ago it was, and still is, her focus to adhere to the standards previously put in place by her father.

PACE Valves believes in the empowerment of women in the workplace and has strived to become BEE Level 2 Compliant and has achieved the goal of being 100% Female Owned with 51% being Black Female Owned. Further to this, more than 50% of the staff complement at PACE Valves is comprised of female professionals who bring effective communication and networking, creativity, and a



Charlotte Vaughan, daughter of Anthony Haldenby, took ownership of the business three years ago.



spirit of inspiration. Charlotte's collaborative style of management inspires her employees to give their

best as she effortlessly manages crises and always strives to learn something from them.

In today's global market scenario, where communication and collaboration are highly valued to achieve success, women have a considerable advantage in the workplace. Women are inclusive, compassionate and believe in the power and efficiency of team work.

Due to our attention to detail, solutions driven approach and technical expertise, this has situated PACE Valves at the forefront of the latest projects across the African continent. “We have positioned ourselves as industry leaders in the mining space worldwide, and are not afraid to get our hands dirty in a predominantly male sector” said Charlotte.

“Part of how we achieve this is having formed strategic partnerships with both local and international companies in order to assist with the African market's growing need for both high and low pressure valves. Cross border projects have revitalised the valve industry following the negative impact of the COVID-19 Pandemic as a whole”.



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A robot that can help firefighters during indoor emergencies



Credit: Fernández Talavera et al

By Ingrid Fadelli , Tech Xplore

ROBOTS could be valuable assistants for most first responders, as they could help them to remotely monitor or intervene in areas that are inaccessible or life-threatening for humans.

Researchers at Universidad Rey Juan Carlos and Universidad Autónoma de Madrid recently created an autonomous ground robot that could assist firefighters when they are tackling emergencies in indoor environments. Their system, introduced in the Journal of Field Robotics, could allow agents responding to fire emergencies to plan their interventions better, clearing safe paths for them to access affected areas and supporting them during evacuations.

“This work is part of a project called HelpResponder, which aims to reduce the accident rates and mission times of intervention teams,” Noelia Fernández Talavera, one of the researchers who carried out the study, told Tech Xplore. “This is achieved using fixed beacons, drones, and ground robots.

Recent studies exploring the evolution of fires in Spain highlighted the need for new technologies that could better assist firefighters. These works collected data

about accidents that affected responding agents who tackled missions in indoor environments, such as the collapse of structures or the contraction of diseases associated with the inhalation of toxic gases.

“These statistics reveal the need for firefighters to know the environment before intervening,” Talavera said. “All the information about the location of the fires, the presence of harmful gases, and the possible paths is relevant to carry out more effective and safe interventions.”

The robot created by Talavera and her colleagues can monitor its surrounding environment, sharing the data it collects with human agents. This is achieved using various sensors that can measure the temperature, humidity and air quality in an indoor setting, as well as its position and the position of other objects. This data is then saved in a database that can be remotely accessed by firefighters through a smartphone application.

“The robot has three operational modes to tackle different scenarios,” Talavera explained. “The manual mode allows an operator to remotely control it using a keyboard, joystick, or joystick to generate speed commands. The operator can also control the robot from

a direct view or by a graphical user interface. In this last case, the interface must provide enough information to keep their situational awareness, such as the scene map, accurate location of the robot, images of its camera, and so forth.”

The robot’s second operation mode, dubbed the autonomous mode, allows it to independently explore an indoor environment while avoiding potential obstacles. To achieve this, it relies on a coverage path planning algorithm that uses data collected by the integrated sensors to locate the robot, detect and identify obstacles in its surroundings, and guide it through a set of waypoints.

“While in autonomous mode, the robot can cover entire rooms and corridors, providing local information on the environmental conditions,” Talavera said. “Finally, the evacuation mode creates fast and safe routes toward targets. This mode uses the prior knowledge of the scene to compute the shortest path from the current position to the target one. This target position can be the exit of the building or the location of a victim, among other things.”

The researchers’ robot has a modular design, which means that other components (e.g., thermal cameras or other sensors) can be added to it without altering its core configuration. In addition, the robot is small and based on affordable components. This allows it to reach areas that are inaccessible to human agents, while also facilitating its large-scale deployment.

Talavera and her colleagues tested their robot in a series of tests, including both simulations and real-world trials. Their results were highly promising, as the robot could effectively tackle different tasks, while autonomously dodging obstacles and offering valuable support to firefighters.

“The next steps in our research will be to improve the autonomous navigation system by integrating ROS and enhance the simulator to reproduce dynamic scenarios where fire and smoke advance in the same way as they would in real situations,” Talavera added. “A web platform is also being developed that encompasses different technologies so that the data collected by the robot, drones and beacons can be analyzed simultaneously. This way the system will become easier to use and more valuable for the emergency.”

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New pumping strategy could slash energy costs of fluid transport by 22%

By Okinawa Institute of Science and Technology

Collaboration between the Okinawa Institute of Science and Technology (OIST) and the Polytechnic University of Milan has found that when a fluid is pumped through a pipe in an intermittent way, the cost of transport is significantly reduced.

In their proof-of-concept study, published recently in Scientific Reports, the researchers used numerical simulations to show that when they periodically switched a pump on and off, the fluid flow kept transitioning between a turbulent and laminar state. This reduced energy costs by up to 22%—a figure that the researchers say can be further optimized.

Laminar flows, like the kind you see when you slowly crack a tap open, are smooth, streamlined and energy efficient. Turbulent flows, on the other hand, such as those when a tap runs full blast, are chaotic and waste energy.

“If you inject ink into a laminar flow, you’ll see a clear line of ink moving down

the pipe, but with a turbulent flow, the ink diffuses as each fluid particle takes an unpredictable path. This chaotic motion at the small scales results in a lot of energy being lost,” explained Giulio Foggi Rota, first author and current Ph.D. student in the Complex Fluids and Flows Unit. “Laminar flows are ideal for fluid transport, but when viscous fluids move fast and over large scales, the system naturally evolves towards a turbulent state.”

Reducing turbulence, and therefore the costs of moving fluids through pipes could bring numerous economic and environmental benefits. The transport of fluids makes up a significant part of the final cost of fuel, so liquid hydrogen could become cheaper for developed countries to transition to. For developing countries that are not yet able to make the switch to green energy, oil and natural gas could become a more affordable energy alternative to firewood, the use of which contributes to deforestation and produces more harmful pollutants than fossil fuels.

In the study, the researchers created a code that, when run on a powerful super-computer, was able to simulate a stan-

dardized turbulent flow.

The scientists ran different scenarios, changing the duration of time that the pump was switched on, the intensity of the pump (how fast it accelerated the fluid), and the overall length of time for each on-off pump cycle.

They found that long cycles characterized by a short, intense pump that quickly accelerated the fluid flow, and then a long phase where the pump was switched off and the fluid slowed down, worked best for keeping the fluid in a laminar-like state for the longest amount of time.

For the next step, the researchers want to try to better understand the physics underlying the repeated transition between the turbulent and laminar-like states.

“If we can gain a fuller understanding of why the fluid behaves like it does due to unsteady pumping, then we will be much closer to working out what is the optimal pumping strategy for saving the most amount of energy,” said Professor Marco Edoardo Rosti, who leads the OIST Complex Fluids and Flows Unit.

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The threats continue

WE'VE all seen it unfold after then Eskom CEO André de Ruyter had an open and honest interview with Annika Larsen on her weekly show for e.tv and eNCA. Far too open and honest for the liking of the ANC, whence the angry outbursts, threats and insults soon exploded.

Gwede Mantashe, friend of Russia and Big Coal, grumbled forth on his established thesis that De Ruyter should not try and be a cop, he should do his job (having had already used the "sabotage" slander). Pravin Gordhan, despite normally showing fair judgment, now angrily lectured De Ruyter for "meddling" in politics. That's not his job; he should focus on load-shedding, of course.

Dozens of "experts" agreed that de Ruyter was not qualified for his job at Eskom. Why? Simple. He is not an engineer. The mind boggles.

Any number of talking heads on TV,

I noticed one identified as "Business Leader" and the TV host "Professor" JJ Tabane among them, now revealed that De Ruyter was a serial failure – he had failed at Sasol and he had failed at Nampak, so of course he would fail at Eskom. And oh dear, somehow De Ruyter was also responsible for the difficulties at Lake Charles in the United States, although, factually, that happened after he left Sasol. And just by the way, those challenges were met and resolved admirably by Sasol.

As far as I know, De Ruyter was headhunted from Nampak, where he was CEO, and he left in good standing with relations intact.

What I know for sure, having spoken to a senior executive at Sasol who had worked with De Ruyter, is that he was respected as a highly effective executive and a man of integrity and honesty. He left on a friendly footing and with his colleagues' best wishes.

So much for that dump of nastiness.

As for being a cop getting his hands dirty in politics instead of doing his job, the irony is delicious. His job was chief executive and his priority was to save the South African economy from the destruction caused by loadshedding. And it was, as you no doubt know, dear reader, exactly because he was diligently doing his job that he had to identify the causes of the threatening disaster at Eskom. He had to investigate and interrogate to diagnose the disease in order to find a cure. And what he found led him – where else – to politics and politicians.

Watching him in Ms Larsen's interview, one had a sense of his lingering shock by what he had uncovered and the way his findings were received. How could he expect that at the root of the corruption, the theft, the fraud and the sabotage, the answer he was looking for could be identified in three letters: ANC.

Really André, you shouldn't be so naïve.

OPINION

ON THE CONTRARY

The columnist is a journalist and editor based in Onrusrivier. His awards for journalistic excellence include the Mondi and the Sanlam Awards.

Pieter Schoombee



To achieve the greater good, people must be allowed to eat a little.

As for the ANC appointing a man of integrity and honesty to clean the banquet hall without disturbing them as they are eating, in what world are they living?

Meanwhile, the death threats continue.

Email: noag@maxitec.co.za

New design for lithium-air battery could offer much longer driving range compared with the lithium-ion battery

By Joseph E. Harmon, Argonne National Laboratory

MANY owners of electric cars have wished for a battery pack that could power their vehicle for more than a thousand miles on a single charge. Researchers at the Illinois Institute of Technology (IIT) and U.S. Department of Energy's (DOE) Argonne National Laboratory have developed a lithium-air battery that could make that dream a reality. The team's new battery design could also one day power domestic airplanes and long-haul trucks.

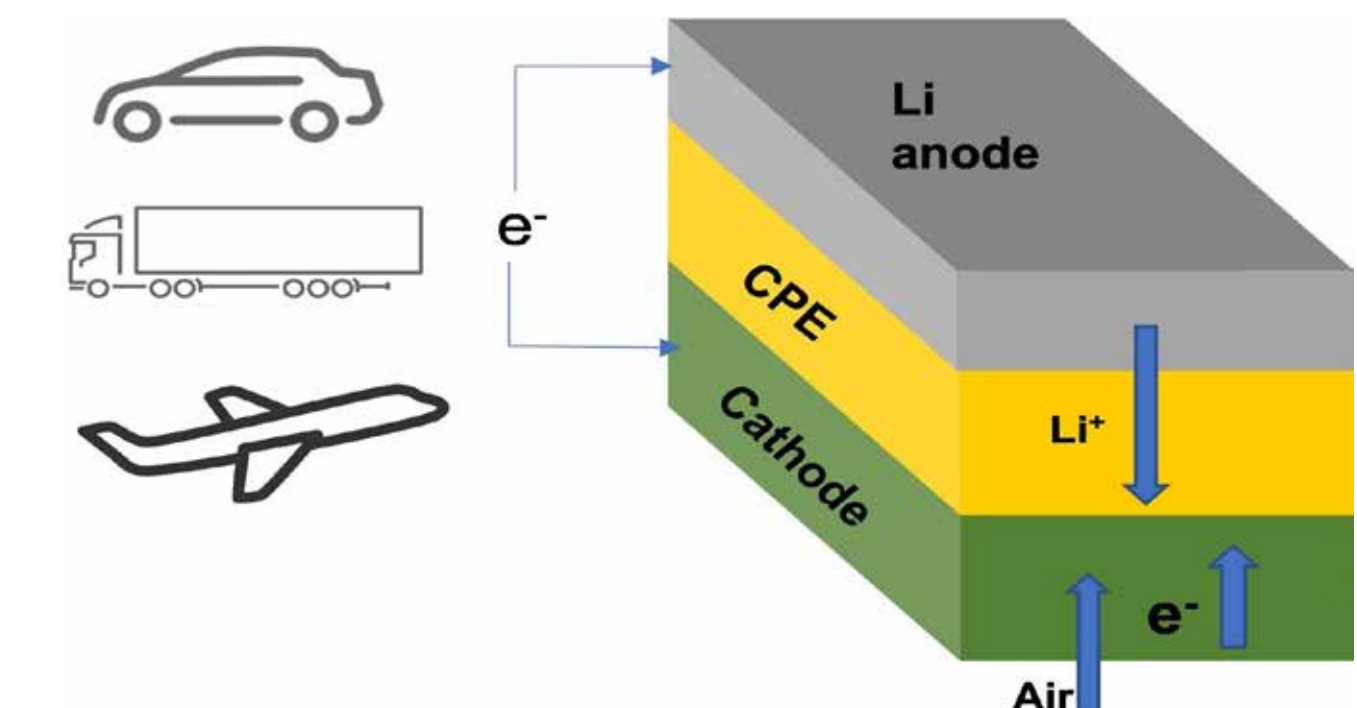
The main new component in this lithium-air battery is a solid electrolyte instead of the usual liquid variety. Batteries with solid electrolytes are not subject to the safety issue with the liquid electrolytes used in lithium-ion and other battery types, which can overheat and catch fire.

More importantly, the team's battery chemistry with the solid electrolyte can potentially boost the energy density by as much as four times above batteries' lithium-ion batteries, which translates into longer driving range.

"For over a decade, scientists at Argonne and elsewhere have been working overtime to develop a lithium battery that makes use of the oxygen in air," said Larry Curtiss, an Argonne Distinguished Fellow. "The lithium-air battery has the highest projected energy density of any battery technology being considered for the next generation of batteries beyond lithium-ion."

In past lithium-air designs, the lithium in a lithium metal anode moves through a liquid electrolyte to combine with oxygen during the discharge, yielding lithium peroxide (Li_2O_2) or superoxide (LiO_2) at the cathode. The lithium peroxide or superoxide is then broken back down into its lithium and oxygen components during the charge. This chemical sequence stores and releases energy on demand.

The team's new solid electrolyte is composed of a ceramic polymer material made from relatively inexpensive elements in



Schematic shows lithium-air battery cell consisting of lithium metal anode, air-based cathode, and solid ceramic polymer electrolyte (CPE). On discharge and charge, lithium ions (Li^+) go from anode to cathode, then back. Credit: Argonne National Laboratory

nanoparticle form. This new solid enables chemical reactions that produce lithium oxide (Li_2O) on discharge.

"The chemical reaction for lithium superoxide or peroxide only involves one or two electrons stored per oxygen molecule, whereas that for lithium oxide involves four electrons," said Argonne chemist Rachid Amine. More electrons stored means higher energy density.

The team's lithium-air design is the first lithium-air battery that has achieved a four-electron reaction at room temperature. It also operates with oxygen supplied by air from the surrounding environment. The capability to run with air avoids the need for oxygen tanks to operate, a problem with earlier designs.

The team employed many different techniques to establish that a four-electron reaction was actually taking place. One key technique was transmission electron microscopy (TEM) of the discharge products on the cathode surface, which was carried out at Argonne's Center for Nanoscale Materials, a DOE Office of Science user facility. The TEM images provided valuable insight into the four-electron discharge mechanism.

Past lithium-air test cells suffered from very short cycle lives. The team established that this shortcoming is not the case for their new battery design by building and operating a test cell for 1 000 cycles, demonstrating its stability over repeated charge and discharge.

"With further development, we expect our new design for the lithium-air battery to also reach a record energy density of 1 200 watt-hours per kilogram," said Curtiss. "That is nearly four times better than lithium-ion batteries."

This research was published in a recent issue of Science. Argonne authors include Larry Curtiss, Rachid Amine, Lei Yu, Jianguo Wen, Tongchao Liu, Hsien-Hau Wang, Paul C. Redfern, Christopher Johnson and Khalil Amine. Authors from IIT include Mohammad Asadi, Mohammadreza Esmaeilirad and Ahmad Mosen Harzandi. And Authors from the University of Illinois Chicago include Reza Shahbazian-Yassar, Mahmoud Tamadoni Saray, Nannan Shan and Anh Ngo.