LEADING THE ELECTRICITY DISTRIBUTION INDUSTRY



THE ASSOCIATION OF MUNICIPAL ELECTRICITY UTILITIES OF SOUTHERN AFRICA

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HISTORY HAS BEEN MADE!

On the 8th October 2018 delegates to the 26thTechnical Convention of the AMEU participated in an historic event...

For the first time in the 105 history of the AMEU two ladies have been elected to lead our organisation. And as far as can be established, this is also a first for any South African engineering-aligned organization!

CONGRATULATIONS LADIES!

Our new President, Refilwe Mokogosi, has been in the industry for about 18 years. She started at Iscor's Training Centre and duly advanced through various positions in Tshwane Electricity, City Power, Eskom and Ekurhuleni. It was during her time in Ekurhuleni that she was introduced to AMEU activities. Past President Hannes Roos recalls that her abilities were recognised and she quickly developed in her career.

By the time she was appointed to her present position in Tshwane she had started up the ladder in the AMEU Executive Council. She accepted her new position in Tshwane "on condition that the City agreed to host the 2018 Convention"!

She is a wife and mother and an accomplished athlete with both running and cycling achievements to her credit. She holds no less than 7 Comrades medals and 6 Two Oceans medals. And all this after some 7 years of running.

Our new President-elect, Jayshree Pershad, started her career as an engineer-in-training in eThekwini Electricity in 1995, at the same time as one of her mentors, Howard Whitehead, was



President of the AMEU! She was the first female employed by the utility in a technical capacity. Her competence, dedication and abilities were appreciated by her colleagues and her dedicated mentor in the Department, Tony Dold. She moved into the Transmission Planning Branch to follow her passion for high voltage work and later became the Senior Manager of the Branch.

She is now a Project Executive responsible for strategic projects and initiatives for the Utility. Her AMEU activities have included a term as Chairperson of the KZN Branch, and Chairperson of both the Tariffs and the Papers and Publicity Committees of Exco. She has also served as an AMEU representative on a PIESA Work Group. She enjoys travelling and exploring new places with her family.



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AMEU CONVENTION 2018



The 26th Technical Convention of the AMEU was held in the CSIR Convention Centre in Pretoria from 7th – 10th October 2018. It was hosted by the City of Tshwane and was attended by about 560 delegates.

With the theme "*The Impact of the Energy Revolution on Power Utilities in Africa*" the proceedings were packed with relevant presentations ranging from those relating to the new "..business model..." that is likely to be required to keep utilities relevant and viable, to those addressing the inevitable technical issues required to keep the lights burning...

Delegates were formally welcomed to the City of Tshwane by Clr. Darryl Moss and keynote addresses were delivered on the Monday and Tuesday opening sessions by the Minister of COGTA, Dr. Z Mkhize, and NERSA's Mr B Sechotlho.

The WiE group showcased the work being done to empower women in the industry (for more details go to page 5) and a panel discussion under the guidance of Dr Willem de Beer looked at the management of non-technical losses and their effect on the economic viability of utilities.

Other highlights of the Convention were the awarding of Honorary Membership to Ms Phindile Baleni, Dr Willem de Beer and Mr Paul van Niekerk in recognition of their contributions to the electricity supply industry.

The award for "Best Paper" went to Ms Miriam S. Thopil of Digisilent Buyisa. It was titled "*Technical and Financial Impacts of Residential PV and Battery Storage Systems on Municipal Networks*".

No AMEU Convention would be complete without the support of our Affiliate members and in particular, the spectacular display of products and services offered to the industry. This year the exhibition was located in a hall adjacent to the main meeting venue. No less than 56 companies were represented and the best small exhibition stall was adjudged to be that of Ontec, the best medium sized that of Schneider Electric and the best large stand, Aberdare Cables. For more details, please go to page 4 and 7.









MORE CONVENTION !!!

THE AFFILIATES CONTRIBUTIONS...

"The "Getting to know you" activities preceding the formal part of the Convention, organized by the Affiliates, culminated in a "sports dinner" with the theme "Mad Hatter". The festivities included an entertainer and a prize giving. Some of the highlights can be seen in the pictures on this page.

The new Affiliates committee members are as follows: Gordon Arons (Chairman) - 082 567-8281 aronsg@beka.co.za Paddy Paddyachee (Vice Chairman) - 082 5608953 – paddy@ret.co.za Jacqui Burn (Treasurer) - 083 2299750 – jburn@bethesolution.co.za Yolandi Zeelie (Secretary) - 084 012 4531 – yolandi@matleng.co.za Nisha Chetty - 084 924 2636 – Nisha.chetty@landisgyr.com Sam Kgosana - 082 636-3344 sam.kgosana@aberdare.co.za Dave Turton - 082 461-4180 dave@edgeline.co.za Hannes Roos – 082 469-4023 Hannes.Roos@combinedpi.co.za



AMEU President Refilwe and husband Tiro.





Caption:

Caption:



The new Affiliates Committee.



Tsabi Tshabalala



Chairman with two ladies.



AMEU Presidents, past, present and future.



Jean Venter (middle).

WIE UPDATE...







Most of our readers will be aware of the on-going movement to empower women to be in decision making positions in the electricity industry, and that this has been supported and promoted by the AMEU Executive for several years.

The committee driving this initiative is currently under the guidance of Chairwomen Punkie Majola of Ekurhuleni. The members met on the 14 August in Cape Town, hosted by AMEU Affiliate member company PPS (Power Process Systems) and the key issues discussed were around the theme of what will be showcased at the up-coming AMEU Convention.

One of their pillars supporting the vision is "Leadership and Mentorship" and they have decided that their presentation will be case studies show-casing what has been achieved under this pillar.

The current committee is as follows: Punkie Majola Punkie Majola – Chair Person (City of Ekurhuleni) Lomile Modiselle – Vice Chair Person (City of Tshwane) Yolanda Mabuto – Secretariat (Affiliates)



The first part of the second day of the 26th Technical Convention, Tuesday 9th October 2018, - held in CSIR Convention Centre - was devoted to Women in Electricity and chaired by the current AMEU WiE group chairlady, Punkie Majola.

In opening the proceedings, amongst other things, she said that the participation of

WIE CONVENTION PARTICIPATION

women in leadership positions should not just be the numbers of women present in decision-making forums; it is about the effective articulation of issues that matter to different groups of women.

V Ramnarain then spoke about the gender mainstreaming successes at Ekurhuleni municipality. To effectively transform the electricity industry, eThekwini Electricity had embarked on a multi-faceted, Executive-driven approach to transform this sector and has achieved some successes with engineers, technicians and artisans.

L Modiselle from the City of Tshwane discussed Professional and Executive developments in the municipality and said "I want all the ladies in this conference room to know that the time is now! We must have the courage to stand up, show up, excel and collaborate with our male counterparts to change the face of electricity in South Africa. Diversity brings performance, high performance will change our communities, our economy and all South Africans will benefit."

The program included a presentation on gender mainstreaming success at the company Eaton by one of its directors, S Kane and then F Twaku of NMBMM discussed professional development in municipalities. Y Mabuto of Divine Growth Solutions talked about WiE members being motivated to start businesses with G Matsotso- a Director of PPS - discussing WiE support for women in entrepreneurship. She said the women already in leadership positions need to display that it is achievable and that mentorship and sponsorship are critical for the recruitment and retention of women in the sector.

The session was closed with a presentation on a young female engineer's progress through WiE by B Mabane from Matleng Energy Solutions. The full reports and discussion are available on the AMEU website.



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npact of the energy revolution on power utilities in Africa



The Technical Exhibition had no less than 56 companies displaying their products and services in a hall adjacent to the main activities.Here are some of them...

The best small exhibition stall was adjudged to be that of Ontec, the best medium sized that of Schneider Electric and the best large stand, Aberdare Cables.



Th



The best Small Exibition Stand: Ontec.



Beka Schréder.



Fluke.



Revive Transformers.





The Best Medium Sized Exhibition Stand: Schneider Electric.





The Best Large stand: Aberdare Cables.



Actom.

Eaton.

WHAT DO 1978 / 2018 and 8 / 350 HAVE IN COMMON?

Few could have foreseen that when 22 year old Johann Schleritzko arrived in Windhoek from Vienna in 1974 the company that he soon helped established in Namibia - in 1978 would become the leading manufacturer of lighting equipment in Africa, and the first to receive ISO 9000 Certification for its products.

Driven by the knowledge that they were living in one of the most corrosive climates in the world, a group of businessmen believed that there was a need – and a market – for corrosion-resistant Glass Fibre Reinforced Polyester Poles. This was quickly followed by a decision to produce matching Public Lighting luminaires, a combination designed to provide a longterm solutions for the hostile coastal and inland environmentsand the rest is history !

For those interested in such things, the newly-formed company name was coined

from a combination of the surnames of the original founders, Mssrs Brand and Kasper....

The commitment to quality has been the company's hallmark, and has enabled it to become Africa's largest lighting manufacturer and market leader in exterior lighting. It exports to most African countries, as well as the Middle East, South East Asia, Europe and Australasia.

Because their products were soon being widely used in South Africa, it made economic sense to manufacture closer to the larger market and the decision was taken in 1981 to relocate to Olifantsfontein, a strategically positioned industrial town situated between Johannesburg and Pretoria. And from an initial staff of 8, it now has over 350 employees.

In 2002 the company entered into a partnership with the Belgian company, Schréder - a multinational lighting company with a presence in about 35 countries. In 2013, it became a wholly owned Schréder company allowing it to embrace the latest technologies, including optical reflector and lens designs.

These technologies gave their products the edge in photometrical performance, as well as optimising light control technologies, for which Schréder is world renowned. They continue to innovate, design and deliver the highest quality products and the best global lighting innovations available in the market today.

..... a story of growth and achievement!

BEKA Schréder are the first to acknowledge that this has all been made possible by the un- wavering support received from their customers, and the loyalty of their staff.

As they celebrate their 40-year anniversary of supplying high-performing, energyefficient and high quality lighting solutions since 1978, BEKA Schréder are quick to record their appreciation for this.

Importantly, from an early date company representatives have made it their business to "put back" into the industry. Their representatives have unstintingly participated in industry-related organisations and statutory bodies like the AMEU, IESSA, SABS and others.

But time does not stand still and the company continues to evolve..... its image and branding needs to remain relevant. They are proud to announce the launch of their new logo and tagline



MORE NEWS ABOUT RENEWABLES

The Swedish State-owned power company Vattenfall, which also operates in Denmark and other European countries, has recently signed a deal to supply renewable power to Global healthcare company Novo Nordisk and biological solutions group Novozymes. The supply will come from the company's 600 MW Kriegers Flak offshore wind project, which is located in Danish waters.

The Kriegers Flak project was awarded in late 2016 at a record-low offshore wind

price of 49.9 euros/MWh. The plant will be Denmark's largest offshore wind farm and is scheduled to be fully operational by the end of 2021. The PPA with Novo Nordisk and Novozymes will cover approximately one fifth of Kriegers Flak's total output.



LEDLUME-MINI XP

Introducing the latest addition to our bestselling LEDlume street light range, the LEDlume-mini XP. It is a high-quality, energy-efficient, versatile and sustainable LED street light.

The LEDlume-mini XP is suitable for functional lighting of Group A4 and Group B roads and other applications where energy saving, low maintenance and precise light control considerations are important factors. This locally designed and manufactured LED luminaire offers an easy technology upgrade (FutureProof) and unsurpassed light uniformity. The LEDlume-mini XP consists of an LED engine, power supply and spigot compartment. This allows the easy installation of the LED engine by means of a hinging action onto a spigot base casting.

The latest LED technology has been utilized to provide the most energy efficient solution. The thermal design has been improved to minimise the Total Cost of Ownership.

FOR MORE INFORMATION:



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NETWORK NEWS

SALDANHA

Master-Planning of the Vredenburg – Saldanha electricity network.

With the official completion of the Vredenburg Substation on 30 May 2018 a major project to upgrade supplies in the Saldanha area - in excess of R20m overall - has recently been completed.



The Vredenburg 66kV Substation and associated network after completion of the first phase in February 1987.

Johan du Plessis, Manager of Electro-Technical Services for Saldanha Bay Municipality writes;

"In 1983 the municipal council appointed Consulting Engineers to do an Electrical Master Plan for the electrical networks of Vredenburg-Saldanha Municipality. At that stage the power supply from Eskom was from their Blouwaterbaai Substation. The municipality's usage was metered at two 11kV supply points, Saldanha at the Eskom 66/11kV substation in Saldanha and Vredenburg at the Eskom 33/11kV substation in Vredenburg.

The plan indicated a 66kV power line and a substation with four 10 MVA transformers for the Vredenburg town area. This seemed to be a total overkill for that time, but a good plan if we now look in hind sight.

The first phase was the 66kV line to the substation site and one 10 MVA transformer, Transformer No.2, commissioned in February 1987. This was working from the middle of the substation layout outwards. The next one, Transformer No.3, was installed in 1992. Then transformer No.1 in 2006. And now in 2018 transformer No. 4, completing the council decision of 1983.

During the 35-year period that it took to complete the project, the Municipality had three different names and many different councils. There were six different heads of the electrical department, different Consulting Engineers and different Electrical Contractors.

Also, Standards and Best Practices changed. Where the first transformer was installed on a plinth in an open substation yard, this last phase included Fire Walls between the transformers as well as oil catch pits and an oil drainage sump for safety and environmental purposes.

One other key factor in this last phase was changing the phase angle of the electrical system. The initial design was for transformers with a YNd1 vector group. Other 11 kV networks operated by Eskom in the area, as well as the municipal substation in Saldanha used YNd1 transformers connected as YNd11 vector groups.

This resulted in a 60-degree phase shift between the 11kV feeders and therefore they could not be interlinked. Changing the vector group was achieved by swapping the red and blue phase connections to the transformers both on the 66kV and the 11kV side.

Doing this was the easy part since it entailed swopping jumpers from the 66kV bus-bar and swapping the outgoing 11kV cables on the transformers. The challenge however was with the protection schemes and metering to ensure stability and correct readings."

In the end this is Master Planning... a vision of an end state, at some unknown time in the future, based on the growth scenario of the environment, implemented by different generations, using the latest best practices during each implementation phase, but with continuation to ensure that service is delivered to the community at the timing required. The vision for the next substations, Marais Industries, Jacobs Bay, Paternoster, and IDZ Saldanha already feature in our current Master Plan."

Thank you Johan Well done, and congrats to all involved. ED



Vredenburg Substation Transformer 4 – Installed 2018.



Vredenburg Substation Transformer 1 – Installed 2008.



Handover of the extension to the 66kv control panel and 11kV Switchgear on 30 May 2018.



Vredenburg Substation Transformer 2 – Installed 1987.



Handover of transformer 4 on 30 May 2018.



Vredenburg Substation Transformer 3 Installed 1992 (Refurbished 2017).



Substation Yard with Transformer 4 and the 66kV bus-bar on 30 May 2018.

NEW RETROFIT LED LIGHTING UNIT

A compact self-contained LED lighting unit, designed as a retrofit for existing HPS and MV luminairs, is now available in the market place.

This easy-to-install unit is a complete replacement for the controlgear, reflector and lamp of old-type high-pressure sodium and mercury vapour street lighting fittings, and other similar luminaires, while retaining the main casing and support brackets.

It is available in a range of wattages and sizes to suite all applications and makes the significant befits of the high illumination - low power consumption, and the long life of LED technology available at significantly reduced costs, usually about 50% of a conventional replacement.

Top and bottom views of a typical LED replacement unit to up-grade old-type HPS and similar luminairs at significantly reduced costs.





For more information on this technological break-through contact: Daniel Chevin LEASEALITE-LED-LIGHTING M: 084 680 5633 E: daniel@leasealite-led-lighting.co.za.

NEW TRANSFORMER COMPANY LAUNCHED

SGB-SMIT, a 105 year old specialist transformer manufacturer headquartered in Regensburg, Germany, has recently partnered with the South African BEE company Power Matla to acquire the manufacturing interests of PowerTech Transformers (PTT).

The new company, SGB-SMIT Power Matla, will operate out of its two factories in Pretoria West and Cape Town. It will maintain its leadership position through full access to SGB-SMIT's technology for power, distribution and dry-type transformers ranging from 16 kVA to 795 MVA. Jan Ölscher, CEO of SGB-SMIT, said, "Being close to our customers lies at the heart of SGB-SMIT Group. In this spirit, the investment into Powertech Transformers is a decisive step to extend our global reach and establish a local presence in Southern Africa. With our partner Power Matla, we will strengthen Powertech Transformers as the leading supplier of transformers in the region. We look forward to working with them and continuing our growth story together."

Power Matla's Chief Executive Kgathola Ngoasheng, says Power Matla began its participation in the transformer business as early as 1999 in Desta Power Transformers. *"We began this journey with an ambitious goal and a vision to build an African power and energy market leader, focusing on clean energy solutions and complementary products. The Powertech Transformer business has a long and successful history spanning more than 70 years and the strategic* partnership with SGB-SMIT is a natural one, given the complimentary synergies and strengths between the companies and the growth opportunities in Africa, using South Africa as the base country."

Bernard Meyer, SGB-SMIT Power Matla Chief Executive Officer say that their joint venture with SGB-SMIT will deliver the most advanced transformer products that support their customers with superior technical solutions and services. The Level 1 B-BBEE accreditation status achieved in March 2018 will also be maintained in the new company.

> For additional information contact: Bernard Meyer CEO, SGB-SMIT POWER MATLA +27 12 318-9700 bernard.meyer@sgb-smit.group. For more info on the companies, visit www.SGB-SMIT.com and www.powermatla.com.



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BRANCH NEWS Limpopo

Ba-Palaborwa Local Municipality hosted the 37th meeting of the Limpopo Branch on the 26th and 27th of July 2018. Eight municipal delegates and 13 affiliates attended on the first day and 9 and 16 respectively on the second day. Eskom was also represented on the second day.

After the completion of formalities there were a number of presentations and discussions.

Sam Lelope reported on the recent EXCO meetings and made reference to various items including:

- Eskom's proposal to change municipal tariffs are under discussion.
- The Branch is not well represented at these meetings and steps must be taken to rectify the position.
- Candidates for Eskom training sessions for GCC courses are invited to apply.

The problem of the non-compliance with requirements for issuing CoC's for wiring installations was discussed.

Petrus Sebela, the representative from the Municipal Infrastructure Support Agent (MISA), outlined the support available to members from this organization. This includes kelp with funding applications and licensing procedures.

There was also discussion of the work being done by SARPA (The South African Revenue Protection Assocation) in the fields of theft of electricity and cables and other infrastructure and the need for munics to appoint officials specifically to deal with this problem...

The matter of quality of supply and the need for proper maintenance programs for utility networks was the subject of further debate and related to this, the problem faced by municipalities with limited resources for maintenance. Issues concerning procurement procedures and the need to comply with these were also discussed.

Occupational safety matters also came under the spotlight. These included a report on an electrocution incident involving a mini-sub in Lephalale and of an injury to an official involved in tree pruning. Network improvements were reported from Tzaneen (network and street lighting improvements), Lephalale reported electrification of villages, Modimolle/ Mookgophong are expanding substations and Polokwane a LED street lighting project. Makhado municipality are doing a feasibility study on highmast LED lighting.

Technical presentations included a talk by Christo Kapp of Antley Lighting giving details of the company's LED high-mast lighting equipment, and Schneider Electric's Brighton discussed latest developments in the field of re-closers. Dave Turton gave details of Edgeline's high security steel metering kiosks and the electronic locking systems now available.

The election of Branch Office-bearers and Representatives resulted in the following; Branch Chairperson; Dennis Mokoala (Polokwane) Deputy Chairperson; Bheki Tshawe (Tzaneen) Secretary; Eric Matsetela (Polokwane) Engineer Representative to EXCO; Sam Lelope (Tzaneen) HDI Representative to EXCO; Denis Mokoala (Polokwane) Female Representative to EXCO; Sebongile Ditsela (Lephalalle)

NEWS!

Sam Lelope has been chosen as Vice-President elect by EXCO. Congratulations!



Fire safe and bio-degradable ester dielectric transformer fluids are now being made in a dedicated manufacturing facility in South Africa for the first time. It uses locally grown soybean or rapeseed raw materials and provides employment and skills development in the local communities. Giles Salt, CEO of M&I Materials - the company involved in this new venture - says "Developments in the energy infrastructure sector across Africa present a great opportunity for our products. The opening of this manufacturing facility demonstrates our commitment to Sub-Sahara Africa, and we look forward to providing products and technical support to power utilities and transformer manufacturer across the region."

The MIDEL brand of this ester dielectric fluid has been used by utilities and transformer manufacturers since 1970 and has been recently selected by a South African transformer manufacturer for 6000 distribution transformers to be supplied to Eskom.

AFRICA'S FIRST ESTER TRANSFORMER FLUID FACTORY

MIDEL NATURAL ESTER FLUIDS NOW MANUFACTURED IN SOUTH AFRICA



MIDEL eN 1204

The preferred biodegradable natural ester fluid for South Africa. MIDEL eN 1204 is the premier natural ester transformer fluid. Made from sustainable rapeseed crops, it is readily biodegradable with superior oxidation performance and low pour point. For the best performance from a natural ester fluid, let's talk about how MIDEL eN 1204 can deliver real benefits for your network.



MIDEL eN 1215

MIDEL eN 1215 is our basic natural ester fluid made from soya. It is best suited for temperate climates in nonfree breathing transformers. Its high fire point significantly increases the fire safety of your transformers and can reduce the need for fire protection equipment.



MIDEL 7131

MIDEL 7131 is the world's leading, readily biodegradable synthetic dielectric fluid, used in power and distribution transformers including sealed and free-breathing designs, delivering fire safety, environmental protection and cost savings. First produced in the 1970s, MIDEL 7131 meets the need for a safer alternative to mineral oil. Its success is proven up to 433kV and fills transformers in over 70% of countries worldwide.

MIDEL natural ester fluids are manufactured from South African rapeseed and soy crops.

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INFRASTRUCTURE THEFT

In case you missed this recent Eskom announcement, here's an edited version of what was released...

On 26th June 2018 one Nkosana Nkwale Lekker was convicted of stealing overhead powerline conductor on Paardevlei Farm, Somerset West, and was sentenced to an effective 28 years imprisonment. The crime took place on 13th November 2016 and the scrap value of the conductor was R27 000.

Readers will know that AMEU News has often carried stories relating to crimes similar to the news item above..... Past President Hannes Roos has now retired after many years of municipal service and is now directly involved with a company involved in this work. It was opportune to ask him to comment on the kind of steps that utilities should consider taking to reduce the impact of this on-going "war" on their customers and the societies they serve. We know there is no universal or magic solution, but here are his comments...



The phenomenon of copper and Cable theft along with vandalism of substation and distribution assets is nothing new and is experienced daily within our Municipal boundaries.

These have far reaching effects and influences on service delivery by virtue of unnecessary outages on our distribution networks, pressure on standby teams and the additional funding necessary for repairs, to mention only a few.

What is unsettling, is the alarming rate at which these thefts are escalating.

One of the factors influencing the increase of these incidents is socio-economic circumstances. From experience, it has been noted that there are the day-to-day 'bread and butter' thieves, who can sell a kilogram of stolen copper and receive a day's wages for very little effort. Copper may fetch approximately R80.00 per kilogram, and this is viewed as an easy alternative to conventional work.

However, it is also known that there are well-organised criminal syndicates operating throughout South Africa who are crippling the country's economy. These syndicates have international links and influence, which includes disturbing relationships with unscrupulous scrap metal dealers and exporters.

Over the years, they have developed and tested various techniques and methods and it must be mentioned that this crime is becoming increasingly violent in nature. The A well attended general meeting of representatives of the AMEU Affiliate companies was held at the offices of Matleng Energy Solutions in Woodmead, Johannesburg, on 18th September 2018. Amongst other things it was reported that the Affiliates section now stood at 158 paid-up members.

Attendees were updated on a wide range of matters bearing on their AMEU activities including the arrangement for the up-coming Convention. Jacqui Burn and John Williams have been nominated for Honorary Membership in recognition of their long and diligent service to the organization. The CEO breakfast program will be replanned with a view to attracting more senior executives to the function.

AMEU Strategic Adviser Vally Padayachee reported that an Eskom/ Salga-with AMEU representatives- task team is looking into possible solutions for a number of issues affecting both organizations. He also

fact that electrical network theft is extremely dangerous, and fatalities are a regular occurrence, hasn't hampered their efforts. Brutality within syndicates is on the rise and their efforts are often focussed on the poor and vulnerable.

Syndicates often 'employ' these members of society to carry out the dangerous work, thus decreasing their chances of detection and enabling more material to be stolen at any one time.

Copper theft and vandalism form part of the agenda's and discussions at AMEU/SARPA Branch meetings all over the country. Statistics pertaining to the havoc caused by copper theft is often presented in detail however, very few presentations contain action plans to prevent and deter copper theft within areas of responsibility.

This brings one to the million-dollar question; Copper Theft – What Now? There are various measures of dealing with copper theft and vandalism which will reduce incidents significantly. Each measure and/ or process will have various effects and will cover different aspects of the phenomenon.

Some utilities may make use of the following Surveillance and Technology systems:

- Close Circuit Television (CCTV) Cameras – this is a TV system in which signals are not publicly distributed but are monitored.
- Sensors

- Surveillance Cameras Used to detect movement and notify the Control Room of any unauthorised entry.
- Access Control It is the selective restriction of access to a place.
- Automatic Number Plate Recognition (ANPR) to read vehicle registration plates to create vehicle location data.
- Beams Perimeter Beams used for early detection on perimeters.
- Pepper Gas Alarm Systems (Also known as capsicum spray) it is a chemical compound that irritates the eyes to cause tears, pain, and temporary blindness.
- Video Analytics is the capability of automatically analysing video to detect and determine temporal & spatial events.

Other utilities use the above-mentioned along with the implementation of Crime Intelligence Driven Investigations and Forensic Investigations.

This may include but is not limited to;

- Forensic Investigations (Crime Intelligence Driven Investigations)
- Information Gathering on syndicates to apprehend and prosecute
- Investigations of all copper /non-ferrous metal thefts
- Investigations of energy thefts (Illegal connections/theft of electricity
- Capturing and analysis all information gathered (on an intelligence data base)
- Deploying of mobile task teams in hot spot areas

AFFILIATE MEETING...

reminded the meeting of the importance of making comments on the recently published-for-comment revised draft IRP document.

The WiE representative updated attendees on plans for the next stage of the group's program and their presentation to the upcoming Convention. A request was also made for companies to offer technical training to women based on the company's products.

A number of brief reports were made of branch activities as well as of SARPA, PIESA, NRS and SAIEE matters of interest to members.

Attendees were reminded that an election for the next year's committee is now due and members were invited to collect nomination forms and follow due process to elect their chosen representatives.

- Focusing on the scrap metal industry as well as receivers of stolen materials
- Fingerprint experts
- Video Forensics
- Visual reconstruction
- Crime scene management

A breakthrough to assist in the prosecution of copper theft related matters is the coming into operation of the "CRIMINAL MATTERS AMENDEMENT ACT NO. 18 OF 2015".

Readers wanting more information are welcome to contact Hannes Roos at hannes.roos@Combinedpi.co.za or 082 469 3933.

Combined Private Investigations (CPI) is a corporate investigation firm and its vision is focussed on the design, implementation and of preventative execution and remedial strategies to combat all forms of criminal activities. CPI specialises in network theft, illegal trading, export of stolen conductors/ cables and all other ferrous metals and non-ferrous metal related crimes. They have the experience and capacity to assist clients in combating crime on their entire network infrastructure, the monitoring of security systems, prevention and investigation of all forms of illegal activities on their network and assets.

BRANCH NEWS Good Hope

The Branch's 204th General Meeting took place on Friday 17th August, 2018 and was held at Allesverloren Wine Estate near Riebeek Kasteel. Western Cape about 100km NE of Cape Town. No less than 17 Municipal Utilities were represented by more than 30 delegates, and 42 Affiliate member companies by some 60 representatives. There were also delegates from Eskom, the DoE and Green Cape, as well as **Retired and Honorary** Members. After the completion of formalities and the welcome by the Deputy Mayor of Swartland Municipality, a number of presentations were made, including feed-back from the recent Exco meetings, and SALGA.

The AMEU Strategic Adviser, Vally Padayachee, highlighted various items that had been considered at the recent EXCO meeting, including many that have been under consideration for some time like the dispute with Eskom over supply area boundaries. He mentioned that Eskom has overdue debt - much from municipalities - amounting to about R15bn. Cyber security issues have been discussed as well as the problem with the "roll over" of prepayment TID meters. Wheeling of power through networks, conditions applying to "resellers" and numerous other matters were covered.

The DoE representative, Mhlangebezi Mzalisi, gave an update on allocations and expenditure on the various projects under way in the Western Cape. In summary the statistics showed the following;

• 2016/17; Total allocation R111,7m to 18 Local Authorities, 88% was expended, 4 933 individual connections were made













and 9 bulk connections.

- 2017/18; Total allocation R99m, 88% was expended, 1 630 individual and 4 bulk connections were made.
- 2018/19; Total allocation is R121m

Some of the challenges experienced were that housing delivery was not aligned with the electrification program, supply chain procurement procedures caused delays and under-resourced municipal staff complements.

ABB's representative, Imtiyaaz Bester, gave a talk on Personal Protection Equipment - Tools and Equipment for protection against arc flash. The development of a flash and the dangers involved in these incidents were outlined, followed by a description of the means that need to be adopted for the prevention and minimising of danger to equipment and lives. The do's and don'ts of caring for PPE was also discussed.

Roy Robertson of Combined Private Investigations described how cable theft can be prevented by information gathering and intelligence driven investigations. He covered many of the aspects involved in dealing with this national problem and the part his company is playing to reduce it's extent.

Paul de Vries reported that SARPA would be holding their 2018 Convention on 23/24th August in Bellville. He reminded delegates that training for matters relating to all forms of infrastructure theft is available from the organisation.

Eskom's Wayne Fortuin addressed delegates on the various incentives that are now being offered by Eskom in an effort to stimulate electricity sales. He reminded delegates that specialist consultants are available to assist customers with any enquiries related to these developments.

A presentation on the facts concerning the TID roll-over of prepayment meters was given by Don Taylor, Chairman of the STS Association. He highlighted the serious nature of this matter and what steps need to be taken as a matter of urgency to prevent what will otherwise be a disaster for individual utilities. The STS Association is available and ready to assist all users of pre-payment metering systems.

Inspired Interfaces' Tom Philips delivered an address "Network planning and design the easy way". Amongst other things he discussed reasons for planning, various ways of obtaining GIS data and, he went on to demonstrate the "Power Office" method of doing this work..

Nobuhle Mzobe gave delegates an overview of new auto-recloser technology and equipment available from Schneider Electric.

The election of office bearers for the branch also took place and these are; **BRANCH CHAIRMAN:** Siyabulela Gqwede (City of Cape Town);

BRANCH VICE-CHAIRMAN: Nombulelo Zwane (Stellenbosch); BRANCH SECRETARY: Neil Ballantyne (retired).

REPRESENTATIVES ON THE EXECUTIVE COMMITTEE ARE:

Engineer Member: Siyabulela Gqwede (City of Cape Town); HDI Representative: Nombulelo Zwane (Stellenbosch); Female Representative: Belinda Marais (Swartland); The Good Hope Affiliates Chairman: Gareth Smith (Schneider Electric).





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NEWS FROM EKURHULENI

Many of our readers will know that there has been a long-standing disagreement between one of Ekurhuleni's large (+/- 40 to 45MW) electricity consumers and the City, concerning the tariff applicable to the supply.

The company, NCP, is a producer of chlorine and the factory is located close to one of the City's 57 Eskom input points. It operates at a load factor of about 80% and the graph shows the nature of the load over a six-month period.



After lengthy negotiations the two organizations decided that it would be against the best interest of both to continue with legal proceedings and a negotiated settlement has now been reached. This dealt with 2 main aspects, namely the future tariff (and relationship) and the historic debt amount that accumulated over a long period. A number of unique attributes, such as the proximity to the Eskom grid, load size and strategic importance formed part of the considerations.



To give readers some indication of the significance of this load it is worth recording that in 2017/18 the City purchased 10,66 TWh from Eskom and the winter peak demand was recorded at a value of 2,095 MVA, in June 2018.

Interestingly, the Energy Department received a total of just over 50,000 service related complaints in the year, with 95,4% of these calls being resolved within the standard service delivery times.

ANNUAL BUDGET COMPONENT	RAND VALUE	% REALIZED
Income budget from the sales of electricity	R12, 938 billion	99,7%
Bulk purchase of electricity	R9, 293 billion	100,2%
Cumulative maintenance expenditure	R740,4 million	95,8%
Final capital expenditure	R717,7 million	98,7%

During 2017/2018, the Department achieved the following highlights in relation to key budget line items:

It is interesting to note that 11,7% of the units purchased by the City were lost as a result of a combination of technical and non-technical losses.

While technical losses are inherent in an electricity grid (usually of the order of 6-7%), non-technical losses were 5,8%, which includes metering inaccuracies, (or interference), illegal connections, administrative errors such as incorrect multiplication factors applied and others. These non-technical losses, or controllable losses, are actively pursued by the City, and their efforts and spending are guided by clear policies.

Congratulations to the team on a job well done !... Ed.

From the above schedule it is not rocket science to establish that Ekurhuleni "marks up" the selling price of electricity by some 39% above the average purchase price.

JACQUI DOES ITPEOPLE NEWSAGAIN!Congratulations to Jacqui Burn on achieving her "Green
Number" for her 10th completed Comrades!

Here is her latest story.....

"So my Comrades weekend was successful with me eventually receiving my green number but it almost didn't happen!

Starting Comrades this year it was terribly congested and difficult to get into a decent rhythm. I got stuck behind one of the buses around 5kms and it took a lot of energy to try to pass that one, then the first sub 11.30 bus went passed and I thought "..wow he is running way too quickly".. so I was conscious of keeping up a decent pace to stay ahead of the sub 12 hour bus. Just before the Winston Park cut off I tripped over a "cats eye" and went sprawling face down and had the wind knocked out of me, man downall I could think was no, this cannot happen to me.

Two guys tried to pick me up but I lay there for a minute and then they got me up and some supporters on the side of the road helped me to the side and sat me down in a chair and proceeded to administer water and then an alcohol pad to the cut above my eye. They tried to put a plaster over the cut but it would not stick.

They were busy organising the medics and I said no, I am okay I need to get to the next cut of. I had tried since I started the day to keep ahead of the cut offs with at least 30 minutes.

That is not unusual given that traditionally most municipal electricity utilities make significant "cross funding" contributions to the general running expenses of "other" services supplied by town and city councils to their residents.

Nor is this a "recent" development..... as a young engineer attending my first AMEU Convention (Margate 1957) I well remember the then City Electrical Engineer of Cape Town, Mr CG Downie, They gave me a myprodol for the headache that I had which had started after I hit my head with the fall and off I went slowly at first and I got to the Winston Park cut off with 30 minutes to spare so I was still on target but everytime I took a walk I had incredible pain on my right hand side, so I knew I had either cracked or broken my rib with the fall. I had fallen at halfway at Comrades in 2007 and cracked a rib so I knew what the pain was.

Nothing was going to stop me getting that green number..., I ran comfortably down Fields, through Pinetown, up to Cowie's still keeping to a reasonable pace, then on my way to 45th cutting which meant I had 9kms left and I made that with 38 minutes before cut off.

I was starting to get emotional as I knew that elusive green number was within my reach. Running the last 3kms towards the stadium I knew I was fine, running into the stadium I almost burst into tears, had to compose myself and before I crossed that finish line one of the announcers said my name out and congratulations on that green...

I had done it, it was a long and hard journey but that green number was mine. Going through the chute with all the green number volunteers shaking my hand saying congratulations, me congratulating other

warning colleagues to be aware of the "new tendency" of Town and City Treasurers to look to surplus funds on the electricity account to "assist" with the costs being incurred for the construction of – in particular – roads!

The City of Cape Town's new freeway road system was at that time the most advanced road network being developed in any South African city ... and so-called "surplus" funds in the electricity account helped to fund it!



runners having achieved their green. One girl next to me said I am so emotional I just wanted to burst into tears and that is what both of us did!

Thank you to all the friends on the road that kept me focused, encouraged me, motivated me, my friends and family at home for the love and support. I think the euphoria of achieving this long term goal will last with me for a while!"

Well done and CONGRATULATION from all our AMEU News readers! ED.

(The completion of 10 Comrades means that the runner is awarded a permanent number which can be used for all future runs.)

And consider this... in the 1850's, in a debate in the UK parliament on the "new" discovery of electricity Mr Gladstone, the then British Chancellor of the Exchequer asking about the "new" discovery, electricity, said "What use is it?"..., Michael Faraday is said to have replied "Why Sir, there is every probability that you will soon be able to tax it".

It seems like there is nothing new under the sun! Ed.

PEOPLE NEWS

PIERRE HAS BEEN AT IT AGAIN!

Over the years AMEU News has carried several reports on the achievements of our colleague Pierre van den Heever with perhaps the most unusual being his sky-diving activities of a few years back... In particular, in AMEU News No.50, May 2003, we carried this picture below...

In our June 2018 issue we recorded his climb in the Ceres mountains and now Kilimanjaro!



He summited on 21st September, 59 years after his father had done the same!

These two pictures taken 59 years apart make for interesting viewing!





Well done, and congratulations on your achievement Pierre! ED





STS would like to remind all utilities, meter and vending systems manufacturers of the TID Rollover Timelines.

THE ROLLOVER PROJECTS MUST BE COMPLETED BY THE END OF 2024

VENDING SYSTEM MANUFACTURERS

Vending system manufacturers are required to update their vending system software to cater for the new hardware secure module API and key load files and associated rules. They are also required to contact all their customers to arrange for software upgrades to be performed in the field. In addition to this, contact details are to be made available for all sub-vendors that they have business dealings with so that they may be informed of the TID rollover requirements.

METER MANUFACTURERS

Meter manufacturers are required to change their production processes in order to cater for the new manufacturing hardware secure modules and key load files. They are also required to start manufacturing meters on the 2014 base date as will be specified by their customers when they have updated their vending systems.

UTILITIES

Utilities are responsible for the roll-out plan for the key-changes to the 2014 base date. This program has to be set up and operated by the utilities themselves. This part of the project is naturally the most important and most difficult of the entire project and must be thought out thoroughly before implementation.

SUB-VENDORS

Sub-vendors are responsible for the rollout plan for the keychanges to the new base date for meters under their control. The STSA has embarked on a campaign to reach out to these vendors in order to make them aware of their responsibilities relating to the TID rollover program.

State of the

art Key

Management

System

Withdrawal

of older

algorithms

FOR ALL UTILITIES, METER AND VENDING SYSTEMS MANUFACTURERS. Refer to www.sts.org.za | STS 1800-3 document for more information | email queries to francop@mweb.co.za

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Кеу

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Key

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Algorithm

(DKGA04)

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Encryption

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Change

Token

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Transfer

Tokens for

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Types

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DLMS/ COSEM

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NEWS FROM STELLENBOSCH...

Pniel Take-over Project...





Anyone driving along the R310 between Stellenbosh and Franshoek will have passed thorough Pniel, a village with a population of some 3000, about 6.5km from Stellenbosh.

Interestingly, it was established in 1834 as a United Congregational Church mission site at the time of the abolition of slavery



in the British Empire, and freed slaves were encouraged to farm and own plots of land in the area. It's residents claim it is a little paradise.. !

The town lies within the greater Stellenbosch area but by a quirk of fate, it falls within the Drakenstein municipal licensed area of supply for electricity and it's residents are supplied with power from that municipal network.

Over the years many residents have felt that they could not hold their councilors accountable for periodic deficiencies in the electricity supply and, coupled with an unfavorable difference in tariffs between Drakenstein and Stellenbosch, discussions have been underway for some time - since 2005 - to resolve the various issues. A Memorandum of Agreement has now been signed by the two municipalities and the take-over process is at an advanced stage of finalization including having the licenses for the amended areas of supply of the two authorities formalized by NERSA.

Stellenbosch municipality have included an amount of R27m in their 2019/19 budget to see the project through. R17m of this will be paid to Drakenstein for the network assets and R10m used for a new 66kV intake substation.

ENERGY EFFICIENCY AND DSM PROGRAM

For the past four financial years the Council has participated in the Governmentinitiated project to reduce dependence on electricity by implementing energyefficiency technologies. These have included replacing traditional street lights, traffic lights and community buildings illumination with new LED lighting units. To date some R29m has been spent on the project and the response from the community has been very positive.

LANDFILL

Like many local authorities Stellenbosch is fast running out of space for the disposal of garbage. The main landfill site in Devon Valley is presently restricted because of the presence of an Eskom 66kV line and an 11kV line which run through the area. Investigations show that by re-routing these power lines, at the current rate of dumping, the municipality will gain another 10 years of "life" from the site. Following positive negotiations with Eskom the Council have made available R5m on the current budget to start planning for the necessary relocations. Eskom have given the municipality a quote of R13m for the re-location of their power line the Council will be making the necessary budgetary provisions.





GREEN TOMATOES ...?

Other statistics are equally impressive..... 23 000 heliostats - covering 51 500 sq.m - direct the sun's rays onto a 127m high collector tower providing enough energy to produce 1,5MWe and additional heat for the farms production purposes.

The de-salination plant uses sea water to produce 450 000 cu.m. of fresh water per year (about 1200 cu.m per day) for the hydroponic farming of the tomatoes.

The operation has a grid connection to top-up small amounts of power when the sun doesn't shine and the on-site energy storage is low. Anyone interested in reading more about this fascinating operation should check the website.... you will not be disappointed.

(PS: It's worth recording that South Australia's last coal-fired power station was recently shut down. The State now relies on natural gas-fired power stations for about 60% it it's needs, and the rest is from "renewables". ED) ... yes, seriously! Consider this. An Au\$200m Concentrated Solar Plant (CSP) is powering a de-salination plant in a semi-arid part of South Australia, about 10km SE of Port Augusta, to supply a tomato-producing hydroponic farm that delivers 15 million kg of this fruit to commercial stores each year!



MORE "GREEN" NEWS...



A young (he is 24 years of age) California-based Dutch-born entrepreneur, Boyan Slat, is working on a project that he believes will help rid the world's oceans of plastic rubbish. Essentially it comprises a series of large (+/- 600m long) tubes with hanging catch nets that will float in the "garbage patch" to collect the rubbish. This will be harvested on a regular basis and taken for re-cycling.

The first successful trial tow has been made on a 100m piece of the float-tube out of San Francisco Bay (where the manufacturing facility is located) and the first 600m long unit is expected to be in place during the Northern Hemisphere late summer period of 2018. Some indication of the seriousness of the "problem" can be gauged by the fact that the North-Pacific floating patch, about 1000 nautical miles off the California coast, is about 600 000 sq.km in extent (about the size of France) and is the largest of 5 similar ones in the various oceans (North and South Pacific; North and South Atlantic, and the Indian ocean).

The web-site says that he was inspired to start this project after recreational diving in the Mediterranean where he found more plastic rubbish that fish! (*Visit the website, it makes interesting reading ... ED*).

ICELAND ... yes, it's that 103 000 km² island (about 5 x the size of Gauteng Province) situated in the far north of the Atlantic Ocean on the Arctic Circle!



It has a population of about 350 000 people. And many of our readers will recall that in 2010 and 2011 volcanic eruptions on the island spewed so much ash and rock into the atmosphere that air traffic around the world was seriously disrupted for days on end.

... so what's the connection?

... the island's electricity supplies come almost entirely from volcanic sources!

The 30 active volcanic systems take up a quarter of the total area of the island and there is an eruption every 3 to 4 years on average.

AMEU Past President Peter Fowles visited the island a few months ago and here are edited extracts of a report he sent... enjoy! Geothermal heat is considerable in most of the country, and in many places hot water from just below the earth's surface is used to heat homes.

The island's largest power station, Krafla is located near the Krafla volcano and Lake Mývatn in the north-east of the island.

It now has an installed capacity of 60MW (2 x 30MW sets) and is able to produce 500GWh of electricity annually. This represents just under 10% of Iceland's installed geothermal electric capacity of 665MW.

The construction began with trial boreholes in 1974 closely followed by the building of the power house. After the drilling started, seismic and volcanic activities in the area threatened the project. Major volcanic eruptions, less than 2 km from the power station, introduced the possibility that it would never start operating at all.

In spite of initial difficulties, including with corrosive magma gasses entering the geothermal system and destroying the borehole linings, the station was completed in early 1977. It began energy production in 1978, delivering 7 MW to the transmission network. By 1984 seismic and volcanic activities had declined and the station was able to produce 30 MW, and further boreholes were drilled.

In 1996 the second turbine was installed. As equipment became more advanced, new boreholes were drilled using a directional drilling technique instead of the usual vertical drilling system, and the steam system was improved to incorporate a double pressure inlet in the turbines.



A view of the power station from the road to Krafla volcano crater



Workings of Krafla geothermal power plant



Insulated high pressure steam pipes from boreholes to turbines at Krafla



Power Station and switchyard – Krafla

By 1999 Krafla was producing its designed 60 megawatt capacity.

By the spring of 2012, 43 boreholes had been drilled in the Krafla area, not all of which are currently in use. There are a number of other boreholes that will be utilised at a later date, if and when the expansion of the station goes ahead.

As noted above, since 1997, most of the boreholes in the area have been directionally drilled. This is more expensive than vertical drilling but allows for multiple wells from the same drill site and minimises the wells' environmental impact. The deepest production hole is 2,700 metres long.

One of the additional wells, which was drilled in the Krafla geothermal reservoir in 1999, is known for being the world's hottest geothermal well. The borehole reaches magma at its lowest point with a temperature of 430 °C. The turbines consume 52.5kg/s and 17.8 kg/s of high-and low-pressure steam each.

Over each wellhead is a special geodesic dome. It's purpose is to protect the wellhead and prevent it from suffering external damage. The first dome was constructed in 1981 in the Krafla area and was made out of fibreglass. Today, almost all the domes are made out of aluminium due to its thermal resistance, light weight, strength and durability.

The domes are constructed in Iceland and tailor-made for Icelandic conditions. The design is unique and the shell structure is more resistant to wind and snow loads than typical rectilinear structures. In most geothermal areas, there isn't the need for covering up the wellheads. The unique Icelandic climate however, requires that the wellheads are covered up to protect the control and measurement equipment.

BRANCH NEWSFREE STATE & NORTHERNCAPE; CENTRAL BRANCH

For various reasons the Branch has not been active during the past 4 years but the first meeting for 2018 took place in Kimberley on 31st May. It was attended by 24 delegates but only two municipalities were represented.

The second meeting for 2018 took place in Bloemfontein and 5 municipalities were represented. Two Eskom representatives were also present as well as 25 Affiliates. The combined attendance amounted to 40 delegates.

Two, technical presentations were made, one by BEKASchréder's Gerhard Rademeyer, on the newly launched LEDlume XP luminaire and the second by Schneider Electric on their E-series Auto-recloser.

A new team of Office Bearers has been elected as follows: **Chairman:** Orren Groenewaldt (Sol Plaatjie); **Vice Chairman:** Xolile Faku (Centlec); **Secretary:** Charmain Peter (IST); **WiE Representative:** Pam Mabobo (Centlec); **HDI:** Male Zwane (Sol Plaatjie); **Affiliate Coordinator:** Gerhard Rademeyer (BEKASchréder).





The new committee from left; Charmain Peter, Xolile Faku, Gerhard Rademeyer, Male Zwane, Pam Mobobo and Orren Groenewaldt.

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