LEADING THE ELECTRICITY DISTRIBUTION INDUSTRY

AMEU NEWS

THE ASSOCIATION OF MUNICIPAL ELECTRICITY UTILITIES OF SOUTHERN AFRICA

A MESSAGE FROM THE AMEU PRESIDENT...

Uring a normal year this message would have come to you from the pen of the newly-elected President of the AMEU. This has not been a normal year, and as you know one of the many effects of the Corona-virus pandemic has been the postponement of our annual Convention and with it, the election of the President for the next term.

I am honoured to have been invited to continue to serve you and the AMEU for another year. My thanks go to the AMEU Exco and Secretariat who took the necessary steps under these difficult circumstances to find a way through uncharted waters, and special thanks go to my employers who have agreed to support me in the extended period of my Presidential service.

This is a unique occurrence in the 105 years history of the AMEU, just as it has been – and continues to be – for our nation and the world as a whole. Having to adapt to "lockdown" regulations has taken a giant effort that most of us could have never imagined would be possible. I congratulate all of you - our members - on your dedication and your individual initiatives to meet the practical requirements that flowed from these regulations.

For our member Utilities, who provide the ultimate essential service to keep not just the lights burning, but also the associated activities that keep hospitals open, food supplies available, and all other essential services working, this presents a huge challenge and responsibility. Thank you for your individual efforts and the truly magnificent work of your teams and colleagues to keep the power flowing. This is an on-going job, well done ! Keep up the good work for as long as is necessary.

Sadly, we do need to take note of the many irregular and other unfortunate developments that have accompanied the nation's efforts to combat this epidemic and its disastrous effects, but I urge you all to redouble your efforts to keep our industry as the example that others should follow when dark clouds surround them. All indications point to a long road still ahead and your dedication to providing a quality service along the way will be rewarded.

The Executive has taken note of the various initiatives being taken at a national level to resolve the many difficulties faced by municipalities in their relationship with Eskom and we will continue to work with our colleagues in SALGA and all statutory bodies that can assist us to maintain a healthy industry. Our Strategic Adviser and Secretariat are monitoring all developments that will impinge on our work and you can be assured that the Executive will take whatever follow-up actions may be required.

As we are soon to be entering the annual Festive Season, I take this opportunity again to thank you all for your dedication, and to wish you all well for whatever celebrations you are able to partake in. My best wishes for a brighter 2021 for all.

Sincere greetings.

Refilwe Mokgosi

BRANCH NEWS: GOOD HOPE

n line with the new normal for procedures that are now being used as a result of the Corona virus pandemic, the AMEU Good Hope Branch hosted a virtual meeting between 10-00 and 12-00hrs (SA time) on Friday 7th August 2020.

In the absence of the Chairman Siyabulela Gqwede, who was not available due to other commitments, the meeting was conducted by the Vice-Chairperson, Nombulelo Zwane, who welcomed all 65 participants and thanked the AMEU Secretariat for setting up the technical facilities for the meeting.

Nombulelo welcomed everybody, and the Association's Strategic Adviser, Vally Padayachee, assisted with an explanation of procedures for this new form of meeting.

The first technical presentation was delivered by Jon Kornik of the Company "Plentify" who spoke on "Using intelligent geyser control to deliver municipal demand response services". He pointed out that new technologies are now available to replace traditional ripple control systems. They have the potential to assist municipalities overcome some of the many challenges that now face utilities such as ever increasing tariffs, proliferation of solar installations and attendant loss of sales, and complications resulting from load shedding. The company's particular system is called HotBot and incorporates smartphone technologies. A system is currently being deployed in Cape Town Electricity.

Chris Pluddemann of the City of Cape Town then spoke of the journey being taken by the Metro Electricity Department in their *protective maintenance program*. He outlined how assets were identified and documented and how structures to plan and carry out the required functions were set up. He also listed difficulties encountered and the benefits that accrue.

Saldanha Bay Municipality's Johan du Plessis then discussed the **effects of** *Covid-19 on municipal service delivery* in their Utility. Amongst other matters he discussed the difficulties experienced in complying with COVID regulations such as social distancing in trenches and confined spaces, funding for personal protective equipment and keeping staff motivated. Other related matters that required special attention was the increase in illegal connections and bypassing of meters, and vandalism. He also referred to the difficulties created by load shedding and how a major energy user had to be moved from the load shedding schedules to "load curtailment" to avoid closing down the factory and losing employment for 2000 residents.

AMEU Strategic Adviser, Vally Padayachee gave a comprehensive report on

Exco matters including updates on SALGA's work on industry challenges, including Eskom tariff proposals and industry restructuring. The Draft Eskom Service Delivery Agreement has been approved by Cabinet subject to consideration of the management of certain risks. Other matters that were highlighted are that discussions are ongoing with NERSA on wheeling charges, SSEG and NMD changes. Also, National Treasury's cuts in electrification funding were noted as well as the fact that Municipalities now owe Eskom R30bn.

Roger Byrne, an Infrastructure/ Asset Management Consultant/ Expert, in Melbourne, Australia, then spoke about achieving the **best appropriate asset management practice and how to do this in a cost effective way**. (ISO 55000 SERIES).

He discussed data collection and analysis and the importance of training staff to achieve optimum results, as well as linking process maturity to business cases. Amongst others he discussed the options for modelling lifecycle costs and what management needs to be presented with to assist decision making.

FOOTNOTE; A special word of thanks to Good Hope Branch Secretary Neil Ballantyne for his comprehensive notes on the proceedings of the meeting, on which the above summary has been based. ED.

Branch news: Good Hope	2	New offices for the AMEU Secretariat
Network news: Ekurhuleni and Umlalazi	3	The path to a greener future
Solar lighting for the Cape / BEKA-Schréder	4/5	World's largest electricity-powered plane takes flight
Greening the world in Graaff Reinet!	6	WiEnews
New developments in Modderfontein	7	NRS Matters
This and that: An electric aeroplane	7	SARPA update
In memorium - Paul Gerber	8	Meetings meetings meetings
In memorium - Bill Greyling	8	Every connection counts / TANK
Wind turbines and birds	9	Even motorbikes need electricity to work
My, how things have changed!	10/11	Update on cloud storage for your data
News from Singapore	12	Wise words to make you think

INSIDE...

13 14/15

NETWORK NEWS... EKURHULENI

+/-R42m project has recently been completed in Ekurhuleni's Eden-park area to cater for increased demand for power. The original Eden-park switching station which had 2 x 6,6kV incoming feeders from Albertsdale has been upgraded to a 2 x 20MVA substation supplied by 2 - 33kV cable incomers.

This will not only provide increased capacity for load growth, but will also reduce the load on the Albersdale substation.

The work included the construction of a new substation control room, installation of 2 x 33/6,6kV 20MVA transformers, new 33/6,6kV switchgear and control panels, battery tripping units, SCADA and metering equipment, and all associated civil works.

This up-grade will help to eradicate the backlog in the provision of services to the community and is in line with the City's efforts to meet the need for universal access to electricity, as per the Government's initiative.











NETWORK NEWS... UMLALAZI

n the hustle and bustle of every-day activities to "keep the lights burning" it's easy to push maintenance to one side to be done later and even more so when the equipment - like electrical switchgear - isn't moving or making a noise !

But that's not the case in Eshowe where a recent 8-hour operation was carried out to service the 11kV switchgear in the main incomer substation, and to replace two MV breakers.

In spite of the practical difficulties of working under Covid-19 restrictions, the servicing, maintenance and calibration of the



circuit breakers was completed in record time and, with the help of the town's ring-feed system, without inconveniencing consumers.

Congratulations to Jaap Le Grange and his team - well done ! Ed.









SOLAR LIGHTING FOR THE CAPE *Incorporating motion detectors to optimise energy usage*

Holbaai is a beach close to Melkbos, a beautiful seaside village on the north-western fringe of the Cape Town Metropolis. It is well known for its tranquillity, wide white beach, water sports and westcoast hospitality. Holbaai has recently received its first solar lighting installation.

A lighting solution was needed for Holbaai to enhance visitors' feeling of safety and wellbeing, and since there is no electrical supply close by, a solar lighting solution was the only option. The BEKA SOLAR was the lighting solution chosen for this project.

The locally designed and manufactured BEKA SOLAR has been optimised to offer the most customizable solar solution for road and urban applications. This solar street light for outdoor residential and public applications gives a fully customizable option to suit all off-grid solar lighting requirements.

The BEKA SOLAR, combined with the ZIYA luminaire, provides a reliable lighting solution with a high lngress Protection level (IP 65) that withstands high ambient temperatures and vandalism (IK 10). The ZIYA range is a sustainable off-grid performer with a superior lumen/watt ratio.

Furthermore, each luminaire has a motion detector installed. When there is no movement, the light dims down to a low light level without compromising on security in the parking area. As soon as there is movement, the light ramps up to full output.

The photovoltaic process is optimized by efficient Polycrystalline solar module technology to maximise solar energy. This in turn offers the best energy storage options and autonomy available on the market with our range of battery options, namely Lead, Lithium and the new SuperCapacitor. This SuperCapacitor removes the depth of discharge (DOD) issues, and furthermore offers extended life and discharge cycles.

Controlling the whole system and using this solar energy by programming the MPPT charge controllers, protects and optimizes the system from any internal and external factors, like thermal environmental changes when charging the batteries.





The BEKA SOLAR offers the following key advantages:

- It has been designed to operate reliably at a high light output over a 12 to 14 hour period
- It has sufficient autonomy to cater for up to four continuous overcast or rainy days, to continue its reliable night operation
- Integrated solar components
- Theft and vandal resistant
- Specifically engineered for all geographical locations in Africa
- Various battery technologies available to meet specific customer requirements

BEKA Schréder locally develops and manufactures energyefficient LED lighting products, designed and suitable for local conditions. We are very proud to be associated with CDE Supplies and City of Cape Town in providing a successful solar lighting solution for this project.

For further enquiries, contact Therlo Brown at 021 510 8900 or t.brown@beka-schreder.co.za

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Designed and manufactured in South Africa Marine grade, high-pressure die-cast aluminium housing Offers optimised photometrical performance with a minimum total cost of ownership



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GREENING THE WORLD... IN GRAAFF REINET!

Graaff Reinet, located about 230km north of Port Elizabeth, was established in 1786 and is built on the banks of the Sundays River, which rises a little further north on the southern slopes of the Sneeuberge. It is the fourth oldest town in South Africa, after Cape Town, Stellenbosch and Swellendam, and is the centre of a thriving farming industry including wool and mohair production.

One of the local industries, Montego Pet Nutrition, completed a R70 million factory upgrade in 2018 to meet local and international demand of its premium quality pet food which boosted overall production by 30%.

"The boost in production and demand for Montego's pet food and treats meant that a move to renewable energy sources was crucial for us. Not only do we believe it to be our responsibility to sustaining the environment, but solar energy also presented attractive cost efficiencies from a business standpoint," said Wilfred Cawood, the company's Marketing Manager.

This resulted in a R22 million investment by the company in a dedicated solar energy plant last year (2019). The 843 kWp solar panel system covers about 4,580 square metres of rooftop space and was completed in May 2019. It has resulted in a 300-tonne reduction in CO₂ emissions in 2020 to date and is equivalent to planting approximately 9,000 trees to offset carbon emissions.

(Congratulations....Well done! Ed.)







NEW DEVELOPMENTS IN MODDERFONTEIN

n-going growth and development in the Modderfontein area of North-East Johannesburg have necessitated an upgrade of power supplies in Founder's Hill Ext 16 area, including the establishment of an 11kV supply to Founder's Hill College.

The project comprised the installation of an additional 500kVA minisub on an existing ringfeed from the Founders Hill satellite substation, a 3MVA main supply point for the area.

The work included laying 1054m of 300mm² 3 core, Al, 11kV, XLPE Type A (SWA) cable. The total cost of the project ran to some R 1,8m.







Anyone interested in obtaining more details is welcome to contact the Project Engineer, Thato Oloo, on telephone 012 349 2253 or e-mail thato@plantech.co.za

ANOTHER AEROPLANE STORY

A solar powered, un-manned propeller-driven aircraft that flies in the stratosphere - the layer of atmosphere between about 10 km and 50km above sea level - has recently had its first trial flight above the Woomera Test Range in Australia. Code-named PHASA-35 (Persistent High Altitude Solar Aircraft) the 150kg aircraft (which includes a 15kg payload) has a 35m wingspan, and is designed for continuous flight for about a year.

The wings are covered with solar cells which provide up to about 1000 watts of electricity to power the two propeller motors and charge the batteries. The power system is designed for some 400 daily cycles at a 90% capacity rating.

It has an air speed of up to 145km/hr and will provide an alternative to satellites for certain usages, including monitoring forest fires and other disasters, providing a platform for 5G equipment in remote areas, and general surveillance and observation activities.

Further trials are planned for later this year (2020) and if these are successful it is possible that the aircraft could go into commercial operations in 2021.





IN MEMORIUM - PAUL GERBER

t is with much regret that we report the death on 19th August 2020, of a friend and colleague to many of our AMEU members, Paul Gerber. He passed to higher service at the age of 55 apparently from a heart attack.

Paul studied at Stellenbosch University with a bursary from Anglo America and he completed his B.Eng (Electrical) Heavy Current degree in 1987.

He worked as a junior Engineer at Ergo in Brakpan where the company recycled old mine dumps to extract the remaining gold using modern metallurgical processes.

His work was interrupted by compulsory military service in Saldanha and Simonstown where, amongst other things, he worked on the submarine SAS Emily Hobhouse's computer-based systems.

After completing his military service he returned to the Anglo America Corporation and worked at the Vaal Reefs Gold Mine.

Paul always loved the sea and in July 1991 he and his wife moved to Port Elizabeth where he joined the Port Elizabeth Municipality. He was a hard worker and served the PE Electricity Utility for nearly 27 years. He held a number of positions, including serving as a Planning engineer, Transmission Engineer, Project Engineer, and Senior Director Technical Engineer.

He obtained his Professional Registration and Government Certificate of Competency, and became a Senior Member of SAIEE, during these years.

He was actively involved with the planning and electrification of more than 47 000 erven in NMBMM area. The first meetings with residents were held in community halls with candles He also implemented a system with the East Cape Training Centre whereby unskilled people could be identified and sent for training on tendering and the installation of dead-system low voltage infrastructure. The system worked so well that it was acknowledged and copied by various role players in the industry.

Paul especially enjoyed the technical side of engineering and continuously

expanded his knowledge. He designed, together with Cybertronix, an Earth Fault Indicator that could be used on un-insulated paper cable installations. He compiled useful programs using Visual Basic and

Excel for the design of earth mats, for calculating electrical and magnetic field strengths produced by power lines, and much more.

He presented technical topics at the local SAIEE branch and at the AMEU Convention in 2017 he presented a paper called "New Challenges facing the Utility Engineer"" which was named one of the 3 top papers in the technical category.

In June 2018 Paul was appointed as the Acting Director of Electrotechnical Services at George Municipality. He was one of the key players during the lockdown period.

He was a genuine and sensitive man who would always try to be fair.

The memories of his life and legacy will always be treasured by his wife and three children as well as the extended family, friends and colleagues, to all of whom we express sincere sympathy on behalf of our many AMEU News readers who called him "my friend Paul". Ed.

IN MEMORIUM - BILL GREYLING

t is with great sadness that we record the recent death of a long-time Affiliate member of the AMEU, and regular participant in our various activities, Charl Francious (Bill) Greyling.

He was born on Johannesburg in November 1939 and attended Forest High School. His early training and career was in Eskom but he moved into commerce and industry and had successful careers with various companies including Hubert Davies and the GEC Projects division – where he was Commercial Manager. Later, he joined Aberdare Cables and became Commercial Director. In due course he became the Managing Director of Electric Products International. Bill was a great sportsman and an avid cyclist. As a youngster he belonged to the Southern Suburbs Cycling club and competed in numerous races, winning in a number of the events. He also did multiple Argus and 94,7 events.

He also ran in and completed the Comrades marathon, the Two Oceans race, and the Iron Man event.

He married Larraine in 1967 and they had three children, and later, six grandchildren.

We extend sincere sympathy to the family and friends on behalf of the many readers of AMEU News who counted him as a friend. Ed.

WIND TURBINES AND BIRDS

o pain, no gain" is an expression that fits many developments in every-day living, not least in the generation and distribution of electrical energy.

On previous occasions AMEU News has carried stories of bird deaths resulting from collision with transmission lines and wind turbines amongst other things, and the steps that have been - and are being - taken to ameliorate the problem; special bird perches, conductor-marker "balloons", rerouting lines and more.

Recent studies in 14 Wind Energy Farms update the extent of the impact of wind turbines on bird populations and in particular what has now been discovered concerning the endangered species of raptor, Black Harrier.

The Black Harrier is the scarcest endemic raptor in southern Africa – it only occurs in South Africa, Lesotho and Namibia and has a tiny global population of approximately 1000 mature individuals. Black Harriers normally hunt close to the ground, below the reach of turbine blades, but it appears that the risk of collisions increases during the breeding season when flight heights increase during breeding displays and nest provisioning.

A recent analysis of the population by Dr Francisco Cervantes Peralta suggested that if just three adult Black Harriers are killed per year by wind turbines the population is likely to collapse in about 100 years. For five adults that collapse could come about in our lifetimes.

The map below, produced by the Perhold /Ralston-Paton/Ryan team for -"Ostrich – Journal of Africa Ornithology", gives a very good idea of the extent and spread of bird fatalities from wind turbines across South Africa.

Black Harrier specialist Dr Rob Simmons teamed up with BirdLife South Africa's Samantha Ralston-Paton and Robin Colyn, and Dr Marie-Sophie Garcia-Hera and together they have drafted the best available research, supplemented with expert opinion, in a simple guideline to support the appropriate location and management of wind energy facilities to avoid further impacts on this embattled species.

One of the key recommendations is that turbines are not placed near Black Harrier breeding sites and BirdLife South Africa has developed fine-scale





spatial models that indicate just where these areas are likely to be. These maps can be used in the earliest stages of development and should help developers avoid investing in unsuitable sites.

The Guidelines also propose a number of other potential mitigation measures, including increasing the visibility of turbine blades, by painting one of the blades black or red – a novel approach that has reported recent success with other species at one site in Norway. The effectiveness of this and other mitigation measures still needs to be tested for Black Harrier.

"We understand that despite the environmental challenges associated with wind energy, there are also a lot of benefits. Our approach is to help bridge the gap between science and implementation and ensure that decisions are based on the best available information, so that no one is left in the dark" said Samantha.

"If these guidelines, in concert with BirdLife South Africa's guidelines on Cape Vulture and Verreaux's Eagle, help reduce the impact of renewable energies on our scarce birds of prey, then we can have a win-win – clean energy and a sky full of raptors" concludes Dr Simmons.

For more information, contact BirdLife South Africa at: Isdell House, 17 Hume Road, Dunkeld West 2196, Gauteng Tel: +27 (0)11 789 1122, Fax: +27 (0)11 789 5188 E-mail: info@birdlife.org.za

MY, HOW THINGS HAVE CHANGED!

araday's Law of Induction (1831) is the foundation upon which the production, distribution and everyday use of electricity is based and ultimately, what makes our modern living conditions and technology-based societies possible.

Arguably, the most common piece of electrical equipment in use today that makes all this happen - other than conductors - is the transformer. They are everywhere that electricity is used, from the smallest sizes found in electronic equipment to the largest at generating stations and major substations and everywhere in between.

From an internet search it seems clear that the name "transformer" was registered in a patent in 1885 by three Hungarian engineers who had returned from an exhibition of electrical equipment in Italy in 1884. They had seen what was referred to as "secondary generators" the first pieces of equipment that could step up and step down voltages in an alternating current system. Along with Westinghouse, Thomson, Brown and others - who quickly recognised the importance of this new device - the Hungarians improved on the original design by closing the magnetic circuit, and then started to manufacture them for use in the early electricity networks.

Thomson patented the use of mineral oil as an insulator and coolant for transformers in 1887.

A Swedish engineering company - ASEA, established in 1883 - soon joined the many manufacturers of these and other items of electrical equipment.

In 1890 Brown made the first 3-phase transformer and ASEA followed in 1891 with their first 3-phase transformer. The company became a major international supplier and their numerous products were exported to customers around the world.





In South Africa around this time mining was the new norm and in 1889 Theodore Reunert and Otto Lenz partnered to established the company Reunert and Lenz, based in Johannesburg. They supplied mining machinery to the fledgling gold mining industry and soon included electrical equipment in their product range.

In 1911 Reunert and Lenz became the local agents of the ASEA company!

In the early 1940's Besaan's Engineering Works, a machinery manufacturing company located in Pretoria West, began producing transformers for the first time in a joint venture with Reunert & Lenz, under license to ASEA.

By 1945 ASEA had decided to expand the local manufacturing facilities and negotiated to buy out Besaans' interests and works, and established ASEA SA to increase production and develop further product lines.

As inevitably happens with large multi-national companies, ownership of the Pretoria West plant changed hand over the years. In 1987 Power Tech became the sole owner. More recently - in 2018 -SGB-SMIT POWER MATLA acquired the manufacturing interests of Power Tech Transformers and, while continuing the strong bond with International expertise, at the same time brought in a significant BEE holding.

A 6,6kV transformer manufactured by ASEA -Sweden in 1928 and imported through their local agents, Reunert & Lenz, for use on a rural network near Uitenhage. It was replaced after 57 years of continuous service when the network was upgraded to 11kV. The then-Town Electrical Engineer John Dawson is on the right of the group. The full story appeared in AMEU News No.8, March 1989.



In 1969 the first 180MVA / 275/88KV transformer was completed.

A few of the many highlights from the transformer operations of the Pretoria West factory are worth noting:

- In 1950 the first 1,5MVA transformer for mining purposes using 66/33/3,3/2,1 kV was built.
- The first 5MVA transformer built in 1953.
- By 1957 10MVA transformers were being produced.
- In 1963 the first 20MVA / 132KV transformer was built.
- The first 45MVA transformers were built in1964.
- In 1969 the first 180MVA / 275/88KV transformer was completed.
- The first locally produced 220MVA, 400kV transformer was delivered to Eskom in 1970.
- In 1972 the first 390MVA units were built.
- A 560MVA generator transformer was completed in 1974.
- In 1981 a unit that combined a 10MVA, 66KV transformer and associated switchgear - called a "Moose" - was built.
- In 1996, the first 765kV reactor was produced and successfully put into service.
- A recently completed 500MVA transformer in the Pretoria West works.

Throughout this story is a thread closely linked to the AMEU. The Reunert and Lenz representative to the 1951 Convention was Mr.Terence Marsh. This was his first of many Conventions to follow and he quickly learned that while companies often participated by presenting technical papers and contributing to the discussions on presentations, it was customary for Company Reps to arrange private lunches, or cocktails, or dinners, with selected Town or City Electrical Engineers whenever possible, in order to build a closer working relationship with their customers.

By 1974 it was realised that there was a need for a more formal arrangement for Affiliates participation as "Affiliate Members" and an Affiliates Committee was formed. Reunert and Lenz was one of the first such members. The first Chairman of the Committee was Terence. Under his guidance the activities and participation of the Affiliate companies developed and matured. He retired in 1987 after 43 years of service to Reunert and Lenz, and almost as many to the AMEU, including having served as the Affiliates Chairman for 13 years. He was awarded honorary life membership of the AMEU Affiliates in recognition of the part that he had played over the many years of his participation in the Association's activities.

And the story doesn't end there.

In 1985 Ms. Jacqui Burn started work with Power Tech, the then-owners of the Pretoria West factory, and was soon participating in AMEU activities as the company's Affiliate Representative. In 1997 she was asked to take over the Treasurer duties of the Affiliate's Committee, and some 23 years later is still doing the job and she still has connections with the Pretoria Works through her continued assistance to the new owners!



AMEU NEWS | November 2020

NEWS FROM SINGAPORE

Photos sourced from Internet

above the ground level.

The Marina Bay Sands Hotel which

the sky-deck more than 50 stories

The National Stadium that seats

largest retractable domed roof.

55 000 spectators and has the world's

includes a 150m long infinity pool in

ost readers will know that the Island-State of Singapore lies at the southern tip of the Malaysian peninsula and is just 137km north of the equator. It is spread over some 64 islands.

Its 5,7m citizens enjoy one of the world's longest life expectancies, and lowest infant mortality rates. About 90% of the population own their own living accommodation.

Anyone lucky enough to have visited the city before lockdown will recognise some of its iconic sights reflected in these pictures.

The Merlion statue



A general view of the business district skyline.



AND NOW ...

Sunny Singapore will have a floating solar farm in the Tengeh water reservoir next year (2021), which will be able to generate enough energy to power about 16,000 four-room Housing Board flats.

The floating solar farm, covering an area of about 45 football fields, will be Singapore's largest, as well as one of the biggest in the world. The 60MW of panels are

designed to last for 25 years and incorporate double-glazed PV modules that are UV-resistant. They are supported on HDPE floats which are also UV-resistant.

The National Water Board (PUB) says the HDPE floats are certified "food grade" so as not to contaminate the water,





and "Every component of the system was carefully designed and selected based on Singapore's climate conditions in order to maximise energy generation, minimise environmental and water quality impact, and be durable enough to fulfil a service lifespan of 25 years." The system will help reduce the Republic's dependence on fossil fuels, slash carbon emissions and strengthen national climate resilience, and is expected to offset about 32 kilotonnes of carbon emissions annually, equivalent to taking some 7,000 cars off Singapore's roads.

Smart technologies and sustainable materials feature strongly in the solar plant's design, said the statement from PUB. These include safety cameras, live video monitoring, dashboards, as well as alerts that help to track environmental factors such as wind speed, solar radiation and ambient temperature.

Currently Singapore's total electricity load is of the order of 7000MW and 95% of this is derived from gas turbines, fuelled by gas imported from Malaya and Indonesia.

Footnote; A roughly similar sized (63MW) PV plant has recently been commissioned near Leeudoringstad (about 50km SW of Klerksdorp) in NW Province. It uses some 236 000 solar panels.



NEW OFFICES FOR THE AMEU SECRETARIAT

t is a given that of all the things an association requires to serve its members, a central structure to keep it all together is the most enduring. This structure comes in many forms. It is first a legal entity of some kind, and a physical address. It also includes organization leadership and trusted human resources to do its work.

While the secretarial work and book-keeping associated with the first 40 years of the AMEU's existence was done on a part time basis by various engineer members and their staff, in 1955 the stage was reached when professional assistance was essential for the further growth, development and efficient management of the Association.

The firm Davidson and Ewing provided this service from 1956 to 1972. They were followed on 1st Jan 1973 by Van der Walt & Co, whose offices were located in Marshalltown, downtown Johannesburg.

Every healthy and efficient organization grows and changes to fit its environment, and provide the facilities necessary for the services it delivers to its principals. By 1994 the Marshalltown offices were no longer fit for purpose and the Van der Walt & Co staff moved to a venue in Roodepoort. This was followed by a move to Ferndale, Randburg, in 1996.

In keeping with the need to upgrade facilities and maintain an efficient service, the company re-located to offices in Randburg's CBD in 2001 and in 2012 the office moved to the Bryanston/Sandton area, tracking the changing needs of the company.

Incorporating modern technology into VdW&Co's operations, as a means of improving the quality and variety of services provided to a growing a client base, has always been a priority for the company. For example, for some years now, some of the staff have adopted work-from-home practices whenever possible, improving time-management and operational efficiency.

By equipping everyone with laptops and moving all systems into the cloud, productivity has increased and operations have become more cost-effective. When Covid-19 struck the company was ready, and operations continued without a hiccup. Even the switchboard moved to the cloud and is now shared and operated by several staff members from home.

At the end of September, 2020 the no longer fit-for-purpose offices in Bryanston West were swopped for a more agile office two kilometers away, in Hurlingham Manor, in the Sandton area.

The new office, although smaller, still offers workspaces for up to twelve of the current staff of twenty, as well as two boardrooms, one accommodating up to thirty attendees. Storage for old records and convention paraphernalia are also taken care of as part of the deal.

If and when normality returns, in whatever form, and given that "normality" still includes elements of a physical office, the company will be ready to incorporate whatever new systems, technologies or requirements the expanding client base requires for efficient and costeffective services.



[13]

THE PATH TO A GREENER FUTURE

Ineral oil has been used as an insulator and coolant for transformers since 1887. The type and quality has improved over the years and most engineers are well aware of the benefits and typical issues associated with its use.

For example, oil filled transformers are able to withstand the extreme conditions that they are sometimes exposed to in Southern African operating conditions for extended periods of time - 50 years is not unknown. At the same time every engineer has inevitably experienced oil leaks from splits in welds or other tankrelated weaknesses, or gasket leaks at covers, bushings and tap-changers, and various other similar problems, all resulting in additional and unexpected maintenance expenditure.

Other costs and practical difficulties are associated with regular oil sampling and oil purification processes, also damage and oil spills resulting from faulty Buchholz relays and other protection devices, insulation deterioration arising from oil degradation, fire and explosions and more.

Now there is a relatively new hazard. News from some developing countries indicates that thieves have now learned how to "tap" the oil from operational transformers often at great personal risk - to meet the demand for fueldesperate people and sometimes even its usage for cooking purposes.

But there is an alternative ...



Dry-type Cast Resin insulated Transformers (CRT) have been around for about 30 years and as is to be expected, have matured as technologies and materials improved and developed.

As a relatively new product, not a whole lot of up-to-date information is freely available locally. This article will hopefully inform the general engineering community and assist engineers, project leaders, buyers and contractors with their decision making.

Typically, distribution CRT's are available in sizes from 100kVA-5MVA, in voltages up to 33kV. While they consist of the same basic components – magnetic core, LV and MV windings – as oil-insulated transformers, the real difference is that resin and air are used instead of oil as the main insulation material for the transformer, with air replacing the oil as the cooling medium.

The good news is that **no oil means no leaks and no fire!** Essentially, this "Going Green Technology" with no fire hazards due to the self-extinguishing medium used in CRT construction and conformance to other SHE requirements, means reduced overall project costs. Also, the fact that there is no oil to worry about makes life easier in the long run as the regular maintenance required to keep transformer oil in optimum condition is no longer needed.

The practical hazards associated with oil transport and on-site oil filling are also taken out of the cost equation. And oil bund walls are not needed to contain oil spills. CRTs also assists with any Safety and Environmental issues that might be regulatory or required by specific projects or clients.

Insurance costs for installations using CRTs in every high risk area will be much lower thanks to the lowered fire hazard.

Protection systems for CRTs are based on the heat generated by the windings during normal operation. This is easily done with a simple thermal protection device connected to thermo-couples. The device can provide alarm and trip signals when the limits are reached and in addition can control systems for fans if additional cooling is required.



Because CRTs are IPOO rated, some basic practical issues need to be considered in their installation. These include ventilation, environmental exposure and safety.

As CRTs use natural air for cooling, it is important to consult with the manufacturer to ensure there is sufficient natural or forced air flow in the area with old or new installations. Sound engineering practices like the provision of suitable lightning protection on the main incoming MV line and surge suppression devices should always be followed.

They are basically maintenance free. Minor inspections/checks and cleaning is all that is needed to successfully maintain them. Manufacturers will usually assist with the maintenance when requested. To replace critical parts also becomes a lot easier as all the major parts can be replaced quite easily and quickly should it be needed.

These transformers have been successfully installed and used in Southern Africa in the last ± 10 Years in various industries like Mining, Renewables, Municipal, Commercial, Industrial and Telecommunication.

Common sense dictates that it is always wise to consult with the manufacturer and provide as much information as possible regarding any project. This allows the manufacturer to assess the requirements, and design to meet the needs of the international specifications (IEC/SANS 60076-11:2018) or project/client specifications. Consultants need to familiarize themselves on differences in the type - test requirements specified for CRT transformers, as compared to oil filled transformers specified in IEC/SANS 600676-1.

To summarize, when considering your next Distribution Transformer requirements, keep the advantages of CRTs in mind:

- Environmentally friendly
- Fire/flame retardant
- Can easily be designed and installed according to needs
- Compact dimensions
- Easy to perform maintenance and visual checks
- CRTs can be recycled if needed
- Low installation cost
- Low noise levels
- High efficiency
- Lower insurance costs
- Small footprint in installation
- No contamination as there is no mineral oil use
- No need for oil protection bund walls
- Easy visual inspections of windings and assembly during manufacture, testing and commissioning

All these advantages will save project and maintenance cost in the long run and lead to a greener world for future generation to come.

Anyone interested in obtaining more information is invited to contact Paddy Padayachee @ +27825608953 or Zander van Rooyen @ +27767513386

WORLDS LARGEST ELECTRICITY-POWERED PLANE TAKES FLIGHT...



n page 8 of AMEU News No.101 there was a brief report on the developments in battery-powered electric planes and in particular, the work being done by Rolls Royce who are planning an attempt to reach 483 km/h (300mph) in a battery powered aircraft late in 2020.

News has now been released of a successful flight that took place, on 28th May 2020, over Washington State in the USA. It was a converted Cessna Grand Caravan plane that had been fitted with a 560kW all-electric power system. The cruising speed during the flight was 183km/hr and it climbed to 2 500ft (+/-1600m) during the flight. It has a maximum cruise speed of 344km/hr and will have a 100mile (+/-160km) range in commercial operation, carrying 9 passengers.

AMEU NEWS | November 2020

WiE NEWS...

2020 - 2021 WiE Plan/Activities

Due to the Covid 19 pandemic WiE could not achieve all the activities planned for 2020, and most of the activities will be carried over to 2021, adhering to WHO regulations.

Before lockdown two face-to-face meetings were held;

Our 1st WiE meeting was held on the 5th February 2020 hosted by Major Tech.



2nd Committee Meeting was held at Edgeline Engineering.



On the 6th of March 2020, AMEU WIE in partnership with Vaal University of Technology and SAIEE student Chapter hosted a Women in Engineering Workshop. The aim was to bring together women who have been successful in the engineering industry to share their achievements and challenges with women engineering students.

*The speakers were AMEU WiE Chairperson Mrs Punkie Majola from Ekurhuleni Metropolitan Municipality and Onalethata Kabelo from ABB.





Mrs Majola spoke about their aim of accelerating women's progress in the industry by giving mentorship to those who have just entered the engineering field. The event was a huge success and we hope we will have an annual workshop for University students across all regions.

Women's Day Charity Drive - 9th August 2020

AMEU WiE supported the Jolenti Charity Drive at Phumasbethane, Sharpeville, Emfuleni Local Municipality. The aim of the charity drive was to hand out masks to children, sanitary pads, hand



sanitizers, donated clothes and food for the day. Covid19 really affected some communities hard.

All branches are encouraged to launch this initiative in 2021 to support, educate and empower our less-privileged girl children.



WiE First Online Meeting - 13th August 2020

We had our first online meeting hosted by our Chairperson Mrs Punkie Majola. We shared some of the achievements for 2020 and plans for 2021.

We had a presentation from Ms Linky Mdaka titled **ACTOM** *MV Switchgear product offering.*



Branch Launches

AMEU Executive committee is looking at launching the following branches in 2021:

- o Limpopo
- o Highveld
- o Goodhope

Other Activities and Workshops that WIE will look into in 2021 for all active branches

- o Sexual Harassment workshop
- o Legal issues workshop
- Public Speaking, Presentation and Report writing workshop.
- o Leadership and Management workshop
- o Take-a-girl-child-to-work day
- o Mentorship programmes.

BE CONFIDENT

AMEU WiE has launched a CSI Initiative named "Be Confident" to donate sanitary pads and underwear to underprivileged school-going girls. This initiative will be aimed at school girls across all our regions; we will also offer STEM education and awareness.

Eastern Cape Branch hosted their first Be Confident outreach programme at Nelson Mandela Bay Municipality, James Jolobe Secondary School in Motherwell in July 2019. A total of 1296 packets and R4000 was donated to the school.



NRS MATTERS

NRS 011- Pilot Cables

NRS 011 was published in 2014 and was due for review in 2019. As the original working group was non-functional, the document was circulated to ascertain its continued relevance, and if necessary, to reconvene the working group. Nominations were called for and the following response was received from the Eskom subject matter specialist, Mr Stuart Van Zyl:

- 1. The pilot wire cable technology is well established.
- The pilot wire technology is seldom if ever used in new build or refurbish projects as fibre optic cable would be preferable.
- 3. There was a very high theft risk of pilot wires.

In view of the above, it was recommended that the current specification should be reaffirmed. This recommendation has subsequently been supported by the NRS Mancom.

Scope of NRS 011:

This specification has been prepared to establish and promote uniform requirements for pilot cables, to enable purchasers to acquire the specified equipment without the need for detailed and extensive contract documents. In addition the specification:

- a) defines the characteristics of pilot cables to be used in pilot wire protection systems and for telemetering, telecontrol, supervisory, telephone and all low-voltage, low-frequency system applications; and
- b) is applicable to pilot cables used in areas subjected to high electromagnetic and electrostatic interference, such as found along the route of power lines operating from 11 kV up to 400 kV (where the mean distance between the lowest conductor of the power line and the pilot cable ranges from 5 m to 13 m) and near to power cables operating at voltages from 6,6 kV to 132 kV.

NRS 048-6, Edition 2, 2019: Measurement and reporting of medium voltage network interruption performance

Industry Work Group membership:

B Chatterton (Chairperson), Eskom Distribution; V Nundlal (Project Leader), Eskom Distribution; V. Batohi, eThekwini Municipality; L Kgalema, City Power Johannesburg Pty (Ltd); S Khumalo, National Energy Regulator of South Africa; D Ratema, National Energy Regulator of South Africa; H Kruger, City of Cape Town; P Majola, City of Ekurhuleni; M Moloto, City Power Johannesburg Pty (Ltd); P Moloto, City of Ekurhuleni; M Ramagaga, City Power Johannesburg Pty (Ltd); L Kumalo; Eskom Distribution; N Mahuma, Eskom Distribution; N Nunes, Eskom Distribution; J Kraal, Eskom Distribution; and G Chitungo, Eskom Distribution

The distribution licensees in South Africa operate and maintain their medium voltage (MV) networks to ensure the reliability and availability of electricity for their customers. In order to measure, assess and audit the reliability and availability of electricity supply distributed by distribution licensees, the National Energy Regulator of South Africa (NERSA) will require licensees to have consistent and robust measurement, internal assurance and reporting procedures. This will be important to reduce regulatory uncertainty and provide confidence in the interruption of supply-related statistics reported by the distribution licensees of South Africa.

In terms of the requirements and principles of economical and affordable electricity supply in South Africa, it is essential to achieve a fair balance between the cost and the adequacy of the measurement and reporting requirements. This includes the associated computer software programs, database and supervisory control and data acquisition (SCADA) systems that may be implemented to achieve the requirements by a licensee.

NRS 048-6, Edition 2, 2019, was compiled by an industry work group and recently approved by the NRS Management Committee. This part of NRS 048 was developed to address the industry need for a national code of practice for the medium voltage (MV) network interruption performance (also referred to as continuity of supply) reporting by the distribution licensees in South Africa. Edition 2 was an enhancement of the first edition based on the experiences and learning points by the South African role-players.

The industry Work Group appointed by the NRS Association included a wide range of stakeholders, including representatives of the South African Electricity Supply Industry, NERSA, Eskom Distribution and local and metropolitan municipalities.

The national code provides the measurement and reporting principles, definitions of the key performance index measures, the methodology for event data verification and quality assurance, reported statistics accuracy guidelines, and the requirements. This would assist the licensees in the correct interpretation and application of the network interruption performance statistical reporting to NERSA.

The key technical changes and enhancements included in this second edition of NRS 048-6 are:

- a) expansion of the reporting and root cause categories;
- b) the inclusion and clarification of categories of major events for internal licensee reporting;
- c) inclusion of a generic application template for licenses;
- d) the tracing principles and practical examples for the power transformer-based unavailability metrics
- e) revision of the national load shedding events tracing and reporting;
- f) theft and vandalism definitions and criteria for classifying events; and
- g) roles and responsibilities of the licensee and NERSA.

Compliance with the requirements of this part of NRS 048 has been mandated by NERSA through inclusion of the first edition as a license condition to licensees in the electricity supply industry. It is anticipated that NERSA will also mandate this edition, as modified during its consultation processes, as a license condition in terms of the Electricity Regulation Act. Alternatively, this code may be included as a requirement under the Distribution Network Code.

For further queries please contact Vishal Nundlal at SewchaV@eskom.co.za or Baden Chatterton at chatteBG@eskom.co.za.

NRS 049 - A national smart metering companion specification for South Africa

Industry work group membership:

Edison Makwarela (Chairperson), Eskom; V Nundlal (Project Leader), Eskom; Dumo Zondi, CityPower; Willem van Jaarsveld, Nelson Mandela Metropolitan Municipality; Malerato Mohlala, CityPower; George Mashini, eThekwini Municipality; Shawn Papi, Eskom; Mohammed Omar, Eskom; Frans Brandow, City of Ekurhuleni; Henri Groenewald, Eskom; Reginald Brooks, Eskom; Philip Groenewald, Eskom; Deon van Rooi, Eskom; Cornelius Malan, City of Cape Town.

Smart metering technology has the potential to improve operational efficiency and revenue collection efforts of South African utilities and thus provide assurance for their financial sustainability.

However, to this end the deployment rate of the technology has not been as expected and consequently, utilities are forfeiting these benefits. One of the factors limiting this deployment rate has been the lack of interoperability between smart metering products in the South African market.

The achievement of interoperability in this respect will have the following benefits, among others, for Eskom and Municipalities:

 Enable multiple manufacturers to develop common solutions, thereby creating competition and reduce the price of high performing state of the art smart meters;

- Provide the utility with ability to select "best of breed" devices for it smart metering system;
- Reduction in the cost and effort of system integration;
- Better operational and maintenance of the infrastructure and a reduced number of unique devices to be maintained.

To provide a basis for achieving smart meter interoperability, the NRS 049 Working Group (NRS 049 WG) published the second edition of the NRS 049 specification (NRS 049 Ed.2) in late 2016. This edition incorporates open communication standards and adopts the SANS 62056 standardisation framework and SANS 62055 (STS) suite of standards to specify multi-vendor smart metering systems and devices that are interoperable. Furthermore the NRS 049 Ed.2 supports smart meter use cases that are particular to the South African utility environment and aspects of the Internet of Things. This positions NRS 049 Ed.2 as a solid first attempt at a true South African companion specification.

It's been over four years since NRS 049 Ed.2 and the NRS 049 WG has deemed this as an appropriate juncture, to review and strengthen the specification based on the experience of and municipalities and Eskom in the procurement, deployment, operation and maintenance of NRS 049 Ed.2 compliant products.

The NRS 049 specification presents a good foundational companion specification for the South African utility industry. However it will only mature and gain wider acceptance through consistent participation and collaboration from Eskom and municipalities.

For further queries please contact Vishal Nundlal at SewchaV@eskom.co.za or Edison Makwarela at MakwarME@eskom.co.za.

SARPA UPDATE

s is the case with many organisations world-wide, the Southern African Revenue Protection Association has adapted its important education and training work over the past +/-9 months of the pandemic period in appropriate ways including the following:

Virtual programs

Six virtual branch meetings in the pandemic period have worked well in conjunction with the different AMEU branches who were given the chance to host the events.

The last branch meeting for the year is scheduled for 12 November 2020 in Cape Town where members of the Executive will meet. The meeting will be chaired by the Deputy President and the event will be in tandem with the Executive meeting.

In addition, five international webinars were held on various crucial topics with representation from different continents and the executives from the International Revenue Protection Association in the USA.

On-site training

Altogether eight training courses have been presented so far in the lockdown period with another six scheduled up to the end of the year. In November 2020 new Master classes in Revenue Protection and Utility infrastructure related crimes will be launched. These programs will include a mentoring program for participants over a period of six months.

The first on-site SARPA training session since the start of the pandemic was conducted in the Breede Valley Municipality from 19 to 23 October 2020

Road shows

It was decided that as soon as the lockdown is completed branch meetings will be re-started. These will be enhanced with road shows similar to the successful exercise in the Mpumalanga branch earlier this year, combining the Chairperson of the AMEU Branch and the SARPA Technical Advisor. It is worth noting that the Municipalities contacted during the lockdown period all came back for more information and training, with promises to join the two Associations.

Revenue recovery projects

SARPA has been approached by three Municipalities to conduct three free revenue-recovery projects for member utilities, Processes have been initiated and the planning is to have the first interactions before the end of the year.

Communication effort

The Association has embarked on a huge project of sharing information and providing guidance on the virtual platforms Facebook, Twitter, WhatsApp and LinkedIn since the beginning of the year. Valuable interaction and sharing of information across the globe has been the result. A Communication Plan was also developed in the process.

2021 SARPA Convention

The SARPA Convention has been postponed to the 3 - 4 March 2021. It will be held in Riebeek Kasteel, hosted by the Swartland Municipality. The theme is "Harnessing technology for revenue protection " and the event will also feature an international panel discussion on issues like AI, ML and Cybersecurity. The good news is that there is still place for those who want to present a paper.

More information available on the SARPA webpage www.sarpa.co.za

MEETINGS.... MEETINGS... MEETINGS

o make the best out of difficult circumstances the AMEU, along with its numerous sister organisations including the SAIEE, SARPA and IESSA, has embarked on a dynamic program of virtual meetings that include members' Branch meetings, Exco meetings, training and interactive/discussion-type meetings.

The availability of modern technology has not only made these possible at minimum cost, but has also made it possible to include experts and other high-level participants - who under normal circumstances would be unable to devote travel time to reach many of these events - to provide invaluable inputs to these e-based sessions.

Meetings that are still to be hosted in the year 2020 include the following;

- Eastern Cape Branch; December
- AMEU and Eskom Distribution leadership meeting
- DHS-DMRE-AMEU electrification projects rollout meeting
- DMRE-NEAC meeting
- NT-DMRE-SALGA-AMEU EDI restructuring panel discussion

EVERY CONNECTION COUNTS !

ithout conductors the energy source that is the life-blood of modern civilization, electricity, simply does not exist. It cannot be generated, transported or used to enhance our living standards without them. We would revert to a life with candles and wheelbarrows.

Few people - if any - ever consider that to keep the lights burning, the refrigerator running, the supermarkets and the factories functioning, everything that makes up modern civilization, requires electrical conductors to make it all possible. And they come in all shapes, sizes and lengths.

While a simple screw holding a wire onto a wall switch serves admirably to make a light work, higher up the voltage chain that brings electricity into homes, factories and every place where it is required to do its work, connecting a conductor to a switch - or any other piece of equipment - is a very different story. And it is not rocket science to know that higher voltages require more sophisticated conductors, connections and equipment.

That's where quality comes into its own and Tank Industries - appointed as the Sole Distributor for TE Connectivity's industry-leading Raychem products in South Africa and the SADC Region - steps up to the mark.

About Tank Industries

A market leader in low, medium and high voltage cable accessories, Tank Industries has a proven track record of supplying the South African power sector with TE Connectivity's industry-leading Raychem products, creating a safer, sustainable, productive, and innovative connected future.

Part of the JSE-listed Reunert Group, Tank Industries fields the best niche technical skills and EWSETA approved training available in South Africa and supports the market through its representation in all major provinces in the region.

Their Value Proposition:

- 1. Tank Industries is the sole importer and reseller of TE Connectivity's Raychem products into South Africa and the SADC Region's energy market.
- 2. Tank Industries is geared to import materials, add value by kitting and take to market directly or through its channel partners.
- 3. They have all the necessary credentials and technical qualifications to support their products.
- 4. They belong to all the necessary complementary organisations that communicate their product to the industry. (AMEU, SAIEE, ECA, SANS)
- 5. They have a focused sales and marketing team required to take these products to market effectively.
- 6. Tank Industries is one of the longest standing and best known companies in the South African cable accessories market.
- 7. Tank Industries is known for being a credible vendor of quality products.
- 8. Tank's Team is able to provide the focus required to do justice to the TE Connectivity product range, enhance the relationship with the principle and negotiate volume discounts.
- 9. Tank Industries is a single point of entry into the market with the TE Connectivity /Raychem product, meaning much better control over the channels to market, the principle relationship, market pricing, branding and so on.
- 10. Tank Industries is a BBBEE Level 1 Company.
- 11. It is SABS and DQS Approved (ISO 9001)
- 12. Tank Industries has a qualified and audited Integrated Management System.

Contact details: Tank Industries, Clive Maasch, General Manager, Tel: 021 700 4380, Email: clive.maasch@tank.co.za

AMEU NEWS | November 2020

EVERY CONNECTION COUNTS

FUTURE TOGETHER **TE Connectivitys Raychem Authorized** distributor of Medium

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EVEN MOTORBIKES NEED ELECTRICITY TO WORK

Did you know that...

... what many consider to be the first "motorbike" was built in 1868 by a Frenchman Michaux-Perreaux. It was a steamengine driven vehicle that was named a "velocipede" !



And did you know that in 1884 an Englishman, Edward Butler, built a 3-wheeled "Butler Petrol Cycle" that was powered by a 600cc flat-twin petrol engine that developed 466 watts ? And, yes, it required an electric spark to be able to run.



Then, in 1885 Mssrs Daimler and Maybach developed the "Daimler Reitwagen".



And in 1894 the Hildebrands & Wolfmuller's company produced a 1,489cc motor bike that developed 1,9kw and had a top speed of 45km/hr.



Well.... It is worth being reminded that the early petrol-engined motorbikes used magnetos to generate the electric spark that was required to ignite the fuel in the cylinder, and that the knowledge of electricity was in its infancy ! In 1752 Benjamin Franklin conducted his famous "electricity" experiment of flying a kite during a lighting storm and Michael Faraday's law of induction was announced in 1831. The first commercially successful internal combustion engine was developed in 1860 But in 1807, a Swiss engineer, François Isaac de Rivaz invented a hydrogen-based internal combustion engine and powered the engine by an electric spark.

It should come as no surprise that countless people have been attracted to these incredible machines throughout the ages and some are well known AMEU members!

Neil Ballentyne, Good Hope Branch Secretary, and Gerrit Teunissen, Retired City Power, and AMEU Past President Hannes Roos, to name a few.

Hannes writes...

"I started off with a 250 Honda XL Scrambler, and at that stage early 1980's - I was scared to get on a motor bike ! After not even 1000 Km's of riding I decided to buy myself a bigger machine that was a bit faster and so I bought the 500 Honda XL. I had this for a bit longer, and one day on our way with biker friends to a Municipal sports day, I realised that it could not keep up with the other 750 and bigger bikes on the open road without getting a speed wobble at around 120 Km per hour ! I soon traded it in for a Honda 900F and since then decided that all my future motor bikes will be 900cc engined and larger.

Since then I have had a 1000cc CBX Honda 6 Cylinder, then a 1100 Yamaha Drag Star Cruiser, and a Suzuki TL 1000S for



the longest period 2004 to 2014. I then bought a Classic Yamaha 550XT as a collector's item, and my latest motor cycle is the 1190 KTM Adventure. (A monster !)

My highlight was a Karoo Trip, then a Sabie Trip. I rode the Buffalo Rally for the experience of a rally, and the Toy Run and others. My latest trip to Clarens on my 1190 KTM was in August 2020!!

I am now looking forward to my next trip !!

Kind Regards, Hannes"

(Any other colleagues in the game? Send me a picture or two, it will make for interesting reading. ED)













Edisan[™] & Swift[™] OVervieW

Edisan[™] presents an innovative, integrated and simplified GIS-based approach to electrical network planning, whilst Swift[™] performs GIS-based statistical analysis on utility billing data.



We are running a Black Friday special with massive discounts on our Edisan list price for the month of November up until 15 December 2020!

> Please contact software@gls.co.za

Our software is designed by engineers for engineers. We aim to simplify the modelling process during every step and make the power of GIS available to the modeller.

MODELS LIVE IN GIS

The Edisan[™] and Swift[™] models are embedded in our own powerful Albion[™] GIS platform.

The power of GIS can now be applied to the engineering model, allowing the modeller to directly harness GIS tools when creating and editing datasets.

Edisan[™] presents a completely new, simplified approach to integrated network planning software where the electrical model is embedded inside a geographical information system.

Swift[™] is the engineering interface between utility billing systems and GIS-based engineering models. It allows spatial analysis of utility treasury data including electricity consumptions, customer information, land use and zoning data, tariff analysis as well as the payment history per customer or per suburb.

Swift[™] allows the user to obtain accurate demands for modelling purposes and also reports non-revenue electricity, for the prioritisation of revenue enhancement interventions.

Edisan[™] and Swift[™] both ensure productivity by providing the modeller with access to powerful modelling-, analysis- and planning tools, as well as customisable GIS-based themes and an extensive model reporting system. Interfacing Swift[™] with Edisan[™] allows the modeller to develop accurate demand models for electrical network modelling and planning purposes.



Key features of Edisan[™]

- Integrated electrical network modelling and planning tool
- Simultaneously captures spatial and electrical network topology in a single model
- Advanced spatial and electrical network based selection methods
- Capable of creating very large systems
- Consolidates several datasets into one master dataset
- Master planning of electrical networks
- Asset replacement prioritisation algorithms
- Geospatial load modelling and forecasting using a customisable library of load profiles and ADMDs along with spatial correlation tools
- Customisable load-growth curves for planning purposes
- Vast library of electrical components
- Detailed modelling of substations via Internal World
- Ability to design and size LV network components
- Distributed generation modelling
- Steady state-, quasi-dynamic- and fault- simulations via onboard OpenDSS simulation engine
- Export interface to DIgSILENT PowerFactory

Key features of Swift[™]

- Interfaces with Edisan'
- Electricity demand management initiatives
- Energy consumption audits
- Non-technical loss calculations
- Input to electricity master plans
- Identification of faulty meter readings
- Energy balance calculations
- Designing of electricity tariffs
- Performing revenue enhancement



Edisan[™] model view with satellite background, Internal World and Street View

Simplified model building

Edisan[™] simplifies the process of model building from a wide range of sources including as-built drawings, CAD plans, GIS data sources, scanned images, schematic layouts, tabular spreadsheets or even hand drawings. Adding model elements with the minimum number of clicks has been at the forefront of the design to minimise repetitive tasks for the modeller. Customisable model element presets also simplify data capturing.

Interaction with web services

Accessing Internet-based resources through web services, allows Edisan[™] and Swift[™] to display background maps from sources like Google[™], Mapbox[™] or OpenStreetMap[™]. In addition Street View is integrated in the software.

Data-handling

Model database tables are dynamic, synchronised, fast and practically unlimited in size. This facilitates easy handling of large datasets, which is a key element in the data-centric focus of Edisan^T and Swift^T.

GIS-themed views of data model

A wide selection of predefined and customisable themes are available to render the model in GIS.

Extensive model reporting system

The SQL-based reporting system provides access to predefined and customisable reports. Reports can be generated for the complete dataset or for user selections.

For more information, please contact us +27 21 880 0388, software@gls.co.za GLS Consulting 13 Elektron Street, Techno Park Stellenbosch, 7600, South Africa www.glssoft.com

UPDATE ON CLOUD STORAGE FOR YOUR DATA...

e all know that the storage of e-data is a massive industry in its own right and that the cloud is not in the sky but solidly grounded in highly specialised warehouses located all over the world. Aside from the practical aspects associated with security, one of the aspects that requires attention - as with all electrical equipment - is cooling.

About two years ago Microsoft sank an experimental data-storage container in the ocean off the Orkney islands, just north of the northern coastline of Scotland. This was a research project to test the concept and study the details for application to possible future projects. It was nitrogen-



filled and contained 855 servers. The failure rate (8 of the servers) was 1/8th of what is normal for land-based equivalent data stores.

The Orkney Islands' principle supply of electricity is from renewable sources – tidal and wind, and this project also provided an opportunity to study the effects of potential variations in supply.

Readers may also like to know that on page 15 of AMEU News 101, details were given of some of the pilot projects under development to generate electricity from tidal movements around the Orkney islands.



WISE WORDS TO MAKE YOU THINK...

Gustave Flaubert (French novelist; 1821-1880) **The earth has it's boundaries, but human stupidity is infinite"**

134 Garden Village, Garden Rd., Bordeaux, Randburg, 2125,

Tel: 011 285 0940 / Cell: 083 273 9519 E-mail mppc@mweb.co.za

Winston Churchill (UK's wartime Prime Minister; 1874 -1965) **"...If you have 10 000 regulations you destroy all respect for the law. "**

AND NOW.....

A replacement LED lamp for SON-T lamps used in many lighting applications of some years ago is now available... for more information contact Freddie Smit on 083 658 6664.

CONTACT DETAILS

Jean Venter - AMEU General Secretary P 0 Box 868, Ferndale, 2160 Tel: 011 061 5000 E-mail: ameu@vdw.co.za

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