AMEU NEWS

THE ASSOCIATION OF MUNICIPAL
ELECTRICITY UTILITIES OF SOUTHERN AFRICA

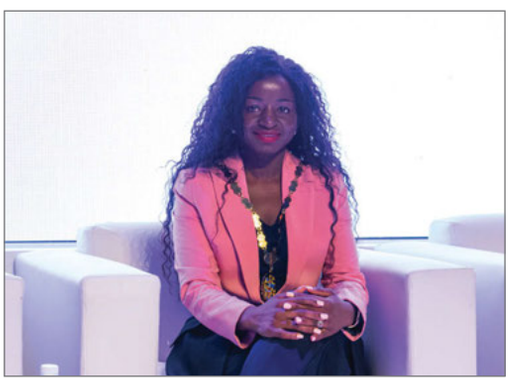
LEADING THE ELECTRICITY DISTRIBUTION INDUSTRY

INSIDE

A MESSAGE FROM THE AMEU PRESIDENT...

The 27th AMEU Technical Convention with the theme "The 4th Industrial Revolution ("4IR"), Building the Power Utility of the Future, Today" is now behind us and it gives me great pleasure to thank you all for your participation in this very successful event. My thanks go not only to all of you who attended as delegates, but also to the presenters of the various technical papers, to the participation of our Affiliates and to our Secretariat and all who played various roles - many behind the scenes - to make the three days an enjoyable and very beneficial learning experience.

It is no secret that we are all experiencing problems keeping our electricity networks in a safe and efficient operational condition. We know that the advances in technology have to be embraced to help us to achieve this and better our service for the benefit of economy in general and our customers in particular. This is not an easy task when the daily challenges that we face include an acute shortage of technical skills and funding to achieve the desired end state.



Refilwe Mokgosi

For our utility-based colleagues who attended the Convention, my hope is that the knowledge that you have gained, whether directly from the technical presentations or from your exchanges and discussions with your colleagues, including the technical representatives of our various Affiliate members, will enhance your overall capabilities and provide you with solutions to current problems and serve as a basis to embrace the future with confidence in whatever way it unfolds in your utilities.

For our other professional colleagues my hope is that the proceedings and various activities associated with the Convention will have broadened your understanding of our industry and opened avenues for you to move forward in whatever way is relevant to your interests, and to your ability to help us provide the quality of service we continually struggle to deliver. As much as we are forced to provide solutions on the challenges we are faced with the business of today, I encourage you to also invest in the business of the future as the question remains "are we fit for the future?".

On a personal note, many of you will know that I am now about halfway through my first year of service in my new utility. A change of this nature always requires a great deal of adjustment and I am pleased to say that I am enjoying the challenges that the new position has brought. None the less, as the Festive season will soon be upon us, I will be looking forward to a short break from my work schedules, to relax with my family.

My wish is that you will also have the opportunity to enjoy this special time with family and friends and that you come back refreshed and ready for the challenges that will surely be waiting for you in the New Year ! Have a blessed and peaceful Christmas.

Sincere greetings,

Refilwe Mokgosi, AMEU President

KZN SARPA/AMEU MEETING

The July 2019 meetings of the AMEU and SARPA KZN Branches took place on the 11th and 12th at the Riverside Hotel in Durban.

A total of 47 delegates attended the SARPA portion of the meeting, with no less than 23 delegates represented 5 municipalities. The Affiliates were represented by 22 delegates and Eskom and Misa were also represented.

After a report back on SARPA Executive Council matters, delivered by Rens Bindeman, Quentin Louw presented a paper on "Technology Solutions to Ameliorate Cable theft and Infrastructure Vandalism". This was followed by a talk on "Metal Theft Prevention; A Collaborative Mitigation Effort" lead by Hendrik Manamela of eThekwini.

AMEU - Day 2

After this session, the meeting moved into the AMEU portion and 77 delegates attended. They included 33 representatives from 10 Municipalities and 41 Affiliates, as well as representatives from Eskom and Misa.

The following presentations were done.

Sarisha (eThekwini) updated delegates on WiE developments.

This was followed by a presentation on Climate Change Challenges in Eskom by Troy Govender.

Vally Padayachee, the AMEU Strategic Adviser provided feedback from the Exco Committee Meetings and Hylton Dettmer of PQ Flow Solutions presented a paper on Astute HV Monitoring.

The STS Association's Don Taylor discussed the TID Rollover Event-2024 and Mtunzi Kelem gave details of Vodacom's RT15. Tank Industries Graham Marais updated delegates on a new Product line for Tank

Day 1 ended with supper at the Riverside Hotel

There were again 77 delegates at the meeting including 33 Municipal representatives from 8 Municipalities, and 40 Affiliates.

The Affiliates gave a report back on their plans and activities.

Quentin Louw (Ntamo Technologies) discussed the mitigating procedures required for unsafe Broken Neutral Conditions in Low Voltage Supply Networks.

Daniel Read (Optron) showed details of the latest technologies for mobile imaging and how to create your own "Street View" with their MX7 product.

Rupert Gebers (Infin Micro Dots) presented on "Trace in Metal", the latest method of identifying stolen cable, followed by ABB's Stuart Michie who gave delegates an overview of the company's "Ability" product which offers plant and systems that can assist Utilities in their service commitments.

Alison Bob (Eskom) presented on Safety in the Electrical Industry and described in detail how this is handled under Eskom rules and procedures.

Harold (L&G) and eThekwini Electricity described the plans being made for their TID Rollout.

Tasco Mbinda (DoE) presented details of the KZN Municipalities electrification performances and the challenges being experienced, where only about 1/3rd of the planned new connections were completed in the 2018/19 financial year.

It was a very interesting and a most productive meeting.

2019/20 INEP MTEF ALLOCATIONS

PROGRAMME	2019/20 (R'000')	2020/21 (R'000')	2021/22 (R'000')
MUNIC PROG	410 867	461 136	569 616
ESKOM PROG	971 192	764 782	993 371
BASELINE ALLOCATION	**1, 382, 059**	**1, 225, 918**	**1,562,987**

ETHEKWINI NEWS...

The career path of Phumzile Sibisi, the recently appointed Deputy Head for the Customer and Retail Services at the Municipality of Ethekwini's Electricity Utility, is a shining example to young engineers of what can be achieved by dedication and hard work.

After graduating from university, she started working at Hullets. As she wanted to pursue a career in the Transmission and Distribution Field in due course she applied for a position in the Municipality. She was appointed as an Engineer in Training on a two year programme and received a solid foundation for her future career.

During this period she took every opportunity to absorb details of the industry and tried to be "hands on" wherever possible. Her humbleness and inquisitiveness, and not being scared of making a mistake, stood her in good stead to absorb every element of her training program and the profession she dedicated herself to serve.

Phumzile started her leadership role in "Planning" and it was there that she learnt how to motivated staff and identify areas of improvement

Phumzile Sibisi

within department. Whilst serving in this department the post of Deputy Head of the Customer and Retail Services became available and with encouragement and support from her husband she duly applied for the position.

Her appointment was subject to her obtaining the Government Certificate of Compliance (GCC) within an 18 months period. This she has achieved, with her first attempt at the examinations !

What makes this accomplishment even more noteworthy is that she was interviewed for her position during the time when she was heavily pregnant and, was in fact notified of her appointment two days after giving birth !

Phumzile attributes her success to her endurance and to always improving herself and keeping in touch with her source of strength which is her spirituality. She finds referring to motivational speakers for guidance is beneficial and that working in a group has assisted her to gain knowledge and benefit from others as they would share their experiences. She also says that GCC is not the "elephant" that people make it out to be! "It is problem solving which is what we do on daily basis" !

Phumzile says she has not ended her journey with achieving the position of Deputy Head and such a prestigious certificate. She says her passion is to empower people especially females, and that discipline and commitment are the key to always assuring you will achieve your goals.

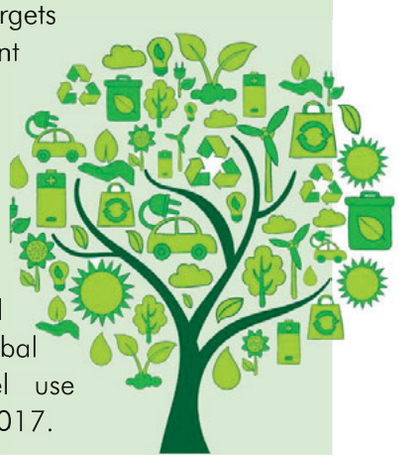
Congratulations and well done ! Ed

The Department of Environmental Affairs has finalised Generic Environmental Management Programmes for substation and overhead electricity transmission and distribution infrastructure.

Download Government Gazette Notice No. 42323 (435) for more information.

image source: www.environment.gov.za

According to the latest report from REN21, 2018 saw a relatively stable market for renewable energy technologies. A total of 181 gigawatts (GW) of renewable power was added in 2018, a consistent pace compared to 2017. Despite progress in renewables uptake, energy efficiency and energy access, the world is still not on track to meet the targets of the Paris Agreement or of Sustainable Development Goal 7. Global energy-related carbon dioxide (CO_2) emissions grew an estimated 1.7% in 2018 due to increased fossil fuel consumption and global subsidies for fossil fuel use increased by 11% from 2017.



BRANCH AFFAIRS... - GOOD HOPE

The spring flowers of the Cape West Coast put on a spectacular show for those delegates – part of the ±70 attendees – who were able to take "the slow road" when travelling to Vanrynsdorp, for the recent 208th meeting of the Branch.

The meeting was held in the Letsatsi Lodge on the 16th August 2019 and 16 municipal utilities were represented along with 29 Affiliate companies.

After completion of the welcome and opening formalities, a number of reports and technical presentations were made including one by the AMEU's Strategic Adviser, Vally Padayachee.

He gave a wide-ranging report on matters being addressed by the AMEU Executive Council including such items as the SALGA - Eskom task team negotiations, the TID 2024 roll-over for pre-payment meters, tariff issues including wheeling charges and Eskom's MYPD3 proposals, the DoL directive for supplier's inspectors, and much more...

Belinda Marais reported on recent SARPA activities including the meeting held at Van Rynesdorp on 16th August, where 47 delegates had attended. She also reported on training initiatives currently taking place.

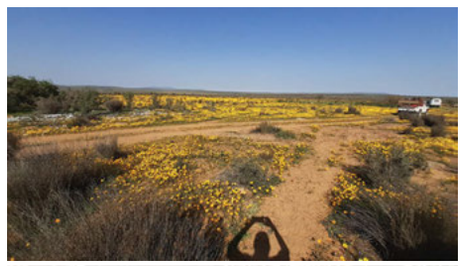
Optron's Leon Reynders gave a presentation on the company's services including details of the latest mobile imaging technology now available. Willie Basson of Power Plant Electrical Technologies updated delegates on the company's activities and services.

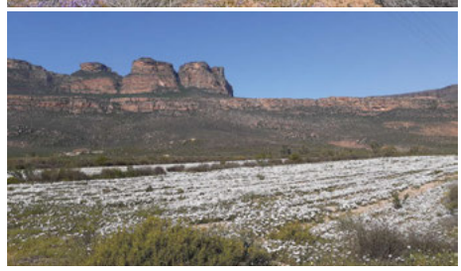
Tank Industries's Corry Marinus gave delegates an update on the history of the Raychem company and the range of products now available for systems operating up to 72kV.

Pierre van den Heever made a detailed presentation of the difficulty experienced by Witzenberg Municipality concerning licensed areas of supply, stemming from the rules and procedure applied by NERSA. He emphasized that there had been insufficient opportunity for municipalities to provide inputs to the draft proposals and that as a result local authority interests were adversely affected.

The next meeting of the branch will be held on 7/8 November 2019 in Plettenberg Bay (Bitou Municipality)

The provisional dates and places of the 2020 meetings are as follows:	
14 February 2020	Arniston (Cape Agulhas Municipality)
15 May 2020	Bellville (City of Cape Town)
14 August 2020	Robertson (Langeberg Municipality)
5/6 November 2020	Stellenbosch (Stellenbosch Municipality)





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THE SCOURGE OF CABLE THEFT.....

No one can really say what it costs us as a nation to combat the scourge of infrastructure theft from our nation's utilities. The Chamber of Commerce estimates that it could be between R5bn and R7bn each year. Whatever the actual figure is, it is LARGE....

Many municipal utilities have programs and measures in place to try to reduce the effects and combat the evil practices perpetuated by the thieves and their partners in crime.

Here is a refreshing success story from Ethekwini....

"Ethekwini Electricity is celebrating a major victory with a 15 year sentence handed down to a cable thief at the Pinetown Regional Court on 11 July 2019. Its success is attributed to the dedicated and newly formed Infrastructure Theft Team at the Business Risk Branch who pursued a case in terms of the Criminal Matters Amendment Act. This is one of the first victories under this Act as the Ethekwini Municipality has adopted a zero tolerance approach to infrastructure theft in the City.

The Pinetown neighbourhood has experienced many outages due to cable theft. Thanks to the vigilance of the Neighbourhood Watch and the collaboration with the Infrastructure Theft Team, a cable thief was apprehended on 1 September 2019 at 1.30am with 500m of bare copper cables worth around R27 400. The cable thief was refused bail and remained in custody at Westville Prison.

The cable thief was prosecuted under Section 3(1) of the Criminal Matters Amendment Act 18 of 2015, which came into effect in June 2016. The Act was designed to recognize the importance of essential infrastructure in providing basic services to the public and also having regards to the unacceptable high incidence of crime relating to essential infrastructure in South Africa, which poses a risk to public safety, electricity supply, communications and transport.

The Act recognizes the harmful consequences to the livelihood, well-being, daily operations and economic activity of the public if basic services cannot be provided due to loss, damage or disruption caused by essential infrastructure-related offences.

The successful prosecution was due to the perseverance of the Infrastructure Theft Team's Senior Investigator who assisted SAPS in its investigation and gave testimony in this case.

With a 'feather in their cap', the Infrastructure Theft Team is passionate about ensuring that the City's infrastructure is protected. The Team is driven to ensure that they obtain successful prosecutions against anyone who steals electrical infrastructure.

The public are urged to report any theft relating to electrical infrastructure by contacting 031 3119611."

Congratulations, well done. Ed

NEWS FROM THE USA....

Many of our readers will know that Past President Peter Fowles, the previous AMEU Strategic Adviser, now lives in Florida, USA.

AMEU News has carried reports and stories from him from time to time and we now bring you the latest... Peter has just celebrated his 70th birthday !

The picture shows him and his wife Marilyn at the party...

CONGRATULATIONS PETER...

...well done, may there be many more to come !

STOP PRESS: *Peter and Marilyn have recently become first-time GRANDPARENTS...*
CONGRATULATIONS again!

NETWORK NEWS - STELLENBOSCH

The November 2018 issue of AMEU News carried news of several developments that were either taking place, or were at various stages of planning, for Stellenbosch Electricity.

One of these was the decision by the local communities and the relevant authorities to rationalize supply arrangements for the community of Pniel, some 6km north of Stellenbosch and forming part of the Greater Stellenbosch area. Official permission has now been granted by NERSA for this take-over and the licenses of Drakenstein and Stellenbosch have been amended accordingly.

Photo Sourced: Stellenbosch - Wikipedia en.wikipedia.org

Stellenbosch Municipality will be building its own 66kV Substation in Pniel in order to have the supply directly from Eskom. This is a 3-year project and R1.1m has been budgeted in the 2019/20 financial year for planning. The consultants have already been appointed. A provisional budget of R17m has been allocated in the two outer years by which time it is planned that the project will be completed.

The Mayor is serious about the safety of the WC024 residents and as such, she has made a budget allocation specifically for the lighting of public areas. This is over and above the normal Street lighting Ad hoc budget that is provided to address street lighting requests on an as-and-when basis.

The allocated budget for the lighting of public areas in the 2019/20 financial year is R1m,

An allocation of R15.6m has been included in the budget for electrification in the 2019/20. This is to be used within Stellenbosch Municipality's areas of supply to provide electricity to homes that currently do not have. This will be utilized for both Low Cost Housing Developments as well as Electrification of Informal Settlements.

NETWORK NEWS - POLOKWANE

It is no secret that most of our municipal utilities face daily difficulties including funding and shortages of technical staff. None-the-less our colleagues continue with their efforts to meet their commitments to keep the lights burning, and to get supplies to those residents who, as yet, have not been connected to their networks. It is always encouraging to read of utilities who are making the best of what is available and "getting on with the job.....

Polokwane is just one of the many.

Here is a list of some of the projects currently under way in that city...

1. Project planning for installation of 10 000 solar water geyser units sponsored by the Department of Minerals and Energy
2. The EEDSM and VNAMA/EEPBIP – Energy Efficiency in Public Building Infrastructure Programme also sponsored by DME.
3. INEP(Electrifications) projects
4. Cost of supply study
5. Feasibility study to install Battery banks in substations

Photo: Sourced

6. Feasibility study to increase licence area
7. Installation of Additional 11 KV cables to capacitate switching stations
8. Construction of 66Kv and 11 KV switching stations
9. SCADA/RTU installations
10. High Mast and Street lights projects.
11. 92MW Solar Farm Creation on a PPP

We look forward to being able to report progress on the items in due course.

"GREEN" NEWS...

The exponential growth in the availability of computers and mobile telephones and the concomitant increase in the use of electronic communications other than voice - namely e-mails, texting, etc. - has changed modern society's lifestyle in ways that could not have been imagined a generation ago.....

For electrical engineers involved in the supply of power for these devices it is impossible to calculate what these developments have had on the sale of electricity but a year or two back the French Energy Regulator was reported as "...encouraging companies to reduce the number of e-mails circulator in order to save energy.."

Some research suggests that e-mails alone are now being circulated at the rate of 200 to 250 billion each day world-wide. This means that something of the order of 2 million are sent every second of every day !

Another researcher has estimated that an average e-mail results in 4gms of CO_2 being emitted into the atmosphere .... that's about 8T every second, day and night.....

After an extensive internet search, no figures could be found for what a typical text message from our mobile 'phones does to the environment, or how much power is used to "send" the message, ...or re-charge the 'phone battery !

A recent announcement by the International Company "Unilever" says that they have reached their target of using 100% "green" electricity in all their factories, offices, depots, etc.. across 5 continents. This has been achieved by not only installing solar devices at various sites but also by ensuring that their suppliers of electricity comply with their "green" requirements. Some 38% of these supplies are by corporate Power Purchase Agreements incorporating Renewable Energy provisos. The Company is working to being "carbon neutral" by 2030.

In a media release by Siemens they have announced that their South African Offices in Midrand, Gauteng, now receive about 50% of their daily electricity usage from a 1MW PV solar power installation. The panels are installed over carports and various buildings in the office park, and a 140KWh battery provides backup storage.

In MEMORIAM
CHRIS VOSLOO

It is with great sadness that we record the recent death of a long-time friend and active member of our industry, Christiaan Vosloo. He was 81 years of age.

He was born in the Rustenburg district in June 1938 and completed his secondary education at Pretoria Technical College.

In 1961 Chris graduated with a degree in Electrical Engineering at Pretoria University under a South African Railways bursary, and then spent some years working on the railway electrification projects that were then being undertaken by that organisation.

In the late 1960's he spent time at Namibia's Tshumeb mine and then went on to become the Town Electrical Engineer of Walvisbay.

From 1970 he spent six years as the engineer at the Foskor mine in Phalaborwa before re-joining municipal service in Kimberley. It was during his time in Kimberley that the City celebrated the 100 years of street lighting in South Africa and Chris delivered a paper on this subject at the SANCI AGM/Convention which was held there in September of 1983. He also contributed to Eskom's commemorative "100 years of electricity" publication.

He joined the staff of the Transvaal Peri-Urban Board in 1985 but by 1993 had to retire on account of his poor eyesight. Thereafter he mentored and assisted his daughter in her professional work.

In 2007 his great love for nature and the Lowveld bush took him to a 42ha game farm in the Waterberg area of Limpopo, near Naboomspruit. He and his wife Marie lived there for 11years before moving into retirement in the village. The farm was a model of conservation with a wide variety of buck including Nyala, Kudu, Blesbuck, Impala .....and the occasional leopard, and he chose to stay "off grid" with his electricity supplies by installing solar power and energy efficient appliances, thereby also saving the hectares of indigenous bush that would have been cut down for a power-line servitude.

We express our sympathy to his wife and extended family on behalf of the many Readers of AMEU News, who counted him as a friend.

Rest in peace Chris.

Max Clarke

HIGHVELD

Schneider Electric hosted the 291st meeting of the Highveld Branch at their Midrand site on Thursday 31st October.

It was a well attended meeting and after the opening formalities the attendees received a summary of the Strategic Advisers report on recent activities of the AMEU Exco, with highlights and explanations of the most important items given by the Branch Secretary, Tom Mutshidza.

(Vally Padayachee was not able to attend the meeting).

In her address to the meeting, amongst other things the National Chairlady Punkie Majola updated delegates on WiE activities including news of the successful launch of the Eastern Cape and KZN Branches, and the ongoing efforts being made to provide career information and mentorship in schools.

Further discussions on WiE matters resulted in the nomination of office bearers for the soon to be launched Highveld Branch of the WiE. These are; Highveld WiE Chair – GrannyMoreki (Emfuleni Local Municipality); Highveld WiE Deputy Chair – Polelo Mphahlele (City of Tshwane); Highveld WiE Secretariat – Noshusha Dilla (Lesedi Local Municipality).

The Affiliates chairman Gordon Aarons gave delegates an overview of the Affiliates plans for 2020. The annual golf day will be held on 28th May at a venue to be advised. Their planned general meetings dates have also been fixed and venues are still to be decided. Various changes are being looked into for Convention activities that should reduce costs, but at the same time ensure that networking opportunities are improved, with greater mutual benefits to all delegates.

Technical presentations included a talk by Schneider's Mametse Mashalane who described their Easery P5 relay that is designed with enhanced safety and security features to suite developments in systems and "smart grids". Stuart Thompson gave a run down on the Raychem "heat-shrink" product range available from Tank Industries, as well as their company's other products and training facilities.

CT Labs' Gys Niesing updated attendees on the latest developments in the equipment and instruments now available for system condition monitoring.

Another highlight of the meeting was the discussion led by Vice-chair Paul Vermeulen on the "hot topic" of the impact of SSEG's in distribution networks – a "boom or bust" development for the electricity distribution industry ?.

The dates for the 2020 meetings have been set for 20th February, 21st May and 15th October, with venues still to be determined.

All-in-all a good meeting with invaluable learning opportunities for the attendees.

NRS: HEALTH AND SAFETY REQUIREMENTS

In the hustle and bustle of keeping the lights burning and the wheels of industry turning, it is easy to forget that our every-day activities are subject to strict rules designed to protect the safety of workers and everyone connected in various was to our industry.

For example, do we always remember that the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) (as amended from time to time) under section 8 (2) (d), "General Duties of employers to their employees", states the following:

"...establishing, as far as is reasonably practicable, what hazards to the health or safety of persons are attached to any work which is performed…, and any plant or machinery which is used in his business, and shall, as far as reasonably practicable, further establish what precautionary measures should be taken with respect to such work,…, plant or machinery in order to protect the health and safety of persons, and he shall provide the necessary means to apply such precautionary measures."

Electrical faults can occur owing to failed insulation, accidental contact with live systems, circuit-breaker failure and by energizing systems with faulty circuits. An electrical fault could result in an electric arc which would expose authorized persons to extreme arc temperatures and forces and result in molten projectiles and shock waves.

Electrical faults and human error cannot be ruled out during electrical operations and it is therefore essential that authorized persons are trained on electrical arc flash hazards and supplied with personal protective clothing/equipment for protection against the possible thermal hazards of an electric arc.

An internal arc fault could occur while operating oil-insulated medium voltage switchgear. Operating personnel need to be protected as best as possible from uncontrolled hot oil release and the related arc flash energy.

NRS 109: Arc flash hot oil resistant suits

This specification provides guidance to users of electrical systems by referencing various local and international standards and quantifies the level of protection required during specific electrical operations. It also aims to standardize the manufacturing and testing of personal protective equipment for protection against the thermal hazards of an electric arc.

Energy released during typical electric arc conditions should be calculated and appropriate personal protective clothing/equipment (PPC/E) should be specified for such conditions. Calculations would indicate the estimated incident energy that would be released during an arc flash and the appropriate PPC/E has to be selected based on those calculations. The values used to determine the incident energy must be stated in cal/cm^2 and not according to PPC/E categories. The relevant table referenced in Section 7.2 of SANS 724 serves as a guideline only once the identified risk has been mitigated/ minimised by either design or engineering solutions.

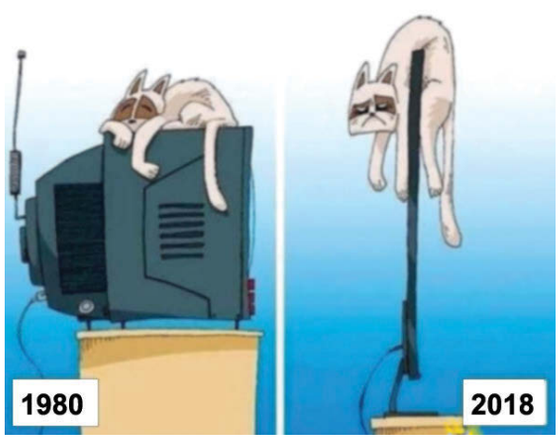
It is the responsibility of each employer to determine whether employees in his service will be exposed to electric arc flash hazards in the course of their work.

If such a hazard exists, it is the responsibility of the employer to determine which precautionary measures (e.g. safe work practices, engineering solutions, personal protective clothing/equipment and training, amongst others), are required, and to provide the necessary means to apply such precautionary measures as mentioned in the OHSA. Arc rated protective clothing/equipment are precautionary measures, and this standard provides minimum requirements for the said equipment and clothing for the South African user and manufacturer.

Anyone requiring more information should contact Jayson Naicker at 011 651 684

SMILE !

THE CURSE OF THE 3IR...



Someone once said that marriages are made in heaven... but then so is lightining and thunder !

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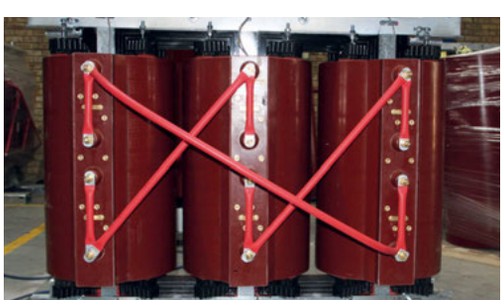

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THE 27th AMEU TECHNICAL CONVENTION

Monday 14th October saw the City of Cape Town hosting over 600 delegates and spouses for the 27th Technical Convention of the AMEU, in the International Convention Centre.

They were formally welcomed to the City by the Executive Mayor Mr. Dan Plato and Clr Phindile Maxiti, Member of the Mayoral Committee for Energy and Climate Change. The keynote address was delivered by CEO of SALGA, Mr Xolini George. (The Minister of COGTA, the Hon. Dr Nkosazana Dlamini-Zuma was scheduled to speak but was unable to attend).

The opening address was delivered by the CEO of NERSA, Mr. Chris Forlee and after the completion of various formalities, the following Honorary Membership awards were made;

Jacqui Burn, Johan du Plessis, Marius vd Westhuizen, Neli Magubane, Selwyn Scholtz and Tshabi Tshabalala.

A panel discussion under the chairmanship of Dr. Willie de Beer; was held to debate "41R - Are we "fit" to face the future ?" The panellists were Chris Forlee, Xolile George, Ayanda Noah, Prof Daniel Plaatjies, Nelsiwe Magubane, Jonathan Cawood and Polelo Mphahlele.

The afternoon session included papers on "Low cost intelligent outage management" and the skills required and master planning for the 4tIR, energy storage on municipal grids and "price parity" of PV with storage.

A cocktail function hosted by the City of Cape Town's Executive mayor, was held in the Exhibition area after the formal proceedings, and rounded off the day's activities.

Day 2 started with a keynote address by Minister Gwede Mantashe (Minister of Mineral Resources and Energy) and included a panel discussion on the role of women in the 4IR. This was followed by presentations on "The Utility of the Future", public lighting in a "smart city" developments, detection of impending cable failures and planning future high voltage networks.

After the lunch break there were papers on "smart grids", 4IR technologies, and software systems for smart grids.

Day 3 focussed on small scale embedded generation and the associated technologies and included presentations on the assessment of the impact roof-top PV installations are having in Cape Town, and investment decisions for these installations in the residential sector. Also covered were the problems of incorporating embedded generation into municipal networks and their impact on the utilities revenue, and a case study on remote monitoring.

Other presentations covered asset management skills and condition monitoring, and an update on the STS prepayment metering TID rollover event – the countdown to 24 November 2024.

A new procedure to pre-brief the speakers and session chairs helped to smooth the flow of the program and a new 'phone-app called "Slido" was used for questions from delegates to the presenters. This replaced the traditional method of handing microphones around to delegates wishing to pose questions on the various presentations.

The award for the best paper in the "Experienced Professional" category went to Paul Vermeulen of City Power for his presentation on ***"Energy Storage on Municipal Grids: Why this makes sense"***.

In the category of "Emerging Professional" the award went to Ms Samantha Chimunda of City Power for her paper on ***"Early Detection of Impending Failure in HV Cable Terminations – An Intelligent Asset Management Necessity"***.

The CIGRE award went to Ms Poonam Lutchman, of Schneider Electric, for her paper ***"Incorporating Embedded Generation onto Municipal Networks"***.

President-elect Jayshree Pershad received the ***"Top Performing Woman"*** award.

In the recently introduced "AMEU President's Legacy Awards" the winner of the "Best performing metropolitan municipal electricity utility 2019" went to eThekwini Metropolitan Electricity, with Ekurhuleni's Energy Department as "runner up".

The "Best performing Affiliate (greater than ZAR50m turnover)" went to Schneider Electric with Aberdare Cables as the runner up.

(NB: The Convention "Proceedings" which contains full details of each presentation as well as other details and photographs of the Convention, is available from the AMEU Secretariat for readers wanting more information. Ed.)

AFFILIATES AFFAIRS

The highlight of our Affiliates activities for this year was their participation in the 2019 Cape Town Convention.... and it certainly was a HIGHLIGHT ... ☺ ... !

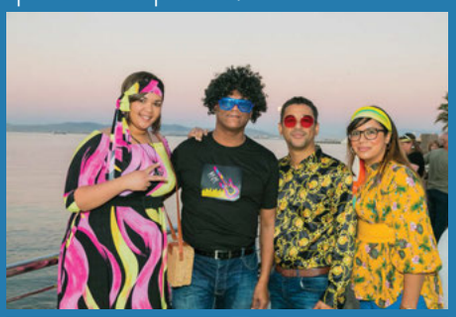
They started with their traditional "getting to know you" pre-conference activities that took place on Sunday 13th October. These were volley ball on the Camps Bay beach, golf at the Milnerton Golf Club and a hike / walk on the Kirstenbosch Trail. This proved a great favourite with over 70 people participating. In spite of it being a tough walk with lots of hills the participants appreciated the magnificent mountain and fynbos scenery and enjoyed the outing.



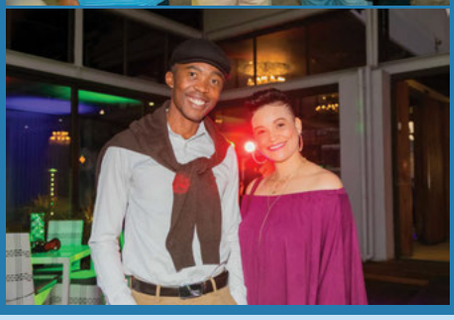



A sports dinner and prize-giving at the Shimmy Beach Club at the V&A Waterfront rounded off the day's proceedings.

It was a beautiful wind-less evening under a full moon which added to the incredible ambience of the event. The theme was Disco and the décor reflected the theme, including a VW camper van which had been kitted out as a photo booth in which guests could take advantage of using various photo props for their photos.

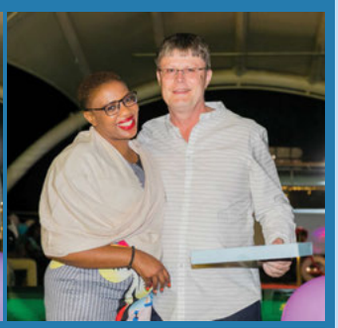


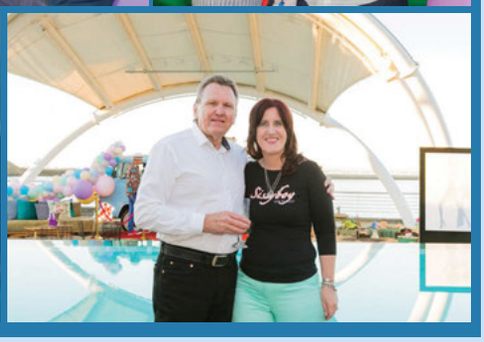


Dean Wolf was the DJ and he kept everyone on the dance floor playing classics from the 70s and 80's and a few of the latest hits.

The affiliates sponsored prizes for the most entertaining hiker male and female, as well as the best dressed couples and best dressed female and male. Schneider sponsored two "tablets" as prizes and the lucky recipients were Paul Vermeulen and Thys Moller.



The main activity - the Exhibition - was set up near the meetings hall and 60 companies had stands. Refreshments were served in this area during the breaks in the convention proceedings.

One of the highlights for the Affiliates was the award of Hon. Membership of the AMEU to Jacqui Burn, the longest serving member of the Affiliates committee, and their Treasurer for 19 years.

CONGRATULATIONS Jacqui !

In keeping with tradition, prizes were awarded to the companies having the best stands in various categories.

Prize winners were as follows...

Best large stand - Schneider Electric

Best medium sized stand - CBI Electric

Best small stand - CT Lab



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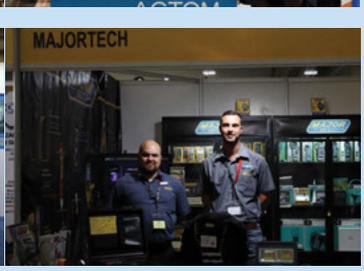
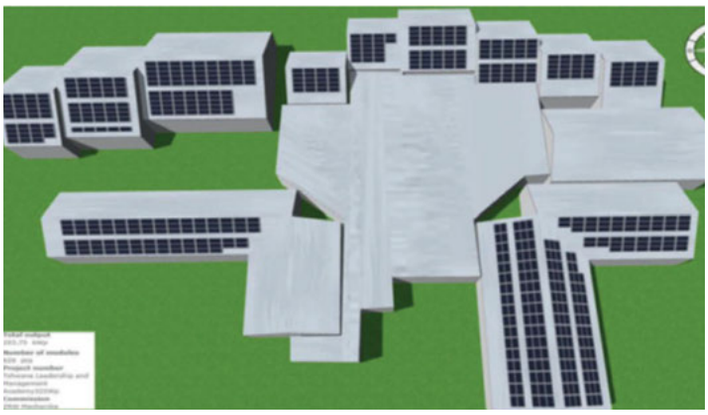

MAJORTECH

GREENING THE JACARANDA CITY !



The City of Tshwane has recently taken a giant step to diversify its energy mix with the commissioning of a 204 kWp roof-top installation at the Tshwane Leadership and Management Academy in Pretoria West. The site is used as a training hub for the City and a reliable supply of electricity is key for its operations. Using PV equipment is a contributor to the City's vision of a net zero carbon target.

The Executive mayor of the City of Tshwane, Cllr Stevens Mokgalapa, officially launched the project on 28th August 2019 and in its first 2 months of operation it generated 61 MWh of electricity.

It is made up from 325Wp Si-Crystalline panels that are clearly visible in the photographs. The panels have a 25 year lifetime war rantee and are transformers-less grid-tied through 2 x 100kWp inverters.

THIS AND THAT....

Bird of the Year Challenge; The charismatic Secretary bird is BirdLife South Africa's Bird of the Year 2019. There have been large declines in the numbers of birds seen across Africa partly because of the loss of habitat. They are also susceptible to collisions with electrical infrastructure and fence lines. Through the Bird of the Year 2019 Challenge the public are asked to log any sightings of Secretary birds throughout the year. Anyone wishing to join the challenge and have your 2019 BirdLasser records added, please e-mail ernst.retief@birdlife.org.za. Every sighting helps the BirdLife South Africa team to understand where our Secretary birds are still being observed.

Photo taken from the web: Chris van Rooyen.

CAPETOWN'S GREEN POINT ...

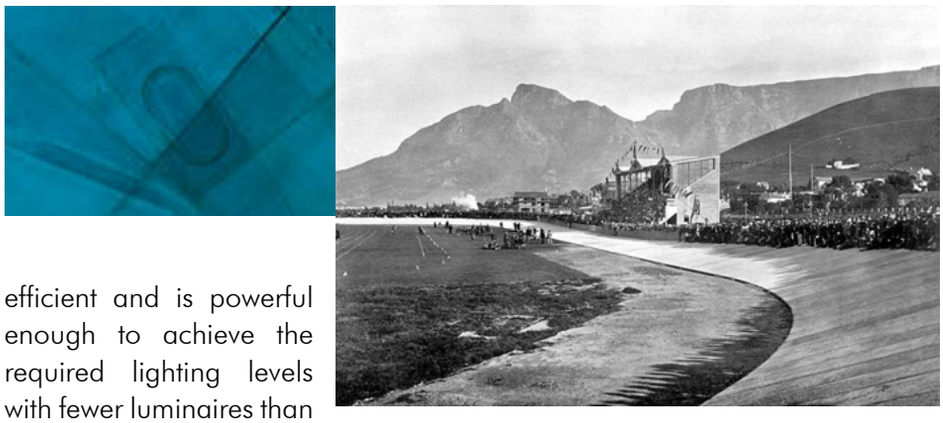
It is difficult to fully appreciate that before the first European settlers landed at the Cape, the area now know as Green Point, was covered in indigenous bush that provided cover for - amongst other things - a population of the now extinct Cape lions. That occured as recently as 150 years ago. And, a few years thereafter was the site of the first horse racing track in the colony !

The area's proximity to the City makes it ideal for recreation and it is no coincidence that an athletics track was established there in 1895....

Over the years the facility has been well used by many clubs, schools and universities in the Cape Town area, as well as by some of our Olympic athletes. It was part of the 2010 World Cup upgrades to the Green Point precinct sport facilities which was completed in 2015.

The City of Cape Town has been at the forefront of the drive to reduce energy consumption, and with it, green-house gas emissions.

It is no coincidence that the OMNIblast-3-E 1480W luminair was chosen to replace the existing 2000W metal halide floodlights in the Green Point Athletics Stadium. It is energy efficient and is powerful enough to achieve the required lighting levels with fewer luminaires than the original installation.



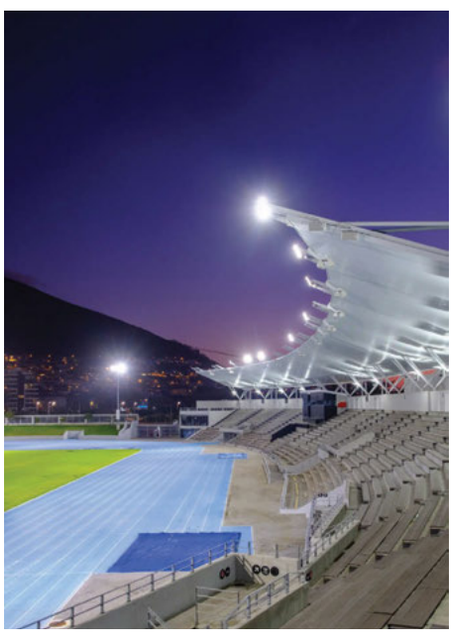
By optimizing the design, the load was reduced by 22kW whilst still achieving the required lighting levels.

The OMNIblast-E is the ideal tool for sports venues and other very large area applications that require a lighting solution with the highest efficiency and flexibility to adapt to the different lighting needs. Available in three sizes, this LED solution offers an alternative with proven benefits for traditional fixtures fitted with 600W to 2000W HID lamps. The OMNIblast-E meets the horizontal and vertical lighting levels according to sports federations and TV broadcasting requirements.

A modular concept of optical units means that 1, 2 or 3 modules can be mounted on a similar bracket arrangement to offer the utmost versatility, providing light distributions and lumen packages perfectly adapted to the specifications of the area to be lit. The OMNIblast-E incorporates a patented cooling technology that maximises its lifespan and lumen output.

BEKA Schréder locally develops and manufactures LED lighting products, designed and suitable for African conditions and are very proud to be associated with Elex Khanyisa Electrical Contractors and the City of Cape Town in providing a successful LED floodlighting solution for this prestigious project.

For further enquiries, contact
Grant Kemp at 021 510 8900 or
g.kemp@beka-schreder.co.za



BEKA Schréder's OMNIblast-E illuminates the Green Point Athletics Stadium

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.....WOW ! ..... a fishy story with a difference.....

A recent article in "the fishing scientist" caught my eye..... and stirred my interest!

In case you missed it here are the basics.....

Research scientists working along the southern Cape coastline recently "tagged" a shark in the waters of the Breeder River's mouth. After swimming an average of 60km each day for 27 days, the animal reached the Mozambique border. It continued swimming northwards and the tag was finally released in the waters of Mozambique's Zambezi Province 3200km from the tagging point.

The tag had been programmed to be released after 6 months and then to transmit its data via satellite to the research team.

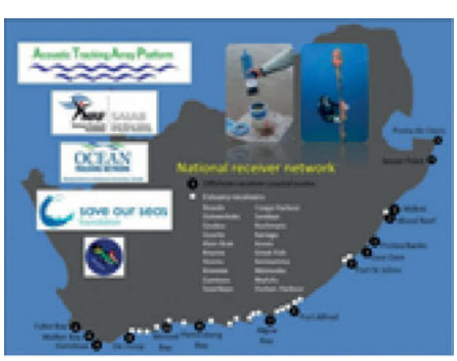
So what's this got to do with electrical engineers ?

Consider this..... the particular tag had measured and recorded a mass of data including such items as swimming depth, light levels, magnetic fields and water temperature, and finally sent this to the research team. It relied on various electronic sensors, memory chips and a GPS transmitter - and a battery- all housed in a water proof casing... And they never stopped working for 6 months in a very harsh environment These tags are known as Pop-up Satellite Archival Tags (PSAT's) and their detachment from the fish can be triggered by time and other factors, for example, no recorded change in pressure over a certain period.

And if that isn't enough, this particular shark was also fitted with what the researchers refer to as an "acoustic tag". This is a device - measuring about 16mm dia and 90mm long - that sends out regular uniquely coded acoustic signals (radio signals don't do well through water !) throughout its life, in this case 8 years.

These signals are picked up by a series of underwater recording devices that are anchored at depths of about 20m at various locations along the coast – and around the world - and every time a tagged animal passes within range its passage is recorded

The recording devices are uplifted once a year, their data is downloaded and recorded for later analysis, the battery is changed and the whole device is cleaned and made ready for re-use.



Some indication of the extent of this research project can be gauged from the map.

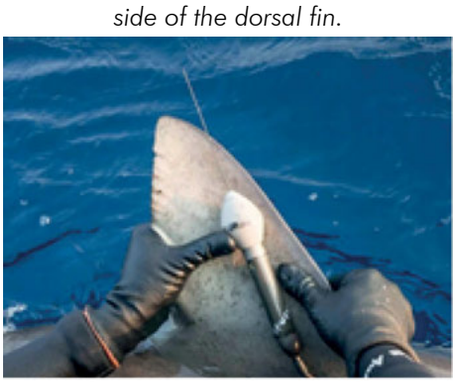
One can only marvel at the technology - including the battery - incorporated in these and the various other tags that are used in this and related research. All of it developed pre-4IR !.

And in case your interest has been roused, fitting "tags" to sharks is no mean feat....each animal is caught using a baited hook. It is then pulled to the side of the boat where it is held for a short while as the tag is attached. The method of attachment varies with the species and type of tag... in some cases the dorsal fin is drilled and the tag bolted on. In others a small barbed devices is used. When an acoustics tag is to be fitted a small incision is made in the shark's belly cavity, the tag inserted, the slit stitched closed, and the shark released. ... all this done from a small boat bobbing up and down in the ocean !

(My thanks to Ryan Daly and Justin Blake for the pics and assistance with basic information. Ed)

A shark being held alongside a boat, and being fitted with a tag.

The PSAT can be seen on the right-hand side of the dorsal fin.



A PSAT tag held against the dorsal fin of a shark gives some idea of its relatively small size.

A detached PSAT tag washed up on a beach.

A PSAT tag held against the dorsal fin of a shark gives some idea of its A scuba diver inspecting one of the anchored recording station in about 20 m of water.

MORE ABOUT WIND.....

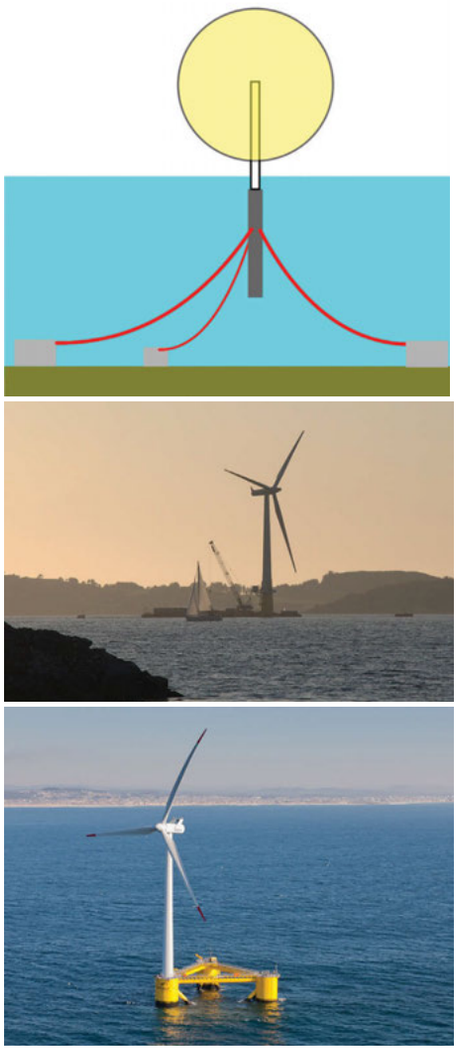
Wind farms are here to stay, and with good reason..... not least because the energy they produce is free of CO_2 or other harmful products. But they do have some undesirable side-effect.... one is noise, another is the adverse effect on birdlife and to some extent, the sterilisation of the land-use in certain cases. In Europe where land is at a premium, this is offset by off-shore wind farms which are extensively used.

Not surprisingly, some parts of the ocean are becoming quite crowded in the Northern hemisphere, so it should come as no surprise that floating wind farms are now at an advanced stage of development. Their advantage over "fixed foundation" types commonly in use in ocean sites is that they can be anchored further off shore in much deep waters - currently up to about 100m. Multiple anchors are used for each turbine.

The first prototype unit - a 2.3MW Siemens machine - is installed off the coast of Norway near Stavanger, and has operated since 2010. The first "operational farm" is floating off Scotland's coastline near Peterhead and comprises 5 x 6MW machines. There are others in the Far East and North America.

A new farm comprising 3 x 8MW machines - the largest yet built for this type of "wind farm" - is due to start operating at the end of 2019. It will be anchored off Portugal's Viana do Castelo coastline, about 300km north of Lisbon in the North Atlantic ocean.

The flotation device incorporated in these farms is usually based on a large vertical cylinder, or cylinders, onto which the supporting mast for the turbine is attached. The smaller sized turbines use a single "cylinder" while the larger sizes require a "cluster" of two or three or more, with a "platform" of some sort to which the mast is attached.



Wikipedia

ENVIRONMENTAL AWARENESS NEWS....

The Hanwell zoo is located in the western part of London, UK, and was established in 1975. It is home to a wide variety of animals which includes breeding pairs of a number of these.

The 2019 summer holiday season saw it hosting a new and unique African elephant....a 2,4m high sculpture by Tony Diaz made up from close on 30 000 used dry-cell batteries !

In the UK some 20 000 tons of used batteries end up in landfill sites each year. In an effort to raise awareness of this huge problem the battery manufacturer Duracell organised a "Big Battery Hunt" campaign by way of mobilising well over a million school children to bring in used batteries to various collection points.

It was a three-year project and Duracell hope that it will create awareness of the need to recycle these scrap items and stimulate a new generation of battery recyclers. (The company recycled 170 tons of batteries in the first half of 2019.)

The Diaz sculpture measures 3,65m long and 2,4m high, and weighs about 2t.It took 400hr of work for 6 people to build it. (Website)

DID YOU KNOW ?

Most of our readers will have experience and some knowledge of "libraries" in the traditional sense of a building - or part of a building - that houses books and other printed material. Many will have grown up in towns and cities where the local "public library" enabled them to study and use the resources available in these facilities for educational purposes.

Others have been able to advance their knowledge in similar facilities held by companies and other organisations.

With changing technologies most of these have incorporated "electronic" facilities in some way, ...and the City of Cape Town is no exception !

A Technical Library has been established in the Bloemhof Complex inside the Energy and Climate Change directorate, and most of the holdings are now electronic.

It is hosted on Microsoft SharePoint, in order to be available to all the City's depots, and all staff. The site hosts e-books, e-magazines, Eskom and NRS guides, technical standards, internal policy documents, and a selection of search portals.

The site provides a collaborative space for the preparation and sharing of internal documents, allowing new procedures to be shared faster and more efficiently. The Library actively pushes information to interested staff, sending out communiques, e-magazines and lecture presentations, and purchases books according to user requests.

It also advises staff who are trying to organize their own information more efficiently, and assists staff who are searching for information. (If you have been Googling for more than 15 minutes, you probably need the assistance of a Librarian !)

The library is still new, and growing. In line with the directorate's vision, it aims to strengthen collegiality and team spirit by providing a central portal for information, news and best practice to flow freely among all staff levels.

'Growth' includes establishing connections with other municipal technical Libraries across Southern Africa. Rosemary Harvey, Admin Officer 1, in the Library welcomes connections with other energy-related libraries and asks that if you have one in your organisation, she would appreciate you getting in touch.

She can be contacted on telephone 021 400 7450 or, rosemary.harvey@capetown.gov.za

NEWS FROM DOWN UNDER.....

The recent release of the government's IRP that sets out the projected/ planned requirements and mix of the nation's energy needs including the increased focus on renewable sources, and Eskom's ongoing generation problems, make these snippets of news interesting reading.....

CHRISTMAS CREEK

The iron-ore rich Pilbara region of Western Australia lies about 1000km north of the City of Perth in the remote northern part of the State. The area is actively mined for a variety of minerals and at one of these mines – Christmas Creek – a 60MW solar farm has been built at a cost of about A$200m to supplement power supplied from diesel generators. The Australian Federal Government provided a 50% subsidy for the PV project.

Christmas Creek - website

DEGRUSSA

The DeGrussa Copper-Gold mine is situated about 900km north of Perth, in Western Australia. A $40m 10MW solar project was commissioned in 2016 to supplement the 19MW diesel plant that has been powering the mine. It supplies about 20% of the mine's power needs.

Covering 20 hectares the solar and battery facility comprises some 34 000 PV panels, which are sun-tracking, and was considered to be the largest off-grid facility in Australia at the time of commissioning. The plant includes a 6MW lithium-ion battery.

DeGrussa - website

...WHAT'S NEW ABOUT COST OVER-RUNS ?

It's common cause that we all learn from experience. Whether it is in our private lives or our working lives we learn how to do things better each time we carry out the activity.

In our working lives one of the things we learn is how to prepare budgets for projects small or large. The efficient operation of our utilities depends to a large extent on our abilities to do this accurately. Sometimes we learn the hard way when our mistakes have costly and other serious repercussions.

Obviously the larger the project the more difficult it is to make an accurate assessment and equally, the more important it becomes to be more accurate with our estimates. It doesn't take an Einstein to know that a 5% overrun in costs on a R100 000 project is a lot easier to "explain" to the responsible authorities than a similar "error" on an R10m project.

So why is it that so often really BIG projects run over their cost and time budgets ?

Recent classic examples are Eskom's Medupi and Kusile projects... we are rightly indignant that projects that were started with R70bn and R80bn price tags now look as if they will exceed R200bn and R300bn or more on "completion".... The cost and completion time overruns have horrendous cost implications to us all in the long run... and someone needs to be held accountable.

Sydney Opera House Sails - Wikipedia

But consider this...

The Sydney Opera house was originally estimated to cost $7m and ended costing $102m, and its completion time ran to 14 years from its original estimated 4. It is now a UNESCO World Heritage site !

And if you take the time to search internet websites you will be amazed – or horrified ! – at what comes up...

For example, the Montreal Summer Olympics of 1976 cost more than 7 times its original budget. And the new Scottish Parliament building completed in 2004, which cost more than GBP400m, was about 10 times more than the original estimated figure.

The famous Sydney Harbour Bridge was expected to cost AuPounds4,2m and ended up with a 50% overrun at AuP6,25m. Going back even further if seems that the Suez canal cost about 20x more than originally budgeted !..... the list is endless...

Some international experts believe that as most of the underlying reasons for the overruns have an inherently "commercial" connection, there is always some reluctance to "share" experiences ....and as a result, the implicit "learning" from each project is restricted.

Is there a case to be made out for an obligatory report on all "major" projects that overrun, to summarise the "cause and effects" and in some way make the "lessons" available to a wider audience? What are YOUR experiences" ... any thoughts ?

Medupi Power Station - Wikipedia

RE-CHARGEABLE BATTERIES

(Wikipedia)

Re-chargeable batteries have been with us for many years and are an essential component in many devices, machines, systems, etc... It is not many years ago that many readers were suddenly made aware of the development of Li-ion batteries, and many were soon surprised to find just how widespread their use became in a relatively short space of time.

Unsurprisingly, many have not heard of the Helmholtz Institute Ulm, located in the City of Ulm between Stuttgart and Munich in Germany. It is an arm of the University of Ulm and was established about 8 years ago, devoted to fundamental research into battery technology.

A recent report indicates that a test cell built using powered eggshell for the cathode and a metallic lithium anode, showed some remarkable features compared to a standard Li-ion cell. The test cell had a 92% capacity retention after about 1000 charges compare with some Li-ion batteries that lose capacity after about 500 cycles. Obviously these are lab tests and there is still a long way to go before a practical/commercial version is developed....but.....!.

P.V. RESEARCH WITH A DIFFERENCE..

The spectacular growth in photo-voltaic systems, not just in the rating and numbers of installations, but also in the type and quality of the materials employed, tends to distract us from what is happening in related fields.....

Consider this....The phenomenon of "Radiative sky cooling" in its various forms has been known for many years. In essence it is a method of extracting heat from the earth – or objects on the earth that have been heated during the course of the day – and then radiating this into the cool night air.

Researchers in various Universities - Stanford in the USA is one such – are broadening their research to not just developing an energy-free method of cooling objects, but looking into developing materials that will generate electricity using this temperature difference.

One research team has succeeded in running an LED light from a 20cm diameter disc of aluminium.... watch this space !

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WIND TURBINES AND BIRDS

A recent study in the USA titled "Effect of wind turbines on bird abundance: A national scale analysis based on fixed effects models" by Miaoa, R, Ghosh, PN, Khanna, M, Wang, W, & Rong, J., includes the following statement...

"This study examines the impact of wind turbines on breeding bird abundance by using a fine scale, spatial longitudinal dataset for 1,670 wind turbines and 86 bird observation routes located in 36 states in the United States over 2008 – 2014. We find that the establishment of one additional wind turbine, on average, leads to disappearance of about three breeding birds."

This particular research work – a 6 year study - is based on conditions in the US and there is no knowing whether the findings can be extrapolated directly to our South African conditions.

BUT...

When one thinks of the ecological effects of the coal-fired power stations on the Mpumalanga Highveld we need to wonder what our descendants will be thinking about the use of wind turbines in 20 or 30 years from now ? Hind-sight is an accurate science.....

Food for thought ?

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