Summary of 2011
23rd Technical Convention Proceedings

Peter Fowles
28 September 2011
2011 RWC Champions???
Affiliates Sports Day

- Golf, Bowls and a hike
- Much fun
- Sports prize giving – Cape Town Stadium
- Many thanks to Affiliates
Opening Session

• Scene set by the lovely rendition of our anthem and the music of the Cape Malay Choir

• Welcome by our President
  – AMEU continues to be green!!!

• Address by Clr Shehaam Sims - Cape Town
  – Much uncertainty and many challenges in world
  – Stability in RSA of utmost importance
  – Electricity needs highly skilled and experienced management
  – CCT proud of its artisan training programme
Opening Session

• Minister E D Peters, DoE - keynote address delivered by Dr Wolsey Barnard, Executive Manager: INEP
  – Long standing relationship DoE and AMEU
  – Resource base for influencing policy
  – DoE priorities
    • Improve electricity supply demand situation
    • EDI restructuring process – challenges still present
    • ADAM - maintenance and refurbishment
    • INEP - ‘one size fits all’ issue
    • Tariffs – NERSA IBT review and MYPD3 comment
Opening Session

• Announcement of new President-Elect, Hannes Roos
• 63rd Convention 2012 – invitation from Clr Aubrey Nxumalo of Ekurhuleni Metro
• Honorary membership conferred on Sy Gourrah, Deon Louw and Hannes Roos
• Announcement of social contribution to Crystal Senior Secondary School.
1st Session – Day 1: Lessons Learned

• Richard Frantz/Bob Wallis - The Indian DRUM Project
  – India EDI – Demand> supply by 15%
  – Non-technical losses >40% + free electricity
  – Messages for RSA
    • Need for viable distribution sector
    • Free electricity contributes to poor QOS and networks
    • Overstaffing – negative impact on performance
    • “Urban-Rural” undertakings far from ideal
    • Functional training – key to developing and upgrading undertakings
1st Session – Day 1: Lessons Learned

• Bosaletse Mpesi - Benoni Township
Normalisation Project - Case Study

  – Project motivated by
    • Safety, high energy losses and network performance

  – Short and long terms solutions
    • Normalise and refurbish existing MV & LV networks
    • Install split metering
    • Data collection
    • Secure enclosures
    • Community involvement
1\textsuperscript{st} Session – Day 1: Lessons Learned

• Willem de Beer/ Nigel Waters - EDI
Restructuring: The Legacy, the Lessons and the Future

  – Progress unlikely without Constitutional change
  – Legacy of R930m
    • Unbiased research on what needs to be done
    • Need champion(s) to take process forward
    • Biggest challenge – human capital
    • Restructuring a complex process
    • Restructuring by default
2\textsuperscript{nd} Session – Day 1: Condition Monitoring/Maintenance

- Patrick O’Halloran – CM of equipment to improve quality of supply to customers
  - City Power – to achieve world class reliability and QOS
  - Do not maintain if condition does not require
  - Root cause of failure must be identified and managed to prevent repeated failures
  - Staff & contractor development essential
  - PD User Group established via ESLC
2nd Session – Day 1: Condition Monitoring/Maintenance

• Chris Plüddemann - Infrastructure Master Data Governance using the Masterkey Tool
  – Master data is foundational information on which business depends – must be trustworthy
  – Critical success factor for enterprise asset management
  – Need to cultivate a master data governance mindset for high quality master data
  – Good data essential for many decisions but requires a lot of effort
2nd Session – Day 1: Condition Monitoring/Maintenance

- Alexander Dierks - Challenges Facing Protective Relay Engineers in Modern Times
  - Testing and maintenance of relays
  - Complexity increases with numeric relays – huge amount of settings
  - Automated testing can mitigate against loss of skills and experience
    - Pre-prepared test templates
    - Test equipment needs to test e-m relays, integrated & multi-fn relays+ support managerial & regulatory environ
Final Session – Day 1: Sustainability

• Ron Millard - The Shift Towards Energy Sustainability in Asia: Lessons for Africa?
  – Def: energy which is replenishable within a human lifetime
  – Asian lessons:
    • Low prices undermine incentives to save energy
    • Regulatory failures
    • Utilities make more money by generating and selling electricity than by saving
  – Has SA listened?
Final Session – Day 1: System Performance

• Mark Borchers – Sustainable energy provision options for South African cities
  – Energy prices – changing picture as to what should be done around energy
  – Business as usual has significant risks
    • CFO concern – less sales = less revenue is NOT an argument – all need is small tariff adjustment
  – CCT actions
    • Small scale PV
    • Small wind
    • Landfill gas
Social Activities – Day 1

• Ladies treated to a most enjoyable day – thanks to Powertech
  – Red City Bus – Topless Tours
  – Visit to Seal Island
  – Lunch at Mariner's Wharf
Social Activities – Day 1

- Well attended President’s Cocktail Party at the ICC in the exhibition area
  - Welcome from Michael Rhode
  - Entertainment and lovely food
1st Session – Day 2: Energy Efficiency/DSM

• Andrew Etzinger – Keeping the lights on – a partnership approach
  – 2011 demand below forecasts - subtle behaviour changes by consumers
  – System still vulnerable
  – IDM activities need participatory approach
  – Commercial/industrial savings needed
  – Current programmes and funding mechanisms
1st Session – Day 2: Energy Efficiency/DSM

- Rob Surtees - Demand Response: Eskom’s Virtual Power Station – 600MW.... and growing
  - Peaking plant – R3 per kWh – limited time
  - Virtual power plant – controllable & despatchable
  - Two (2) types
    - Supplemental reserve: 5 to +/- 60 MW customers. Current capacity 600 MW
    - Instantaneous reserve: under frequency load control: current capacity 275 MW : not predictable depends on system constraints

- Big drive in municipal areas
1st Session – Day 2: Energy Efficiency/DSM

• William Dykman - Energy efficiency, tariffs, and new technology – what is the link?
  – Cheap energy up to 2008
  – Load shedding unlikely to happen again due to interventions such as the VPS
  – Current industry drivers:
    • Environmental awareness
    • Energy efficiency – doing things right
    • Energy effectiveness – doing the right things
    • Communication
1st Session – Day 2: Energy Efficiency/DSM

• Daniel Kasper/Johann Schleritzko - LED lighting of residential areas - the economical option for Local Authorities
  – 60% of street lighting used on class B roads
    • LED luminaires require less power than conventional light sources
  – Technical issues – key focus areas
    • Reliability over lifetime
    • Opportunities of greater control of light
    • Future proof concept – upgradeable LED engine and electronics
• Stephen Delport - online meter monitoring and feedback to manage both revenue and demand
  – Ground breaking Ekurhuleni project - 1998
  – Use of internet to provide info on electricity consumption directly to the customer
  – Also used to detect problems – pf correct failure
  – Testing & calibration of each meter – SANAS lab
  – Huge amounts billed though AMR system
  – AMR metering systems not flawless
Gerard van der Merwe - advantages of utilising vendor independent automated meter reading systems

- Focus on minimisation of human interventions
- Vendor independence
  - Meter independent software to communicate to different brands of meters

- Advantages to munics & their customers
  - Bulk of income stream from LPUs
  - Energy conservation tool
  - QOS
1st Session – Day 2: Energy Efficiency/DSM

- Adrian Toller / Ian Robinson - the new Swistra Ripple Control Protocol
  - Gives new life to old ripple control systems
    - Current – speed and address range + inflexible
    - Now need flexibility + new load limiting facility
  - Swistra can be used to enable TOU tariffs to be introduced for PPM customers without the need for smart meter systems
2nd Session – Day 2: Energy loss management and theft of material

- Imraan Mohamed – Smart metering case studies & lessons learnt
  - Catalyst for smart metering in South Africa
    - 2008 energy crisis; Regs (GG31250); NRS 049 spec
  - Global context and case studies - lessons
    - Delays in deployment plans
    - Business case justification – not always clear
    - NEED to engage with end consumer
    - Meter interoperability – avoid proprietary solutions
2nd Session – Day 2: Energy loss management and theft of material

- Shane van Jaarveldt - *A robust method to ensure revenue recovery with managed Kiosks*
  - Practical metering in a South African context
  - Areas with poor payment history that cannot invest in smart meter technology
  - Solution is an `Intelligent Kiosk’ that allows remote monitoring and management of the meters
2nd Session – Day 2: Energy loss management and theft of material

• Rudi Leitner - Failing to measure means failing to manage
  – Using low cost mobile phone technology to empower the utility workforce and enhance operational effectiveness - WFM
    • Work processes are changing
    • Customers becoming more demanding
  – Worker use own devices – encourages adoption
  – Cost effective, viable way to connect utility workforce
Final Session – Day 2: Tariffs

• Shirley Salvoldi – Wheeling of energy- enabling mechanism’s in the current environment
  – Facilitate wheeling
    • Non-utility owned generator sells energy directly to a 3rd party consumer
    • Non-discriminatory access to grid subject to conditions
  – Costs: standard network related tariff charges payable for use of the network by both loads and generators
  – Method that is simple to apply
Final Session – Day 2: Tariffs

• Deon Conradie – Strategic Direction for Eskom’s Retail Tariffs
  — Frustrating process getting approval for principles
  — Tariffs – means of recovery of Eskom’s revenue need to be structured adequately in terms of
    • Level of tariff
    • Combination of changing parameters
  — Strategic pricing direction drivers (2)
    • Legislation, codes and guidelines
    • Aligned with Eskom needs
Social Activities – Day 2

• Ladies were treated by CBI Electric:
  – Two Oceans Aquarium on the V&A Waterfront
  – High Tea at Mount Nelson - described as one of the best high tea experiences in the world!!!
  – Line dancing Lesson
Social Activities – Day 2

• Mayoral Gala Evening at LookOut
  – Magician – Russell Foxx
  – Lovely evening, food and music
1st Session – Day 3: System performance/asset management

• Patrick O’Halloran - Live line transmission line upgrade projects – First in Africa project
  – Extended outages not possible due to load
  – Increase capacity from 100 to 200MVA
  – 400 km conductor replaced
  – Number of different live-line techniques employed
  – Strategic partnership
  – Replacement of damaged tower
1st Session – Day 3: System performance/asset management
• Clinton Carter-Brown - simplified network feeder reliability modelling
  – Basis for pragmatic strategic management decision making on capital and operational investments
  – 6800 feeder modelling would be a massive task
  – 8 step process implemented to develop a simplified approach
  – Can be applied in other electricity dist utilities
1st Session – Day 3: System performance/asset management

- Gustav Brand – The impact of plug-in electric vehicles on distribution networks
  - eThekwini case study – develop a PEV forecast model – large number of variables
  - Significant number of market drivers around development of PEVs
  - Indications that evening peak will certainly be impacted unless controlled charging
  - Impact on network capacity not as expected but master planning essential to mitigate impact
1st Session – Day 3: System performance/asset management

• Marthinus van der Merwe - Mobile Technology for Electricity Field Service Personnel
  – Pilot project to manage fault reporting and 1st line response
  – Mobile soln as existing business process cumbersome and time consuming

– Benefits:
  • Reduction – paperwork, manpower, errors in data cap
  • More time for field work + reduced cost

– Implementation considerations
2nd Session – Day 3: System performance/asset management

• Raj Rajakanthan - Mobile Solutions for Capturing Electrical Assets of Municipalities
  – Lack of extensive, detailed & accurate network & customer data
  – Solution – hardware and software with simple interface
    • Compile asset register
    • Perform simulation studies & analyse problems
  – Eliminate paperwork & standardise data capture
2nd Session – Day 3: System performance/asset management

- David Hayes - Transformer re-designs in modern economic times
  - Extend economic end of life of a transformer
  - Options:
    - Repair: lower cost – keep design flaws
    - Re-design: not much higher cost but can utilise latest materials and technology
  - 41% saving over the cost of a new transformer
Social Activities – Day 3

• Morning visiting the V&A Waterfront
  – Trip in the canal water taxi
  – Drumming session and ???????
Thank you

• Thank you to all the presenters
• Thank you to the Affiliates for the Sports Day, sponsorships and Exhibition
• Thanks to the AMEU Secretariat
• Thank you to the team from City of Cape Town and all who have contributed to an enjoyable and very interesting Convention