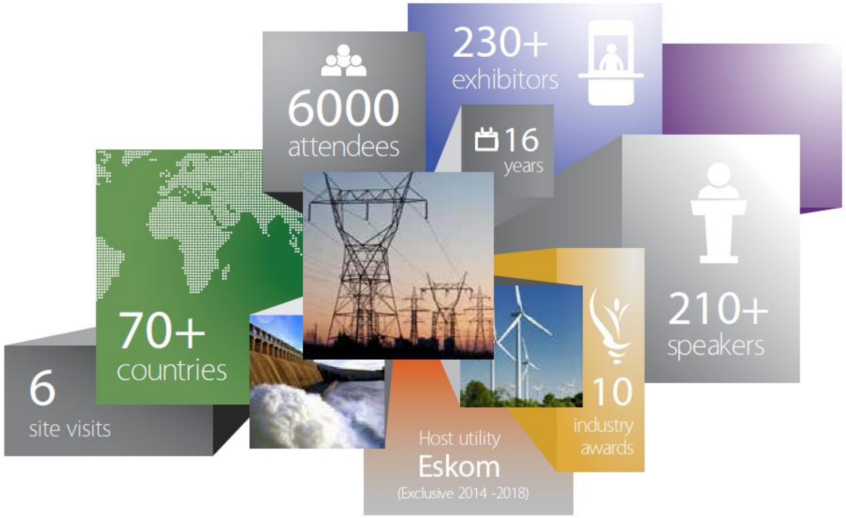
African Utility Week | Clean Power Africa

African Utility Market Intelligence Report

Presentation to the Meeting of the AMEU Affiliates Good Hope Branch

Friday 13 November 2015



17 – 19 May 2016
Cape Town, South Africa

www.african-utility-week.com

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Operating out of Cape Town for the past 17 years, Spintelligent is the African arm of Clarion Events, 3rd largest PVT owned events company in the world specialising in: exhibitions, conferences, industry awards and site visits across five key industry sectors for Africa.

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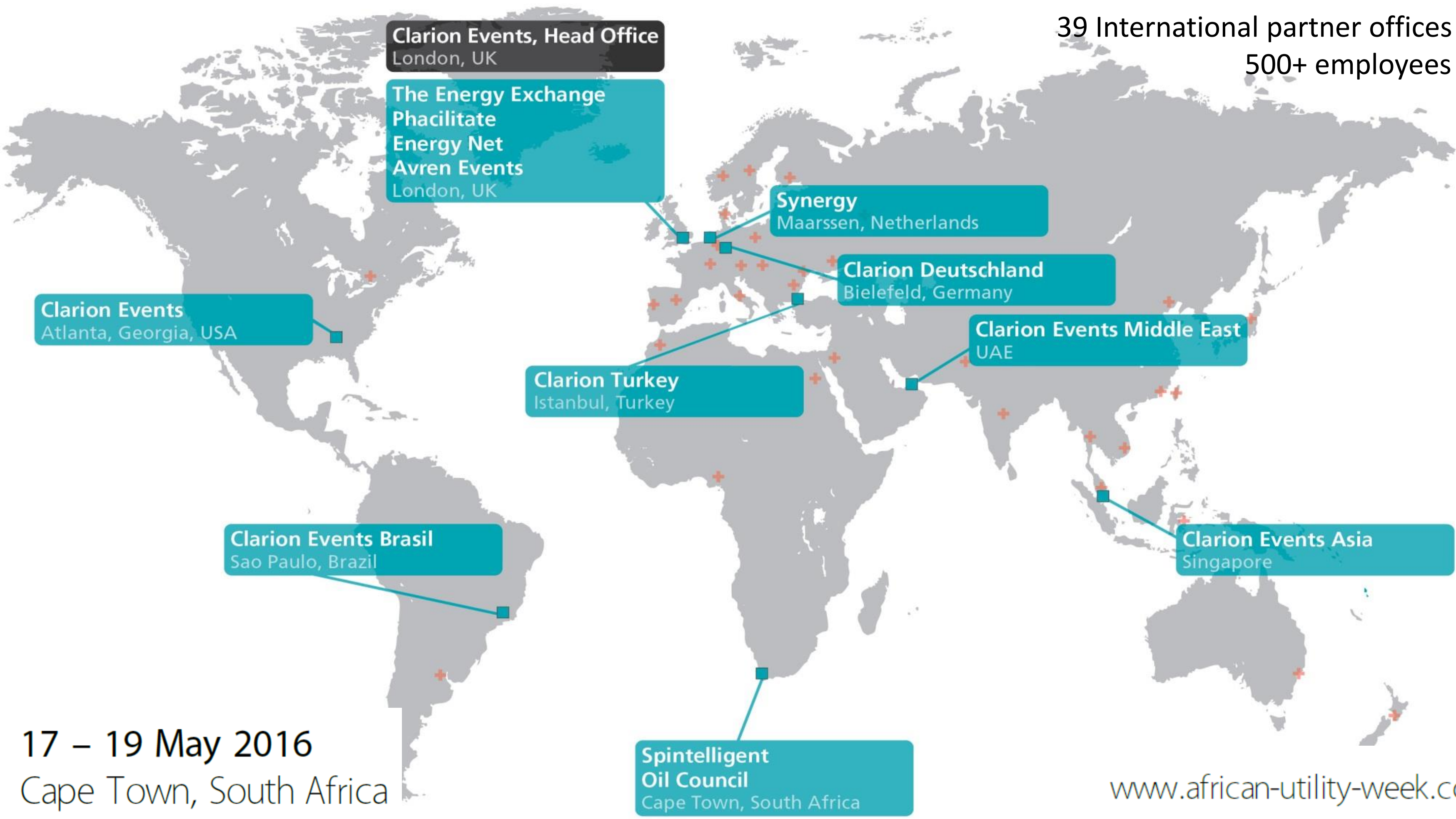

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AFRICAN UTILITY MARKET INTELLIGENCE REPORT

Aims:

- The aim of the report is to provide an overview of the emerging trends and challenges across the African utilities landscape, as uncovered during the attendance at the 2015 African Utility Week supplemented by Frost & Sullivan.
- The report includes some of the key insights that were identified, addressed and discussed by delegates, speakers and panel members during the African Utility Week, and subsequently captured in the report.

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AFRICAN UTILITY MARKET INTELLIGENCE REPORT

FROST & SULLIVAN

Objectives:

- To present the trends, policies, industry standards and innovations that were identified to be of central importance to African utilities and other participants currently involved in the energy and water sectors
- To provide a high-level analysis of the trends and facts as presented – offering expertise and insights (specifically within the energy and utilities sector).
- Intended for use by both utilities and businesses to influence strategy, investment decisions, technology choices, and expansion efforts – as well as for training purposes.

Structure:

- Introduction: an overview of African Utility Week and the key trends that were identified across all themes.
- Individual topic analysis (as per African Utility Week framework), including:
  - Finance and Investment Forum
  - Generation
  - Large Power Users
  - Metering
  - T&D / Smart Grids
  - Renewables: Solar / Wind/ Hydropower
  - Water Utilities
- Conclusion: a summary of the current market dynamics within the utility space, and where the industry perceives this sector will move over the next decade. This includes an analysis of the primary challenges and opportunities that are presented.

FINANCE & INVESTMENT

- Sub-Saharan Africa's electricity sector will need capital investment of about $835 billion by 2040 to be able to supply the continent's growing electricity demand.
- This includes $490 billion for generation capacity, plus an additional $345 billion for the wires infrastructure, comprising transmission ($80 billion) and distribution ($265 billion).
- The SADC region is planning to commission 2,763MW in the next six months mainly from the Democratic Republic of Congo (430MW); Mozambique (205MW); South Africa (1,828MW); Tanzania (150MW); Zambia (135MW); and Zimbabwe (15MW).
- In addition, projects beginning in the next three to four years will bring the amount of capacity under construction in sub-Saharan Africa to 24,000MW.
- Major trends:
  - Push for PPA Standardisation
  - Intra-African funding vs DFI's
  - Due to the level of investment required, DFI's will still be necessary to supply the necessary funds
  - Local currency funding to protect from currency fluctuations

GENERATION

- There is an urgent need for additional generation capacity in Africa, with both of the two largest economies (Nigeria and South Africa) facing supply constraints.
- Electricity generation capacity will continue to expand rapidly across Africa, with an increased focus on smaller scale projects due to access to financing constraints.
- The optimal energy mix question is a crucial one that needs answering on both a national and a regional level.
- Long-term planning and sustainable growth management will be a core focus for governments and utilities, coupled with regional planning initiatives becoming more targeted.
- Small-scale projects will become increasingly important in terms of their contribution to generation capacity, especially in answering the off-grid / rural electrification challenge.
- Utilities will continue to face financing challenges and will need to continue to seek innovative funding solutions for capital projects.
- The industry will continue towards global and regional standardisation of nuclear energy safety, with more countries exploring nuclear as an option.

LARGE POWER USERS

- Energy efficiency programmes are increasingly making financial sense as tariffs increase.
- Energy-intensive companies need to alter their energy management strategies.
- Energy intensive users are consequently increasing investment in energy efficiency projects.
- Management buy-in to energy efficiency projects is vital to gain and maintain momentum.
- Energy-intensive users are focusing on long-term energy requirement planning.
- There is a rising need for specialist skills to address energy efficiency and energy planning requirements.
- The role of public-private partnerships is on the rise, e.g. the NCPC's involvement in South Africa. This also includes international funded programmes.
- Governments are looking to implement sustainable policies that can balance energy security, environmental awareness and economic growth targets.
- Collaboration between private enterprise and public corporation is needed to address energy security concerns and develop innovative and effective fiscal policies that maximises economic benefit for all.

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METERING

- Revenue protection, collection and management is one of the key drivers behind metering systems, with utilities often citing a culture of non-payment as being a major challenge that needs to be overcome.
- Selecting the best metering solution is vital and requires an in-depth understanding of the utilities’ business model and broader landscape.

Learnings from a Metering roll out in an African context:

- Zimbabwean Electricity Transmission and Distribution Company
- 650k customers over 75k KM^2
- The metering rollout had to ensure business requirements were met – increased revenue, cost management, improved efficiency and effectiveness.
- The major challenge was the culture of non-payment in Zimbabwean communities
- Results of roll out:
  - Deployed 540,000 meters
  - Release of 120 MW capacity (enough to avoid load shedding in Mutare)
  - Collection rate on post-paid: 60%
  - Collection index on pre-paid: above 100% (also allows for debt collection)

T&D SMART GRIDS

- The move towards smart technologies will be a process of transition for the African continent.
- It is suggested that the progression of this industry will involve the implementation of hybrid models – which combine conventional technologies with directed implementation of smart technologies to produce context-specific solutions (considering capital availability, existing infrastructure, economic dynamics and local culture).
- The adoption of compatible, regional smart grid standards to allow for regional integration of smart grid networks is anticipated to facilitate industry growth.
- The deregulation and introduction of private sector players within the sector will require careful planning in order to keep all stakeholders interested, since uncertainty in the planning and implementation stages is known to cause projects to stall.
- The implementation of smart systems and new technologies which enable more effective asset management remains a core focus for utilities.

RENEWABLES

- Renewable projects need strong government support, often because of grid connectivity challenges, the change in the countries' energy mix and the changing monopolistic nature of the utility.
- PPAs (in general) need to be streamlined to help attract investment and project developers.
- Unique solutions are often being developed to cope with Africa-specific needs, such as for projects in areas with no cellphone connectivity, projects in areas with logistical challenges and the like.
- There are a large number of visionaries in Africa with long-term goals of renewable energy corridors which need to be balanced with the need for stable base-load power.
- The role of gas in Africa and the impact thereof on renewable energies is yet to be seen, especially in East Africa with Mozambique's gas reserves.
- A pragmatic renewable energy policy / programme is vital to attract investors.
- Global pressures (especially in the form of financial criteria for FDIs before they invest into African projects) are likely to shape the energy mix since the focus globally is on cleaner energy.
- This position needs to be understood by local policy makers and other relevant stakeholders when long term scenarios are discussed and energy master plans are designed.

WATER

- The water utility sector within Africa is currently in a transformational state, similar to the power sector, when it comes to access to water initiatives.
- While Africa has large water resources as can be seen by the number of hydro projects, there is a need to also service the needs of the lower income groups who do not have ready access to water.
- Water losses based on ageing infrastructure and theft are a major concern, with smart meters proving a solution to combat some of the challenges faced by utilities.
- African utilities can learn from global best practices, while keeping in mind local conditions and requirements such as lack of infrastructure and lack of economies of scale.
- Stakeholder management and especially community involvement is vital for the success of water related projects.

CONCLUSION

- for bankable projects
- for pragmatic and experienced project teams
- global assistance with the roll-out and planning of innovate projects
- for insight and skilled negotiators during the PPA process
- a more streamlined PPA process
- for strong policy e.g. energy master plans
- for transparency
- for senior stakeholder buy-in when it comes to key projects
- for investors / private sector to have a clear line-of-sight when it comes to future projects and governmental objectives
- for governments to understand the requirements of the private sector, such as specific financial requests when it comes to de-risking projects
- to have an end goal in mind when projects are developed
- to have Africa specific solutions to challenges, while still being aware of global best practice to ensure that global learnings are not ignored
- to not be a "dumping ground" for dated global technologies

CONCLUSION

- to weave in sustainable business practices into utility decision-making processes
- to have knowledge sharing platforms where countries that have successfully implemented projects share their knowledge with countries that still need to follow suit
- to understand the end-consumers / human behaviour better when designing country specific solutions such as demand side management or energy efficiency programmes
- to develop a list of priority projects / a roadmap to success, and importantly to implement these action items
- to have utilities with stronger balance sheets
- the ability to attract foreign investment, since Africa is unable to adequately fund its own projects to the extent needed

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THANK YOU

Report available at: www.african-utility-week.com

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