

South Africa smart grid implementation

What is the South Africa smart grid vision?

The Vision forms part of a greater framework that is being developed by the South Africa Smart Grid Initiative to guide effective transition to a coherent, modernised national electricity infrastructure.

Does South Africa need a smart grid?

The South African electricity ratepayers (directly) and society as a whole (indirectly through possible inflation impacts) will effectively bear the initial infrastructure investment costs for the smart grid, but, the value proposition projected for society is strong.

Should the South African grid be advanced?

It is proposed that the South African grid should be advanced in a similar fashion; not by gathering a collection of interesting technologies and calling it modern, or smart, or intelligent, but by first defining a vision and then building the construct of a grid that serves a defined purpose.

Is SANEDI smart grids still relevant to South Africa?

The SANEDI Smart Grids team has taken the lead to update the current vision document to ensure it is still relevant to South Africa and the challenges the industry faces, as a lot has changed within the electricity supply industry in South Africa.

What is a smart grid solution?

The general solution set for delivering a smart grid solution within this functional area includes: Smart meters that record interval energy usage, power quality parameters, other system operating parameters, and are equipped with remote connect/disconnect capability.

What is the transition to a smarter grid?

The transition to a smarter grid entails changes and enhancements to the complete grid value chain, from how the electricity utilities operate, to how the network is structured, to how the end user interacts with the grid infrastructure. It requires extensive alignment, cooperation and integration.

The need for smart grid technology in South Africa is driven by the low reserve margin on the country's electricity generation capacity, the need for a more efficient grid with less disruptions, an increase in the electricity price, the consumers' need for an efficient method of electricity consumption management and the IRP 2010, a 20-year ...

[Show full abstract] new capabilities of Industry 4.0 lead to the "smart anything" phenomena which often get most attention: from smart grid, smart energy and smart logistics to smart facilities ...

Then, the research identified a myriad of consumer-centric factors that affect the planning for smart meter

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implementation in South Africa. From the smart technology acceptance perspective (Ponce-Jara et al., 2017), there has not been a great deal of research in the area; hence, the use of prior work did not assist much in the identification of ...

This national smart grid Vision forms part of a set of working documents developed by the South African Smart Grid Initiative (SASGI) policy working group to create a national framework and to guide the national approach to smart grid implementation in South Africa.

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international best practices and case studies of smart grid projects that have been implemented. The research covers drivers and restraints that will affect growth of the South African market, as well as major focus areas for project success. The need for smart grid technology in South Africa is driven by the low

Smart grids spark the modernisation of South Africa's energy grid Prof Raj Naidoo One of the biggest threats to South Africa's economy at present is its reliance on coal-fired energy and the instability of the country's electricity-generating capacity, giving rise to intermittent loadshedding events. Researchers in the

Judge et al. (2022) provided an overview of smart grid implementation, highlighting frameworks, impacts, performance, and challenges associated with enhancing grid resilience [3]. Wang et al ...

South Africa is at the forefront of an electrifying transformation, leveraging smart grid technology to revolutionise its energy sector. This transition is crucial for the country to meet its growing electricity demands, integrate renewable energy sources efficiently, and modernise its ageing grid infrastructure.

The need for smart grid technology in South Africa is driven by the low reserve margin on the country's electricity generation capacity, the need for a ... analysis and detailed project implementation plan in the project design. This will be crucial to ensure that the project is completed on time and within

The vision document articulates the long-term aspirations and development objectives for the electricity supply industry in South Africa and the country goals towards achieving the benefits of a Smart Grid (SG).

There are existing deployments of Smart Grids globally, and any implementation in South Africa will need to adopt the best practices from these deployments. A grid deployment exists at Clearwater Mall in Johannesburg, South Africa. This deployment is a Micro-Grid based on Echelon partner PMTs Meteringonline energy management application [4].

Smart grid efforts in South Africa ... The government has announced that it will undertake a nationwide Smart Grid implementation by 2030. In January 2010, Korea has taken a significant step forward in its efforts to grab

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a foothold in the global smart grid sector, coming to a deal with the state of Illinois to jointly develop and test ...

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The smart grid vision aims to serve as a guidance for smart grid planning and roll-out by both Eskom and the municipal electricity distributors. SANEDI also has a trained team that can assist municipalities assess their readiness for investing in a smart grid network through a Smart Grid Readiness Test (Smart Grid Maturity Assessment). Status ...

Grid modernisation is a strategic initiative for many electricity companies and one key concern is improvement of grid efficiency. The key performance indicator for grid efficiency of an electrical distribution network is the amount of losses The technical losses are due to energy dissipated in the conductors, equipment used for transmission, sub-transmission and distribution lines, and ...

Since smart meter technology implementation is still in its infancy in South Africa (Smart Energy International, 2019), the questionnaire included a section with an infographic of the smart meter display, and a brief description and illustration of smart meter technology to the participants in order to establish a common understanding among all ...

South Africa's electricity grid crisis has been characterised by multifaceted interrelated issues involving technical, financial, governance, and infrastructural challenges. ... TR can significantly impact smart grid implementation, grid strengthening, renewable energy innovations, community solutions, and policy development, enhancing the ...

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In the case study of Boulder, Colorado, SGCC found that consumer power quality complaints have been reduced to zero, from an average of 30, post implementation of SG (Smart Grid Consumer Collaborative, 2013). Some authors (VassaETT, 2013) claimed enhanced customer satisfaction up to a range of 70-90% while Jonathan and others in (Wang et al., ...

In 2016 Tim established Smart Grid Networks in South Africa with a view to supporting communities in Africa with more stable electricity Specifically in South Africa the technology that was deployed provided the opportunity for Eskom to significantly reduce and potentially eliminate the need for load shedding. Smart Grid

Networks received a grant of R120,000 from the UK ...

The shift towards implementing a smart grid strategy in South Africa is intended to fast track the development of establishing an adequate electricity supply system or network for two basic reasons, namely the improvement and upgrade of the "business as usual" (BUA) grid and the outcome of substantial benefits that come with establishing a ...

Smart Grid (SG) is one of the aspects that can ensure the success of such strategy. ... M. Meliani, A. El Barkany, I. El Abbassi et al., Smart grid implementation in Morocco: ... South Africa aims ...

Smart Grid Initiative (SASGI), a South African National Energy Development Institute (SANEDI) initiative developed through one of its Portfolios, the Smart Grid programme. The smart grid vision aims to serve as a guidance for smart grid planning and roll-out by both Eskom and the municipal electricity distributors.

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