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ABB technologies to support smart city development in South Africa

Wireless communication and software technologies to enhance connectivity and power supply reliability in Durban

ABB will provide a seamless wireless network connectivity to an industrial area within Durban, South Africa's third most populated city with more than 3 million people. Durban is also one of the country's major manufacturing hubs and South Africa's busiest port.

This high capacity field area network will complement eThekwini's existing fiber optic back-haul network and strengthen its resilience to face up to a tropical climate characterized by heavy and persistent rains and a dense tree population. Physical and cyber security is critical for utility communication networks and ABB's wireless routers are designed to cope with these challenges. As the network grows, each smart router automatically reconfigures itself, making expansion relatively simple. The mesh network design offers inherent security and reliability, as the network can handle outages by redirecting data intelligently.

The city has been able to quickly extend the field area network and connect more substations and remote terminal units (RTUs) across an industrial area of around 16 square kilometers. 80 wireless mesh routers have been installed, connecting 30 substations across industrial complexes with more than 35 router nodes mounted on existing streetlights. The system has been designed to support Internet Protocol (IP) linked services such as Supervisory Control and Data Acquisition (SCADA), metering and future video and Voice over Internet Protocol (VoIP) applications, which will improve efficiency and connectivity, supporting Durban's 'Smart City' aspiration. Better visibility and management of power assets will result in a more reliable service for the large industrial complexes that while minimizing downtime. It also enables management of potential electrical network outages and provides a platform for smart metering.

As part of eThekwini's vision to be a leading distribution utility providing efficient and reliable electricity to its consumers, an asset management strategy has been put in place, integrating information technology (IT) and operational technology (OT) to handle the maintenance of critical power infrastructure. The new field area network has the potential to provide connectivity to the existing Ellipse asset management software (EAM) from ABB, which handles the maintenance of the critical electrical and storm water assets.

"This pioneering smart city solution is an important reference for the African continent where eThekwini will benefit from increased connectivity and real-time visibility of their power network, and have better control of their assets to deliver reliable power to consumers" said Massimo Danieli, Managing Director of ABB's Grid Automation business, a part of the company's Power Grids division.

Interconnecting things, services and people via the Internet improves data analysis, boosts productivity, enhances reliability, saves energy and costs, and generates new revenue opportunities through innovative business models. Already a recognized leader in process control systems, communication solutions, sensor-based and software solutions, ABB recently announced its ABB Ability™ digital initiative and its partnership with Microsoft to leverage Azure as the cloud for its integrated connectivity platform to help customers benefit from the Industrial Internet of Things and turn data insights into direct action.

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