Conlog meters used in world's first fuel cell project

Johannesburg, 17 October 2014 – *Conlog,* a prepaid electricity meter manufacturing company of Schneider Electric, is pleased to announce that it will be partnering in the world's first fuel cell rural electrification project, located in South Africa's Free State province.

Conlog will supply its advanced metering infrastructure (AMI) system, Iridium, as well as wireless meters to the project, which targets Naledi Trust, a small rural community near Kroonstad consisting of 34 homes.

The village is situated 40 kilometres away from the national grid and does not have reliable access to electricalpower. It was identified by the country's Department of Energy as a suitable pilot site for the new fuel cell project, which aims to supply rural communities with electricity independent of an existing energy grid, and so, make a positive contribution to the socio-economic situation in these communities.

According to Ashveer Surujdeen, project manager at Conlog, compared to diesel power generation, fuel cell technology offers a more fuelefficient, low-carbon, low-noise alternative."Fuel cells can also produce electricity whenever the demand exists. Importantly, switching on with fuel cell power is safe and healthy compared to hazardouswood fires or paraffin stoves, and improves rural lifestyles by reducing food waste through refrigeration and eliminating the use of candles for lighting," he adds.

The Naledi Trust fuel cell system consists of three platinum-based, five kilowatt fuel cell stacks, each with a methanol reformer; a methanol fuel supply tank. The system is integrated into a power generation system that includes batteries, DC/ AC inverters and controls. "The fuel cell system will supply the Naledi Trust households through an independent mini grid with sufficient power to use TVs, radios, lighting, refrigerators, cooking appliances and mobile phone chargers," says Surujdeen.

He points out that Conlog's meter data management system, Iridium, benefits the project as it is a virtual application that provides real-time information about energy consumption.

"Iridium comprises two distinct functional areas: the front end components that are responsible for the collection, storage and communication of data from the metering devices; and the head end components that retrieve and manage this data," he says. Data is communicated wirelessly to and from the meter via data concentrator units (DCUs) connected to a suite of management tools at the head-end. The DCU is an integral link between the front and head-end system and is responsible for the routine collection, storage and communication of metering data.

"The DCU is a primary means of remote communication and is capable of reading and writing data to and from metering devices," he says. The Conlog wireless meters provided are installed at each house and allow tokens to be used in order to receive electricity. A token is a 20 digit standard transfer specification (STS)number which is unique to a meter. Residents are able to purchase these STS tokensfrom the municipality "Conlog also monitors the entire site and allows remote management of the metering devices. Services provided by us include a 24/7 uptime guaranteed, automated maintenance and backups, secure transactions securely via a dedicated APN, and a service desk and support.

"Fuel cell mini-grid technology is a cost-competitive alternative to grid electrification in these remote areas and could accelerate access electricity. It is estimated that over 2 million households lack access to grid power, with over one million located in rural communities. This means a potential market of at least 600,000 South African households in areas where grid connection is uneconomical due to a difficult terrain.

"In addition, approximately 20,000 schools and clinics in remote rural areas lack electrification due to the significant cost of extending existing grid power. The market for fuel cell power generation extends far beyond the borders of our country, with an estimated 82 million households in Africa still without electricity," comments Surujdeen.

Besides Conlog, partner companies and institutions involved in the project include mining organisation, AngloAmerican Platinum; leaders in fuel cells, Ballard Power Systems, who designed the fuel cell systems; the University of Witwatersrand; the Department of Energy; the Moghaka local municipality, which services Naledi Trust; and South Africa's public utility, Eskom