COMPANY PROFILE

PeCo Power (Pty) Ltd
University of the
Witwatersrand
1st Floor The Genmin
Laboratories

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PeCo

COMPANY BACKGROUND

The world is currently facing an energy poverty crisis. Globally there are over 1 billion people without electricity. The majority are sparse populations of indigent households in rural regions of Sub-Saharan Africa. These households are isolated from any utility grid infrastructure and rely primarily on burning biomass to meet their energy demands. The low energy demand and sparsity of these households makes expanding the utility grid to electrify them financially unfeasible. There is thus an essential need for an innovative alternative to utility grid electrification for reaching the unreachable.

Professor Willie Cronje from the University of the Witwatersrand took on the challenge to develop an electrification system to address the energy poverty crisis. In 2014, Prof Cronje began researching the possibilities of a renewable energy based electrification system that could be built from modular components using a bottom-up approach. The idea behind the modular nature was to allow for rapid deployment of smaller systems that could then be expanded to build larger systems which could then be interconnected to build a grid that could electrify entire villages!

In 2019, after 5 years of research and development, Prof Cronje and his team of engineering students built and validated a Smart Electrification System. The Smart Electrification System surpassed all expectations and possessed the sought after features to be an alternative to utility grid electrification for off-grid rural households. The innovation behind the Smart Electrification System was patented and caught the eye of energy venture capitalist Umbono Capital. Through the combined efforts of Prof Cronje, his team of engineering students, Wits Enterprise and Umbono, PeCo Power Pty Ltd was founded as an endeavour to commercialise the Smart Electrification System.

STAKEHOLDERS

UMBONO VENTURE CAPITAL

PECO TEAM

WITS UNIVERSITY

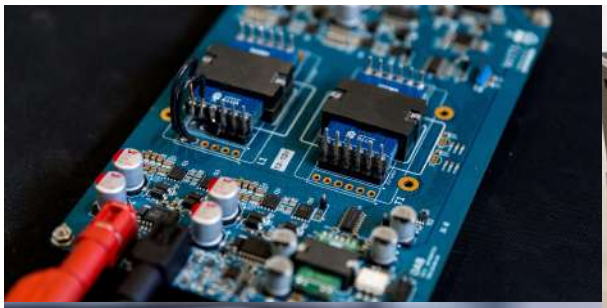
PeCo

TECHNOLOGY

The Smart Electrification System was designed to be affordable for low-income households, robust to survive the harsh African conditions and easy to use so that no technical expertise is required for installation, operation and maintenance. There are two modular components that form part of the Smart Electrification System: the smart solar panel and the smart battery. A smart battery and smart solar panel can be interconnected in a plug-and-play manner to build a small Smart Electrification System that can provide basic rural household electrification (lighting and cell-phone charging). Additional smart batteries or smart solar panels can be added to the system in an uncomplicated manner to expand the system's power capabilities as the users power demands increase. This gives the user the energy freedom to grow and personalise their system at their own rate according to their power demand and financial capability.

FLEXIBLE ARCHITECTURE

The Smart Electrification System can be used for electrifying an off-grid rural household from scratch or for powering basic urban household needs during an outage. This flexibility of the Smart Electrification System allows for a potentially limitless number of intricate topology systems to be built that can meet just about any electrification need!



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MEET THE TEAM

Dorian Wrigley
CEO

Dorian, a founder of Umbono, holds BSc(Eng) and MSc(Eng) degrees and is a Civil Engineer, Pr.Eng. Dorian has a 30 year track record in building businesses in mining and energy.

Primary strategies include both forming and building new businesses or acquiring and turning around existing ones, the success of which is largely rooted in typical investment banking activities such as deal structuring, capital raising, corporate restructurings, BBBEE compliance, corporate partner selection and smart disposals.

Muhammed Aswat
Engineering Manager

Muhammed Aswat graduated in 2016 with a BSc in Electrical Engineering from the University of the Wits.

He completed his MSc with distinction in off-grid rural electrification in 2018 where he played a key role in refining the PeCo technology. He currently manages the technical division at PeCo Power and is working towards his PhD in this field.

Prof Willie Cronje
Technical Director & Founder

Willie Cronje graduated with his B.Ing in Electrical Engineering from the Rand Afrikaans University, in Johannesburg, South Afrtica, in 1985. He subsequently graduated with his M.Ing in 1987 and D.Ing in 1993 from the same institution.

He was a staff member at the institution before joining the University of the Witwatersrand as holder of the Mondi chair on machines and drives in 2004 and headed the machines research group. He subsequently changed his research interest to renewable energy systems and has held the Alstom Chair in Clean Energy Systems Technology from 2013 to 2018. He has been interested in renewable energy systems and technologies for more than a decade. Identifying the need for energy in off-grid communities and the difficulties of unlocking new renewable energy technologies he has been doing R&D on these aspects that culminated in the patent for the Picogrid technology.

Mohammed Raees Dangor
Business Development

Mohammed Raees Dangor is an Electrical Engineer. He completed his MSc degree in Engineering at the University of the Witwatersrand where his work entailed developing the solar aspects of the PeCo Power technology and refining the technology towards becoming commercially viable. He is currently working towards his PhD which focuses on the social aspects of technology implementation. His research aligns with his role at PeCo Power which focuses on business development and the roll-out of the technology in various markets.

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