

Electrical engineers tackle energy crisis at SA hospitals

Outreach Engineering is a youth-led, one-of-a-kind engineering non-profit organisation with a unique approach to tackling public healthcare problems in South Africa.

The organisation specialises in providing energy efficiency and engineering services. It is working alongside the government to address infrastructural shortfalls in South African public hospitals. By helping public hospitals to operate in a more stable and reliable manner, it aims to improve the quality of patient care.

Outreach Engineering has partnered with the University of the Witwatersrand and benefit from the experience of some of the most highly regarded electrical engineers in the country. Other contributors include Werksmans Attorneys, Grant Thornton, Idea Engineers and many other industry leaders.

Gareth Sessel, Jason Huang and Ian Jandrell are the directors of Outreach Engineering. Says Huang: "One of South Africa's major challenges lies in providing sustainable healthcare to the public. While the challenges posed by shortages of doctors, nurses and funds are well understood, the importance of hospital infrastructure is often overlooked."

As engineers, Outreach Engineering can help address the shortfalls in the infrastructural foundations of the country's hospitals. Without this infrastructure in place, hospitals cannot properly support their staff, equipment and most importantly - their patients.

"We are working on the *Heal Baragwanath* project, a project designed to improve the reliability and efficiency of the main operating theatre complex of the Chris Hani Baragwanath Hospital in Soweto," says Huang. "As such, we're eager to find more partners to participate in this worthwhile initiative. The *Heal Baragwanath* project will kick-start a series of similar projects by Outreach Engineering, which could benefit millions of people."

Outreach Engineering's work also provides environmental

benefits and reduces the carbon footprint of the hospitals. The reduced energy consumption lightens the energy demand on Eskom and helps reduce the need for load-shedding.

"We are already working closely with management at Chris Hani Baragwanath Hospital to revamp the hospital's backup power system and improve energy efficiency across its infrastructure," says Huang. "The work will help the hospital to keep operating throughout power outages as well as improve the quality of care it offers its many poor and needy patients."

Chris Hani Baragwanath Hospital suffers from frequent and long-lasting power outages. Yet its backup power system is outdated and needs to be redesigned to accommodate the hospital's large energy requirements. Until this overhaul is complete, doctors are unable to perform elective surgeries during a power outage. This endangers patients and worsens the growing surgery backlog. In addition, the hospital relies heavily on outdated, inefficient technologies for lighting and climate control.

The hospital performed approximately 69,000 theatre cases in 2014. Despite this impressive number, [recent articles](#) have suggested a surgery backlog of up to 7 years for certain important surgeries.

Outreach Engineering's initial work sees the organisation strive to make the backup power infrastructure in the main operating theatre complex of the Chris Hani Baragwanath Hospital more reliable. "We are also introducing modern, energy-efficient technologies to help make the hospital greener," says Huang.

To date, the planning phase of the *Heal Baragwanath* project was completed without interrupting the day-to-day activities of this enormous hospital. Energy Cybernetics donated and performed an energy audit of the facility. Schmidhauser Electrical generously created and verified electrical reticulation diagrams.

Then, industry experts proposed solutions to these problems. Outreach Engineering has now collected and analysed many proposals from industry leaders, and work is in progress to improve the infrastructure at Baragwanath hospital.

“Outreach Engineering wants to improve the public healthcare in South Africa”, says Huang. “Many other public hospitals suffer from similar infrastructural shortfalls. From this project, we can create a template which we can then apply to other public hospitals and in doing so, help millions of people.” Outreach Engineering is seeking partners with funds or skills that could help with their vision.

Outreach Engineering is a registered non-profit company, non-profit organisation and Section 18A-approved public benefit organisation.