

Kanabea.
About as off-grid
as you can get.



We can keep the lights on.



BACKGROUND

John Ward, founder of the PNG Foundation, first visited PNG in 1969 as a volunteer whilst he was studying priesthood.

In 1974, whilst serving as part time chaplain with the RAAF, John learned to fly light aircraft.

Driven by personal involvement John founded the PNG Foundation in 2006 with the aim of improving the welfare of the Kamea people in Kanabea - a remote region of Papua New Guinea [PNG].

The presence of the PNG Foundation has been invaluable to the ongoing development and support of the school, medical centre airstrip and Catholic mission currently in operation in Kanabea. The school is made up of 600 students and is instrumental to the development of education in the region.

Always looking for ways to help this inaccessible region, John is working closely with Melbourne based ANT Energy Solutions to build a dispatchable, 24/7 renewable energy system based on hydrogen storage and production.

THE REGION

Kanabea is a village in the Gulf Province of Papua New Guinea. It is an inaccessible area of river deltas and swamps surrounded by a soaring mountain range covered with dense rainforest, accessible only by air.

Lost in rain clouds and fog for months at a time, it can be a dangerous area to fly in and out of. Comprised of approximately 1000 Kamea people, Kanabea is the largest village in the Gulf Province, which is home to a total population of approximately 30,000 people.

CURRENT SITUATION

Currently, diesel and oxygen have to be flown in to Kanabea at great cost and at great risk. Due to weather conditions and cloud cover, flights are often grounded for up to 3 months, placing great strain on resources. The only other way of accessing the community is by a 5 day hike, carrying supplies into the village. John's ability to fly in medical volunteers and essential supplies to Kanabea, has changed the lives of each person who has received medical assistance from these visits.

At present, power capacity for the medical centre and school is less than 2 hours a day, considerably restricting both of these facilities. With occasional access to a very old diesel generator – running water, powering up school computers and depending on life saving medical equipment can sometimes be left up to chance. Doctors often perform operations with headlamps on their heads to be able to continue procedures when the power goes out.

Top to bottom: John in the cockpit. Lining up for landing at Kanabea. The welcoming committee and the reception.

THE VISION

The PNG Foundation has chosen to partner with Melbourne-based ANT Energy Solutions to produce a completely renewable off-grid energy system. The ANT designed small scale stand alone system that utilises hybrid solar and wind energy, combined with hydrogen production and storage to meet base load requirements - even when there is no sun and or wind.

Having the ANT system in place will be ground-breaking and life changing for the Kamea people as it will provide 24/7, reliable, clean power supply to the community.

The ANT system will empower the community to generate enough power from renewable sources to meet its own electricity needs, ensuring that the school and medical centre have a reliable source of electricity.

Not only will this benefit the remote village, it will also serve as a demonstrator for other communities throughout the region.

The system that ANT will establish in Kanabea will be modelled on the demonstrator site located at Yarra Valley Estate in Victoria, Australia. This ensures that this advanced technology is both proven and reliable.

The PNG Foundation is seeking funding and support to bring this project into fruition and to change the lives of the Kamea people.

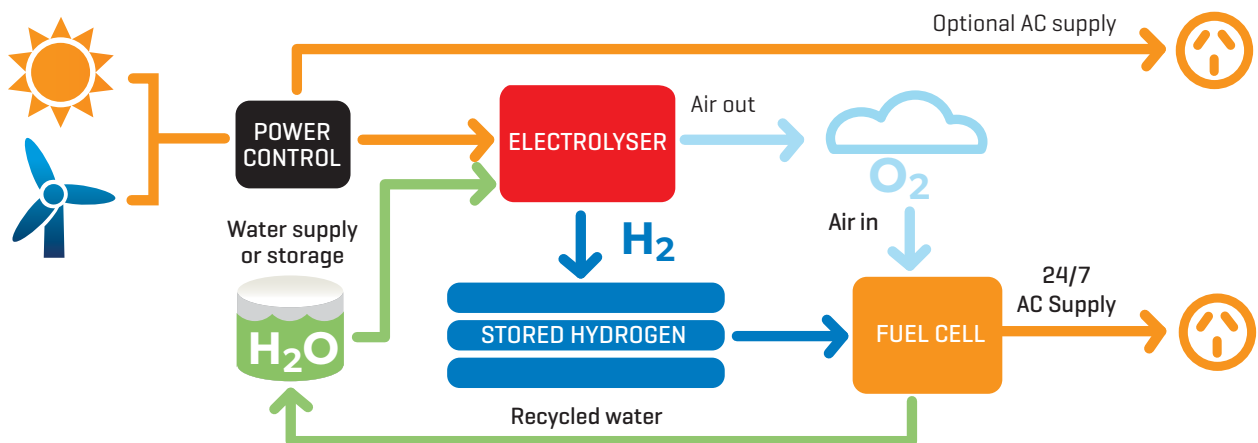
THE SYSTEM

The proposed PNG energy system will comprise of:

- Renewable electricity generation – a total of 350 kW renewable energy generating capacity from solar panels (250 kW) and lateral wind turbines (95 kW) to supply Electricity
- Up to a 30Kw hydro generator
- Hydrogen production – 300 kW electrolyser capacity to generate up to 30 Nm³ of hydrogen per hour from water
- Hydrogen storage – 3 x 20 ft. containers containing hydrogen tanks. Each container is capable of holding 2.2 MW hours of electricity equivalent, giving a total of 6.6 MW hours dispatchable electricity – 90 kW fuel cell capacity to generate electricity from the stored hydrogen.
- Control system hardware and software to integrate the above components and balance of plant for maximum efficiency and effectiveness.

The system will provide electricity directly to the Kanabean community and will comprise a smart system platform that determines when and how much energy to divert for hydrogen generation and storage. The system will be capable of storing an equivalent of 2 to 4 weeks of energy for the community.

How the system works



Kanabea's busy hospital



THE BENEFITS

Green hydrogen

By utilising the high energy density of hydrogen the system will provide 24/7 electricity on demand for the Kanabea Community based solely on renewables.

Job creation

This project will generate direct jobs and further opportunities to the Kamea people in both Kanabea and surrounding communities.

Off-grid power

The system will allow Kanabea to operate completely off-grid, and will demonstrate the ability of renewable to deliver 24/7 energy in remote communities.

Model for roll out to other remote communities

The system in Kanabea will demonstrate the potential of hydrogen - based renewable energy systems to meet the energy needs of other remote communities both in PNG and abroad.



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Contact details website etc?????

Our world leading partnerships



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