



Naval power: Mauritius looks to Perth base for renewable energy solutions

First to be threatened by climate change, island nations want renewable energy, even if it costs them more

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As home to Australia's largest naval base, it is no surprise that foreign governments are curious about the secretive goings-on at Garden Island, just offshore from Perth in Western Australia.

Peering across from the other side of the Indian Ocean, the Mauritian government is not gathering intelligence on Australia's military power, however - but rather how the military is powered.

More interesting to this tiny island nation than the warships churning in and out of the HMAS Stirling port are the strange hockey puck-shaped undersea CETO 6 tidal energy buoys tethered to the ocean floor.

Flush with the kind of research and development cash most Indian Ocean-bordering countries can only dream of, the Royal Australian Navy is developing a \$7.5m renewables-based microgrid initially featuring a mix of solar energy (2MW), battery storage (2MW) and a desalination plant, before eventually incorporating undersea wave energy generators that will harness the power of the formidable surf that rolls past this thin fleck of land before crashing upon Perth's famous beaches.

Island nations see Garden Island as a potential template for an energy mix that could help combat the climate change that threatens their very existence.

The head honchos in the Australian military are warriors, not eco-warriors, and their preference for renewables is motivated by a belief that they are simply the best strategic option: rather than rely on a vulnerable connection with the mainland power grid or on diesel generators that require the importing of fuel, the RAH has opted for a truly self-sufficient system.

Impressed by what has been achieved so far at HMAS Stirling - the project will start generating energy in mid-2017 - the Mauritian government has roped in Carnegie Clean Energy, the Australian developers of the Garden Island microgrid, to draw up a renewable energy roadmap for the country backed with a \$800,000 contribution from the Australian and Mauritian governments.

Mauritius is targeting renewable energy production exceeding 35% of the electricity generation mix by 2025 from a 2016 level of 20% (mostly sugarcane-based generation). Yet Carnegie's managing director, Mike Ottaviano, tells the Guardian that his company is designing a microgrid solution that could reach an even more ambitious target of 65% within a decade, vastly exceeding the targets of many major industrialised economies.

"They know their solar resource, their wind resource, really well but they don't know their surf resource, so we've deployed measurement buoys in the ocean at the most prospective sites, doing recordings which will allow us to model resource around the island to work out the best place to build," he says.

Ottaviano is setting up his company to serve as a "one-stop shop" for island microgrids, offering design, construction, operation and maintenance services.

"I think there's no community more ready for a renewable microgrid than an island, for a range of reasons," he says. "The fact they feel the effect of climate change more than most is absolutely a big driver. Layer that with the cost of power on islands, reliance on diesel and the energy security point of view - that's why they are early adopters."

Analysis released in late 2016 by Afrobarometer on opinions about renewables in Mauritius concluded the population is onboard with their government's aggressive pushing of green energy.

University of the South Pacific social scientist Andreas Kopf, who co-authored the analysis, says the biggest surprise was that 70% of the 1200 respondents supported large-scale implementation of renewables, even if it meant higher electricity bills. Just 11% were opposed.

"This is remarkable in the sense that people's concern over the environment and climate frequently makes a halt when their support requires personal real life sacrifices, for instance when they have to dig into their own pocket [even if they could afford it]," he says. "This seems to be somewhat different in the case of Mauritius, where support is still considerably high among those who experience some level of lived poverty."

The 1.3m-strong population of Mauritius are getting their way, with notable renewable energy projects to be rolled out in recent years including a 9MW windfarm by the French company Quadran in 2016 and local firm Sarako Ltd delivering a 15MW solar PV farm in 2014.

Carnegie is targeting completion of design of wave energy solutions for the island within a month and Ottaviano says the company is also consulting with Nauru, Kiribati, Cocos Islands and the Seychelles.

He cautions, however, that the openness of communities and governments to the technology "doesn't make it an easy market to crack".

"One factor is they are remote - as an aggregate it is a very large market but the reality is it is fragmented with lots of small islands," he says.

"You are often dealing with poorly funded and poorly capitalised communities and governments, so there are finance challenges. Then there are climatic risks, community risks and dealing with diverse languages and cultures."

Desperate to prove to the world that renewable energy microgrids are the way forward, Mauritius and its island neighbours will be hoping companies like Carnegie determine the risks are worth braving.

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