



Cape Town initiates net-metering pilot project

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The City of Cape Town has initiated a net-metering pilot project to allow domestic energy producers to feed electricity back into the grid, Dr **Anthony Keen** told an audience at a South African National Energy Association meeting in Cape Town on Tuesday.

"I am pleased to be able to report to you that there are three of us in Cape Town . . . [and] we've been privileged [that] the City of Cape Town has accepted us onto a pilot project for grid feed-in," said Keen, a medical doctor who is pursuing his interest in sustainable energy after retiring from an academic career at the University of Cape Town's medical school.

"[The City] is being very cautious and it's a learning exercise for all parties. But I hope before too long this will be expanded to accommodate lots more renewable energy feed-in to the City of

Cape Town."

Keen said that he has been corresponding with the City of Cape Town for the last three years to allow domestic renewable energy producers to feed excess electricity produced into the grid and finally in the last nine months, actual negotiations for the project were started. "But they're going to run the pilot for at least a year and then reassess it," noted Keen.

The pilot project operates under net-metering, with no financial transaction taking place between the City of Cape Town and the domestic power producer. As Keen explained: "If you put one unit of energy into the grid you get one unit of energy back. It's just a direct exchange: one for one."

A city official confirmed to *Engineering News Online* that the pilot project was proceeding, but cautioned that the approach would be conservative in order to establish robust technical solutions and business processes. The official was clear to point out that pilot stage would not accommodate more than the initial three domestic producers.

Keen began a journey 28 years ago with his family to move towards functioning "off-grid" and approached the project in an experimental way and carefully documented the process. Their first step towards this was the installation of a solar water heater and wood burning fire place in 1984, which reduced his household's energy consumption by 44%. Keen noted that the solar water heater cost was recouped after six years and that the system had been running without maintenance or repairs for the last 28 years.

Other energy saving steps implemented were the installation of energy efficient appliances, ceiling insulation, compact fluorescent lighting, geyser and pipe insulation and better management of the swimming pool electricity usage. This allowed the total energy consumption of the household to be reduced by a sizeable 71% when all the measures were accounted for.

Following this, Keen installed a photovoltaic system which comprised 20 panels with a total 3.8 kWp output, a 6 kVA inverter and lead acid battery bank of 24 2V batteries. Keen had also been loaned a backup liquid petroleum gas generator to incorporate into his system.

Keen believed it was possible for a domestic household to move fully off the electricity grid, but that it would be a costly exercise, mainly as purchasing sufficient batteries of high quality to store enough energy for when there was a lack of sun would be prohibitively expensive. "To go back to the question: Can we go 100% solar? The answer is yes, but it is a very expensive operation. It's always the storage that's a big problem and, really, it's not economic to try to do that. With a modest battery system and the panels that we have, in the summer months 98% of electrical energy in that house is coming from the solar panels. . . we had achieved our objective, effectively running the house off the sun."

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