

LUCELEC's Search for Alternative Energy, Part 2 - Solar

LUCELEC's search for alternative energy sources has always included solar technology. As the technology matured and costs come down, LUCELEC began to explore solar energy for electricity production from the perspective of small grid-tied photovoltaic systems, rather than a large scale solar power plant.

In 2009 LUCELEC embarked on a pilot project to develop an understanding of the issues associated with small grid-tied photovoltaic (PV) or solar systems. The pilot project was structured in two phases and undertaken in collaboration with Solar Power St. Lucia Ltd and the Sustainable Development and Environment Unit of the Ministry of Physical Development, Environment and Housing. Among the objectives of the project were: to observe the impact these interconnected small renewable energy systems would have on LUCELEC's distribution network; to introduce the use of bi-directional meters to monitor and record delivered and received power on separate meter registers (net metering); to assist LUCELEC in developing guidelines for these systems; and to work with the Electrical Division of the Ministry of Communications, Works, Transport & Public Utilities to determine procedures for inspecting, testing, certifying and commissioning grid-tied PV systems.

The project was also designed to boost LUCELEC's effort to meet renewable energy targets in the National Energy Policy and to respond to customers' needs for cost effective alternative energy solutions in the face of rising fuel prices.

LUCELEC commissioned the first grid-tied PV small renewable energy system (RES) in March 2009. The 5.7kW system was connected to facilitate net-metering. That phase of the pilot was concluded in December 2009. Between November 2009 and May 2010 three (3) more small PV systems were installed: Castries Market - 4kW; Vieux Fort Secondary School - 4kW; and the National Trust building at Pigeon Island -12 kW (3 phase). The second phase of the pilot project was concluded in August 2010.

Generally the project was a success and, very importantly, no safety issues were identified. LUCELEC, therefore, decided to offer its domestic customers the facility to connect small PV systems to the network rated at 5kW or less under a net-metering arrangement using smart bi-directional meters. This means that the meter records the excess power produced by the RES which flows back into LUCELEC's distribution network. The meter also records energy supplied by LUCELEC to the customer, and at the time of billing, the customer is billed or credited depending on whether he used more or less from the grid than he put in.

LUCELEC is also considering offering this facility to its commercial customers for RES up to 25kW (3 phase), but special tariffs are needed.

All systems will require approval from LUCELEC and certification from the Electrical Division of the MCWT&PU before interconnection could take place. They will also have to comply with international standards.

The next steps in the process is a Tariff Study to identify a suitable tariff for commercial PV systems, a public information and education campaign on small PV systems, and the installation of PV systems at LUCELEC's

various premises. One system has already been installed at the Customer Service Outlet in Vieux Fort.

LUCELEC expects to be in a position by the end of 2011 to advise customers on the cost/benefit analysis and associated technical considerations for these systems.

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