Addressing Flooding at Union Substation

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Engineers at the St. Lucia Electricity Services Limited (LUCELEC) have designed a system to mitigate against flood damage at the Union Substation. It is a three step process developed with GDM Lindex Ltd, a UK based independent goods and equipment supplier.

A river that borders the Union substation has been a longstanding threat during heavy rains. When the river overflows it results in water, mud and debris getting into the substation causing damage to the equipment.

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The most recent instance was during the 2013 Christmas Eve Trough when the substation sustained flood damage that resulted in some LUCELEC customers being without electricity, while the system was reconfigured to shift customers being fed off the Union substation to other substations in the north of the island.

The new system is based on a series of meters that detect rising water levels within trenches in the substation building. The first stage triggers an alarm at the System Control desk at the Cul De Sac Power Station. The warning alerts the operator to reconfigure the system so that customers who normally get their electricity from the Union substation will be serviced from other substations.

The second and final stages occur as more water pours into the substation. By the final stage, if the water level rises to more than one foot, the Union Substation will automatically shut down thereby preventing damage to its equipment.

LUCELEC's Transmission & Distribution Manager Gilroy Pultie says the system has been tested, is ready for use and will minimise disruptions in service to customers and equipment damage in the event of flooding at the Union substation.

"The system serves as a temporary solution to the potential for flooding at the Union substation. A more permanent and decidedly more costly solution will require the relocation of the substation," says Pultie.

He adds the system will likely speed up the restoration of the Union substation to full service after any flooding.

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