Substations

Substations essentially comprise one or more transformers and associated equipment which transforms voltage from one level to another in the same way that a step down transformer is used in the home. Substations are necessary because transporting electricity at higher voltages is more efficient. Less electricity is lost in the process (termed 'system losses').

First of all the voltage is raised at a substation, in order to efficiently transmit electricity in bulk to load centres, where other substations step the voltage back down in order to supply customers. At LUCELEC electricity is transmitted between the substations at 66,000 volts (66kV).

LUCELEC has seven substations. These are located at Cul-De-Sac, Castries, Union, Reduit, Praslin, Vieux Fort, and Soufriere. The substation at Cul-de-Sac is located adjacent to the generating stations and steps voltage up from 11,000 volts (11kV) to 66 kV for transmission to the other six. The substations step the voltage down to 11kV and other transformers along the distribution system step the voltage down further to 415 or 240 volts for distribution to customers.

The six step-down substations are strategically located based on the demographics and the demand for electricity. To improve reliability every substation is supplied via two sets of three-phase 66 kV lines. In that way if there is a problem in one set of lines, the substation can be supplied via the other set.

The output capacities and some of the main communities fed by the respective substations are as follows:

CUL DE SAC SUBSTATION

Cul De Sac Substation

Comprises five transformers with a total capacity of 142.5 Mega Volt Amps (MVA) and has a peak demand of 57 MVA. In addition to supplying the other six substations, it supplies Morne Fortune, Hospital Road, Ciceron, Canaries, and Thomazo. Back to Paragraph

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REDUIT SUBSTATION

Reduit Substation

Comprises two 15 MVA transformers, has a peak demand of 5.4 MVA and supplies Gros Islet, Cap Estate, Bonne Terre, Pigeon Island, Club St. Lucia, and Rodney Bay. Back to Paragraph

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UNION SUBSTATION

Union Substation

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Comprises two 15 MVA transformers, has a peak demand of 5.9 MVA and supplies Corinth, Ti Rocher, Union, Marisule, and Vide Boutielle. Back to Paragraph

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CASTRIES SUB-STATION

Castries Substation

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Comprises two 15 MVA transformers and has a peak demand of 6.1 MVA. It supplies the Castries Basin. Back to Paragraph

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SOUFRIERE SUB-STATION

Soufriere Substation

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Comprises one 6.5 MVA transformer, has a peak demand of 3.2 MVA and supplies Fond Cacao, Fond St. Jacques and Soufriere. Back to Paragraph

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VIEUX FORT SUB-STATION

Vieux Fort Substation

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Comprises two 15 MVA transformers, has a peak demand of 4.4 MVA and supplies Choiseul, Pierrot, Vieux Fort, and Augier. Back to Paragraph

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PRASLIN SUBSTATION

Praslin Substation

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Comprises one 6.5 MVA transformer, has a peak demand of 2.5 MVA and supplies Micoud and Dennery.
Back to Paragraph
