C36 AN EQUITABLE ELECTRICITY TARIFF STRUCTURE

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Electricity tariffs are based on costs that have to be borne by the supply authority. These consist of fixed costs (e.g. cost of capital) and variable costs (e.g. fuel cost, maintenance cost), and the tariff is designed to enable these to be met while maintaining a fair and reasonable balance among different types of consumers. It is well known that both the above costs increase with improvements in the reliability of supply, resulting in management decisions on the desirable level of reliability. As the supply of electricity is a 'natural monopoly', it is governed by strict statutory regulations. In Sri Lanka, the enforcement of these regulations have been very lax. This has been further aggravated by the lack of a tradition of legal enforcement based on the liability of the supply authority for losses and damage sustained by the consumer. This situation will change with the advent of non-publicly owned supply authorities.

The quality of supply available to the consumer in Sri Lanka is very low, as the supply authorities have given this low priority. The quality indices that have been used for the measurement of quality of supply take into account only the total outage time per year, by considering the mean time between failures and the meanoutage time per failure. These are suitable for high quality supplies with, typically, annual failure rates less than unity. The definition of a suitable quality index for any commodity is subjective, and depends on the perceived interests of the consumer.

A new index which is weighed against both frequent interruptions as well as sustained interruptions is proposed. An interruption is defined as an event which occurs when the supply does not conform to statutory requirements in respect of voltage and frequency. A quality related tariff is then proposed as a means of encouraging the provision of an improved supply. Such a tariff would also help the supply authorities to allocate resources for reliability improvement, resulting in an overall economy on a national scale.

The physica of implementation of such a tariff is now feasible using solid state electronic devices.