Households' Daily Electric Energy Consumption Data Logger Template

Abstract

In an electricity energy market, many billing systems exist. The two major categories are metering and estimated. In Nigeria, the estimated billing is the dominant system in the electricity energy market. The continues disagreement between the consumers and the electricity distribution companies about bills led to the design of this data logger to help in collection of real consumption data from customers. This data could guide in estimated billing and inform also the consumption pattern and behaviour of the customers.

Introduction.

Time of Use (TOU) is an important factor in estimating power consumption of commercial and residential areas. This 'Households Daily Electric Energy Consumption Data Logger Template' is designed based on the concept of Time of use (TOU) to help in the real-time and on-the-field estimation of households' power consumption.

Households' Daily Electrical Energy Consumption Data logger.															
S/n	**Electrical Gadget**	**Power Rating (PR)**	**Duration of Use**												**Total Energy consumed per gadget**
			on	on	on	on	on	on	on	on	on	on	on	TTOU	**E= PR X TTOU(sec).**
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						Total Energy consumed in a day (TED)									

$$\therefore Daily\ Electric\ Energy\ Consummed\ (DEEC)\ in\ hrs = \frac{(TED)}{60 \times 60}$$

$$Average\ Daily\ Electric\ Energy\ Consummed\ (ADEPC) = \frac{\sum_{i=1}^{n}(DEEC)_i}{n}$$

$$Monthly\ Electric\ Energy\ Consummed\ (MEEC) = \sum_{i=1}^{n} (DEEC)_i$$

$$Average\ Monthly\ Electric\ Energy\ Consummed\ (AMEEC) = \frac{\sum_{i=1}^{N} (MEEC)_i}{N}$$

Where n is number of days in a month and N is number of months in a year.
on is the duration of time a gadget is switched on and total time of use (TTOU) is the sum of all the ons for a given gadget

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