A Short Review on Electrical Power Theft Problem which may Affects the Energy Production Companies

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Abstract: The paper is mainly focused against the methods of electricity theft and avoiding loss of commercial energy production companies. The scope of electrical energy is increasing day by day due to the need for more and more energy use because of this people have connected to modern technology. The development of engineering and an electric generation on various technical and non-technical problems and human necessity condition is fulfilled by investigating some critical theories of electrical materialistic way. It is seems to be strongly supported for describing the modern era of scientific world. But the expanding nature of naughty and stupidity factors, human interacts with daily vast need of electric energy through various methods of power theft associated with increasing greatest intensity of electric motor by using domestic appliances, water pump connected tube well in households or, crop fields , linked by farmers unmetered by passing electricity , direct hooking electric wires for brick factories or, rice boilers, political capture for public services , hooking wires and cables at night for housing purposes, foreign material introduced with metered connection, etc., are more and more of power theft on most state of India. Thus in today era we can't survive without electricity which is unimaginable.

The objective of this paper is to study about methods of theft problems of the electric power in rural and urban areas of states by smartly.

Keywords: Energy production, Non-technical problems, Human necessity, Solution of theft electricity.

Introduction

The electric power generation from firm to consumer's electric distribution network plays an important role by operating electrical devices that need of electric power for consumer demand in a reliable and proper guideline to set up. The countries such as UK, Germany, Japan, Australia, Korea, etc. are developed for energy production. The theft problem is most grave for regular commercial loss of electricity that affects the production of energy companies (Mclaughlin et al. 2013, Smith 2004, and Guerrero et al. 2014). The irregularity environments, incompleteness technologies found to have difficult to analyze the electric theft statistical data from annual power consumption data. The non-technical loses as power theft that has failed to detect the theft adequately by government in theft areas (McDaniel et al. 2009, Ramos et al. 2011). The poorer parts of the city much of the power theft for domestic utilization, political election time public service, high voltage electric motor used for crop field linked with water of tube well by unmetered connection etc (He et al. 2015).

In this paper, we study, the technical losses caused by power dissipation, internal power system to linking the various kinds of electrical equipment such as transmission lines, power transformers, measurement systems, etc. while, non-technical losses (NTL) are actions of external to the power system that has been loading over voltage.

Electric Power system

The power passes through long distances across state-to-state boundaries of lines, and for vast utilization of wholesale customer. The differ from the local wiring between high-voltage substations and customers, referred to electric power distribution. The transmission lines are interacting to each other and we get a transmission network (Glauner et al. 2017, Huang et al. 2013). The electric power enters through these lines to a transmission substation that correspondence from step-down the high voltage to the medium voltage level to supply the Feeders and it requires the value of voltage for the primary distribution of electricity networks. Feeders carry the electric power from the transmission substation and passes towards the various distribution substations (Rahmati et al.2016, Amin et al. 2015). At last, the service location in lines, the power is stepped down again from the distribution voltage to the required service voltage(s) through distributors. The problem is mainly associated with high voltage level of electric motor by using domestic appliances, water pump connected tube well in households or, crop fields as which is linked by farmers unmetered by-passing electricity, direct hooking electric wires for Soil brick factories at night, political capture for public services, foreign material introduced with metered connection are more and more of power theft on states of India.

Theft controlling methods

The electric theft problems resolve about economic growth, which is obstructed by improper supplies of electricity. Actually, the data are failed from electrical authorities due to unidirectional communication and management system (Edison et al. 2013, Leite et al. 2018). The Advanced meter infrastructure monitoring and recording the demand, logging the utilities of power usage, deliver and receive the smart connection between user's and consumers advanced digital smart meter detect the leakage under grounding wire or, extra loading services (Mehrizi et al. 2018). The various power theft controlling method are summarized in Table 1.

Sl. No.	CONTROLLING METHODS	SYSTEM RELIABILITY	ECONOMY	SYSTEM EFFICIENCY
1.	Neural Networks	Good	less	Average
2.	Detection Identification based on HVD system	Normal	Less	Power
3.	Using Smart Meter	Perfect	High	High
4.	AMI (Advanced Metering Infrastructure)	Perfect	Average	Average
5.	PLC (Power Line Communication)	Good	Normal	High
6.	Intelligent Scheme	Perfect	High	High

Table 1: Showing the various power theft controlling method.

Conclusion

Hence from the above study it was concluded that the role of advanced digital meter introduces a smart meter manufactured for controlled the load controlling during communicate the user and consumer. In an interval of short spun of time period of checking by users in advanced digital circuit smart meter can modify these broad range of consumers to number of grouped consumers. By this sophisticated method, the theft power can be tripped from the circuit which has a higher digital circuit to track the theft detection at the electric control station.

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