

## **ABSTRACT**

*Electrical current needed can be very crucial, starting from when we start of activity in the morning until the evening, electrical energy is urgently needed. Electrical energy used to daily activities or in professional world. However, very large electrical energy still not used effectively by everyone who uses it. Sometimes some people often forget and lazy for deadliest tools that require power tools this must lead to a waste of energy. Therefore become a system where we can educate the user electric energy will power which they expect fine it is effectiveness or waste, knowing current issued and money spent for use of uneffective energy users become more wise in using energy. In this final project utilizes the on-grid system and using tunneling facilities as solutions to make the network structure.*

*Network on-grid system has been designed with the use of the technology of Virtual Private Network (VPN) as the core of a network that is formed, Mikrotik as a controlling device, tunneling as a medium of communication between perangkat monitoring and sistem informasi and L2TP as the security system.*

*The final project is to produce a network system that allows monitoring data from device pengirimian up to the server even though the distance between the device monitoring and information systems mutually far apart. And also there is the process of authentication credentials so that only certain parties can only access data and also the results of the measurement of the overall network QOS enough in price but based on ITU-T standardization still belongs to both. QOS measurement results as follows throughput between 0.01-0.05, 0.01-0.02 between delay and packet loss has amounted to 0%.*

*Keywords: Virtual Private Network, Mikrotik, L2TP*