

ABSTRACT

Electric power resources have become a basic necessity in the digital era, dominated by household electrical devices. Providing reliable and efficient power supply is a major challenge in the electrical distribution system. This research focuses on the analysis and improvement of the performance of the electrical distribution system using power delivery tools. The research method used involves mathematical modeling to analyze factors such as nominal output, system implementation, and power delivery tool efficiency. We also evaluate the technology of a specific type.

The research findings indicate that the proper selection and placement of power delivery tools can optimize power distribution, reduce power losses, and enhance the reliability of electricity supply. This study provides a better understanding of the crucial role of power delivery tools in achieving maximum efficiency and reliability in the electrical distribution system.

An essential aspect related to portable electric power resources is the compact and concise physical design, which allows for easy portability during travel, increasing efficiency and productivity in various activities, and even for emergency situations. Furthermore, the implemented security and protection features in this tool will also be discussed to ensure safe use and to protect electronic devices from potential risks such as voltage spikes or short circuits. Additionally, the compatibility with various electronic devices and the flexibility in using this portable electric power resource will also be discussed. The diversity of connectors and ports available enables the tool to be used with different types of devices, providing convenience for users with varying devices.

The tool will also undergo verification and testing to achieve the expected results. It can store up to 1066 Wh of energy and can provide electricity with a power of 1 kW. The product also integrates battery protection with a display for monitoring, showing battery State of Charge (SoC), power output, current, energy output, and battery capacity. Furthermore, a security system with an emergency button is included to anticipate any system errors or human errors, making this tool safe to use for anyone.

Keywords: Electric power resources, easily portable, household devices, store energy