

# Uninterrupted power supply planning scheme for Somaliland communication base stations

Why do mobile network operators face frequent power supply failures at BTS sites?

Mobile network operators (MNOs) face frequent power supply failures at BTS sites, leading to revenue loss and increased operational expenditure (OPEX). Despite their critical role, BTSs face significant operational challenges due to vulnerabilities in their power supply. These disruptions can arise from various external and internal sources .

Which telecommunication service provider in Ethiopia has a dataset?

The datasets for this research are collected from one of Ethiopia's telecommunication service provider, i.e., Ethio Telecom, power and environment monitoring system (Net-Eco). The datasets are five months of multivariate time series which were recorded at five minutes of sampling intervals.

How can predictive analytics improve BTS power supply reliability?

Leveraging redundant BTS power supply with predictive analytics allows network operators to anticipate outages, crucial for maintaining service reliability and minimizing disruptions while optimizing maintenance schedules.

What is a preferred power supply architecture for DSL applications?

A preferred power supply architecture for DSL applications is illustrated in Fig. 2. A push-pull converter is used to convert the 48V input voltage to  $\pm 12V$  and to provide electrical isolation. Synchronous buck converters powered off of the +12V rail generate various low-voltage outputs.

What are hybrid isolated power supply topologies?

Competing with these new POL modules are hybrid isolated power supply topologies, such as the cascaded current-fed or voltage-fed push-pull converters. Semiconductor suppliers are enabling power supply system designers to embed low-cost compact isolated power supplies directly onto their motherboards and line cards.

How to choose a power supply topology for a multi-output DSL converter?

Selection criteria for the power supply topology in multi-output DSL converters include requirements for performance (high efficiency and tight load and line regulation), simplicity, low cost and a small footprint with a low profile. High performance is achieved by selecting the appropriate topology and control circuit.

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