SolarInnovate Energy Solutions

5g base station power outage for 4 hours

Overview

Given the backup power sharing scenario in Sect. 4.3.3 and illustrated by Fig. 4.4, two types of power outages may happen.

To keep the network reliability, we need to control the possibility of network failures caused by asynchronous outages under a predefined threshold (denoted by □□).

Further practical constraints during the backup power deployment are as follows. 1. No BS misses: for any BS, its backup power is supplied by the batteries at one.

Note that among the above mathematical representations, only x and yare unknown variables that need to solve, and all the other nations are either prior.

What is cell outage detection in 5G?

The objective of cell outage detection is to detect whether there exists any malfunction of degradation in base station(s) which leads to service unavailability or unsatisfactory. The cell outage detection in 5G is a very challenging problem. The deployment of 5G mobile communication networks would be heterogeneous and ultra-dense.

Does BS load rate affect the power consumption of 5G networks?

the power consumption of AAU nearly linearly increases with the growth of BS load rate, while that of the BBU is quite stable at varying load rates. As the power consumption of 5G BSs is significantly higher than that of 4G BSs, we focus on the backup power allocation of 5G networks in this work.

What are the 4 states of 5G base stations?

Alias, Saxena, and Roy classified the states of 5G base stations into four categories: healthy, degraded, crippled, and catatonic . They developed a Hidden Markov Model (HMM) to automatically obtain the current states of base sta-tions, and to predict the probability of cell outage.

How will 5G be used in the future?

Reprinted, with permission, from ref. In the foreseeable future, 5G networks will be deployed rapidly around the world, in cope with the ever-increasing bandwidth demand in mobile network, emerging low-latency mobile services and potential billions of connections to IoT devices at the network edge .

What is a power outage?

An outage is specifically identified for practical implementation when the reference signal received power falls below a threshold, typically ranging from − 120 to − 140 dBm, within the coverage area of base stations.

What is backup power in 5G HetNet?

Especially for the cloud radio access network (C-RAN) scenario with many baseband units (BBUs) pooled together, it is natural and convenient to supply backup power for those BSs all together. The scenario of 5G HetNet consisting of macro and small cells, in which the backup power is supplied by battery groups.

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