

SolarInnovate Energy Solutions

Substation Energy Storage Motor



Overview

The paper describes the measuring systems and methodology for acquiring traction power measurements on the on-board traction systems of two metro trains and three 750 V DC rectifier substations in.

What is a power substation?

Electricity substations play a role in both stepping up the voltage of electricity for distribution on grid and in transforming it into lower voltages for delivery to end consumers. The Kawerau substation is one of 13 substations within the Bay of Plenty (BOP) region and is interconnected to the grid through both the 110 kV and 220 kV networks .

Can a hybrid energy storage system smooth out DC traction network power fluctuations?

A hybrid energy storage system has also been reported aiming to smooth out DC traction network power fluctuations, due to moving trains. In this context, a variable gain K iterative learning control (K-ILC) is proposed to balance the DC regulated voltage characteristics and thus lead to optimal lifetime of the battery storage system.

Does solid state substation have embedded energy storage?

Experimental validation of the solid state substation with embedded energy storage concept. 2016 IEEE Energy Conversion Congress and Exposition (ECCE), Milwaukee, WI, 1-8. doi: 10.1109/ECCE.2016.7855100 30 Eyer, J. & Corey, G. (2010). Energy storage for the electricity grid: Benefits and market potential assessment guide.

Can a hybrid energy storage system save energy?

Preliminary results confirm the feasibility of the energy saving concept indicating a significant potential for the hybrid energy storage devices and subsequent energy re-use of 4000-6000 kWh/day per rectifier substation of otherwise unused train braking energy, with a typical Metro station stationary loads consumption of 2000 kWh/day. 1.

How many kWh a day can a power station save?

Depending on the desired value of energy savings, it appears that storage savings of up to 1900 kWh/day are possible for the said station, corresponding to 100 % of its measured daily energy demand .

What is energy storage?

Energy stored used on Metro station electrical loads e.g. lighting/ventilation/pumps/etc. or for other public uses (e.g. street lighting). Field measurements based energy storage system design with proven feasibility.

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