Battery bus current fluctuation

Do fast-switching semiconductors induce ripple currents in electric vehicles?
Author to whom correspondence should be addressed. Fast-switching semiconductors induce ripple currentson the high-voltage DC bus in the electric vehicle (EV). This paper describes the methods used in the project SiCWell and a new approach to investigate the influence of these overlaid ripples on the battery in EVs.

How is DC-bus voltage error handled?
The DC-Bus voltage error was handled by PI gains,Kp and Ki,during disturbances at the DC-Bus such that the DC-Bus voltage followed the voltage set point (Vdc-ref = 400 V),as seen in the Fig. 11. The PWM generation circuit receives the output signal from the PI controller,which is then utilized to decide between buck and boost mode of operation.

What are the problems of small DC-BUS capacitor in PV/battery double phase grid?
There are three problems of using small DC-bus capacitor which has a low capacitance in PV/battery double stage single phase grid system which can be divided into three problems: instability of DC-bus voltage,output low-frequency ripple and system's dynamic performance problem.

Can flowchart decision logic reduce DC-bus voltage overshoot and undershooting?
The use of flowchart decision logic for d-q current regulation for a single-phase inverter is presented in this work to decrease DC-Bus voltage overshoot and undershoot. Because of applying the BES's intended charging/discharging management, the dynamic performance is significantly improved without compromising grid current.

Why do we need two different current profiles for cycling batteries?
In the case of the battery dataset,this means that two different current profiles for cycling the batteries are required so that the model cannot just memorize the current sequence. To achieve these current profiles,two reference driving profiles commonly used to evaluate the range and emission of vehicles are simulated with a vehicle model.

How D-Q current regulation is used in the DC-bus control system?
Second,for the first time,a simple and novel d-q current regulation technique,which employs flowchart decision logic,is used in the DC-Bus control system for both the PV power system and the state of charge (SOC) of the BES.

The DC bus voltage. from publication: Optimal Adaptive Gain LQR-Based Energy Management Strategy for Battery-Supercapacitor Hybrid Power System | This paper aims at presenting an energy management ...

Before 0.08 s, the motor runs approximately no-load and has entered the steady state. At 0.08 s, the motor is suddenly loaded to 24 N m. Using the conventional power feedforward control strategy proposed in Ref. [10],

the system fluctuation time is long, the inductance current overshoot is large, and the maximum fluctuation amplitude of bus voltage ...

Simulations which include ideal models for battery and DC bus capacitors do not give realistic results in terms of battery ripple current. ... battery current fluctuation is higher than in the ...

The proposed solution, however, requires a sizeable dc-bus capacitor and induces large fluctuations of dc-bus voltage, which will have a negative effect on the inverter"s ...

The MPPT algorithm and the voltage-current control loop are implemented in the DC/DC boost converter following the flowchart designations of the power flow. Moreover, the DC bus voltage is adapted at 400 V, and the BSB settings are 48 V/8.3 Ah. The battery is tied to the DC bus through a bidirectional buck/boost converter.

In this paper, we analyze a direct current (DC) microgrid based on PV, lithium-ion battery and load composition. We use high-capacity lithium-ion batteries instead of SC to smooth out large power fluctuations, and also give ...

Because of the considerable fluctuations of the power generation and load in Photovoltaic (PV) - Battery (BAT) systems, power management strategies become indispensable since BAT is needed to ...

In the case of multiple electric vehicles charging simultaneously, a system optimization control algorithm is adopted to minimize DC-bus current fluctuation by analyzing ...

where P HESS, P SC, P B, P LOAD and P BUS are the power of the HESS, the power of the SC, the power of the lithium-ion battery, the power of the load and the power of the direct current (DC) bus, respectively.. For the HESS, the power on the DC bus will fluctuate correspondingly when the power of the supply and the load of the microgrid fluctuate in real ...

The AC voltage fluctuation could possibly damage the charger eventually, but as long as you are using a high quality charger, like the Apple-branded one, the DC output will be quite stable at 5V. You can buy a cheap device to measure this if you are curious.

Abstract: Aiming at the problem of bus voltage fluctuation caused by intermittent output of distributed generation and load mutation when DC Micro-grid is operating in isolated island, a ...

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