Smart Energy Solutions

Edgar Harzfeld
Department of Electrical Engineering and Computer Science, Stralsund University of Applied Sciences Stralsund, Germany

Abstract:

As a result of the transition of energy systems towards regenerative solutions, the share of PV power will increase considerably. Voltage stability of PV systems is becoming increasingly important as the feed-in peak is during the period of peak load and short-term weather phenomena will increase as a result of climate change, here in particular cloud draught. By using short-term ultracapacitor systems and expanding these storage systems with battery and methanol storage systems, it is possible to stabilise the grid and consumer voltage even under conditions of high PV feed-in. Voltage fluctuations that occur as a result of surplus or deficit feed-in can be limited or prevented by storage systems adapted to the feed-in power.

Keywords:

PV unit, weather phenomena, grid stability, ultracapacitor, batteries, power to methanol and knowledge acquisition.