

Master 2021

Muhammad Shayan Khan

Development of Time Series Optimal Power Flow for an Industrial Microgrid in Python.

ABSTRACT - Masterthesis

Since the 2015/27/EU regulations, it is mandatory for companies to increase their energy efficiency and save CO₂ emissions. This leads to a growing importance for industry to include renewable energy technologies as well as demand-side-management (DSM) for their production sites and local operations.

Due to above mention factors, this thesis "Development of Time Series-Optimal Power Flow for an Industrial Grid in Python" discusses the integration of active industrial energy management which can be helpful for a stable and robust industrial power grid. Our aim is to examine the interactions between the public grid and the industrial grid as well as the interactions between different energy sources of the industrial grid using Panda Power in python. The industrial active industry network should incorporate DER, such as solar power as well as production load from the industry and optimize power generation by costs. Development of time-series simulation for 24 hours of energy data and to understand and analyze the function of optimal power flow working principle in Panda Power.