

# 1 Case Study Demonstration

The energy price data is taken from the ComEd hourly live prices data [?] for 10 November 2023.

## 1.1 Simulation Data: IEEE 123 Bus Test System

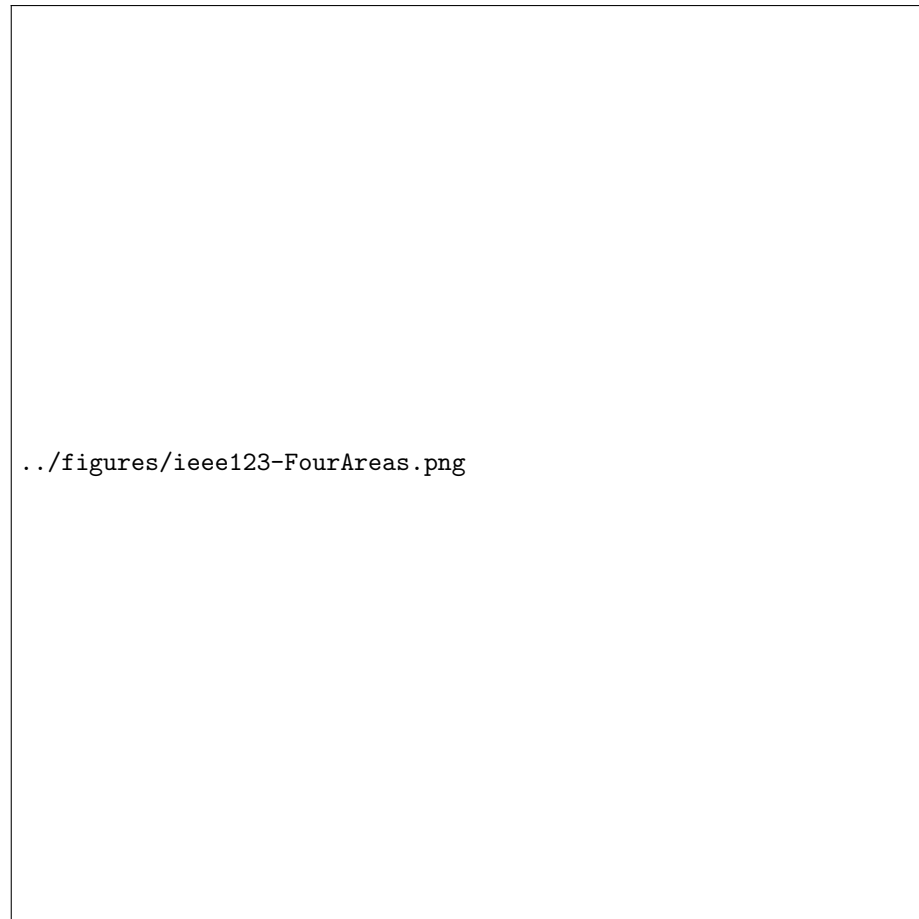


Figure 1: Area 4 Battery 9 Charging and Discharging & SOC

## 1.2 Simulation Results

Case 1: centralized OPF with battery Case 2: ENApp based distributed OPF with battery