I. Case Study Demonstration

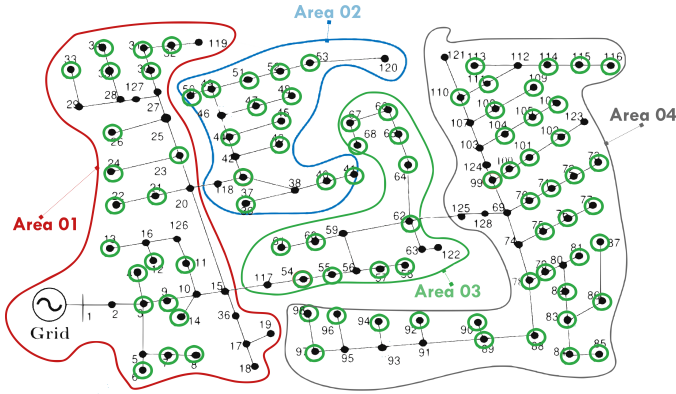## A. Simulation Data: IEEE 123 Bus Test System

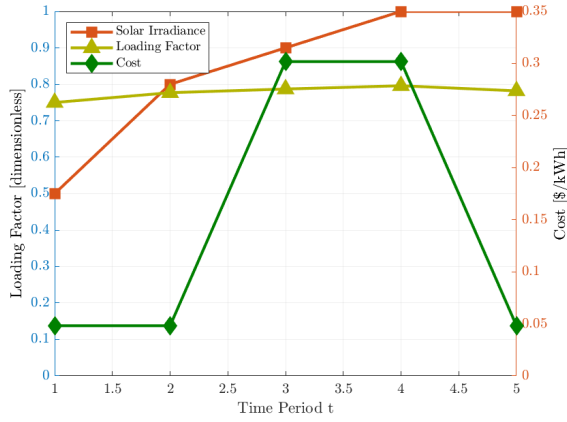Fig. 1: IEEE 123 Node System Divided Into Four Areas

Fig. 2: Forecasts for Demand Power, Irradiance and Cost of Substation Power over a 5 Hour Horizon

B. Simulation Results

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