

7th International Conference on
Electrical , Electronic Engineering and Smart Grids



IMPACT OF UNCERTAINTIES OF COMBINED HEAT AND POWER ON MICROGRIDS

Moaiaad Mohseni¹

Khuzestan regional electric company-Ahvaz- Iran

Abstract

Today, due to the increase in energy consumption and the increasing use of distributed generation units (DG) such as combined heat and power (CHP), fuel cells (FC) in microgrids, it is necessary to use them in the best possible conditions. . The use of distributed generation units, which are mainly installed in small dimensions and on the load side of the distribution network, can in addition to meeting part of consumers' needs for electricity, other benefits such as reducing power transmission losses, increasing production efficiency and increasing reliability. To have with. Meanwhile, the use of combined heat and power, which are among the most widely used distributed generation units, greatly increase the efficiency of energy production by generating both electricity and heat, and thus reduce the cost of non-supply of energy. . In this paper, the working modes of the sample microgrid are evaluated and finally the optimization of a multi-objective function that aims at economic production of each of the distributed generation sources, minimization of the cost of electrical and thermal energy supply of the microgrid, minimization Loss of electrical and thermal energy results in a load response program and an energy storage program. The results of optimal planning of the capacity and number of combined heat and power under different conditions and situations, show the significant effect of using combined heat and power in reducing the energy supplied and increasing the reliability of the system.

Keyword : combined heat and power, distributed generation, microgrid, reliability.

¹- Corresponding Author