POWER GENERATION COORDINATION WITH CONSIDERATION OF SHORTFALL COST USING GREY WOLF OPTIMIZER

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ABSTRACT

Electricity utilities are in a process of adapting their systems to the new system with the introduction of liberalization of electricity markets where it could become a well-functioning system in the industry of the country. Due to the liberalized market, competition among the participants in the industry has been introduced. This forces the industry in many countries to take a significant transformation. As the electricity generation and the economic viability varies with the demand, location and planning for the delivery of output power is crucial in order to obtain the maximum profit of hydro and thermal generation while considering the risk in the market. In this study, shortfall cost in the electricity generation is considered as the risk. Hence, Grey Wolf Optimization (GWO) method has been developed to maximize the profits of the hydro and thermal generators without and with considering the risk. This GWO algorithm is a simple method that use a few parameter, fast seeking speed and high search precision where it is more easily combined with the practical engineering problems. A test system consists of 7 hydro and 4 thermal units is tested using the proposed method and the results have shown that the maximum profit while considering the shortfall cost also can be obtained.

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