Combined Heat and Power Dynamic Economic Dispatch incorporating pumped hydro energy storage considering uncertainty and outage of renewable energy sources

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Abstract

Owing to increasing penetration of renewable energy sources, it is mandatory to investigate it's effect on the combined heat and power dynamic economic dispatch. At the same time , adverse effect is there due to highly intermittent nature and higher rate of outages of these sources . This piece of work proposes squirrel search algorithm (SSA) for solving combined heat and power dynamic economic dispatch (CHPDED) incorporating pumped-storage-hydraulic unit captivating uncertainty and outage of renewable energy sources. A lately developed swarm intelligence algorithm SSA, emulates from the dynamic scavenging behavior of squirrel. The competence of the recommended technique is examined on a test system. Simulation outcomes of the proposed technique is harmonized with those acquired by particle swarm optimization (PSO) and grey wolf optimization (GWO). After comparison, a conclusion was made presenting SSA technique conferring with good-quality solution than other techniques.

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