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AC Dynamic Transmission Expansion Planning Using Memetic Algorithms

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Abstract[Author keywords](#)[Indexed keywords](#)[Sustainable Development Goals](#)[SciVal Topics](#)[Metrics](#)[Funding details](#)**Abstract**

The objective of Dynamic Transmission Expansion Planning (DTEP) is to determine which, where, and when electric infrastructure should be added to a power system within a planning horizon. Adding new components to the system aims to meet future demand and efficiency parameters such as service quality, reliability, and economy. Few research works aim to solve the DTEP problem using the AC network model. In this research work, a solution method using Memetic Algorithms (MA) is proposed. The solution method solves the DTEP problem by combining population-based solution techniques and local search. The full non-convex AC model is used to deal with the DTEP problem. The proposed algorithm combines the Particle Swarm Optimization (PSO) metaheuristic with the Hill Climbing local search technique and it is evaluated using the Garver system. © 2023 IEEE.

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AC Model; Dynamic Transmission Expansion Planning; Hill Climbing; Memetic Algorithm; Optimization;
Particle Swarm Optimization (PSO); Renewable Energy

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