

# **Abstract**

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## **Multi objective optimization of islanded microgrids**

This paper studies the optimization of operation of islanded microgrids. The objective is to minimize the fuel consumption and power losses of an islanded microgrid with distributed energy resources (DERs). The optimization algorithm identifies available output of non-dispatch able DERs, then active/reactive dispatch is carried out to minimize the objectives according to fitness functions and constraints. The optimization algorithm also considers slack bus Selection as it affects both line losses and running costs. Non dominant Sorting Genetic Algorithm II (NSGA-II) is used to solve the multi-objective optimization problem. The algorithm is tested on two load profiles to simulate all possible conditions.