

Paper Title	Optimizing Operation of a Combined System of a Solid Oxide Fuel Cell and Distributed Engine Generators for Independent Micro-Grid		عنوان البحث
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Abstract

The operation plan of solid oxide fuel cell (SOFC) micro-grid with diesel engine generator is optimized as a nonlinear system considering electricity and heat storage. Furthermore, three types operation cases. Case 1: number control of diesel engine generators, Case 2: one-set of SOFC, and Case 3: combined system of the number control of diesel engine generators, and one-set of SOFC are proposed to supply energy to a micro-grid of 50 houses in Giza city, Egypt. A comparison study between the three operating cases is satisfied. In addition, the exhaust heat output from SOFC and diesel engine generators is used to supply a thermal demand. The analysis of the overall efficiency is shown. This paper reported that the total efficiency of the combined system is higher than independent operation of each system.