CHAPTER EIGHTEEN

DESIGN OF AN EFFICIENT HYBRID SYSTEM FOR ELECTRICITY PRODUCTION WITH SUPERVISORY CONTROL

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Abstract

This chapter aims to develop a new method for the economical evaluation of Hybrid Systems for electricity production. The different types of renewable sources are specifically evaluated in the economical performance of the overall equipment. The presented methodology was applied to evaluate the design of a photovoltaic-wind-diesel hybrid system to produce electricity for a community in the neighbourhood of Luanda, Angola.
Once the hybrid generator is selected, it is proposed to provide the system with a supervisory control strategy to maximize its operating efficiency.

1. Introduction

The intensive consumption of fossil combustibles is the main cause for the negative impact on our atmosphere. In fact, the fossil combustibles are the main energetic source that sustains the worldwide development. Both major world energetic necessities on thermal and mechanical power are mainly delivered by fossil combustibles.

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