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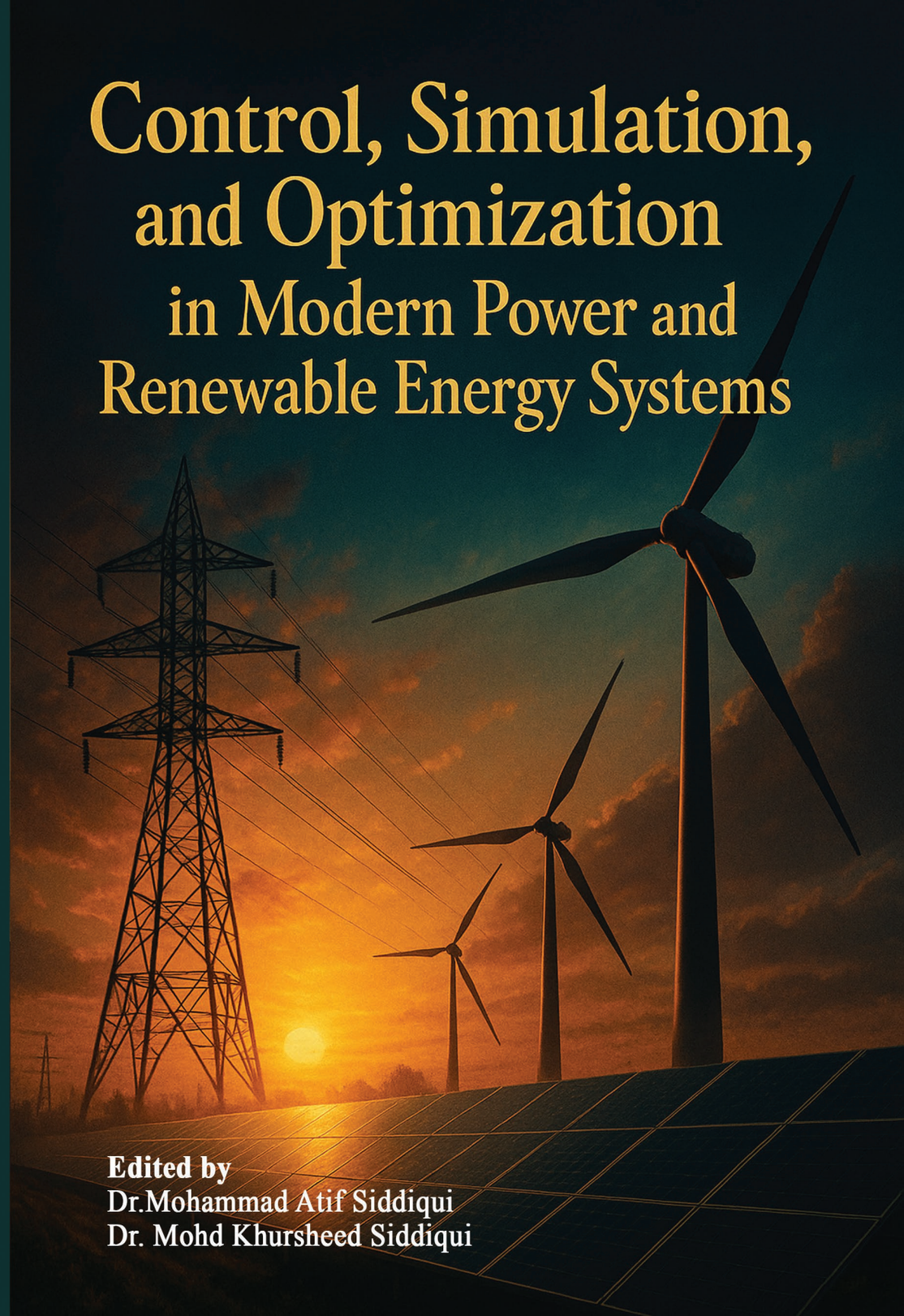

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CONTENT

Chapter – 1

Load Frequency Control of Single Area Power System through PID Controller

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1. INTRODUCTION

The main aim of power generating system is to deliver adequate, high quality, reliable power to the load. The increased size and complexity of modern interconnected power systems and the load dynamics require increased intelligence and flexibility in control to ensure the capability of maintaining a generation-load balance. Load Frequency Control (LFC) and Automatic Voltage Regulator (AVR) are the two fundamental control loops used to maintain constant frequency and voltage in order to ensure the reliability and quality of electric power supply. Any of the conventional controllers like Proportional (P), Proportional-Integral (PI) or Proportional- Integral-Derivative (PID) controller are normally used in LFC and AVR control loop to reduce the frequency and voltage error. However, tuning the gain parameters of these controllers is always a challenging task. The conventional ways of tuning provides fixed gain parameters. These fixed gain controllers fail to provide best control performances under wide range of operating conditions. In order to provide an acceptable high level of power quality, the power system should cope with the load dynamics, physical constraints and with the system disturbances. Therefore, it is desirable to track the operating conditions consistently and to compute the updated gain parameters in the controllers.