

**DEVELOPMENT OF GRAPHICAL USER INTERFACE  
FOR ECONOMIC DISPATCH PROBLEM**

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## **ABSTRACT**

The electric power system is considered the backbone of modern information society. Many other infrastructures and services including telephone, computing, banking, etc will not be operating properly without safe, reliable and economic supply of electricity. Therefore, the power system infrastructure is considered the most critical one and its operating needs to be assured on a daily basis. Simulation programs like Power Dispatch Simulator are essential for teaching undergraduate students about the basic of power system engineering. Moreover, this paper presents a window-based educational simulator with user-friendly graphical user interface (GUI) for the education of power system engineering for solving economic dispatch (ED) problems. In the developed simulator, users can select the number of generator will be used and set the generators either with limit or without limit and also without the losses.

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# CHAPTER 1

## INTRODUCTION

### 1.1 BACKGROUND

Nowadays, electric power is very important to our lives since our world now is using many electrical components to help modernize our world. As long there is a machine, and then electric power shall be need to supply power to generated or run the machine well. Without electric power, there is no light shall be switched on to light up our city and all infrastructures will not be operating. Electricity most often generated at power station and they will supply the electricity to the household, industry and many more.

Power system engineering brings the knowledge about generation, transmission and distribution of electric power as well as the design of a range of related devices which includes transformers, electric generators, electric motors and power electronics [1]. There are some efforts to teach people about power system engineering. Power World Corporation [2] makes power system analysis and visualizations more attractive to attract undergraduate students to study about power system engineering.

Power World Corporation developed Power World Simulator (PWS) to encourage undergraduate students to study about power system engineering. The simulator also can be used by the industry, advance user and instructors. The PWS has been developed to simulate high voltage power system operation that contains a highly effective power flow analysis and capable of efficiently solving systems up to 100,000 busses [2].