

# **ECONOMIC DISPATCH WITH ENVIRONMENTAL CONSIDERATION USING PARTICLE SWARM OPTIMIZATION TECHNIQUE**

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## **ABSTRACT**

This project presents the Particle Swarm Optimization (PSO) solution for the Economic Dispatch (ED) in power system by considering the environmental issues. The Economic Dispatch problem is to minimize the total cost of generation under various systems and operational constraints while satisfying the power demand. However, the power system operation at minimum cost is not longer the only criterion for electrical power dispatch. There are others issues that are also being concerned nowadays.<sup>x</sup> Environmental concerns are becoming increasingly relevant for companies as regulations on pollutants become more stringent and customer awareness of environmental impacts increases. Therefore, a new decision approach is proposed for the incorporation of the carbon dioxide emission constraints in the solution of the Economic Dispatch problem.<sup>y</sup> Particle Swarm Optimization algorithm is used for generating the fuel cost versus emission tradeoff function for carbon dioxide emission. Particle Swarm Optimization approach has been successfully tested on the IEEE 26 and 30 bus system with six generator units, which dealing with the cost–emission economic dispatch problem. Particle Swarm Optimization algorithm is proposed to solve this problem developed using MATLAB program.

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