Economic dispatch of electrical power is very important in the sense it saves lot of money by employing an optimization method based on the required performance index resulting in optimal power flow. In classical Economic Dispatch (ED) method all units are committed. In Unit Commitment (UC) method all the units need not be committed and they are committed based on the load demand during that interval. In Unit Commitment with Economic Dispatch (UCED) method, required number of units is committed like in UC and optimization method of ED is employed to find optimal power flow for this state. As a case study a ten-unit power system is considered. ED and UC problems of this system are solved using PSO algorithm. UCED method is also implemented for the same system. The results show that UCED method is more efficient.

References

1. Allen J. Wood and Bruce F. Wollenberg “Power Generation Operation and Control"
second edition, Wiley India, New Delhi, 2012.


Index Terms

Computer Science
Power Electronics

Keywords
Economic Dispatch, Unit Commitment, Unit Commitment with Economic Dispatch, Particle Swarm Optimization, Ten-unit power system.