World Academy of Science, Engineering and Technology
International Journal of Energy and Environmental Engineering
Vol:9, No:10, 2015

Apply Commitment Method in Power System to Minimize the Fuel Cost

Authors : Mohamed Shaban, Adel Yahya

Abstract : The goal of this paper study is to schedule the power generation units to minimize fuel consumption cost based on a model that solves unit commitment problems. This can be done by utilizing forward dynamic programming method to determine the most economic scheduling of generating units. The model was applied to a power station, which consists of four generating units. The obtained results show that the applications of forward dynamic programming method offer a substantial reduction in fuel consumption cost. The fuel consumption cost has been reduced from $116,326 to $102,181 within a 24-hour period. This means saving about 12.16 % of fuel consumption cost. The study emphasizes the importance of applying modeling schedule programs to the operation of power generation units. As a consequence less consumption of fuel, less loss of power and less pollution

Keywords : unit commitment, forward dynamic, fuel cost, programming, generation scheduling, operation cost, power system, generating units
Conference Title : ICEM 2015 : International Conference on Energy Management
Conference Location : Paris, France
Conference Dates : October 29-30, 2015