
Seminar Title	: Unit Commitment of Thermal Units with respect to both Cost and Emission based on a Day Load Demand in integration with Renewable Energy Sources
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Abstract	: During the last few years, emission control has become a major problem of global concern due to the constantly increasing pollution of the earth's atmosphere. This is due to the emission of a large amount of GHGs (Greenhouse gases) like carbon dioxide, etc. in the atmosphere. On the other hand, demand for electricity is gradually increasing in India and use of more thermal power generation is leading to increased emissions. These emissions from thermal power plants have an adverse effect on the environment, we cannot largely depend on thermal power plants for power generation. In this work, the basic objective is to reduce the cost of electricity as well as to reduce thermal generation by integrating the conventional thermal power plant with renewable energy sources. So, this work considered the integration of thermal units with renewable sources like solar photovoltaic and wind power while accounting for its uncertainties. Unit Commitment (UC) and Economic load dispatch (ELD) have significant research applications in power systems and optimize the total production cost for the forecasted load demand of hour. UC decides the turn ON/ turn OFF decision of unit/units according to the forecasted load of hour optimally while satisfying all constraints of the unit like startup and shut down costs. ELD optimizes the operation cost for all scheduled generating units with respect to the forecasted load demands of customers at a particular hour. UC and ELD are performed to reduce the total production cost to as minimum as possible, so that the customer will get electricity at minimum cost. In this work, UC problem is solved for 4 thermal units for a day (24 hours) by Dynamic Programming to reduce both the operating cost as well as the carbon dioxide emissions by integrating renewable energy sources like solar PV and wind power. The solution shows satisfactory results. Future scope to this work also mentioned.