Abstract

Electricity industries around the world have significantly restructured in order to improve their economic efficiency, reliability of power systems and accountability. Accurate prediction of day-ahead electricity nodal price has now become an important activity to address the system operations and price volatility in the restructured electricity market. This will facilitate the market participants to estimate the risk and have better market oriented decision making.

In order to meet the electricity demand and other benefits, many developing countries including India are adopting HVDC transmissions in their existing system. Developing countries
need to address this practice while adopting suitable electricity nodal pricing scheme and its accurate prediction. This study aims at (1) motivations and relevance of present study, (2) presenting AC-DC OPF based nodal pricing and formulation of day-ahead nodal price prediction using Artificial Neural Networks, (3) presenting and comparing numerical results for a real system of developing country like India to demonstrate the rationality and feasibility of the proposed methodology.

Reference

- Zhang, L. and Luh, P. B. Neural network-based market clearing price prediction and confidence interval estimation with an improved extended Kalman filter method. IEEE

**Index Terms**

Computer Science  
Power Systems

**Key words**

AC-DC Optimal Power Flow (OPF)  
Nodal Price Prediction  
Artificial Neural Networks