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Editors

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# Chapter 12

## Transmission Expansion Planning Using Teaching and Learning Based Optimization Approach



Jitesh Jangid, Aishwarya Mehta, Akash Saxena, Shalini Shekhawat, Rajesh Kumar, and Ajay Sharma

### 1 Introduction

Transmission Expansion Planning (TEP) is essential to accomplish the potential growth in load. The goal of the TEP problem is to determine the optimal circuit configuration that should be applied to the network in order to fulfill the load demand and operational constraints. Different mathematical models such as the static model, hybrid model, DC model are built for the solution of the TEP problem. The TEP is a dynamic problem of different forms of random and non-random variables, such as demand, generation price, capacity of the generator, availability of lines, transmission facilities for substitution, and business laws. Such complexities should be treated independently through the various expert structures such as artificial neural networks and fuzzy logic, thanks to their capacity to solve unknown problems.

The problems of Electrical power system are divided into two parts one is generation expansion planning (GEP) [1] and other is Transmission expansion planning

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