

Generation Expansion Planning Considering Wind Power Resources and Energy Efficiency Solutions

Zahra Eslamdost*, Shorangiz Shams Shams Abad Farahani, Ehsan Alishahi,

In this thesis Generation Investment problem investor point of view considering wind and energy efficiency resources with respect to importance of this problem in deregulated market and high desire of regulators to renewable and energy efficiency resources has been studied. This problem has been modeled considering transmission network and congestion effect. To design sustain incentive plan by regulator, at first the OPF problem for target year has been solved. Depending on LMPs through system buses for each load level of LDC, the amount of incentives for each buses and for each technologies have been determined. In the next stage, the investor has modeled and solved the maximum profit problem of investment considering different technologies to determine, location, size and technology. The investor in order to calculate the return rate of investment should estimate the market clearing for target single year. Market clearing is an optimization problem that is solved by regulator. Hence the investor objective is constrained by an other optimization problem (market clearing) which is regulator objective and called social welfare. So Bilevel programming model is needed. Case studies has been done and the impact of regulator intervention on the investment level on wind and energy efficiency resources has been shown. Finally sensitivity analysis has been done on level of incentive.

Keywords : Index term: Bilevel Programming, Generation Expansion Planning, Wind Power Plant, Energy Efficiency Resources.

[Islamic Azad University, Rasht Branch - Thesis Database](#)
[دانشگاه آزاد اسلامی، واحد رشت - سامانه بانک اطلاعات پایان نامه ها](#)