



Analysis of Taiwan Energy Market: an MPEC approach

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In 2017, in view of the fact that most developed countries have implemented electricity industry liberalization, Taiwan has also opened up private enterprises to enter the market for power generation and electricity sales. In the past, power in Taiwan was operated by Taipower Company alone, including power generation, transmission, and electricity sales. Today, in order to deal with the damage caused by climate change to the natural environment, Taiwan encourages more private companies that produces renewable energy to enter the energy market, using free competition to determine the market price. However, the Taipower Company has been in Taiwan for many years and has strong price control capabilities, which makes it necessary for other private energy companies and new companies to observe the behavior of Taipower Company before making a optimal strategy. This study identified this problem as an Mathematical programming with equilibrium constraints(MPEC), where Taipower Company is a leader, while other private companies (followers) must make strategies after leader find the best decision for the company. Finally, this study simulates the situation after the future power market is stable, and provides the basis for further exploration of possible improvements in the future.