Study of Integrating Demand Side Management Potential To Power Generation Planning Through Load Forecasting

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Abstrak

A study has been done on the potential integration of Demand Side Management (DSM) to the reduction of electric power peak load forecasting in the Indonesian electric system by using the indonesia Energy Outlook by .System Dynamic (INOSYD) model and Artificial Neural Network (ANN) method, within the study period of 2005-202l. DSM is the process of managing the consumption of energy. generally to optimize availability and development plan of energy resources. DSM application in this research refers to actions taken on the customer 's side of the matter to change the amount or timing of energy consumption, therefore it influences the reduction of the long-range forecasting of electricity peak load In this paper, the lang-term load forecasting is studied by using INOSYD model, JS T method and Model for Analysis of Energy Demand (MAED) as comparison, where the calculation results of average annual load growth rate are around 4.60% (DVOSYD) ; 7.l6% (ISD and 6.87% (MAED) respectively. Afterwards, the influence of DSM by an effort to reduce energy consumption of residential sector by an amount of 5% and l0% respectively, with the respect to the lang-term load forecasting by using INOSYD model and ANN method is performed The study results show that DSM application at residential (household sector at an amount of 5% and l 0% by using lNOS}'D model will reduce the average long-term load forecasting by about 4.95% and 9.90% respectively, meanwhile ANN method will reduce the average long-term load forecasting by about 2.74 and 5.36% respectively.