MANAJEMEN AKTIVASI PERALATAN LISTRIK PERKANTORAN DENGAN PENDEKATAN *FUZZY LOGIC*

SKRIPSI

diajukan untuk memenuhi sebagian syarat

untuk memperoleh gelar Sarjana Teknik Elektro

Program Studi S1 Teknik Elektro

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Sebuah skripsi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar Sarjana Teknik pada Fakultas Pendidikan Teknologi dan Kejuruan

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ABSTRAK

Penggunaan energi listrik yang terus meningkat mengakibatkan diperlukannya pasokan energi yang banyak. Pengelolaan energi listrik yang belum tepat dapat menghasilkan penggunaan listrik yang boros atau tidak efisien. Puncak dan lembah pada sebuah kurva yang mempengaruhi efisiensi suatu sistem tenaga listrik yang dapat dideteksi dengan menganalisis kurva beban. Hal tersebut disebabkan oleh perubahan perilaku konsumen terutama konsumen di sektor perkantoran ataupun perumahan yang tentunya akan menciptakan pola penggunaan setiap peralatan listrik yang berbeda-beda. Oleh karena itu, penelitian ini menyajikan penggunaan suatu sistem kecerdasan buatan (logika *fuzzy*) untuk memodelkan perilaku manusia terkait aktivasi/penggunaan peralatan listrik dan lampu penerangan. Berdasarkan model ini, profil aktivasi per jam untuk setiap peralatan listrik dapat diperoleh. Model ini bertujuan untuk berkontribusi pada simulasi strategi manajemen sisi permintaan di perkantoran ataupun di area lainnya agar dapat menggunakan energi listrik menjadi lebih optimal dan efisien.

Kata Kunci : logika *fuzzy*, energi listrik, manajemen sisi permintaan

ABSTRACT

The use of electrical energy continues to increase resulting in the need for a large supply of energy. Improper management of electrical energy can result in wasteful or inefficient use of electricity. The peaks and valleys on a curve that affect the efficiency of an electric power system can be detected by analyzing the load curve. This is caused by changes in consumer behavior, especially consumers in the office or housing sector, which is will create different patterns of use of each electrical equipment. Therefore, this research presents the use of an artificial intelligence system (fuzzy logic) to model human behavior related to the activation/use of electrical equipment and lighting. Based on this model, an hourly activation profile for each electrical equipment can be obtained. This model aims to contribute to the simulation of demand-side management strategies in offices or other areas in order to be able to use electrical energy more optimally and efficiently.

Keywords: *fuzzy logic, electrical energy, demand side management*

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