ABSTRAK

Energi listrik memiliki peranan yang sangat penting di dalam suatu industri sehingga dapat beroperasi akan tetapi dalam pemakaian serta alokasi biaya untuk operasional energi listrik tersebut sangat besar, Sebagai salah satu industri farmasi di Indonesia *Dexa Laboratories of Biomolecular Science (DLBS)* terus berbenah dalam melakukan penghematan energi salah satunya dengan melakukan audit energi. Berdasarkan data pemakaian energi listrik selama 2019 yaitu sebesar 1.221.105 kWh/Tahun atau rata-rata 101.758 kWh/Bulan dan data pemakaian energi listrik selama 2020 yaitu sebesar 1.287.049 kWh/Tahun atau rata-rata 107.254 kWh/Bulan. Terdapat peningkatan penggunaan energi sebesar 65.944 kWh/Tahun, hal ini perlu dianalisis untuk mencari peluang efisiensi energi pada ruangan atau area yang perlu ditingkatkan dan mencari peluang-peluang potensi penghematan energi sehingga dapat melakukan penghematan biaya konsumsi energi. Hasil observasi di lapangan lampu penerangan belum menggunakan LED dengan masih menggunakan lampu TL dengan daya 36 *watt* dan 18 *watt*, sehingga berpotensi menyebabkan penggunaan daya listrik besar. Serta belum diketahuinya efisiensi pada AHU berdasarkan COP dan EER. Berdasarkan rujukan ASEAN USAID 1992, nilai IKE standarisasi gedung perkantoran yaitu 240 kWh/m²/Tahun. Audit energi ini dimulai dengan melakukan metode pengumpulan dan pengolahan data konsumsi energi serta dengan cara melakukan pengukuran pada energi listrik dengan cara melakukan audit singkat, audit energi awal dan audit energi rinci. Alat yang digunakan dalam penelitian tugas akhir ini yaitu *multimeter*/Tang *ampere, power logger, lux meter* dan *thermohygrometer*. Dengan menganalisis potensi hemat energi, dan berbiaya rendah, maka, pengeluaran dapat dihemat hingga 6% dari total penggunaan energi selama satu tahun.

Kata kunci: Audit Energi, Intensitas Konsumsi Energi, Peluang Penghematan Energi

ENERGY AUDIT AND ANALYSIS OF ENERGY SAVING OPPORTUNITIES AT DEXA LABORATORIES OF BIOMOLECULAR SCIENCE

ABSTRACT

Electrical energy has a very important role in an industry so that it can operate, but in use and the allocation of costs for the supply of electrical energy is very large, therefore the need for efficient use of energy, especially electrical energy. As one of the pharmaceutical industries in Indonesia, Dexa Laboratories of Biomolecular Science (DLBS) continues to improve in energy savings, one of which is by conducting energy audits. Based on data electricity consumption for 2019 which is 1,221,105 kWh/year or an average of 101,758 kWh/Month and data on electricity consumption for 2020, which is 1,287,049 kWh/year or an average of 107,254 kWh/Month. There is an increase in energy use of 65,944 kWh/year, this needs to be analyzed to find energy efficiency opportunities in the room or area that needs to be improved and look for potential energy saving opportunities so that energy consumption costs can be saved. The results of observations in the lighting field have not used LEDs yet still use TL lamps with 36 watts and 18 watts of power, so they have the potential to cause large electrical power usage. And the efficiency of the AHU is not yet known based on COP and EER. Based on the ASEAN USAID 1992 reference, the standard IKE value for office buildings is 240 kWh/m²/year. This is the main parameter in conducting energy audits. Therefore, the purpose of this energy audit is to look for energy efficiency opportunities in the room or area as well as those that need to be improved and analyze the potential for energy saving. This energy audit begins with the method of collecting and processing energy consumption data as well as by measuring electrical energy by conducting an initial energy audit and detailed energy audit, then calculating the Energy Consumption Intensity (IKE) and looking for energy saving potential. The tools used in this research are multimeter/amperage pliers, power logger, lux meter and thermohygrometer. By analyzing the potential for energy-saving, and low-cost, then, expenses can be saved up to 6% of the total energy use for one year.

***Keywords**: Energy Audit, Energy Consumption Intensity, Energy Saving Opportunities*