

ABSTRACT

Rifa Kansa Addilah, Analysis of The Usage Efficiency Electricity's Achievement on Lighting and Cooling System at PT. Pos Indonesia Bandung. Undergraduate thesis, Electrical Engineering Study Program, Engineering Faculty, Siliwangi University, 2023. Supervisor, Dr. Ir. Nundang Busaeri, M.T. and Dr. Ir. Nurul Hiron, S.T., M.Eng. IPU.

The research discussed about Analysis of The Usage Efficiency Electricity's Achievement on Lighting and Cooling System at PT. Pos Indonesia Bandung. The results of the observations made show that almost all of the lighting systems and cooling systems did not meet the standards. Based on the background of the problem, this study aimed to saw the opportunity of energy conservation on the lighting and cooling systems in the building of PT. Pos Indonesia Bandung. The methods used include calculated IKE, measured the energy consumption intensity of the lighting system, measured the temperature and humidity in several rooms and measured the power on the air conditioner, and calculated the efficiency of the lighting and cooling system, then provide an overview in the form of recommendations for energy conservation opportunities that must be carried out. The results of the analysis carried out, the overall IKE value in the past year has reached 39,2 kWh/m²/year, for non-AC office buildings is 25,2 kWh/m²/year which is included in the efficient category and for air-conditioned office buildings is 65,4 kWh/m²/year which is included in the very efficient category. The lighting system on energy consumption reaches 30% and the cooling system reaches 26%. The opportunity of this conservation has been studied by redesign a lighting system that can replaced conventional TL lamps into LEDs with a 586,6 watts total power, then it simulated on the DIALux EVO 8.2 software and experience a 22% reduction, in recalculation of the cooling load there is a recommendation to replace the air conditioner on the room which has not been conditioned by an AC inverter and the total power of the recalculation is 11670 watts and has decreased by 6%.

Keywords: Cooling Systems, Energy Consumption Intensity (IKE), Energy Conservation, Energy Efficiency, Energy Management, Lighting Systems.