

ABSTRAK

Hybrid power plant (PLTH) is a technology of power plant that combines several types of power plants or power stations that use more than one kind of plant. In this final Task is the comparison between renewable energy generation such as solar cells and energy renewable diesel plant such as non, so here it is determined where the power plants are more efficient for long island & effective. Long Island has the level of solar radiation is good enough where Clearness index 0.501 while the average Daily Radiation (kWh/m²/d) average 5,017. In this study using software Homer, Homer is a software used to assist in the modeling of a power system using a wide selection of one of these renewable resources potential of the Sun with the menggabungkan renewable energy not using diesel fuel based on simulated results Homer installation pembangkit diesel power with a capacity of 5 kw with maximum 50% efficiency rating capable of generating electrical energy teroptimal of 4.396 KWh per year. Based on the results of the simulation of Homer installation of solar power plant (PLTS) with a capacity of 10 kw of electrical energy to produce teroptimal KWh per year of 14.627. Key words: PLTH, Long Island, Homer. Hybrid power plant (PLTH) is a technology of power plant that combines several types of power plants or power stations that use more than one kind of plant. In this final Task is the comparison between renewable energy generation such as solar cells and energy renewable diesel plant such as non, so here it is determined where the power plants are more efficient for long island & effective. Long Island has the level of solar radiation is good enough where Clearness index 0.501 while the average Daily Radiation (kWh/m²/d) average 5,017. In this study using software Homer, Homer is a software used to assist in the modeling of a power system using a wide selection of one of these renewable resources potential of the Sun with the menggabungkan renewable energy not using diesel fuel based on simulated results Homer installation pembangkit diesel power with a capacity of 5 kw with maximum 50% efficiency rating capable of generating electrical energy teroptimal of 4.396 KWh per year. Based on the results of the simulation of Homer installation of solar power plant (PLTS) with a capacity of 10 kw of electrical energy to produce teroptimal KWh per year of 14.627.

Key words: *PLTH, Long Island, Homer.*