

ABSTRAK

ISWANDI SIAWA

PERENCANAAN TEKNOEKONOMI PLTS PADA MASJID AL
MUHAJIRIN DESA SOALAIPOH KECAMATAN KOTA MABA
KABUPATEN HALMAHERA TIMUR

**Kata Kunci :(*Photovoltaic*) Rooftop, Solar Charge Controller,
Baterai, Inverter. (xi + 46+ Lampiran)**

Pembangkit Listrik Tenaga Surya (PLTS) adalah peralatan pembangkit listrik yang mengubah daya matahari menjadi listrik. Penelitian ini bertujuan merencanakan teknis pembangkit listrik tenaga surya dan teknoekonminya di Masjid al muhajirin desa soalaipoh kecamatan kota maba. penelitian ini dilaksanakan pada tanggal 10 Maret 2023 sampai tanggal 12 April 2023, di Masjid al muhajirin desa soalaipoh kecamatan kota maba kabupaten halmahera timur metode yang di gunakan adalah dengan cara menghitung kelayakan biaya investasi PLTS. aspek yang di teliti adalah menghitung kapasitas modul surya, *solar charge controller*, baterai dan inverter. berdasarkan biaya pengeluaran investasi PLTS total Rp 17,202,168.. untuk perencanaan pemasangan PLTS sebanyak 4 panel surya . jumlah penyimpanan energy yang di butuhkan 8,310 Wh dengan jumlah minimum baterai 6 buah. berdasarkan hasil perhitungan jumlah inverter yang di gunakan sebanyak 1 buah dengan spesifikasi 5 Kw. dan untuk perhitungan *performance ratio* di dapat hasil 85%, sehingga PLTS ini di nyatakan layak.

ABSTRACT

ISWANDI SIAWA

PLTS TECHNOLOGY PLANNING AT THE AL MUHAJIRIN MOSQUE,
SOALAIPOH VILLAGE, MABA CITY DISTRICT, EAST
HALMAHERA DISTRICT.

**Keywords: (Photovoltaic), Solar Charge Controller, Batteries,
Inverters. (xi + 46 + Appendix)**

Solar power plant (PLTS) is a power generation equipment that converts solar energy into electricity. This study aims to plan the technical design of a solar power plant and its technology at the al muhajirin mosque, soalapoh village, maba city district, east halmahera district. This research was carried out from March 10, 2023 to April 12, 2023, at the al muhajirin mosque, soalapoh village, maba city district, east halmahera district, the method used was to calculate the feasibility of PLTS investment costs. A careful aspect is calculating the capacity of solar modules, solar charge controllers, batteries and inverters. based on the investment cost of the total PLTS investment of Rp.17,202,168. for planning the installation of PLTS 4 solar panels. the amount of energy storage needed is 8,310 Wh with a minimum number of 6 batteries. based on the calculation of the number of inverters used as much as 1 unit with a specification of 5 Kw. and for the calculation of the performance ratio, a result of 85% is obtained, so that this PLTS is declared feasible.