

ABSTRAK
STUDI PERBANDINGAN KINERJA *POLYCRYSTALLINE*
DAN *MONOCRYSTALLINE* PADA
PANEL SURYA

(2025: xvi + 56 Halaman + 34 Daftar Gambar + 15 Daftar Tabel + 7 Lampiran)

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Permintaan energi yang ramah lingkungan mendorong pemanfaatan energi surya sebagai alternatif sumber energi. Penelitian ini membandingkan kinerja panel surya jenis *polycrystalline* dan *monocrystalline* berdasarkan parameter tegangan, arus, daya, dan efisiensi. Metode pengambilan data dilakukan secara eksperimental di lingkungan terbuka menggunakan panel masing-masing berdaya 100 WP. Hasil menunjukkan bahwa panel surya *polycrystalline* memiliki daya masukan dan keluaran yang tinggi, tetapi efisiensi konversinya rendah saat tidak ada beban dengan rata-rata 11,48% dan 12,07% untuk *polycrystalline*. Saat mengisi daya ke baterai, rata-rata efisiensi panel *polycrystalline* lebih tinggi 8,37% daripada *monocrystalline* 7,79%. Hasil ini dapat dijadikan acuan dalam pemilihan jenis panel sesuai kebutuhan dan lingkungan.

Kata kunci: Panel surya, *Polycrystalline*, *Monocrystalline*

ABSTRACT
COMPARATIVE STUDY OF POLYCRYSTALLINE AND
MONOCRYSTALLINE PERFORMANCE ON
SOLAR PANELS

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The demand for environmentally friendly energy encourages the use of solar energy as an alternative energy source. This study compares the performance of polycrystalline and monocrystalline solar panels based on voltage, current, power, and efficiency parameters. Data collection methods were carried out experimentally in an open environment using panels with a power of 100 WP each. The results show that polycrystalline solar panels have high input and output power, but their conversion efficiency is low when there is no load with an average of 11.48% and 12.07% for polycrystalline. When charging the battery, the average efficiency of polycrystalline panels is 8.37% higher than monocrystalline panels at 7.79%. These results can be used as a reference in selecting the type of panel according to needs and the environment.

Keywords: Solar Panels, Polycrystalline, Monocrystalline