

## ABSTRAK

### ANALISIS PERBANDINGAN BESARAN ARUS SOLAR CHARGE CONTROLLER BERBASIS ENERGI PANEL SURYA

(2025: xv + 53 Halaman + Gambar + Tabel + Lampiran)

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Hasil penelitian tentang *Solar Charge Controller* (SCC) menunjukkan bahwa daya keluaran dan arus pengisian tertinggi terjadi pada tanggal 18 September 2025 sekitar pukul 12.00 hingga 13.00. Pada waktu tersebut, daya keluaran mencapai 58,74W dan pengisian baterai dengan SCC 20A menjadi yang tercepat, yaitu 5,593 jam. Namun, pengisian baterai juga bisa memakan waktu sangat lama, seperti yang terjadi pada SCC 60A yang mencapai 17,307 jam. Berdasarkan temuan ini, disarankan untuk mengoptimalkan penggunaan energi pada rentang waktu puncak tersebut untuk efisiensi maksimal. Selain itu, diperlukan analisis lebih lanjut mengenai pola penggunaan energi untuk memilih kapasitas SCC yang paling sesuai agar pengisian baterai optimal dan masa pakai baterai lebih lama.

**Kata Kunci :** *Solar Charge Controller* (SCC), Panel Surya, Daya Keluaran, Arus Pengisian, Efisiensi

**ABSTRACT**  
**COMPARATIVE ANALYSIS OF SOLAR CHARGE CONTROLLER  
CURRENTS BASED ON SOLAR PANEL ENERGY**

*(2025: xv + 53 Pages + Pictures + Tables + Attachments)*

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*Research on Solar Charge Controllers (SCC) shows that the highest output power and charging current occurred on September 18, 2025, around 12:00 PM to 1:00 PM. During this time, the output power reached 58.74 W, and the battery charging time with a 20A SCC was the fastest, at 5.593 hours. However, battery charging can also take a very long time, as was the case with a 60A SCC, which took 17.307 hours. Based on these findings, it is recommended to optimize energy use during this peak time period for maximum efficiency. Furthermore, further analysis of energy usage patterns is needed to select the most appropriate SCC capacity for optimal battery charging and extended battery life.*

**Keywords:** *Solar Charge Controller (SCC), Solar Panel, Output Power, Charging Current, Efficiency*