

# ***APPLICATION OF DYNAMIC SYSTEM MODELS FOR PLANNING OF HYBRID SOLAR POWER PLANT (PLTS) at CV. STARS RISING***

**Bagus Singgih Putra Pratama**

*Electrical Engineering Study Program, Faculty of Science & Technology*

*University of Technology Yogyakarta*

*Jl. Ringroad Utara Jombor Sleman Yogyakarta*

*E-mail : [singgihmadania0829@gmail.com](mailto:singgihmadania0829@gmail.com)<sup>[1]</sup>, [fredipsakti@staff.uty.ac.id](mailto:fredipsakti@staff.uty.ac.id)<sup>[2]</sup>*

## ***ABSTRACT***

*A Dynamic System Model is a system that tries to explain the behavior of various actions in some systems. Solar power generation is an electrical power generation system that utilizes solar panels which are used to convert solar energy into electrical energy. This research applies a dynamic system model to obtain an optimistic scenario using Vensim PLE software and then designs a solar power plant based on the results of the optimistic scenario using Homer Pro software. There are several steps in the research method, namely literature study, data collection, data analysis and processing, system modeling, verification and validation, providing and testing scenarios, designing Homer Pro and providing conclusions based on the analysis of the final results. The final result obtained is that the PLTS can produce 120,450kWh/year, using polycrystalline solar panels of the Canadian Solar 350CS6U-350M type, 10 Energys Powersafe SBS 3900 batteries, an inverter with a capacity of 29.3kW and a Net Present Cost of IDR 3,775,881,000.00 with total electricity demand of 81.3% supplied by PLTS and the remaining 18.7% supplied by PLN.*

***Keywords:*** *Dynamic System Model, PLTS, Vensim PLE, Homer Pro*