

***Design and Construction of Off-Grid PLTS as an Electricity Supply
for Integrated Coffee Dryer-Pulper Machine***
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ABSTRACT

The energy that is widely used to meet daily life today is fossil energy but is considered a non-renewable natural resource that has limited capacity. PLTS can be the answer to the world's energy needs. PLTS is an abbreviation for solar power plants which is one of the applications of solar energy that can be converted into electrical energy. The "Sumber Kembang" coffee farmer group can produce 1 ton of coffee beans for 1 harvest. After the harvest is complete, the coffee fruit can be processed by peeling the fruit skin. The tool used to peel the coffee fruit is a peeling machine with pertalite fuel of IDR 20,000 per hour, so that the solar energy in the area has not been utilized properly, this is a problem that must be solved, namely by making a coffee fruit peeler and dryer with solar panel innovation. The methods used are literature study, system design, collection of tools and materials, system creation, and system testing. The tool has been designed using 1 monocrytaline 240Wp solar panel, Maximum Power Point Tracking (MPPT) 40A, 2 VRLA 12V 65Ah batteries, 24V 350watt dc electric motor and 12V 50watt heating element. The average power consumption test of the pulper machine is 330.8watts, the average power consumption of the dryer machine is 59.70watts, the average rpm test on the dc motor is 74.4, the average peeling duration on the pulper machine reaches 5 minutes and the operational cost savings from the use of solar panels are Rp80,000.

Keywords: Battery, Dryer Machine, PLTS, Pulper Machine