

***Design And Build Of PLTS Off Grid Installation For Heating Needs of
Meatballs Seller with Electric Stove***

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ABSTRACT

Energy is one of the essential needs in people's lives, including meatball sellers. However, in fulfilling their energy needs, meatball sellers still use fossil fuels whose availability is increasingly limited, so that currently sellers can only depend on the use of government subsidized LPG gas. In response to this, the Ministry of Energy and Mineral Resources as of November 8, 2017 stated that it will disseminate the use of electric stoves in the near future to reduce dependence on LPG. In addition, Indonesia has an average solar irradiation level of 4.8 KWh/m² so that it is quite potential to develop the use of solar energy-based electric stoves. The energy generated can be warm meatballs with a temperature range of 70-80 °C for 6 hours. Since the implementation of technical activities generally requires a relatively large investment and has a long-term impact, it is necessary to have a techno-economic study as a supporting tool in planning and making appropriate decisions. This study uses an electric stove with a power of 150 Watt and a PLTS system of Off Grid 300 WP and 400 WP which is operated for 6 hours. The results showed that the best performance was shown by SPP 400WP which energy can be generated for 6 hours amounted to 1,053 kWh and is able to keep the temperature stable at 72 meatballs. °C As for the PLTS 300WP, the energy produced is less than the energy consumed by the electric stove, causing the desired temperature to not be met. Based on the results of the techno-economic study, it can be concluded that the use of an electric stove based on solar energy is considered feasible and more economical than the use of a gas stove for the needs of meatball sellers, with a payback period (PBP) of 20 years.

Keywords: *Meatball seller, Payback Period, PLTS Off Grid, Techno-economy*