

ABSTRACT

Due to relatively difficult geographical conditions, poor electricity supply and infrastructure, Pacitan Regency is one of the areas with a low electrification rate of 65% in Java. Pacitan Regency has promising new and renewable energy potential, it's just that this potential has not been maximized for the benefit of the population. One of them is a solar power plant. If used properly, this alternative energy source will be a solution to meet energy needs in remote areas.

As part of the government's efforts to achieve the New Renewable Energy (EBT) mix target of 23% by 2025, the Ministry of Energy and Mineral Resources has issued the Minister of Energy and Mineral Resources Regulation Number 26 of 2021 concerning Rooftop Solar Power Plants. Holder of a Public Electricity Supply Business License (IUPTLU) to provide electricity for the public interest in an electric power network. The regulation is an improvement from the previous regulation to improve the governance and economics of PV mini-grid, especially rooftop PV mini-grid. This regulation is also a step to address the existing dynamics and support the public's desire for electricity from renewable energy sources and the desire to help reduce greenhouse gas emissions.

This research was conducted to calculate the optimal potential of a solar power plant on the roof of the Pacitan Regency Government Building as an alternative energy source to supply the electricity system from the head office. This simulation is carried out using the System Advisor Model (SAM) software by considering the technical and economic aspects. There are two scenarios for economic calculations. The scenario is the profit value based on the Minister of Energy and Mineral Resources Regulation Number 26 of 2021 and the Internal Memo issued by PT. PLN Persero regarding the limitation of the capacity that can be installed, and the total energy is 93556 kWh/year with an installed capacity of 56100 Wp with the PV position facing north with a slope of 20° and one inverter and 20 modules installed with an LCOE of Rp.1.266.2 /kWh and NPV of Rp.474,595,524.

Keywords: PV Rooftop, System Advisor Model, LCOE, NPV