

Sustainable Energy Technologies and Assessments

Economic feasibility assessment of manufacturing solar panels in South Africa - A case study of Steve Tshwete Local Municipality

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Abstract:

South Africa has developed one of the most successful renewable energy development programs in the world. However, the establishment of a South African solar Photovoltaic (PV) manufacturing localisation agenda has fallen behind. This study assesses the financial feasibility for local manufacturing of solar panels in South Africa using the Generally Accepted Accounting Principles (GAAP) method to determine a Minimum Sustainable Price (MSP) for a local production plant. Our findings show that local manufacturing of solar panels can play a role in supporting a “just energy transition”, particularly, in regions that are phasing-out the coal economy. We observed the financial feasibility of solar panel local manufacturing and found that the Internal Rate of Return (IRR) was 1.75%. When sensitivity analysis of +15% was applied, the IRR increased to 3.51%. The study also determined that without any subsidies local manufacturing of solar panel is not economically feasible when the MSP is used. Lastly, the probable negative impacts of coal phase-out can be prudently mitigated by the creation of alternative economic opportunities which promotes a just energy transition in coal phase-out regions like Steve Tshwete Local Municipality (STLM).