

Unravelling Domestic Electricity Demand by Domestic Renewable Energy Supply: A Case Study in Yogyakarta and Central Java, Indonesia

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Abstract : Indonesia aims to reduce carbon emissions from energy generation by reaching 23% and 31% of the national energy supply from renewable energy sources (RES) in 2025 and 2030. The potential for RES in Indonesia is enormous, but not all province has the same potential for RES. Yogyakarta, one of the most travel-destinated provinces in Indonesia, has less potential than its neighbour, Central Java. Consequently, Yogyakarta must meet its electricity demand by importing electricity from Central Java if this province only wants to use electricity from RES. Thus, achieving the objective is balancing the electricity supply between an importer (Yogyakarta) and an exporter province (Central Java). This research aims to explore the RES potential and the current capacity of RES for electricity generation in both provinces. The results show that the present capacity of RES meets the annual domestic electricity demand in both provinces only with an extension of the RES potential. The renewable energy mixes in this research also can lower CO₂ emissions compared to gas-fired power plants. This research eventually provides insights into exploring and using the domestic RES potentials between two areas with different RES capacities.

Keywords : energy mix, renewable energy sources, domestic electricity, electricity generation

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