

ANALYSIS RELATIONSHIP BETWEEN GEOTHERMAL ENERGY USAGE AND ANNUAL CO₂ SAVINGS IN ICELAND : VECM APPROACH FOR FORECASTING

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ABSTRACT

Geothermal energy is a form of energy that is produced by natural heat from within the earth. It comes from heat sources in the earth's core and magma layers that lie beneath the earth's crust. Geothermal energy is extracted and harnessed to generate electricity and heat using geothermal wells. In Iceland, geothermal energy has become an important and sustainable source of energy also significantly contributing to the reduction of greenhouse gas emissions, particularly CO₂ emissions in the country. The method used in this study is the Vector Error Correction Model (VECM), which allows analysis of the long-term relationship between the two dependent variables. The data used includes rates of geothermal energy usage and annual rates of CO₂ reductions in Iceland during a certain period of time. VECM analysis is carried out using a forecasting approach, which allows estimation and prediction of the level of geothermal energy use and CO₂ reduction in the future. Thus, this study aims to provide insight into the potential of geothermal energy as a renewable energy source and its impact on reducing CO₂ emissions in Iceland. With this research, it is expected that Indonesia is able to implement the solutions provided to make maximum use of geothermal energy seeing the impact of using geothermal energy in Iceland.

Keywords: VAR, VECM, Geothermal Energy

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