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Take Ghana Far Organization Box 7112, Accra-north

Towards the green economy: energy-macroeconomy causalities, innovations, renewable energy transition pathways, and energy investments for Senegal

The limited time to transition to climate-saving sources of energy hinges on effective and efficient renewable energy (RE) policy-making. For Senegal to achieve increased economic development, as well as promote sustainable environment through UN's SDGs, transition to renewable energy consumption (RWEC) is key. In establishing transitional pathways for Senegal towards RE-dominated economy by 2030, there is the need for deeper knowledge of the linkages between RWEC and the macroeconomy. Most empirical research on Senegal's energy use has focused on just one or two dimensions with none having addressed comprehensively all factors for successful and least-cost transmission to RE-driven economy by 2030. This study critically investigates the causal linkages between RWEC and the macroeconomy (GDP and total population); forecast policy shocks and necessary reactions needed for 100% RWEC; forecast TEC and RWEC using high-accuracy models; propose transitional pathways; and estimate energy investments required for the pathways, for Senegal. The Bounds cointegration and Granger causality results showed that there is cointegration among the variables in RWEC equation and a unidirectional causality running from GDP and TP to RWEC. Moreover, investments of ~US\$1.1-1.7 billion is required to fulfil a non-RWEC gap of ~17.94 -27.75TWh towards 100% renewables by 2030.

Keywords: Climate change, renewable energy, energy transition, energy policy, Senegal.

Biography

Baafi Edmund Antwi is the assistant researcher at Take Ghana Far Organization Accra north- Ghana. A-Side. The use of critical thinking, innovation, information technology, and research/data analysis skills helped in recommending the most effective and efficient mode of publicity to Upswing Company in 2017. Has 2+ years of work experience specifically in Research/data Analysis and Business Management. Has achieved much success in Business proposal writing, conducting full research/projects for firms and businesses and business forecasting which brought much improvement in sales after the company adopted my research findings and recommendations. His research interests include, innovation management, business management, and supply chain management. He has good research publications in some of the world's leading journals such as SSCI and IEEE databases that have indexes of the web of science.

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