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Paper Title : An Early Warning System for Renewable Energy Supply Shortfalls in Europe Using Integrated Machine Learning and Spatiotemporal Energy Data

Bio :

Dr. Atif Maqbool Khan is an Assistant Professor of Energy Economics at the Faculty of Energy and Fuels, AGH University of Science and Technology in Kraków, Poland. He previously served as an Assistant Professor at the Department of Economics, Faculty of Economic Sciences and Management, Nicolaus Copernicus University in Toruń, Poland.

He earned his Ph.D. in *Quantitative Methods for Economic Policy* from the University of Macerata, Italy (2015–2019), funded by a prestigious Italian Ministry of Education Scholarship. His doctoral research integrated applied econometrics, multi-sectoral input–output modeling, and computable general equilibrium (CGE) modeling to examine energy–economy interactions.

Dr. Khan's research focuses on **energy and environmental economics, applied econometrics, machine learning forecasting, and sustainable macroeconomic modeling**. His recent work—published in *Energy (Elsevier, 2025)*—develops hybrid econometric–machine learning frameworks to uncover macroeconomic determinants of renewable energy production across Europe. He is currently leading projects on forecasting sectoral electricity consumption across EU economies using advanced time-series and deep learning models.

He has extensive experience with computational and data-driven methods, including Python, R, MATLAB, Stata, and GAMS. He actively collaborates on interdisciplinary projects addressing energy forecasting, green economic growth, and circular economy transitions.