



SCHOLARLY PUBLICATIONS
School of Law
KIIT Deemed to be University

Journal Name: Clean Energy

IF: 3.7

Title: Asymmetric impacts of renewable energy consumption on carbon emissions: new insights from seven South Asian countries

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Details: Volume 9, Issue 3, Pages 62 – 73, 1 June 2025

Abstract: The study examines the asymmetric effects of renewable energy consumption on carbon emissions in seven South Asian nations. By employing data from 1990 to 2019, the study utilized a nonlinear panel autoregressive distributed lag modeling framework to identify an asymmetric relationship between carbon emissions and shocks (positive and negative) in renewable energy consumption. The study revealed that there exists an asymmetric short- and long-term impact of shocks in renewable energy consumption on carbon emissions in South Asian economies. Furthermore, the study reported that in South Asian economies, a 1% rise in positive shocks in renewable energy consumption results in a 1.86% reduction in carbon emissions in the long term and a 1.50% reduction in the short term. Conversely, a 1% increase in negative shocks in renewable energy consumption leads to a 0.55% increase in carbon emissions in the long term and a 2.40% increase in the short term. Furthermore, the findings of the study suggest a few policy implications for South Asian countries, stressing the importance of promoting renewable energy consumption to achieve sustained carbon emissions reductions and to lessen the impact of negative shocks on emissions over both short and long terms.



URL: <https://academic.oup.com/ce/article/9/3/62/7943330>

