

Scientists study the impact of renewable energy on the economies of countries

May 15 2020, by South Ural State University



Credit: CC0 Public Domain

Researchers at SUSU School of Economics and Management have analyzed the use of renewable energy sources for the economies of G7 countries. The study revealed the relationship between the economic

development of regions with a large share of the energy industry in the economic sector and the environmental situation in these countries. The study finds positive impacts of the use of renewable resources in the energy industry on the environmental situation. The results of the study were published in [Science of the Total Environment](#).

Economic development is a risk factor for the environment

Andrew Adewale Alola, a senior employee of the Department of Financial Technologies, [School of Economics and Management of SUSU](#), in collaboration with colleagues from Turkey, Cyprus and Norway, conducted a comprehensive study of the relationship between economic growth and environmental issues of countries with a big share of renewable resources in the [energy industry](#). This study will allow countries to find a balance between getting economic profit and maintaining a favorable environmental situation.

The study proved that renewable energy sources and energy prices contribute to improving the environmental situation, while increasing trade volume contributes to a strong increase in CO₂ emissions, worsening the environmental situation.

"Although we see some achievements in reducing [carbon dioxide emissions](#) and improving the environmental situation in some European countries, the EU is considered the third-largest source of atmospheric pollution in the world, which indicates the need to revise priorities in economic development strategies. Country-specific estimates indicate the negative impact of energy prices on CO₂ emissions," Andrew Adewale Alola says.

Though the effect of reducing pollution from renewable energy

consumption was observed for the entire group of countries, separate estimates show that the impact of renewable energy consumption is heterogeneous in G-7 countries. In Canada, the use of renewable energy does not have a significant impact on the environment, while in France, this interrelation is more pronounced. In Italy and the UK, there is a clear dependence of the level of emissions on energy prices: The more expensive they are, the lower the CO₂ emissions are. In Germany, the environmental situation is highly dependent on the share of renewable energy sources; in the U.S. and Japan, the reduction of carbon dioxide emissions is more dependent on energy prices than on the share of renewable energy sources in the industry.

Green development strategy

The study is important for the development of the possible political and economic strategies of the European Union because the problems of preserving the environment in many cases cannot be solved by reducing energy production.

"In most cases, macroeconomic determinants are critical to environmental sustainability. Macroeconomic indicators such as [fossil fuels](#), gross domestic product (GDP) and tourism (for tourism destinations) are important components of a viable economy. Thus, studies have shown that diversifying energy, introducing and developing environmentally friendly technologies, and using [renewable energy sources](#) should become increasingly important in the countries studied," the economist explains.

Researchers have identified the devastating environmental effects of fossil fuel consumption among some countries that are still heavily dependent on hydrocarbon energy sources. SUSU scientists recommend these countries to continue energy diversification in order to ensure greater autonomy and reduce the economy's dependence on one type of

[energy](#) resource.

Scientists hope to conduct a similar study for Russia, which takes 5th place in terms of pollutant emissions after China, the U.S., the EU, and India. This will allow us to determine further strategies for diversifying the economy of our country more accurately.

Ecological research is one of the three strategic areas for the development of scientific and educational activities of South Ural State University along with the digital industry and materials science.

More information: George N. Ike et al. Environmental quality effects of income, energy prices and trade: The role of renewable energy consumption in G-7 countries, *Science of The Total Environment* (2020). DOI: [10.1016/j.scitotenv.2020.137813](https://doi.org/10.1016/j.scitotenv.2020.137813)

Provided by South Ural State University

Citation: Scientists study the impact of renewable energy on the economies of countries (2020, May 15) retrieved 27 April 2024 from <https://phys.org/news/2020-05-scientists-impact-renewable-energy-economies.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.