

The current climate and economic crises call for a swift transition to low-carbon energy systems. According to the Intergovernmental Panel on Climate Change (IPCC) [1], renewable energy must supply 70-85% of the world's electricity in 2050. Annual investments in these energy technologies as well as in energy efficiency must be multiplied by a factor of ...

The significance of Environmental Impact Assessment (EIA) and Sustainable Energy Transition is emphasised in the chapter, highlighting the crucial role that EIAs play in facilitating a ...

The globe has faced severe challenges recently, and environmental deterioration has become more prominent. Therefore, the world has taken several initiatives to deal with environmental issues while the problem remains intact. Interestingly, the OECD economies are the leading example to understand the accurate picture of sustainability across the near ...

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Renewable energy transition is the initiative of the global energy sector to move away from fossil fuels (such as natural gas, oil, and coal) towards renewable energy sources (Hassan et al., 2024). The environmental Kuznets curve (EKC) illuminates the intricate association between environmental decline and economic growth (Wang et al., 2024b) and it is considered ...

The Journal of Renewable and Sustainable Energy (JRSE) is an interdisciplinary, peer-reviewed journal covering discovery, generation, conversion and end-use of renewable and sustainable energy (RSE) relevant to the physical science and engineering communities. Specifically, JRSE focuses on new insights or creative methodologies that addresses the challenges of ...

Biomass energy is a sustainable energy source that can be found in solid, liquid or gaseous form and is obtained either directly or indirectly from organic material. 28 According to the South African Renewable Energy Data and Information Service, 20 over 100 GWh of energy was generated from biomass in 2016. No statistics have been kept since then.

From a technological perspective, the energy transition seems to be equated with transitioning entirely from fossil fuels to renewable energy sources through novel technologies. While this is an ideal scenario for the ...

The growth in population, economic expansion, and urban dynamism has collectively driven a surge in the use of public and private transport, resulting in increased energy consumption in this sector. Consequently, the transport sector requires an energy transition to meet mobility demands, foster economic growth, and achieve emission reduction. The main ...

Rural China grapples with pervasive energy poverty. This study aims to measure China's rural energy poverty and propose early warning strategies. It establishes a rural energy relative poverty evaluation system based on four dimensions: energy service effectiveness, consumption cleanliness, management integrity, and development sustainability.

Transition to Renewable Energy: Renewable energy sources, including solar, wind, and hydroelectric power, present a prospective trajectory towards sustainable development. In recent years, there has been a significant decline in the costs of renewable energy technologies, rendering them more economically viable and comparable to conventional ...

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Disruptive alterations in all energy systems are necessary for tapping widely available renewable Energy sources. Organizing the energy transition from non-sustainable to renewable energy is often described as the major challenge of the first half of the twenty-first century (Verbruggen et al., Citation 2010).

Increased access to renewable energy technologies and the continuous electrification across industries make decentralized energy solutions become one of key objectives of energy and climate policies in a growing number of countries [6]. Existing studies provide clear evidence for multiple environmental and socioeconomic benefits of the transition to renewable energy, ...

The transition to zero carbon, aiming to achieve global carbon neutrality, poses a significant challenge for human society. Against this background, the energy sector is one of the major stakeholders called upon to address this challenge [1]. To achieve net-zero emission targets and limit global warming to 1.5 °C by 2050, a sustainable, efficient, competitive, and secure ...

Recently, Egypt emerged as one of the top twenty countries with virile sustainable energy transition mechanism through the efforts of the government-run New and Renewable Energy Authority (NREA) (Tawfeek, 2017). NREA has ensured an unprecedented investment on clean energy technologies starting from the year 2016 and has also ensured an improved ...

Biogas can also be used in fuel cells for direct conversion to electricity and raw material for hydrogen and transport fuel production which is a significant pathway to sustainable energy development. Enriched biogas or biomethane can be containerized or injected to gas supply mains for use as renewable natural gas.

Energy transition is crucial for sustainable development, but its drivers have been neglected due to data limitations. Germany has adopted a low-carbon, secure, cost-effective, and environmentally friendly energy transition policy to achieve its 2050 carbon-neutrality goals. Despite the fact that the sub-components of energy have often been considered, to the ...

Exploring possible pathways for sustainable energy transition requires interdisciplinary knowledge concerning advanced technologies that drive the transition (Child et al., 2018), e.g., renewable energy, energy storage, waste to energy, electric vehicles, and energy efficient technologies. Of the emerging technologies, renewable energy, energy storage and ...

A transition towards long-term sustainability in global energy systems based on renewable energy resources can mitigate several growing threats to human society simultaneously: greenhouse gas ...

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Journal of Energy. Volume 2022, Issue 1 8750221. ... biogas will play an extremely important role in the energy transition as a renewable energy fuel resource and feedstock for industrial production of chemical fuels ... These promises to be a power pathway in the global transition to sustainable energy and electricity as well as sustainable ...

There is a global energy transition back to renewable energy, after a century of fossil fuel dominance. Solar energy, wind, bioenergy and geothermal among others will play a ...

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