

How does the digital economy contribute to innovation?

The digital economy contributes to innovation through renewable energy investment. The rapid development of the digital economy has changed the production methods of renewable energy enterprises and affected consumer behavior, consequently altering the market potential for renewable energy and the benefits of innovation.

Does digital energy storage technology improve system operation and maintenance?

It is also related to previous evidence on the significance of digital energy storage technology in enhancing system operation and maintenance[1,55], which implies the global efforts towards the development of digital and intelligent energy-storage systems.

Does digital strategy affect firm energy storage innovation?

It is observed that the positive impact of digital strategy on firm energy storage innovation is much more significant in the regions and industries with higher convergence between digital and energy storage technologies.

What is the relationship between energy storage and digitalization?

Digital trends in energy storage technology With continuous technological iteration, the entire energy system has undergone enormous changes in the context of digitalization. We demonstrated a novel and promising trend in the interaction of energy storage and digitalization using patent co-classification analysis.

Does the digital economy affect energy development?

The impact of the digital economy on energy The confluence of the digital age and global climate change underscores the imperative to examine the interplay between digitalization and energy development. Nonetheless, the influence of the digital economy or ICT development on energy remains an open question.

Can the digital economy improve the energy supply chain?

Based on the above conclusions, it is suggested to take advantage of the industrial aggregation effect and technological innovation effect of the digital economy to further improve the efficiency of the energy supply chain for the purpose of maintaining energy supply security. 1. Introduction

The energy sector in many developing nations faces the difficulty of insufficient financing throughout the low-carbon transition, highlighting the importance of international green financing in alleviating financial constraints. The advancement of digital technology could facilitate green financing for energy transition in the digital economy, but this statement lacks empirical ...

Moreover, digital management systems optimize energy storage, enhancing the proportion of renewable energy in the energy mix 9. Finally, the digital economy provides resource-based cities with the ...

Through technological progress, we can develop new clean energy technologies such as solar, wind, and hydroelectric power to replace traditional fossil fuels as a method to reduce energy intensity and carbon emissions (Sun et al., 2021). The digital economy has reached a higher position in society and has become a new factor.

1 School of Mathematics and Statistics, Hefei Normal University, Hefei, China; 2 School of Statistics and Applied Mathematics, Anhui University of Finance and Economics, Bengbu, China; As a novel economic form, the digital economy plays an important role in promoting urban low-carbon sustainable development (LCSD). Based on panel data from 270 ...

Empowering energy supply chains through the digital economy (diec) has a positive effect on accelerating the transformation of China's energy supply structure. This paper ...

Meanwhile, the energy system also provides application scenarios for developing the digital economy. For example, smart grids and new power construction are applications of digital technology in the energy field [12, 13] addition, the core sectors of the digital economy are concentrated in highly power-intensive industries such as computer ...

Our findings suggest that firms' digital strategies, especially digitization and IoT strategy, have a positive impact on energy storage innovation, indicating a promising ...

Today data centres provide the critical infrastructure that powers the world's digital economy. From the Internet and smart devices, to cloud, AI and compute-intensive research applications, the digital infrastructure sector has become integral to every facet of life. ... With energy efficiency and sustainability now a critical priority for ...

The report examines the impact of digital technologies on energy demand sectors, looks at how energy suppliers can use digital tools to improve operations, and explores the transformational potential of digitalisation to help create a highly interconnected energy ...

However, few studies have paid attention to the digital economy-energy transition in the global case, and the heterogeneous impact and influence mechanism are often ignored. ... such as energy storage and smart grids. The digitalization can increase the production efficiency of energy through information management, automation systems, machine ...

Rapid advancements in digital technologies have accelerated global change, underscoring the critical role of resilience in addressing the escalating energy, economic, and environmental challenges. This paper investigates the effects and mechanisms of the digital economy on energy, economic, and environmental resilience within the context of these ...

Dramatic cost declines in solar and wind technologies, and now energy storage, open the door to a reconceptualization of the roles of research and deployment of electricity ...

The sample studied in this paper is 285 prefecture-level and above cities in China. Due to limitations in the availability of data on the digital economy and energy consumption, the sample years for this paper are 2011-2018. Carbon emission data are extracted from the carbon emission raster dataset published by Ref. [42].

However, due to the lack of econometric analysis, we cannot test the spillover effect of the digital economy on energy conservation and emission reduction, or understand its essence. Fourth, few scholars have proposed corresponding countermeasures and policies on how to effectively exert the spillover effect of the digital economy to conserve ...

The digital energy industry, which combines digital technology with power electronics technology, is poised to witness rapid growth in the next decade, industry experts said. ... 5G and cloud computing in the process of energy collection, storage and transportation is conducive to reducing power consumption, improving energy efficiency and ...

The digital economy serves as a pivotal catalyst for sustainable and eco-friendly development. This study employs a suite of advanced econometric models, including the fixed effects, mediation, threshold and moderation model, to elucidate the intricate dynamics by which the digital economy influences carbon emissions through the lens of green innovation. Building ...

Digital transformation promotes the intelligence of energy systems, which is conducive to developing renewable energy and energy storage [12]. From the energy demand perspective, the DE contributes to developing new energy enterprises and the clean consumption of residents [ 46 ].

Third, most scholars' discussions on the impact of the digital economy on energy development are particularly partial. Few scholars comprehensively discuss the impact of the digital economy on HED. ... This is due mainly to the fact that digitization provides a broad development market for renewable energy, such as mobile energy storage systems ...

This study explores the intricate legal dynamics surrounding industrial productivity within the context of China's digital economy, shedding light on the enduring issue of energy poverty and the nation's transition toward a sustainable energy landscape. Spanning the period from 1990 to 2021 and encompassing all 30 provinces of China, our analysis employs a ...

The pursuit of low-carbon, environmentally sustainable development has sparked a surge of interest in studying the ways in which digital technology can play a crucial role in reducing carbon emissions. Using data from 30 diverse regions in China over 12 years (2008-2019), this paper constructs a comprehensive index of digital technology development. ...

The digital economy has emerged as an innovative economy that utilizes digital technologies and electronic communication to conduct economic and business activities across a wide range of sectors, including e-commerce, digital marketing, digital financial services, software development, computer games, and cloud services.

Zhou and Liu suggest that the digital economy can promote energy efficiency, which can then facilitate ESG performance. Asif et al. also find a positive impact of the digital economy on ESG. In addition to these mechanisms, this paper finds another avenue by which the digital economy facilitates ESG performance. Also, this paper analyzes the ...

As the engine of the new era, digital economy (DE) may be a potential catalyst to overcome this dilemma (Fang et al., 2022) is a set of economic activities in which data assets are the primary productive factor, modern networks are the crucial carriers, and ICT and other technologies are used effectively to raise productivity and restructure the economy (Zhang et ...

This article aims to analyze the interplay between the digital economy (DE) and the real economy (RE), examining how they impact each other in terms of empowerment and supply effects. The study object is China from 2011 to 2021. This study applies the panel vector autoregressive model (PVAR). The study's findings underscore a delayed empowerment effect ...

Improving the structure of energy consumption (ECS) through green finance and the digital economy is one of the main paths to achieving the goal of carbon neutrality. This paper explores the impact of green finance and the digital economy on the ECS of 30 regions in China from 2007 to 2022 using the Generalized method of moments(GMM) model, further ...

The rapid development of digital economy brings new opportunities and challenges. Based on a panel dataset of 30 provinces in China from 2011 to 2020, this paper empirically examines the direct, mediating and nonlinear effects of digital economy on energy transition. The study finds the following important conclusions. First, the digital economy is ...

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