

Sustainable Energy Development in Kazakhstan under the Strategy of Conjunction between the Belt and Road Initiative and the Eurasian Economic Union: Prospects and Challenges

Научный руководитель – Батоврина Екатерина Викторовна

Ли Л.¹, Вань С.², Ху Ж.³

1 - Московский государственный университет имени М.В.Ломоносова, Факультет политологии, Кафедра государственной политики, Москва, Россия, *E-mail: lingl3457@gmail.com*; 2 - Московский государственный университет имени М.В.Ломоносова, Факультет политологии, Кафедра государственной политики, Москва, Россия, *E-mail: wanxinyi02@gmail.com*; 3 - Сямэньский университет, Сямьнь, China, *E-mail: 19942700291@163.com*

The pursuit of sustainable energy development has emerged as a critical imperative in the context of global efforts to transition towards a low-carbon economy. Kazakhstan, endowed with abundant renewable energy resources and strategically positioned at the crossroads of Europe and Asia, has the potential to play a pivotal role in advancing sustainable energy development in the region. In the meanwhile, the strategic conjunction between the Eurasian Economic Union (EAEU) and the Belt and Road Initiative (BRI) presents a unique opportunity for Kazakhstan to leverage regional cooperation mechanisms and international partnerships to advance its sustainable energy agenda. By aligning their respective economic strategies, the EAEU and BRI aim to foster greater connectivity, trade facilitation, and infrastructure development across Eurasia, creating conducive conditions for promoting sustainable energy initiatives. This research explores the prospects and challenges associated with sustainable energy development in Kazakhstan under the strategic linkage of the EAEU and BRI frameworks.

Through a combination of qualitative and quantitative methods using literature review, case studies, survey and expert interviews conducted from October to November in the year of 2023, this study offers insights into the policy implications and strategic considerations for Kazakhstan's sustainable energy agenda. During the process of collecting data and information, the research used stratified sampling (sample size N=128) to survey and interview different groups of people from different countries mainly in China, Russia and Kazakhstan. Structured interviews are also conducted with experts in their different specified fields. Under the background of rather comprehensive review of existing literature, policies, and projects, this research examines the progress, challenges, and opportunities in Kazakhstan's sustainable energy sector. Key areas of analysis include renewable energy potential, policy frameworks, investment trends, technological advancements, socio-economic. Additionally, it assesses the challenges and barriers that Kazakhstan may encounter in pursuing sustainable energy development within the EAEU-BRI nexus, including regulatory hurdles, regional energy security, environmental sustainability, financial constraints, and geopolitical complexities. By shedding light on the dynamics of sustainable energy development in Kazakhstan within the BRI context, this research contributes to a deeper understanding of the evolving energy landscape in Central Asia and the broader implications for global sustainable development goals.

The research preliminary findings reveal that firstly Kazakhstan possesses immense renewable energy potential, including wind, solar, hydro, and geothermal resources. With its vast land area and favorable climatic conditions, Kazakhstan is well-positioned to harness these renewable energy sources to meet its growing energy demand and reduce dependence on fossil fuels. However, the realization of this potential requires concerted efforts to overcome technical, financial, and regulatory barriers and to leverage international cooperation mechanisms such as the BRI and the EAEU. Secondly, analysis of the policy and regulatory frameworks governing

sustainable energy development in Kazakhstan highlights the need for greater coherence, transparency, and consistency in energy policies and regulations. Thirdly, while Kazakhstan has made significant strides in adopting renewable energy targets, incentives, and support mechanisms, there remains room for improvement in areas such as grid integration, tariff structures, permitting processes, and investment incentives. Enhancing the enabling environment for renewable energy investment and innovation is crucial to unlocking the full potential of sustainable energy development in Kazakhstan. Fourthly, it underscores the importance of international cooperation and partnerships in advancing sustainable energy development in Kazakhstan. The BRI and the EAEU serve as valuable platforms for facilitating cross-border energy trade, technology transfer, and investment collaboration. By strengthening cooperation with neighboring countries, international organizations, and global energy stakeholders, Kazakhstan can leverage external expertise, financing, and market access to accelerate the deployment of renewable energy technologies and enhance energy security in the region.

Overall, the research provides unique insights and recommendations for policymakers, industry stakeholders, and international partners. By leveraging Kazakhstan's renewable energy potential, strengthening policy frameworks, enhancing international cooperation, and mitigating socio-environmental impacts, Kazakhstan can advance towards a more sustainable and resilient energy future. However, realizing this vision requires sustained commitment, collaboration, and innovation across all sectors of society. With strategic planning and concerted action, Kazakhstan can emerge as a regional leader in sustainable energy development, contributing to regional integration, economic prosperity, and global sustainability goals.

Keywords: Sustainable Energy Development, Kazakhstan, Eurasian Economic Union, Belt and Road Initiative, Prospects and Challenges

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