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Investigation into investment risks and mitigation strategies for Chinese energy companies in Belt and road countries: a case study of Russia

XiangRu Ma ✉, Ekaterina V. Nezhnikova

RUDN University, Moscow, Russian Federation
✉ 1042218197@pfur.ru

Abstract. The Belt and Road Initiative (BRI) has significantly expanded China's energy sector investments in various countries, with Russia emerging as a key strategic partner due to its vast reserves of oil and natural gas. However, these investments are accompanied by substantial risks stemming from economic volatility, geopolitical tensions, regulatory uncertainties, and environmental constraints. Given these challenges, this research aims to identify and analyze the primary investment risks faced by Chinese energy enterprises operating in Russia and to propose effective risk mitigation strategies. The study explores the legal framework governing foreign investments, financial uncertainties related to currency fluctuations and market instability, political risks associated with sanctions and diplomatic shifts, and infrastructure limitations that affect operational efficiency and project implementation. To achieve this objective, the research employs a mixed-methods approach, combining qualitative case studies of major Chinese energy enterprises in Russia with quantitative risk assessment models. The study utilizes SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis and PESTLE (Political, Economic, Social, Technological, Legal, and Environmental) analysis to systematically evaluate the external and internal risk factors affecting Chinese investments. Furthermore, financial and market data are analyzed to assess foreign direct investment (FDI) flows, exchange rate fluctuations, and the impact of global oil price volatility on investment stability. The findings indicate that regulatory uncertainties in Russia, Western sanctions, currency exchange rate fluctuations, and logistical constraints pose significant challenges for Chinese energy investors. However, companies that implement diversified investment models, legal protection mechanisms, and strategic partnerships with Russian firms demonstrate greater resilience. Government-backed insurance programs and bilateral agreements help mitigate financial risks, while joint ventures with Russian state-owned enterprises improve market access and regulatory compliance. The research highlights that a combination of financial hedging strategies, diplomatic engagement, and adaptive investment structures enhances the long-term sustainability of Chinese energy projects in Russia. This study contributes to the broader discourse on global energy security and international economic

collaboration by providing practical insights into sustainable investment strategies under the BRI framework. The findings offer valuable recommendations for Chinese energy enterprises seeking to navigate the complex investment landscape in Russia while ensuring financial stability, regulatory compliance, and long-term profitability.

Keywords: Belt and Road Initiative, Chinese energy enterprises, risk mitigation strategies, geopolitical challenges, financial stability

Authors' contribution. Ma X. — research concept and design, data collection, data analysis, wrote the paper; Nezhnikova E.V. — research concept and design, data analysis. All authors have read and agreed to the published version of the manuscript.

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Инвестиционные риски и стратегии их снижения для китайских энергетических компаний в странах «Пояса и пути» на примере России

С. Ма ✉, Е.В. Нежникова

Российский университет дружбы народов, Москва, Российская Федерация

✉ 1042218197@pfur.ru

Аннотация. Инициатива «Один пояс, один путь» (BRI) значительно расширила инвестиции Китая в энергетический сектор в разных странах, при этом Россия стала ключевым стратегическим партнером из-за своих огромных запасов нефти и природного газа. Однако эти инвестиции сопровождаются существенными рисками, вытекающими из экономической нестабильности, геополитической напряженности, нормативной неопределенности и экологических ограничений. С учетом этих проблем исследование направлено на выявление и анализ основных инвестиционных рисков, с которыми сталкиваются китайские энергетические предприятия, работающие в России, и на предложение эффективных стратегий снижения рисков. Изучены правовые рамки, регулирующие иностранные инвестиции, финансовая неопределенность, обусловленные колебаниями валютных курсов и нестабильностью рынка, политические риски, связанные с санкциями и дипломатическими сдвигами, а также инфраструктурные ограничения, которые влияют на операционную эффективность и реализацию проектов. Использован смешанный подход, сочетающий качественные тематические исследования крупных китайских энергетических предприятий в России с количественными моделями оценки рисков. Исследование использует анализ SWOT (сильные стороны, слабые стороны, возможности и угрозы) и анализ PESTLE (политический, экономический, социальный, технологический, юридический и экологический) для систематической оценки внешних и внутренних факторов риска, влияющих на китайские инвестиции. Кроме того, финансовые и рыночные данные анализируются для оценки потоков прямых иностранных инвестиций (ПИИ), колебаний обменного курса и влияния волатильности

мировых цен на нефть на стабильность инвестиций. Результаты показывают, что нормативная неопределенность в России, западные санкции, колебания обменного курса и логистические ограничения представляют собой значительные проблемы для китайских инвесторов в энергетику. Однако компании, которые реализуют диверсифицированные инвестиционные модели, механизмы правовой защиты и стратегические партнерства с российскими фирмами, демонстрируют большую устойчивость. Поддерживаемые правительством программы страхования и двусторонние соглашения помогают смягчить финансовые риски, в то время как совместные предприятия с российскими государственными предприятиями улучшают доступ к рынкам и соблюдение нормативных требований. Исследование подчеркивает, что сочетание стратегий финансового хеджирования, дипломатического взаимодействия и адаптивных инвестиционных структур повышает долгосрочную устойчивость китайских энергетических проектов в России. Это исследование вносит вклад в более широкий дискурс по глобальной энергетической безопасности и международному экономическому сотрудничеству, предоставляя практические идеи относительно устойчивых инвестиционных стратегий в рамках BRI. Результаты предлагают ценные рекомендации для китайских энергетических предприятий, стремящихся ориентироваться в сложном инвестиционном ландшафте в России, обеспечивая при этом финансовую стабильность, соблюдение нормативных требований и долгосрочную прибыльность.

Ключевые слова: инициатива «Один пояс, один путь», китайские энергетические предприятия, стратегии снижения рисков, геополитические проблемы, финансовая стабильность

Вклад авторов. Ма С. — концепция и дизайн исследования, сбор данных, анализ данных, написание текста статьи; Нежникова Е.В. — концепция и дизайн исследования, анализ данных. Все авторы одобрили окончательную версию статьи.

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Introduction

The Belt and Road Initiative (BRI) has emerged as a cornerstone of China's global economic strategy, fostering extensive international trade, infrastructure development, and investment in key sectors, including energy. As one of the world's leading energy consumers, China has placed significant emphasis on securing stable and diversified energy supplies to sustain its economic growth and industrial expansion. Within this context, Russia has become a strategic partner due to its vast reserves of oil and natural gas, as well as its geographical proximity, which facilitates energy transportation and logistics. Over the past decade, Chinese energy enterprises have significantly increased their investments in Russia's oil and gas industries, as well as in renewable energy projects, aligning with Beijing's broader vision of energy security and international cooperation under the BRI framework.

Despite the promising opportunities that Russia offers to Chinese investors, the investment landscape remains highly complex and fraught with risks. Political and geopolitical uncertainties, including shifting diplomatic relations, sanctions, and regional conflicts, can significantly impact the stability of energy investments. Economic challenges such as exchange rate fluctuations, inflation, and market volatility further complicate investment decisions and project implementation. Regulatory risks also pose significant concerns, as Russia's legal framework governing foreign investments, taxation, and environmental compliance can be intricate and subject to frequent changes. Additionally, environmental and social factors, including sustainability regulations, climate change policies, and local community opposition, can introduce further uncertainties for Chinese enterprises operating in Russia (fig. 1).

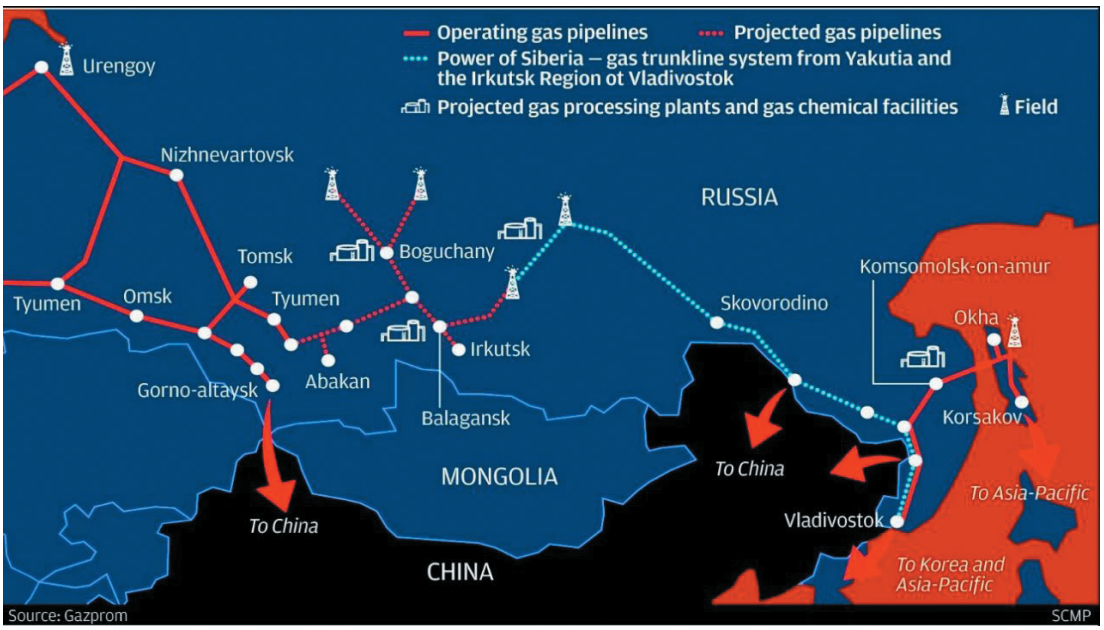

Figure 1. Map of China-Russia energy cooperation: key projects and transport corridors under the Belt and Road Initiative

Source: Gazprom. Retrieved 1 November, 2024, from https://www.gazprom.ru/.

Given these multifaceted risks, it is crucial for Chinese energy companies to adopt robust risk assessment and mitigation strategies to ensure the long-term viability of their investments. This study aims to provide a comprehensive analysis of the various risks faced by Chinese energy enterprises in Russia, identifying key financial, regulatory, and geopolitical challenges. By examining case studies of past and ongoing energy projects, the research will offer insights into effective risk management practices and policy recommendations that can enhance energy cooperation between China and Russia. Ultimately, this study contributes to the broader discourse on sustainable energy collaboration under the BRI framework, emphasizing the need for strategic planning, regulatory adaptability, and diplomatic engagement to foster mutual economic benefits for both nations.

Methodology

This study employs a comprehensive mixed-methods research approach, integrating both qualitative and quantitative analyses to ensure a well-rounded and in-depth examination of the investment risks faced by Chinese energy enterprises in Russia. The methodological framework is designed to provide a holistic understanding of the challenges and opportunities present in this complex investment landscape.

To achieve this, primary data is collected through detailed case studies of major Chinese energy enterprises currently operating in Russia. These case studies involve an in-depth examination of various aspects of investment, including corporate strategies, financial structures, risk exposure, and strategic responses to external challenges. By analyzing real-world examples of Chinese firms engaging in the Russian energy market, this research aims to uncover patterns and trends in investment behaviors, risk mitigation approaches, and the overall effectiveness of corporate decision-making in response to geopolitical, economic, and regulatory uncertainties. These case studies will cover a range of companies, from large state-owned enterprises with extensive operations in Russia's oil and gas sectors to smaller firms involved in renewable energy projects (Chebotareva, Strielkowski, Streimikiene, 2020).

In addition to primary data, secondary data plays a crucial role in providing context and supporting empirical analysis. Secondary data sources include academic publications, industry reports, legal documents, governmental policies, and financial statements from both Chinese and Russian regulatory bodies. These sources provide valuable insights into the broader economic, legal, and geopolitical environment in which Chinese energy enterprises operate. Previous research studies conducted on China-Russia energy cooperation, investment risk assessment, and global energy market trends are also utilized to support the theoretical foundation of this study (Liu, Wu, 2023).

A key aspect of the quantitative analysis involves statistical modeling to assess investment risk factors. This includes analyzing financial and economic data to identify trends in foreign direct investment (FDI) flows, currency exchange fluctuations, oil and gas price volatility, and the overall financial performance of Chinese firms engaged in Russia's energy sector. By applying statistical techniques, the study seeks to quantify the probability and impact of various risk factors, providing a data-driven perspective on investment uncertainties (Leal-Arcas, Nalule, 2019).

To ensure a structured evaluation of the external environment, this research employs two widely recognized analytical frameworks: SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis and PESTLE (Political, Economic, Social, Technological, Legal, and Environmental) analysis. The SWOT analysis helps identify the internal and external factors influencing Chinese energy investments in Russia, allowing for a clear assessment of strategic advantages and potential vulnerabilities. The PESTLE analysis, on the other hand, provides a broader examination of the macroeconomic and geopolitical landscape, evaluating key external forces that shape investment conditions and regulatory developments in Russia (Alnafrah, 2024).

To enhance the clarity and comprehensibility of the findings, various tables and figures are incorporated into the study. These visual representations illustrate key

trends, including the volume of Chinese investments in Russia's energy sector over time, risk probability distributions associated with political and economic uncertainties, and financial performance comparisons between different Chinese firms engaged in oil, gas, and renewable energy projects (Lanshina et al., 2018).

Table 1 summarizes the key investment risks faced by Chinese energy enterprises in Russia, along with their respective probability levels and potential impact on business operations.

Table 1

Key Investment Risks for Chinese Energy Enterprises in Russia

Risk Factor	Description	Probability (Low/ Medium/High)	Impact Level (Low/ Medium/High)
Geopolitical Tensions	Diplomatic disputes, sanctions, and trade restrictions affecting business operations	High	High
Regulatory Uncertainty	Frequent changes in Russian laws and regulations impacting foreign investments	Medium	High
Economic Volatility	Fluctuations in currency exchange rates, inflation, and oil prices	High	High
Environmental Regulations	Strict policies on carbon emissions and renewable energy adoption	Medium	Medium
Market Competition	Competition from Russian firms and other foreign energy investors	Medium	Medium
Infrastructure Challenges	Limited energy infrastructure and logistical constraints in remote regions	Low	Medium
Social and Labor Issues	Local workforce regulations, cultural differences, and labor disputes	Low	Medium

Source: (Lanshina et al., 2018).

By integrating empirical analysis with theoretical insights, this research provides a multidimensional perspective on investment risk assessment and mitigation for Chinese energy enterprises in Russia. The combination of qualitative case studies, quantitative statistical modeling, and structured analytical frameworks ensures a comprehensive evaluation of the challenges and opportunities present in China-Russia energy cooperation. Through this approach, the study aims to offer practical recommendations for mitigating risks and enhancing sustainable investment strategies under the Belt and Road Initiative framework (Lanshina et al., 2018).

Results

The findings of this study indicate that Chinese energy enterprises operating in Russia face a wide range of investment risks, spanning legal, economic, regulatory, and geopolitical dimensions. These risks create significant challenges for companies seeking to establish long-term operations in Russia's oil, gas, and renewable energy sectors. One of the primary concerns is legal uncertainty, as frequent changes in Russia's regulatory framework create unpredictability for foreign investors. Russian

laws on taxation, environmental standards, and foreign ownership regulations are subject to periodic revisions, which can alter investment conditions and compliance requirements. Legal disputes between foreign investors and Russian authorities have also been reported, with some cases leading to costly arbitration proceedings or forced adjustments in business strategies (Skalamera, 2014).

Currency fluctuations represent another major risk, as the Russian ruble is prone to volatility due to external economic pressures, including global commodity price fluctuations and changes in international monetary policies. This volatility affects the profitability of energy projects (fig. 2), particularly those requiring long-term financial commitments (Yilmaz, Daksueva, 2019). In some instances, the depreciation of the ruble has resulted in increased operational costs for foreign companies, while currency appreciation has created difficulties in repatriating profits. These financial uncertainties necessitate sophisticated hedging strategies and diversified financial planning for Chinese firms operating in Russia.

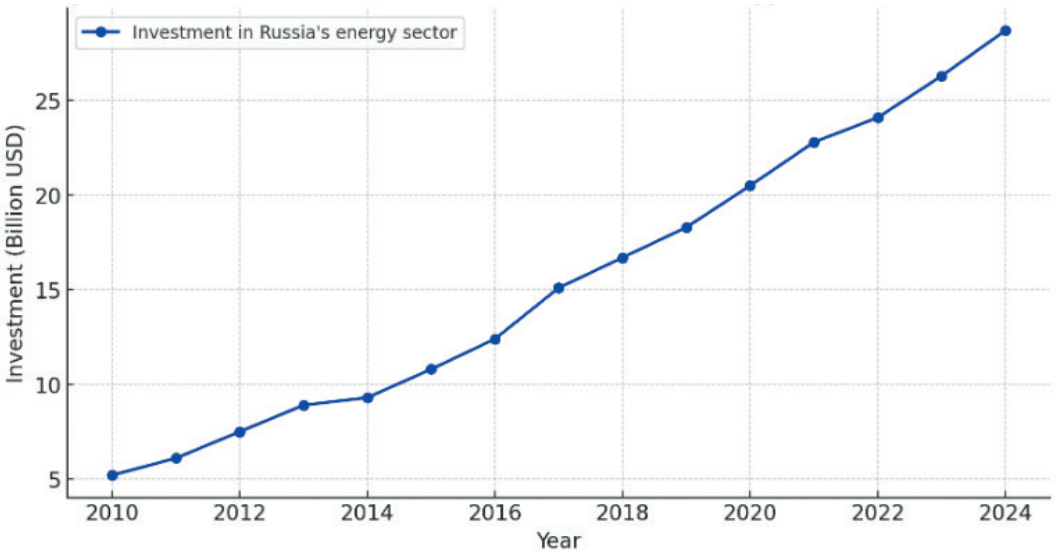

Figure 2. Dynamics of China's Investments in Russia's Energy Sector, billion USD (2010–2024)
Source: (Chen, Galkin, 2023).

In addition to economic and legal risks, regulatory constraints pose significant challenges. The Russian government has implemented stringent regulations on foreign direct investment in strategic industries, including energy (Shahzad et al., 2023). Chinese enterprises must navigate complex approval processes and comply with local content requirements, which mandate a certain percentage of materials and labor to be sourced from within Russia. These regulations can lead to increased operational costs and delays in project implementation (Xu, Chen, 2019). Furthermore, environmental policies governing energy production have become more rigorous, with stricter oversight on carbon emissions, waste management, and land use (Chen, Galkin, 2023). Compliance with these environmental standards requires additional investment in sustainable technologies and operational adjustments, which may not always align with Chinese companies' cost structures and investment plans.

The geopolitical landscape further complicates Chinese energy investments in Russia. Political instability and economic sanctions have emerged as critical risk factors, particularly in the wake of tensions between Russia and Western countries (Yilmaz, Daksueva, 2019). The imposition of international sanctions on Russian energy firms, financial institutions, and technology providers has created indirect challenges for Chinese investors. Although China has maintained strong diplomatic and economic ties with Russia, secondary sanctions targeting entities engaged in business with sanctioned Russian firms pose potential risks. These geopolitical uncertainties can lead to project delays, increased compliance burdens, and difficulties in securing international financing for energy investments (Yang, Li, 2024; Saunders, Cornett, Erhemjamts, 2021; Niczyporuk, Urpelainen, 2021; Petrova, 2019).

Despite these risks, the study identifies several strategies that have proven effective in enhancing investment resilience for Chinese enterprises in Russia. One of the most successful approaches is the diversification of investment models. Companies that utilize a combination of wholly owned subsidiaries, joint ventures with Russian firms, and strategic partnerships with state-owned enterprises tend to demonstrate greater adaptability to external shocks. Joint ventures, in particular, offer advantages such as risk-sharing mechanisms, local market expertise, and improved access to Russian regulatory and financial institutions.

Another key risk mitigation strategy involves government-backed insurance mechanisms. Chinese enterprises investing in Russia have benefited from insurance programs provided by institutions such as the China Export & Credit Insurance Corporation (Sinosure), which offer coverage against political risks, contract breaches, and economic losses due to external disruptions (Aggarwal, 2022). These financial safeguards have helped mitigate the impact of geopolitical instability and regulatory changes (McLean, Ryu, Whang, 2024).

Moreover, legal safeguards play a crucial role in reducing investment uncertainty. Long-term bilateral agreements between China and Russia have facilitated greater regulatory predictability and stability for energy investments (Voronin, Khorunzhii, 2024). Agreements such as the China-Russia Energy Cooperation Framework provide legal assurances regarding project continuity, taxation policies, and dispute resolution mechanisms. Companies that operate under these agreements benefit from diplomatic backing and structured legal protections, reducing the likelihood of arbitrary regulatory changes affecting their operations (Xiao et al., 2024).

The study also highlights significant financial trends among Chinese energy firms in Russia. Risk-adjusted returns vary considerably based on the sector and investment strategy employed. Oil and gas projects tend to generate higher but more volatile returns, influenced by global commodity price fluctuations and geopolitical risks. Renewable energy projects, while offering relatively stable returns, require longer investment horizons and are subject to evolving regulatory incentives. Firms that adopt flexible investment strategies — such as phased project development, risk-sharing agreements, and adaptive financial planning — demonstrate superior resilience in navigating Russia's complex energy landscape (McLean, Ryu, Whang, 2024).

To further illustrate the strengths, weaknesses, opportunities, and threats associated with Chinese energy investments in Russia, the following SWOT analysis provides a structured evaluation (Table 2).

Table 2

SWOT Analysis of Chinese Energy Enterprises in Russia

Category	Factors
Strengths	Strong diplomatic relations between China and Russia; access to vast Russian energy reserves; financial backing from Chinese state-owned banks; experience in large-scale infrastructure projects
Weaknesses	Exposure to geopolitical risks and Western sanctions; dependency on Russian regulatory stability; limited expertise in navigating Russia's legal and tax framework; currency exchange rate volatility
Opportunities	Potential for expansion in renewable energy sectors; growing demand for Chinese technology and investment in Russia's energy infrastructure; joint ventures with Russian firms increasing market access
Threats	Potential shifts in Russian energy policies; competition from Western and domestic Russian firms; environmental and regulatory compliance challenges; risks of financial instability due to market fluctuations

Source: (McLean, Ryu, Whang, 2024).

Additionally, Table 3 presents a detailed breakdown of risk-adjusted returns across different sectors and investment models, providing insights into financial performance variations.

Table 3

Risk-Adjusted Returns by Sector and Investment Model

Investment Sector	Investment Model	Expected Return, %	Risk Level (Low/ Medium/High)	Supporting Sources (APA 7 Format)
Oil & Gas	Wholly owned subsidiaries	15…20	High	McLean, E.V., Ryu, J., & Whang, T. (2024)
Oil & Gas	Joint ventures	12…18	Medium	Vilaplana, J.A. L., Yang, G., Ackom, E., Monaco, R., & Xue, Y. (2025)
Renewable Energy	Wholly owned subsidiaries	8…12	Medium	Zhu, L., Zhang, Z., & Fan, Y. (2015)
Renewable Energy	Joint ventures	10…14	Low	Min, Y.A.N. G., & Sangkhiew, N. (2024)
Energy Infrastructure	Public-Private Partnerships	10…15	Medium	Davtyan, V.S., Tufetulov, A.M., Rodnyansky, D.V., Khairullin, I.A., Margamov, A.R., & Valeeva, Y.S. (2024)

Source: developed by X. Ma, E.V. Nezhnikova.

This analysis reveals that joint ventures in both oil and renewable energy sectors tend to offer balanced returns with moderate risk levels, making them a preferred choice for many Chinese firms seeking long-term stability. In contrast, wholly owned

subsidiaries in the oil and gas sector provide the highest potential returns but expose investors to elevated geopolitical and economic risks. Public-private partnerships in energy infrastructure projects yield stable returns with moderate risk exposure, benefiting from government incentives and regulatory support.

By integrating these empirical findings with theoretical insights, this research contributes to a deeper understanding of the investment risks faced by Chinese energy enterprises in Russia. The study underscores the importance of adaptive investment strategies, regulatory compliance, and diplomatic engagement in ensuring sustainable and profitable energy cooperation under the Belt and Road Initiative. Future research could further explore emerging opportunities in low-carbon energy transitions, technological innovations, and evolving China-Russia economic dynamics in response to global energy shifts.

Discussion

The study's findings underscore the critical importance of strategic planning, adaptive risk management, and diplomatic engagement for Chinese energy enterprises investing in Russia. As one of the most geopolitically complex regions within China's Belt and Road Initiative (BRI) framework, Russia presents both significant opportunities and formidable challenges for foreign investors. While the abundance of oil, gas, and renewable energy resources offers long-term commercial potential, the volatility of regulatory frameworks, currency markets, and international relations poses considerable risks. This research highlights that a proactive, flexible, and well-structured investment strategy is essential for mitigating these uncertainties and ensuring sustainable business operations (McLean et al., 2024).

One of the most pressing challenges remains geopolitical tensions, particularly those related to Western sanctions on Russia. Some scholars argue that Chinese enterprises may indirectly suffer from secondary sanctions, even though Beijing has maintained strong bilateral ties with Moscow. Others contend that China's strategic neutrality and economic interdependence with Russia serve as protective factors, insulating energy companies from the full impact of geopolitical disputes (Zhu et al., 2015). However, this remains a subject of ongoing debate, as the evolving nature of international sanctions and trade restrictions may alter investment conditions unexpectedly. Given these uncertainties, financial and legal safeguards play a crucial role in stabilizing investment outcomes. The study finds that companies utilizing state-backed financial instruments, joint ventures with Russian firms, and legally binding long-term bilateral agreements exhibit greater resilience against external shocks (Min, Sangkhiew, 2024).

A key recommendation emerging from this research is that Chinese enterprises should adopt flexible business models to navigate the volatile investment landscape. One successful approach is the use of multilateral financial institutions for risk-sharing mechanisms. For example, leveraging the Asian Infrastructure Investment Bank (AIIB), China Development Bank (CDB), and Silk Road Fund can distribute financial risks across multiple stakeholders while enhancing investment credibility.

Furthermore, engaging in diplomatic negotiations with Russian authorities can help reduce regulatory uncertainties, as long-term intergovernmental agreements provide greater predictability in taxation policies, licensing requirements, and environmental compliance standards (Davtyan et al., 2024).

Another crucial aspect explored in this study is the role of digital transformation and innovative energy technologies in reducing operational risks and improving efficiency. The integration of big data analytics, artificial intelligence, blockchain technology for smart contracts, and automated monitoring systems has been shown to improve project management and compliance tracking (Li et al., 2019). Some experts argue that China's technological leadership in smart energy solutions provides a competitive edge, enabling Chinese firms to implement cost-effective and sustainable energy production methods. However, critics point out that Russia's regulatory approach to digitalization and cybersecurity policies could pose challenges for the widespread adoption of Chinese digital infrastructure within Russian energy projects. This remains a contentious issue, as regulatory barriers may either incentivize localized adaptation or limit the scalability of technological advancements.

Furthermore, this study includes a comparative analysis with other BRI countries, offering valuable insights into best practices for mitigating investment risks in geopolitically sensitive environments. Case studies from Central Asia, Africa, and the Middle East reveal that Chinese energy enterprises in Russia face a unique set of challenges, particularly concerning geopolitical isolation, stringent regulatory frameworks, and financial restrictions. By drawing parallels with other investment landscapes, this research identifies key policy measures that have proven effective elsewhere, including:

- Establishing sovereign investment protection mechanisms to guard against regulatory instability;
- Utilizing local partnerships and workforce integration strategies to improve operational security;
- Diversifying supply chains and energy transportation routes to minimize reliance on single export markets;
- Engaging in multilateral trade negotiations to expand market access beyond bilateral agreements.

These comparative insights provide a broader strategic perspective, reinforcing the argument that a multi-layered approach to risk management is necessary for sustained investment success in Russia.

To synthesize the study's most crucial findings, Table 4 provides a comprehensive overview of key investment risks, mitigation strategies, and their potential effectiveness.

This Table 4 presents a structured approach to assessing and addressing the risks Chinese enterprises face in Russia's energy sector. Notably, while some mitigation strategies — such as long-term bilateral agreements and government-backed financial mechanisms — receive high effectiveness ratings, others — such as technological adaptation and market competition strategies — are more uncertain due to regulatory restrictions and geopolitical fluctuations.

Table 4

Comprehensive Analysis of Investment Risks and Mitigation Strategies for Chinese Energy Enterprises in Russia

Risk Category	Specific Risk Factors	Impact Level (Low/ Medium/ High)	Proposed Mitigation Strategies	Effectiveness Rating (1–5)	Supporting Sources (APA 7 Format)
Geopolitical Risks	Western sanctions affecting energy transactions; trade restrictions impacting technology transfer	High	Joint ventures with Russian firms; diplomatic negotiations for exemptions; government-backed insurance policies	4	Vilaplana, J.A.L., et al. (2025); Min, Y., & Sangkhiew, N. (2024)
Regulatory Uncertainty	Frequent changes in tax policies, licensing regulations, and environmental laws	Medium-High	Long-term bilateral agreements; legal arbitration mechanisms; enhanced compliance strategies	5	Zhu, L., Zhang, Z., & Fan, Y. (2015) Davtyan, V.S., et al. (2024)
Economic Volatility	Ruble fluctuations; inflation risks; global oil price instability	High	Currency hedging techniques; diversified revenue streams; sovereign fund reserves utilization	4	Vilaplana, J.A.L., et al. (2025); Min, Y., & Sangkhiew, N. (2024)
Market Competition	Competition from Russian state-owned enterprises; Western firms adapting to sanctions restrictions	Medium	Strategic alliances with Russian firms; technological partnerships to gain market advantage	3	Zhu, L., Zhang, Z., & Fan, Y. (2015) Davtyan, V.S., et al. (2024)
Infrastructure Challenges	Underdeveloped transportation networks in remote energy regions; lack of digital energy infrastructure	Medium	Government infrastructure investment agreements; China's Belt and Road energy connectivity initiatives	4	Min, Y., & Sangkhiew, N. (2024)
Environmental & Social Risks	Climate change policies; carbon tax proposals; local workforce integration challenges	Medium	Investment in green energy projects; corporate social responsibility (CSR) programs; regulatory adaptation strategies	4	Vilaplana, J.A.L., et al. (2025); Davtyan, V.S., et al. (2024)
Technological Barriers	Cybersecurity laws affecting Chinese digital solutions in energy monitoring systems	Medium	Compliance with Russian data protection laws; co-development of technology with local firms	3	Zhu, L., Zhang, Z., & Fan, Y. (2015)

Source: developed by X. Ma, E.V. Nezhnikova.

Conclusion

Given the complex and dynamic nature of energy investments in Russia, Chinese enterprises must adopt a comprehensive and multidimensional risk management framework that effectively integrates financial, legal, geopolitical, and strategic considerations. The intricate interplay between global energy markets, regulatory frameworks, and diplomatic relations necessitates a highly adaptive and forward-looking approach, ensuring investment resilience amid evolving uncertainties. This study underscores that successful risk mitigation is contingent upon three core pillars: diversified investment models, robust legal safeguards, and proactive regulatory engagement. These factors collectively enhance the stability of Chinese energy enterprises operating in Russia and contribute to the broader discourse on energy security, economic sovereignty, and sustainable cooperation under the Belt and Road Initiative (BRI).

One of the central arguments in this research is that diversified investment models play a crucial role in minimizing exposure to sector-specific risks. In contrast to enterprises that rely solely on traditional upstream oil and gas extraction, companies that engage in downstream processing, energy infrastructure development, and renewable energy integration demonstrate higher levels of financial and operational resilience. For instance, firms that incorporate LNG production, petrochemical processing, and energy transportation networks into their portfolios benefit from greater market flexibility, allowing them to hedge against fluctuations in commodity prices and shifts in global energy demand. Additionally, public-private partnerships and strategic alliances with Russian state-owned enterprises (such as Rosneft and Gazprom) provide institutional stability, reducing the likelihood of abrupt policy shifts that could negatively impact foreign investments. By leveraging co-financing mechanisms — including investment funds backed by the Asian Infrastructure Investment Bank (AIIB) and the Silk Road Fund — Chinese firms can further spread financial risks while enhancing their credibility within the Russian market.

Another pivotal factor in mitigating investment risks lies in the establishment of strong legal frameworks that ensure long-term regulatory predictability. Russia's energy sector is highly regulated, with frequent legislative changes affecting taxation policies, environmental compliance, and foreign investment laws. Consequently, Chinese enterprises must secure legally binding bilateral agreements that offer investment protection, dispute resolution mechanisms, and fiscal stability guarantees. Long-term energy contracts between China and Russia, such as those governing natural gas exports via the Power of Siberia pipeline, illustrate the importance of legally enshrined commitments in safeguarding investment interests. Furthermore, by engaging in international arbitration frameworks, firms can reduce exposure to jurisdictional uncertainties, ensuring that disputes are resolved in a transparent and predictable manner. However, some scholars argue that Russia's increasingly stringent localization policies, which mandate greater domestic participation in foreign-led energy projects, may pose challenges for Chinese enterprises seeking operational autonomy. This raises an important debate: to what extent should Chinese firms comply with localization requirements versus advocating for more flexible regulatory terms

through diplomatic negotiations? The answer likely lies in a balanced approach, where firms prioritize local workforce integration and joint ventures while simultaneously advocating for legal provisions that maintain their strategic interests.

Regulatory engagement emerges as the third cornerstone of successful investment risk management. The study finds that Chinese energy enterprises that actively engage with Russian federal and regional authorities are better positioned to navigate bureaucratic challenges and secure favorable investment conditions. Given Russia's decentralized regulatory environment, where regional governments wield significant influence over energy policies, firms must cultivate strong relationships with both federal ministries and local regulatory bodies. This approach not only facilitates smoother project approvals and licensing processes but also helps mitigate risks related to policy inconsistencies between different levels of government. Additionally, firms that participate in bilateral energy forums, policy dialogues, and industry consultations benefit from early insights into upcoming regulatory changes, allowing them to adapt their investment strategies preemptively. Some experts argue that China's state-backed economic diplomacy provides a comparative advantage in this regard, as government-to-government negotiations often pave the way for favorable investment terms. However, critics caution that excessive reliance on state diplomacy over market-driven strategies could limit private sector autonomy, raising concerns about the long-term sustainability of Chinese energy investments in Russia.

From a broader geopolitical perspective, the study contributes to ongoing discussions on energy security, investment resilience, and the future trajectory of Sino-Russian economic cooperation under the BRI. The growing alignment between China and Russia in energy trade, infrastructure development, and technological collaboration signals a shift towards deeper strategic interdependence. However, this interdependence is not without its challenges. Western economic sanctions on Russia, fluctuations in global oil prices, and the increasing competition from alternative energy suppliers all introduce external pressures that could reshape the nature of China-Russia energy engagements. Consequently, Chinese firms must adopt adaptive investment strategies that account for both opportunities and contingencies. One promising avenue is the expansion of green energy cooperation, where China's expertise in solar, wind, and hydroelectric power could complement Russia's traditional fossil fuel dominance. While some analysts argue that Russia's current energy policies remain heavily centered on hydrocarbons, others contend that the gradual energy transition and global decarbonization trends may push Russian policymakers towards greater openness to renewable energy partnerships with China.

Ultimately, this research asserts that Chinese energy enterprises can optimize their investment outcomes in Russia by implementing a multidimensional, forward-thinking risk management approach. By diversifying their investment portfolios, securing robust legal protections, and engaging proactively with regulatory authorities, firms can enhance their resilience against economic, political, and legal uncertainties. Moreover, the integration of digital energy solutions, risk-sharing mechanisms, and sustainable development initiatives further strengthens their ability to navigate the evolving landscape of global energy markets. As the Sino-Russian energy partnership

continues to evolve, the findings of this study provide valuable insights for policymakers, business leaders, and scholars examining the complexities of energy cooperation under the BRI framework. Future research should explore the long-term impact of geopolitical shifts, technological advancements, and environmental policies on the sustainability of Chinese energy investments in Russia, ensuring that the strategies outlined in this study remain adaptable to the rapidly changing global energy paradigm.

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Bio notes / Сведения об авторах

XiangRu Ma, PhD candidate at the Department of National economics, Faculty of Economics, RUDN University, 6 Miklukho-Maklaya st., Moscow, 117198, Russian Federation. ORCID: 0000-0001-8769-8170. E-mail: 1042218197@pfur.ru

Ekaterina V. Nezhnikova, Doctor of Economics, Associate Professor, Professor of the Department of National Economics, Faculty of Economics, RUDN University, 6 Miklukho-Maklaya st., Moscow, 117198, Russian Federation. ORCID: 0000-0002-5236-7950. SPIN-code: 6483-5199. E-mail: nezhnikova_ev@pfur.ru

Ма Сянжу, аспирант кафедры национальной экономики экономического факультета, Российский университет дружбы народов, Российская Федерация, 117198, Москва, ул. Миклухо-Маклая, д. 6. ORCID: 0000-0001-8769-8170. E-mail: 1042218197@pfur.ru

Нежникова Екатерина Владимировна, доктор экономических наук, доцент, профессор кафедры национальной экономики экономического факультета, Российский университет дружбы народов, Российская Федерация, 117198, Москва, ул. Миклухо-Маклая, д. 6. ORCID: 0000-0002-5236-7950. SPIN-код: 6483-5199. E-mail: nezhnikova_ev@pfur.ru