Journal of Political Science and International Relationship (JPSIR)

ISSN: 3065-6125 (ONLINE)

VOLUME 2ISSUE 1 (2025)

PUBLISHED BY
E-PALLI PUBLISHERS, DELAWARE, USA

Journal of Political Science and International Relationship (JPSIR)

Volume 2 Issue 1, Year 2025
ISSN: 3065-6125 (Online)
DOI: https://doi.org/10.54536/jpsir.v2i1.5112
https://journals.e-palli.com/home/index.php/jpsir

Impact of Sanctions on Global Energy Markets and International Relations: A Case Study of Russia

Payman Malik[1], William Dishon Warigon[1*], Rawda Hasan[1], Basit Ali[1], Qamar Abbas[1], Lee Ngorn Einlay[1], Abbass Nasser Eldine[1] Ali Ahmad Muhammadi[1], Mauricio Sebastián Caballero López[1]

Article Information

Received: May 18, 2025

Accepted: June 23, 2025

Published: July 26, 2025

Keywords

Economic Sanctions, Energy Security, Geopolitics, Global Energy Markets, International Relations, Oil and Gas Trade, Russia

ABSTRACT

This research looks into how international sanctions affect global energy markets and international relations, focusing on Russia. After the West, mainly the U.S. and EU, imposed sanctions due to Russia's military actions in Ukraine, the usual energy trade has been thrown off balance. Russia, being one of the biggest energy exporters, has felt the impact deeply. The sanctions have affected oil and gas production, funding, technology sharing, and foreign investments, leading to less efficient energy use and halted technological progress. As a result, Russia has had to change its trade routes towards countries like China and India instead of sticking with traditional Western partners. These sanctions also caused energy prices to fluctuate, affecting both rich and developing nations. Countries that rely on energy imports are now looking for new suppliers and investing in different energy sources, while Russia is trying to renegotiate trade deals under new political and financial conditions. This situation shows how global energy security and political relations are tied together and shows the unexpected fallout from economic sanctions. This study finds that while sanctions are meant to pressure political leaders, they can have wider effects that change the global economy. Russia's sanction case shows that energy sanctions can push some political agendas which can also lead to new international relationships among nations and faster changes in global energy practices. The results suggest that policymakers need to think carefully about the long-term impacts of sanctions on international stability and the global energy landscape.

INTRODUCTION

International sanctions have become an increasingly prevalent tool of foreign policy, employed by states and international organizations to influence the behavior of target nations without resorting to military force. These measures range from comprehensive trade embargoes to targeted financial restrictions, and their effects ripple across global energy markets and international relations. The imposition of international sanctions usually has a negative impact on the GDP growth of the target countries (Neuenkirch & Neumeier, 2015), which may affect a country's energy efficiency through energy consumption per unit GDP, because one widely accepted definition is that a country's comprehensive energy efficiency refers to energy consumption per unit of GDP - that is, the energy: GDP ratio (Wilson *et al.,* 1994) and energy consumption per unit of GDP will increase when there is a GDP reduction due to international sanctions; therefore, international sanctions reduce energy efficiency. Second, given that technological advancement plays a vital role in improving energy efficiency (Rosenfeld, 2003) energy sector, as a critical component of national security and economic stability, is particularly vulnerable to the disruptive effects of sanctions. The imposition of sanctions creates immediate and long-term challenges for targeted states, particularly those heavily reliant on energy exports. According to Chen *et al.* (2019) and Tuzova and Qayum (2016), sanctions can significantly alter energy production, trade patterns, and domestic economic stability. These effects are not contained within national borders but propagate through interconnected global markets, affecting energy prices, supply chains, and international diplomatic relations. For instance, The Russia–Ukraine conflict has led to several rounds of sanctions in the Western world, mainly the United States and the European Union, including individual, economic, and financial sanctions (Chepeliev *et al.,* 2022; Mahlstein *et al.,* 2022). This paper examines the multifaceted impacts of sanctions on energy efficiency, global oil markets, and the broader geopolitical landscape, drawing on recent empirical studies to illuminate these complex dynamics. The case of Russia-Ukraine crisis provides a particularly illuminating example of how sanctions interact with energy markets to reshape economic and political realities.

MATERIALS AND METHODS

This study employed a qualitative approach based on the analysis of existing secondary data, including peer-reviewed journal articles, policy papers, economic reports, and institutional publications related to international sanctions, global energy markets, and Russian geopolitics. By focusing on Russia as a central case study, the research synthesizes historical and contemporary data to examine the intersection of energy trade, foreign policy, and economic resilience. This methodology enables a comprehensive understanding of both macroeconomic

[1] Department of Theory and History of International Relations, Peoples' Friendship University of Russia (RUDN), Patrice Lumumba, Moscow, Russia
[*] Corresponding author's e-mail: williswarigon@gmail.com

trends and geopolitical shifts influenced by sanctions.

Theoretical Framework: How Sanctions Affect Energy Markets

International sanctions influence energy markets through multiple interconnected channels, creating complex economic and geopolitical repercussions. The work of Chen *et al.* (2019) provides a comprehensive framework for understanding these mechanisms, identifying three primary pathways through which sanctions affect energy efficiency in target states: GDP reduction, technological restrictions, and capital outflows. Sanctions typically lead to a contraction in economic activity, measured by GDP decline. As Chen *et al.* (2019) demonstrate, this reduction directly impacts energy efficiency since one standard measurement of efficiency energy consumption per unit of GDP necessarily worsens when GDP falls while energy consumption remains relatively stable. Their study of 30 sanctioned states from 1996-2015 found that unilateral sanctions decreased energy efficiency by 0.067%, while plurilateral sanctions showed more variable effects depending on the target country's characteristics. The technological channel operates through restrictions on equipment and technical services during sanction periods. As Rosenfeld (2003) and Jiang (2009) have established, technological advancement is crucial for improving energy efficiency. Sanctions often disrupt access to cutting-edge energy technologies, forcing target states to rely on outdated, less efficient industrial equipment. Capital flows represent the third major transmission mechanism. Economic sanctions frequently include bans on investment, financial transactions, export credits, and asset freezes, all of which can trigger substantial capital outflows. Liu (2016) notes that such outflows reduce investment in energy efficiency improvements, creating long-term negative impacts beyond the immediate sanction period. The Russian case examined by Tuzova and Qayum (2016) illustrates this vividly, with $152 billion in capital outflows in 2014 severely constraining energy sector investments.

The type and scope of sanctions significantly influence their ultimate impact. Chen *et al.* (2019) differentiates between unilateral (single country), plurilateral (multiple countries), and multilateral (UN-led) sanctions, finding that UN sanctions had the most severe negative impact on energy efficiency (-0.087%). They also distinguish between economic sanctions (affecting trade, finance, and investment) and non-economic sanctions (diplomatic measures, travel bans), with economic sanctions proving far more damaging to energy efficiency (-0.055% in their VAR model). The theoretical framework suggests that sanctions affect energy markets through interconnected economic, technological, and financial channels, with effects varying by sanction type, scope, and intensity. These mechanisms establish the foundation for examining specific impacts on energy efficiency and global oil markets, as demonstrated in the empirical cases that follow.

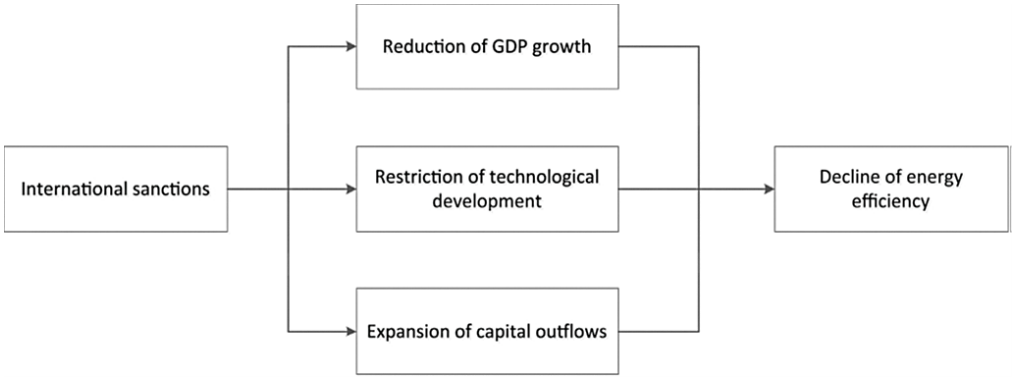

Figure 1. The influence mechanism of Internation Sanctions on Energy.
Source: Adopted from Chen et al. (2019)

Impact on Energy Efficiency in Targeted States

The imposition of international sanctions has demonstrable negative consequences for energy efficiency in targeted nations, with effects varying significantly based on country characteristics and sanction types. Chen *et al.* (2019) provides comprehensive empirical evidence of these relationships through their analysis of 30 sanctioned states over the 1996-2015 period, employing both panel fixed effects and Tobit models to account for the bounded nature of energy efficiency measurements. Their findings reveal that unilateral sanctions those imposed by a single country or bloc like the U.S. or EU typically decrease energy efficiency by 0.067%. This effect stems primarily from the GDP reduction mechanism, where economic contraction leads to higher energy intensity (energy consumed per unit of GDP). As Wilson *et al.* (1994) established, energy efficiency is commonly measured as the inverse of energy intensity, making GDP declines particularly damaging to efficiency metrics when energy consumption patterns prove sticky in the short term. Interestingly, plurilateral sanctions (imposed jointly by multiple nations like simultaneous U.S. and EU measures) showed more nuanced effects. While they improved energy efficiency in non-Islamic countries by 0.042%, likely due to offsetting effects when senders' interests diverge, they decreased efficiency in

Islamic nations by 0.116%. Chen *et al.* (2019) attributes this divergence to greater sender coordination when targeting Islamic states, leading to more effective sanction regimes that restrict technology transfers and financial flows more comprehensively. The identity of sanctioning bodies also matters significantly. UN sanctions had the most severe impact, reducing energy efficiency by 0.087%, compared to 0.042% for U.S. sanctions alone. This aligns with Bapat and Morgan's (2009) findings about the greater effectiveness of multilateral sanctions due to their perceived legitimacy and comprehensive nature. EU sanctions showed negligible effects in the full sample but significantly negative impacts (-0.139%) in Islamic countries, reflecting the EU's particular focus on energy technology restrictions in these cases.

Economic sanctions (affecting trade, finance, and investment) proved far more damaging to energy efficiency than non-economic measures (diplomatic sanctions, travel bans). Chen *et al.* (2019) found economic sanctions decreased efficiency by 0.053%, while non-economic sanctions showed no significant effect. This supports Peksen's (2009) contention that economic measures have more tangible impacts than symbolic diplomatic actions. The intensity of sanctions created a dose-response relationship with energy efficiency. Using a 5-point intensity scale (from targeted sanctions to comprehensive embargoes), Chen *et al.* (2019) found each unit increase decreased efficiency by 0.012%. This gradient effect mirrors Kaempfer and Lowenberg's (1999) theoretical work on sanction intensity and effectiveness.

Sub-sample analyses revealed important heterogeneity in sanctions' energy efficiency impacts. Islamic countries suffered particularly severe effects from plurilateral (-0.116%) and EU sanctions (-0.139%), while Asian nations showed broad vulnerability to all sanction types. These differences likely reflect varying degrees of energy system flexibility and pre-existing efficiency levels across regions. Control variables in Chen *et al.*'s (2019) models highlighted other factors influencing energy efficiency during sanctions. GDP per capita showed strong positive relationships with efficiency (0.735-0.852% increase per unit), while urbanization and trade openness decreased efficiency, consistent with Sadorsky's (2013) findings about concentrated energy demand in urban areas and trade-driven consumption. The dynamic specification tests using System GMM confirmed these relationships' robustness, showing persistent negative effects from unilateral and economic sanctions, while accounting for energy efficiency's autoregressive nature. This provides strong evidence that sanctions' energy efficiency impacts are not merely temporary shocks but can create lasting detrimental effects on targeted economies. These findings have important policy implications. For sanctioning bodies, they suggest that comprehensive multilateral economic sanctions will be most effective in pressuring target states, but with significant collateral damage to energy efficiency. For targeted nations, the results highlight the importance of diversifying energy systems and developing domestic technologies to mitigate sanction impacts. As the next section shows, these energy efficiency effects interact with broader market dynamics to influence global energy trade and prices.

Case Study: Sanctions and Russia's Energy Sector

Due to sanctions and ongoing sanctions, the Russian energy sector has endured two major waves of international sanctions that have fundamentally reshaped both its domestic economy and global energy dynamics. The first sanctions against Russia occurred from 2014 to 2017, following Russia's annexation of Crimea, and the second began in 2022 which was in response to its special military operation of Ukraine. Both periods offer critical insights into how sanctions interact with energy markets and international relations. According to Tuzova and Qayum (2016) provide a comprehensive analysis of the 2014–2017 sanctions using vector autoregression (VAR) models, revealing the profound macroeconomic consequences of those measures, particularly when compounded by a concurrent collapse in global oil prices. Their findings indicate that 35.5% of the real GDP forecast error variance could be attributed to oil price shocks, far outweighing the influence of consumption (4.9%) and investment (3.1%). This shows the depth of Russia's structural reliance on hydrocarbon exports globally. The sanctions significantly restricted Russia's access to Western capital markets, which constrained the country's ability to finance energy sector maintenance and expansion. These restrictions exacerbated inefficiencies in aging Soviet-era oil fields, compounding the adverse effects of falling oil revenues (Tuzova & Qayum, 2016). Technology transfer barriers, such as bans on the export of advanced oilfield and exploration technologies, further undermined Russia's capacity to develop Arctic and shale reserves, as Liu *et al.* (2014) predicted. Moreover, Russia experienced severe capital flight, with $152 billion exiting the country in 2014 alone nearly three times the previous annual average draining investment from energy infrastructure and efficiency improvements (Tuzova & Qayum, 2016). These conditions led to further economic disruptions, including a 59% depreciation of the ruble against the U.S. dollar and inflation soaring to 16.2% in the first quarter of 2015, which severely constrained household consumption and industrial energy demand. While a short-term rise in energy exports was observed, driven by the ruble's devaluation which made Russian oil more price-competitive, this advantage was short-lived. Infrastructure degradation and technological constraints eventually curtailed long-term export capacity; a pattern similar to what Ahmadi (2018) observed in the Iranian energy sector under sanctions. Tuzova and Qayum's (2016) forecast scenario suggested that continued sanctions through 2017 would lead to a 19% annual GDP contraction, with investment falling at a 66.5% rate, government spending by 15.6%, consumption by 13.7%, and imports by 10.5%. Their "sanctions until 2016" scenario, meanwhile, estimated significantly better results

with GDP rebounding to 5.45% growth in 2017, reflecting the long-term effects of even short-term sanctions due to investment hysteresis and infrastructural decline.

The second and more recent round of sanctions began in 2022 following Russia's invasion of Ukraine. The sanctions program this time was more comprehensive, coordinated, and rooted in the energy area. The United States, European Union, United Kingdom, Japan, and other G7 members placed sweeping financial sanctions, froze Russian Central Bank assets, severed Russia from SWIFT, and targeted Russian oil, gas, and coal exports directly, which together accounted for more than half the Russian federal budget revenues (Kimball, 2023). The United States banned Russian oil and gas imports entirely and excluded new investments in Russian energy projects, while the European Union, in spite of internal disagreement, went ahead to phase out most of Russia's oil imports and suspended large infrastructure projects like Nord Stream 2 (Marsh & Chambers, 2022). The scenario where sanctions lasted until 2016 showed much better results, predicting a GDP growth of 5.45% by 2017. This highlights how temporary sanctions can have lasting impacts due to issues with investments and fading infrastructure.

In response to losing its Western markets, Russia pivoted decisively toward Asia, strengthening its energy partnerships with China and India. Big projects, like the Power of Siberia gas pipeline to China and new oil routes to India, moved ahead quickly. This backs up what Borovsky (2023) said about how sanctions can lead to long-term changes in global energy trade. These changes fit into the trend Chen *et al.* (2019) talked about, where countries facing sanctions are looking more towards Asian markets to deal with the effects of Western restrictions. On top of that, sanctions have really shaken up global energy prices. In early 2022, oil prices shot up over $120 a barrel due to worries about possible supply issues from major producers. Tuzova and Qayum (2016) noted this trend, showing how sanctions on top suppliers like Russia can cause price swings when supply and demand are out of balance. Additionally, the technology transfer restrictions embedded in many sanctions had lasting consequences. Russia's inability to access advanced Western drilling and refining technologies stalled the development of new oil fields and compromised existing infrastructure, reducing its long-term production capacity and contributing to global supply tightness (Chen *et al.,* 2019).

The ripple effects of these sanctions extended to global investment patterns. Capital flight from Russia, which continued in the wake of the 2022 sanctions, discouraged not only domestic energy investment but also foreign investor confidence in emerging markets perceived as geopolitically unstable. This aligns with Afesorgbor and Mahadevan's (2016) conclusion that sanctions disproportionately affect capital-intensive sectors like energy. Furthermore, consumer nations responded by adjusting their energy security strategies. The European Union is working hard to diversify its energy sources. They've been bringing in more liquefied natural gas from the United States and Qatar. At the same time, China is quickly building up its oil reserves to protect itself from potential price increases or supply issues (International Energy Agency, 2022).

Geopolitical and Diplomatic Consequences of the Sanctions

Diplomatically, the Russian case demonstrates how sanctions can foster realignment and strategic decoupling. As Tuzova and Qayum (2016) note, Russia's turn toward China intensified after the initial 2014 sanctions and deepened significantly after 2022, reinforcing Drezner's (1999) argument that sanctions can result in the creation of alternative economic and diplomatic networks. This shift, however, poses major long-term challenges to the effectiveness of Western sanctions, because targeted states began to develop parallel trade and financial systems that reduce dependency on traditional power centers. The distinction between unilateral and multilateral sanctions also emerged as a key determinant of effectiveness. According to Chen *et al.* (2019) findings, multilateral sanctions such as those imposed by the United Nations are significantly more impactful because the energy efficiency dropped by 0.087% under UN sanctions compared to 0.042% under U.S. only measures. The broader legitimacy and enforceability of multilateral actions amplify their effects and limit the target state's options for circumvention. However, maintaining consensus among diverse international actors remains a challenge, particularly as energy interdependence complicates collective action, a tension illustrated by EU reluctance to fully align with U.S. sanctions in 2014 due to their reliance on Russian energy (Sun, 2014). These sanctions have also reignited debates about economic sovereignty and development rights. As Chen *et al.* (2019) argue, restrictions on access to energy efficiency technologies disproportionately harm developing nations and raise ethical concerns about the equitable application of global governance tools. Their finding that Islamic countries faced a 0.116% decline in energy efficiency under plurilateral sanctions compared to non-Islamic states supports Peksen's (2009) theory that domestic institutional characteristics mediate external pressure outcomes.

The Russian case further engages with broader debates on the efficacy of sanctions as a tool of statecraft. While Pape (1997) questioned whether sanctions achieve meaningful political concessions, the empirical evidence presented by Chen *et al.* (2019) and Tuzova and Qayum (2016) suggests that sanctions do inflict measurable economic costs, even if immediate political shifts are not always realized. The persistence of these economic effects, including market reconfiguration and long-term investment declines, indicates that sanctions function as both coercive instruments and structural disrupters, reshaping the global energy system in ways that outlast their formal implementation. More so, the Russia sanctions further signify and highlight the paradox of modern energy geopolitics because these sanctions may achieve short-

term policy objectives and signal international norms, but they also risk the fragmentation of global markets, strengthening adversarial alliances and further eroding the effectiveness of multilateral governance. Thus, as the global order becomes more multipolar, understanding the long-term implications of energy sanctions economic, geopolitical, and institutional will be crucial for shaping effective and balanced energy diplomacy.

Policy Recommendations

Empirical evidence and case studies on energy sanctions reveal several critical policy considerations for sanctioning states, targeted nations, and the broader international community. These recommendations seek to balance the strategic goals of sanctions with the need to preserve energy market stability, support humanitarian conditions, and foster long-term diplomatic solutions.

For Sanctioning Countries And International Organizations

1. Sanctions should be precisely targeted to avoid broad economic fallout. Sector-specific measures most especially those that are more focused on limiting access to energy technologies can fulfill policy objectives more effectively than sweeping restrictions, which often result in severe disruptions to energy efficiency and economic stability in the targeted country.

2. Multilateral coordination should also be prioritized because collective endorsed sanctions are more effective and legitimate. Joint actions reduce the likelihood of circumvention through alternative trade relationships and amplify economic pressure without isolating the sender diplomatically.

3. Sanction regimes should include clearly defined timelines or sunset provisions. Time-bound sanctions have shown better economic recovery outcomes post-lifting, whereas prolonged or indefinite sanctions can cause lasting damage to energy infrastructure and reduce incentives for compliance.

4. Robust humanitarian exemptions are essential. Since energy sanctions can lead to higher prices and reduced access to electricity and fuel, exceptions for critical energy-related transactions can prevent undue suffering without undermining strategic aims.

5. Monitoring mechanisms should be established to evaluate sanction effectiveness and unintended consequences. Independent oversight can help recalibrate measures that cause disproportionate harm to energy markets or civilian populations.

For Targeted States Seeking To Mitigate Sanction Impacts

1. Energy diversification must be a priority. Economies that rely heavily on single export commodities or foreign energy sources are particularly vulnerable during sanction episodes. Developing alternative energy sources and supply routes increases national resilience.

2. Investment in domestic energy technologies is crucial. Restrictions on technology transfers highlight the need for indigenous innovation and production capacity to ensure continuity and efficiency in energy operations during external isolation.

3. Strategic partnerships can serve as buffers. Strengthening economic ties with alternative markets before a crisis can provide flexibility and mitigate the initial shocks of exclusion from traditional trade networks.

4. Targeted improvements in energy efficiency especially in sectors not directly affected by sanctions can alleviate broader macroeconomic impacts. Even under sanctions, efficiency gains contribute to economic stability and energy security.

5. Enhancing financial system resilience is vital. Developing alternative payment mechanisms and strengthening domestic financial institutions can reduce exposure to sanctions that restrict access to international capital or settlement systems.

For The International Community

1. There is a need to build inclusive multilateral frameworks for energy security. Cooperative initiatives that transcend political divides can help stabilize global markets during sanction periods and reduce strategic vulnerabilities.

2. Creating formal dispute resolution mechanisms may prevent unnecessary escalation. Diplomatic platforms specifically designed to address energy-related disputes could help manage tensions arising from sanctions and promote negotiated solutions.

3. Equitable frameworks for energy technology transfer should be explored. Such systems could maintain security while promoting fair access to energy innovation, particularly for developing economies vulnerable to supply chain disruptions.

4. Developing standardized methodologies for monitoring and evaluating sanction impacts would improve transparency and policymaking. Shared metrics can enhance accountability and guide future sanctions with clearer benchmarks.

5. Finally, adopting a gradual escalation model for sanctions, based on defined intensity scales, allows for calibrated responses. This approach will be able to enable policymakers to apply pressure while monitoring responses, minimizing overreach and encouraging compliance through stepwise reinforcement during the period of sanctions.

Hence, these recommendations are aimed to balance the legitimate use of sanctions as a foreign policy tool with the need to maintain global energy stability and minimize humanitarian consequences during and after the period of sanctions. As the empirical evidence demonstrates, a well-designed sanction regime can achieve policy objectives while mitigating unintended collateral damage to energy markets and international relations.

CONCLUSION

The finding of this result signifies that sanctions has both positive and negative impacts and analyzing how sanctions affect global energy markets and international

relations shows that their impacts are complex and go beyond just their immediate goals. Looking at various studies, we see that these energy sanctions can affect the economies of the targeted states, change trade patterns around the world, and shift the overall political landscape. One of the key findings is that sanctions often hurt energy efficiency in the targeted countries, with the degree of impact depending on the type of sanction, how strict it is, and the specific situation of the target country. For instance, the case of Russia shows how sanctions can combine with commodity price changes to lead to major economic downturns, while also changing energy trading partnerships. On a larger scale, we see increased price swings, new trade routes, and limited investments in energy infrastructure that can last even after the sanctions are lifted. The impacts on international relations are just as serious, as sanctions can speed up shifts in global energy governance, create new alliances, and raise important questions about economic rights and development. This all points to the fact that while sanctions are a strong tool for countries, they need to be applied carefully, keeping in mind both the immediate effects and long-term consequences.

Future Research

Looking ahead, future research should dive into new types of sanctions like digital financial restrictions and how they specifically affect energy markets. It's also important to study the growing role of renewable energy in global politics, especially how access to key minerals and clean energy technology might become new fronts in economic strategies. Long-term studies that follow recovery patterns after sanctions could shed more light on lasting effects in energy systems. As the global energy scene changes due to climate issues and political tensions, policymakers will need to balance using sanctions strategically while ensuring that energy markets remain stable and functional. The evidence suggests that cooperating with others and using targeted, time-limited sanctions could help achieve goals while reducing negative effects on global energy systems and international ties.

REFERENCES

Afesorgbor, S. K., & Mahadevan, R. (2016). The impact of economic sanctions on income inequality of target states. *World Development, 83*, 1–11.

Ahmadi, A. (2018). The impact of economic sanctions and the JCPOA on energy sector of Iran. *Global Trade and Customs Journal, 5*, 198–223.

Bapat, N. A., & Morgan, C. T. (2009). Multilateral versus unilateral sanctions reconsidered: A test using new data. *International Studies Quarterly, 53*(4), 1075–1094.

Borovsky, Y. V. (2023). What drives the West's energy policy? *International Trends / Mezhdunarodnye Protsessy, 21*(1), 189–211. https://doi.org/10.17994/IT.2023.21.1.72.4

Chen, Y. E., Fu, Q., Zhao, X., Yuan, X., & Chang, C.-P. (2019). International sanctions' impact on energy efficiency in target states. *Economic Modelling, 82*, 21–34. https://doi.org/10.1016/j.econmod.2019.07.022

Chepeliev, M., Hertel, T., & van der Mensbrugghe, D. (2022). Cutting Russia's fossil fuel exports: Short-term economic pain for long-term environmental gain. *The World Economy*. http://dx.doi.org/10.1111/TWEC.13301

Drezner, D. W. (1999). *The sanctions paradox: Economic statecraft and international relations*. Cambridge University Press.

International Energy Agency. (2022, March 21). *Energy Fact Sheet: Why does Russian oil and gas matter? IEA*.

Jiang, K. J. (2009). Energy efficiency improvement in China: A significant progress for the 11th five year plan. *Energy Efficiency, 2*(4), 401–409.

Kaempfer, W. H., & Lowenberg, A. D. (1999). Unilateral versus multilateral international sanctions: A public choice perspective. *International Studies Quarterly, 43*(1), 37–58.

Kimball, D. G. (2023). Why we must reject calls for a US nuclear buildup. *Arms Control Today, 53*(9), 3.

Liu, J. G., Gao, S., & Zhu, Y. Z. (2014). The impact of sanctions against Russia on world oil and gas market. *China Policy Review, 10*, 100–103. (In Chinese)

Liu, L. (2016). International community sanction on South Africa and its influence. *Journal of Dezhou College, 32*(1), 88–92. (In Chinese)

Mahlstein, K., McDaniel, C., Schropp, S., & Tsigas, M. (2022). Estimating the economic effects of sanctions on Russia: An allied trade embargo. *The World Economy*. http://dx.doi.org/10.1111/TWEC.13311

Marsh, S., & Chambers, M. (2022, February 22). Germany freezes Nord Stream 2 gas project as Ukraine crisis deepens. Reuters. https://www.reuters.com/business/energy/germanys-scholz-halts-nord-stream-2-certification-2022-02-22/

Neuenkirch, M., & Neumeier, F. (2015). The impact of UN and US economic sanctions on GDP growth. *European Journal of Political Economy, 40*, 110–125.

Pape, R. A. (1997). Why economic sanctions do not work. *International Security, 22*(2), 90–136.

Peksen, D. (2009). Better or worse? The effect of economic sanctions on human rights. *Journal of Peace Research, 46*(1), 59–77.

Rosenfeld, A. H. (2003). The art of energy efficiency: Protecting the environment with better technology. *Annual Review of Environment and Resources, 24*(1), 33–82.

Sadorsky, P. (2013). Do urbanization and industrialization affect energy intensity in developing countries? *Energy Economics, 37*, 52–59.

Sun, D. (2014). Analysis of the role of EU in the new round of economic sanctions on Russia by US and EU – From the perspective of energy trade. *Forum on World Economics and Politics, 63*(5), 96–109. (In Chinese)

Tuzova, Y., & Qayum, F. (2016). Global oil glut and sanctions: The impact on Putin's Russia. *Energy Policy, 90*, 140–151.

Wilson, B., Trieu, L. H., & Bowen, B. (1994). Energy efficiency trends in Australia. *Energy Policy, 22*(4), 287–295.