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Impact of Global Energy Geopolitics on Competition, Cooperation, and Geology-Driven Resource Management in the 21st Century

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ABSTRACT

The geopolitical landscape of the 21st century is intricately linked to the global energy market, where competition and cooperation among nations shape economic interests, strategic alliances, and power dynamics. This paper explores the multifaceted dimensions of energy geopolitics, focusing on the interplay between traditional energy resources, such as oil and gas, and emerging renewable energy technologies. It examines how the management and accessibility of these critical resources, influenced by geological factors, impact geopolitical stability, security, and sustainability. The study also highlights the strategic approaches used by major energy-producing and consuming nations to secure access to vital energy reserves, manage transit routes, and influence energy markets. Additionally, this paper considers how natural resource distribution, grounded in geology, plays a role in shaping global energy strategies. The potential for cooperation through energy diplomacy, regional initiatives, and partnerships in renewable energy is also examined, with an emphasis on how effective resource management can foster dialogue and mutual benefit. Ultimately, this paper argues that understanding the intersection of energy geopolitics and geology-driven resource management is key to addressing shared energy challenges and navigating global governance, security, and sustainable development in the interconnected world.

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1.0 Introduction

The structures of the world's energy industry allow the international relations and the desires of states to become linked and interdependent. Today, energy not only powers the wheels of the modern-day world but becomes the decisive element in the complicated game of geopolitics and formulates the axis of alliance (Skalamera 2023). Countries have secretly been competing for the energy resources which are parts of the national wealth in terms of oil, natural gas, and other related energy assets (Yang, Xia et al. 2023).

The international energy market has reshaped unclear due to the technology progress, a change in the economic system and the growing environmental concerns in the last decades. So far, the traditional energy giants for instance, Organization of the Petroleum Exporting Countries (OPEC) have had the control over the world's oil market for a long time (Olier 2023). Rather than other sectors, it is their tendency to bear a lot of power with which they control the prices and the supply of oil to the global markets. However, factors like the onslaught many of the upstream oil producers and the emergence of new renewables technologies might have diluted the control which in turn may radically shift the geopolitical framework. The implications of this reciprocity have a two-fold impact on the relations and the rivalry among the continuously competing countries whose aspirations are to have their energy future dictated by the new global order (Siddi 2023).

Geopolitics can be defined as the study of how a country's location, natural resources, and power influence its interactions with respectively with other countries, along with its capability to amass domination globally. In the sense of energy, geopolitics addresses the issue of strategic control and distribution of energy sources along with relevant political and economic ramifications of energy production, exchange, and consumption (Blondeel, Bradshaw et al. 2021). The global energy competitors are the countries or companies that are struggling for the access to and the control over energy resources, transportation routes, or market share. These conflicts could be via hydrocarbon reserves competition, pipeline routes dispute or attempts to establish dominance over renewable energy inflation and supply. The term "cooperation" has to do with collaboration among countries or companies that can be illustrated in the context of the power industry by the way, for instance, they may develop or implement the processes of resource distribution and use both for their benefit (Alam, Aktar et al. 2023).

On the intertwined frontier of international politics, economic considerations, and environmental problems stands the geopolitics of energy which ultimately governs the way nations and regions interact. Therefore, as the global energy demand increases, driven by economic growth, urbanization, and technological advancements, the knowledge how the players cooperate and compete with one another in the global energy market becomes of great significance (Criekemans 2023). Although relevant research has been done to certain aspects of energy geopolitics, a significant gap is evident which is caused by a lack of comprehensive

analysis into evolving strategies and power relations among key factors such as countries, multinational corporations and an international organization within this complex arena. Such a knowledge gap in the global energy arena is the research main focus which aims to attain a much more sophisticated thorough examination of the transformation taking place, new problems emerging, and potential routes for partnership (Bordoff and O'Sullivan 2023).

Geopolitics precisely means that politics is the center of attention. Nations reassess their power, influence and security in this field. Consequently, the volcanic area is the center of scientific search. The energy, however, is what not only powers the commodities around the planet today, but it also sustains the atmosphere of the modern world economy (Bordoff and O'Sullivan Meghan 2022). It therefore says which politician cooperates with whom, who goes to war and how or why, what to do and how. Understanding the sufficiently complex picture of the seven and of competitors and co-opters involved in the global energy market is a relevant theme for the government, entrepreneurs and scholars. It reflects the fact that the energy transition, transmission, and consumption transformation impact national security, geopolitics, and the building of a green economy. In this case, the region with the natural resources provided by the reality is also the area with the worldwide energy powers, such as China. Such selection for energy resources plays a vital role in geopolitics. This paper will specific the different energy geopolitics dynamics that allow countries on the in the consideration of these complexity to secure their interests in the face of the above security challenge great energy security climate change and sustainable development.

1.1 Aims and Objectives

- To investigate how geopolitical factors influence energy production, distribution, and consumption patterns.
- To assess the impact of energy-related conflicts on regional and global stability.
- To examine strategies for enhancing cooperation among nations to ensure energy security and sustainability.
- To analyze the role of emerging technologies and renewable energy sources in reshaping geopolitical power dynamics in the energy sector.

2.0 Literature Review

2.1 Historical Context: Evolution of Energy Markets

Energy geopolitics starts its journey with the historical period around the last half of the 19th century and the early years of the 20th century, where industrial revolution marked its beginning. During this period the need for energy resources increased, especially for coal and oil as the industrialization of nations and their economies develop quicker. The race to acquire sources of these crucial resources was a driving force for nations as they filled their reserves, and the result was a gender divide provoked geopolitical rivalry and partnerships (Bricout, Slade et al. 2022). The geopolitical importance of the energy resources was made absolutely clear around

the time of the conflicts of World War I and World War II. Oil, mostly, came to be this strategic asset that not only fueled the war machinery and vehicles, but also was used in manufacturing. The control of oil supplies and of the world's shipping routes became the main objectives of warring nations which determined the nature of war strategies and the diplomatic front. OPEC's formation drew energy into the politics, as the world began to see how energy, national interests, economic power and geostrategic influence influenced the global energy panorama. OPEC's deeds, among these embargoes and production quotas, have shaped geopolitics and international relations and conferred impact on the global energy security as well. The energy geopolitics development of the 21st century is in a core transitory state, as it brings new problems and chances on the background of the shaky energy landscapes, advanced technologies, and geopolitical wars (Khan, Su et al. 2023).

2.2 Geopolitical Hotspots in Energy Market

Geopolitics of energy is predominantly formed by the several key players and regions that set the pace in global energy markets. Among many others, there is a region that stands out in this respect, and that is the Middle East, famed for its tremendous oil deposits, with the result that it is the hotspot of ongoing geopolitical and military competition and contention for all these years. The relevance and the criticality of the region is substantiated by its position as a major source of crude oil to the globe, thus translating to its significant power over the global energy markets (Hille 2023). Energy security in this part of the world is indeed the key issue that defines the messiness of the web of complex alliances, rivalries, and interventions. Russia furthermore has a considerable influence in the energy geopolitics, especially because of the way it deals with natural gas. Russia houses the largest hydrocarbon reserves in the world with its elaborate pipeline system, making it a potent player in the European energy arena. A monopoly in the field has produced tensed relations with the EU and the neighboring countries, as worries about energy security and tendencies of gas dependency still remain. In addition to that, the USA is no less than a revolutionary force in the global energy market, where its shale revolution has caused greater changes (Criekemans 2023).

2.3 Sifting Geopolitical Landscape of Energy

The ongoing transformation of an energy mix towards more sustainable sources is altering the geopolitical climate dramatically with the awakening of new players. In the past, the dispersion of fossil fuels did occur on a worldwide stage with several locations holding a large favor, such as the Middle East, Caspian Basin, and, the Gulf of Mexico (Blondeel, Price et al. 2024). This structure of trade has its foundation on the existing geopolitics of energy. As a result, the growing influence of renewable energy sources is envisaged to cause the form of energy distribution become more decentralized and regionalized. The danger involved in the existence of the state that has the peculiar features while enjoying exclusive revenues and situated at the verge of direct climate risk draws the imagination to global security and stability

problems. So, the energy transition comes to the junction of the opportunities that can be grabbed from the competition of fuel resources or conflicts that can be avoided through the collapse of resource-driven economies or the proliferation of resource conflicts (Liu, Su et al. 2023).

2.4 Competition and Corporation in Energy Markets

Energy market nowadays plays as competitive, as well as cooperative role between sovereign states and firms in global scale. The fight can be over hydrocarbon reserves, the disagreement over pipeline routes, efforts for having dominion over the development and the supply chain of renewable energy. This is the reason of competition because that the energy resources are the strong parts of countries, that is necessary energy resources control. The studies show that it can lead to collaboration improvement though research evidence too suggests that it will be tougher to integrate the teams (Chishti, Sinha et al. 2023). The joining of global solar partnerships is a tactics of diplomacy because it tackles the global issues of economic inequalities and regional interdependence. Apart from this, renewable energy diversification and possible decline in fossil fuels struggle would considerably expand post-oil peace dividend, thus would provide space for countries to collaborate in the sustainability grid (Ibekwe, Etukudoh et al. 2024). Re-alignment of the new energy order which overwhelms traditional power structures is a separate geopolitical effect of the energy transition, within which the Petro-states whose economies depend too much on the selling fossil energy to meet the falling market, signify exhausting political and economic systems in the Middle East, the continent of Africa, Central Asia, and Latin America. Some of these countries may not be ready (Scholten 2023).

3.0 Methodology

The methodology for this research was developed as a qualitative research design and is underpinned by the interpretivism philosophical stand. Considering the interpreting instruments and techniques are the result of the explorations of complex and subjective nature of the internal processes in power markets, the interpretivism thus tends to define them as a necessary component. Research population was employed as a term to specify the subjects or stakeholders in energy markets worldwide who include governments, multinational organizations, intergovernmental agencies and consumers, alike. The facilitation provided the basis for a holistic examination of the transformations in the global context of the key players in the energy markets' competition and cooperation.

Research data was collected from various sources included the obtaining of annual reports by main energy stakeholders, the emerging energy trends analyzed through the industry journals and reports and other data sources and also through reviews of academic journals and books on existing geo-energy politics and I was attentiveness during the conferences for energy geopolitics in different years. The unconventional used to be their community’s strategic approach. They were trying to obtain a full-spectrum understandings that may cause a greater

impact. The data analysis followed the steps required by the thematic analysis technique that assisted in the identification and interpretation of the emerging themes, patterns as well as the underlying ideas. This structure of the approach helps to look in the complicated issues as geopolitics and relationship from the deep level thereby to have of more understanding of the research's topic.

Entire research process was absolutely surrounding the ethical considerations. Privacy was a top-priority in term of data collection. It had made sure that there was not any violation of participant's private info and that the sources were correctly used. For ethical purposes, the participants' rights were limited. At the heart of this research was the advocacy and adherence to the professional ethical guidelines and transparency while reporting. The two virtues, reliability and validity of the study, were the benefits that the researcher had gain as a result of these ethical values. Furthermore, it was tried to identify likely biases in the data collection and analysis process and strive to reckon them, that brought a cleanness and truthfulness to the research results.

4.0 Findings and Results

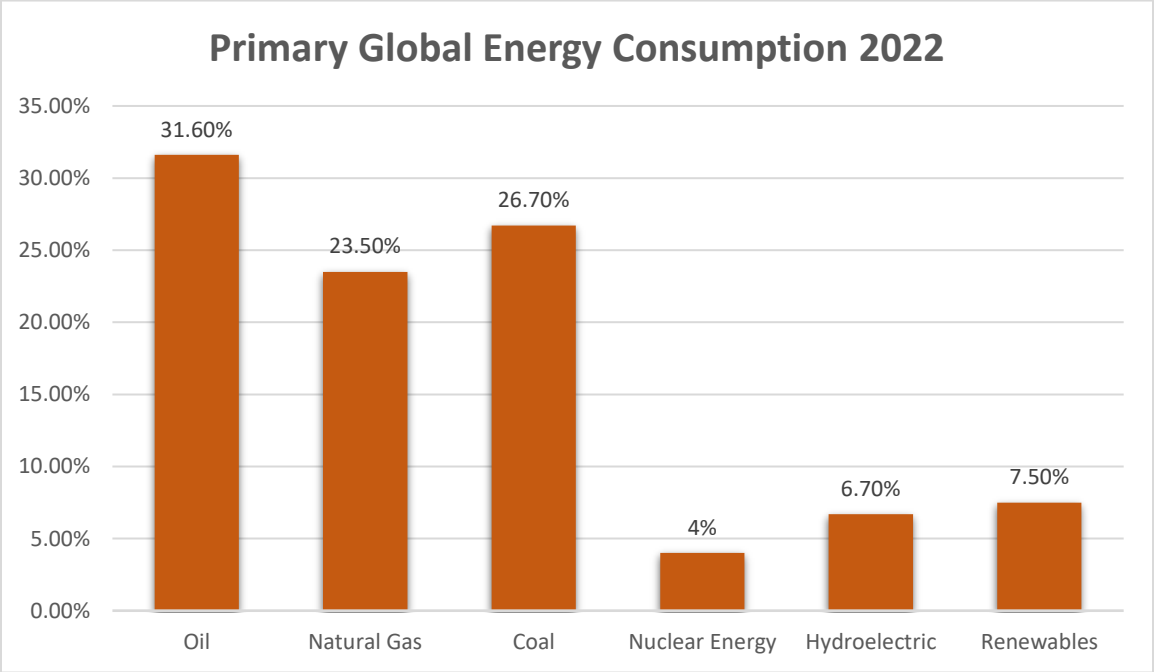
4.1 Energy Transition and Geopolitical shift

The world energy revolution in progress is not only being accompanied by a profound reshaping of traditional power structures within the global energy industry but also by a complete re-definition of geopolitical contours. At the same time, countries choose green technologies, they do not only solve problems in the sphere of environment, but also (intentionally or unintentionally) find themselves in the competitive and security race for leadership in the sustainable energy sector. It is not just about a technological transition; it is also about energy policy rebalancing where access to renewable resources and the technological developments become a kind of new currency for the global status of power management and influence.

Mainly, the transformation to renewable energy sources is creating a power shift in the field of energy as competition and cooperation are no longer nationalistic and the alliances are shaped around the values of shared renewable energy. Countries around the world are embracing the strategic value of devoting to green technologies for the sake of both environmental and national security reasons, i.e. diversification of their national energy sector, drawing fewer resources from fossil fuels, and triggering growth in innovation and economy. This transformation is bringing about the advent of a new era of energy diplomacy in which the cooperation on renewable energy projects as well as initiatives it is becoming the central point of the international relations, setting the stage for a more reasonable and closely designed global energy system.

4.1.1 Primary Global Energy Consumption

The latest an investigation indicates that the worldwide energy demand still heavily relies on fossil fuels, despite the substantial growth of renewable energy sources like solar and wind power. Although there has been substantial expansion in the usage of renewable power, fossil fuels still made up 82% of the overall primary energy use. The demand for natural gas and coal remained essentially constant, but the demand for oil had a substantial rebound, approaching pre-pandemic levels. For comparison, the current proportion has declined from 87% in 2010. Based on the present rate of decline, it would need about 200 years for fossil fuel use to reach a complete cessation. An investigation has shown that the world energy demand still heavily relies on fossil fuels, despite the substantial growth of renewable energy sources like solar and wind power. Although there has been substantial expansion in the usage of renewable power, fossil fuels still made up 82% of the overall primary energy use. The demand for natural gas and coal had a rather constant trend, whereas the demand for oil saw a substantial rebound, approaching pre-pandemic levels. For context, the present proportion has declined from 87% in 2010. Based on the present rate of decline, it would need about 200 years for fossil fuel use to reach zero.



Source: 2023 Statistical Review of World Energy

4.2 Regional Energy Interdependence

The impact of regional energy interconnections and the consequent character of relations among the various international actors have grown to become a key area of interest in the wider geopolitics sphere. Based on findings of research, countries are more actively developing various schemes of joint energy supply in order to strengthen their energy security, promote economic growth and eliminate geopolitical risk factors. Such collaborations can be

implemented by means of a transfer of project ideas and through the construction of the regional energy integration projects, thoroughly for example, cross-border power grids and energy-sharing agreements.

The International Renewable Energy Agency (IRENA) conducted research analyzing the impact of new renewable energy technologies (based on Renewable Energy Sources, RES) on global geopolitics, as well as on specific regions and countries. Through this analysis, it has been identified the primary trends of this process in the medium and long term.

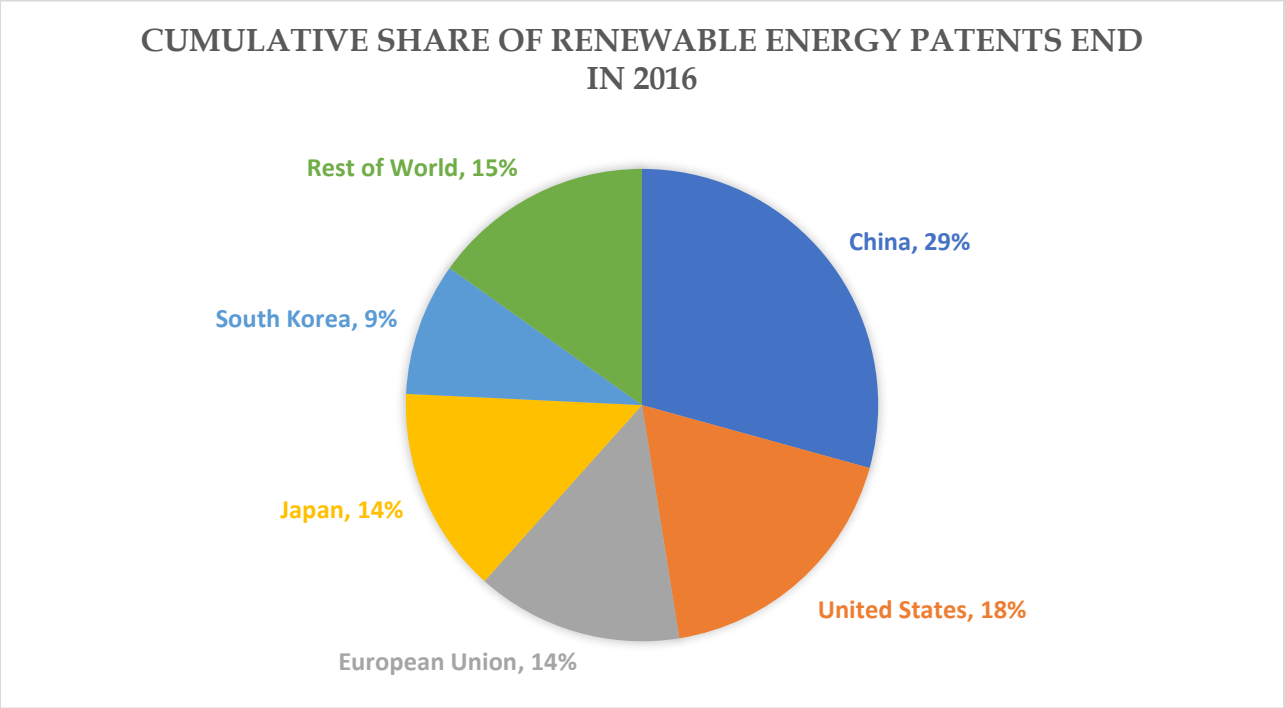


Chart 1: Source IRENA

The implementation of these regional energy integration projects gives much room to collaborate at a higher level, therefore, instead of the energy-dispute tension in the world, there is dialogue between the stakeholders. This is achieved through sharing resources and strategic planning which enables the infinite strengthening of each partner, more diversity in the energy portfolio, and hence a higher resilience of their energy systems. Thus, such interdependency not only assures energy security but as well oil stability and economic growth in the region. Where countries realize that they have things in common and that they would benefit from this type of cooperation, this trend is expected to continue, and more and more regional energy interdependence occurs. This is how the main direction of global geopolitics changes, and gives cement to cooperative energy environment.

4.3 Impacts on Energy Security

The interplay of the energy transition on energy security, however, is multi-layered and needs to adopt a strategic approach, considering the challenges and the opportunities the move towards the renewable resources bring. Renewable energy holds the potential for the diversification and thus new sources of energy which in its turn reduce the dependence on the fossil fuel but at the same time these new sources complexities are incorporated which intermittency, storage and infrastructural development. The variable nature of green sources, such as wind or sun, calls for power storage systems of highest efficiency developing. That allows for an uninterrupted supply of energy with no surprises. Therewith, the inclusion of renewable energy into currently existing energy systems need quite heavy investments in grid system features and bolt systems to manage electricity supply and demand fluctuations.

Due to the variable nature of the energy world that is undergoing a transformation, resolving the issue of energy safeguard entails forward-planning and collaboration within countries or globally. The first step for any government and stakeholders in the energy industry must be to develop efficient and reliable energy systems that can endure disruptions and subsequently adapt to the changing energy requirements without constant hiccups. It encompasses the upgrading of the grid, the development of of energy storage technologies, and the installment of adaptive energy infrastructure to sustain energy supply. By the same token, collaboration in international activities is urgently needed to deal with the shared energy security issues, engage in experience exchange, and, above all, determine the best methods of managing the transition towards a low-carbon energy provision.

4.4 Geopolitical Risk and Opportunities

The geopolitics of energy transition is characterized by several geopolitical risks and opportunities that become evident as the world transitions to the low-carbon era. The main threat is the potential for escalated conflicts over the utilization of critical minerals and metals used by renewable energy technologies. When the demand for these materials skeins, there is a danger of resource nationalism, trade wars, and even wars; the countries and corporates will be in competition to secure supply chains. This way the race for the renewable energy market would lead to new geopolitical rivalries and countries as well as companies try to surpass each other in technology and market dominance.

However, the ambivalent nature of the energy transition also provides great opportunities for global cooperation and diplomacy. The common climate targets are used as a basis for cooperation, and the investments in sustainable energy will help in development of trust upon one another what renewable energy is thus used as a peacebuilding and conflict resolution tool. Furthermore, the inappropriate centralization created by fossil fuel resources, a full renewable energy source as of solar and wind, can significantly decrease the powerful dynamics used by the earlier for a more balanced and interconnected global energy picture.

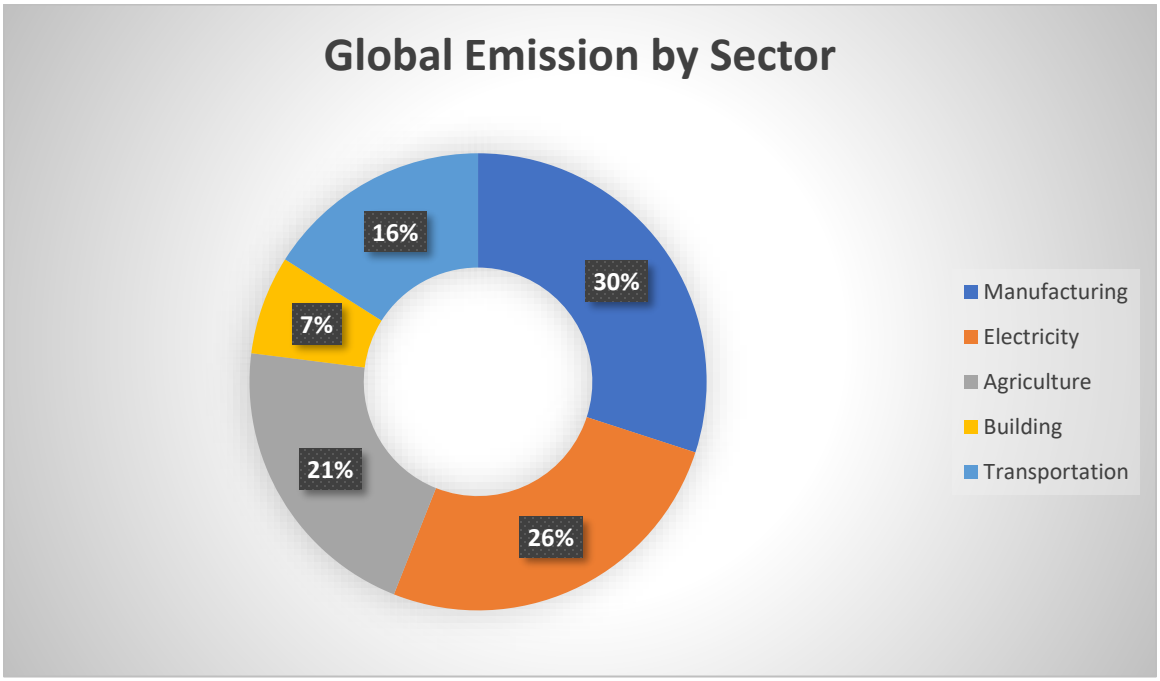


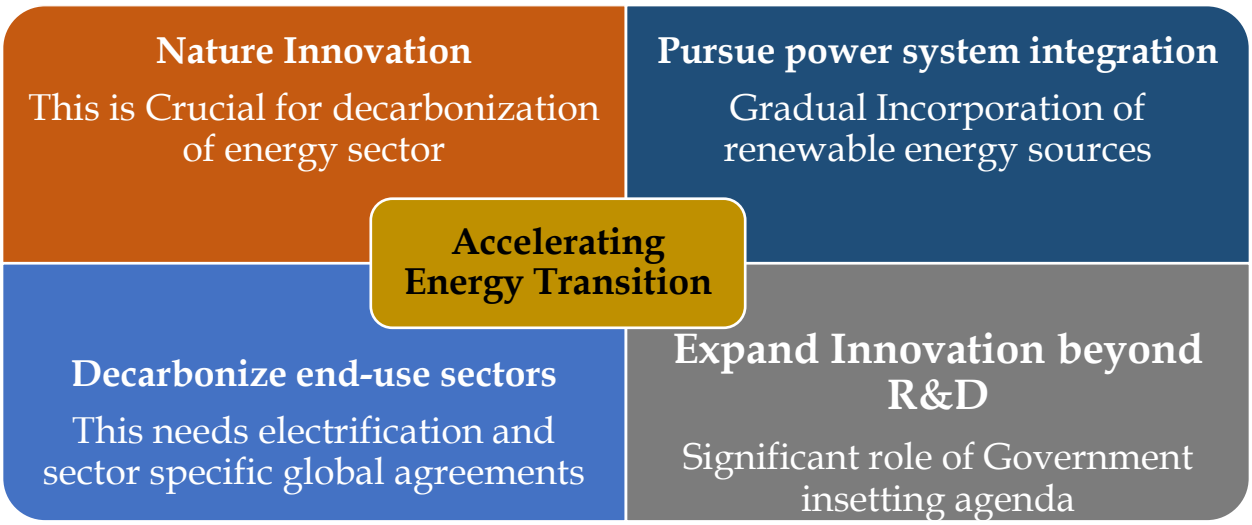
Chart 2, Source: Rhodium Group, 2019

4.4.1 Ukraine War Drives Energy Crisis

The data clearly demonstrates the significant influence of Russia's invasion of Ukraine on energy prices. Russia's interference with energy imports caused a significant increase in natural gas and coal prices, reaching record levels in Europe and Asia. Although there was growth in global LNG exports, it was insufficient to compensate for the decline in Russian pipeline supplies to Europe. Oil prices saw a sudden increase before stabilizing. Due to the crisis, nations such as Germany decided to suspend their plans to gradually eliminate the use of coal, as ensuring energy security became more important than achieving climate objectives. The continued dependence of China and India on coal has increased demand, even if Europe and North America have reduced their usage. In a positive development, the installations of wind and solar energy sources reached unprecedented levels in the year 2022. Nevertheless, this had no significant impact on emissions as emerging countries persist in using all accessible energy sources to drive their economic expansion. The proliferation of electric vehicles (EVs) is expanding quickly, placing significant pressure on the availability of essential minerals such as lithium and cobalt. However, the report's results indicate that the world's energy systems are still lagging behind in their efforts to shift away from climate-altering fossil fuels. The Review highlighted the need for significant advancements in order to attain net-zero emissions by the middle of the century.

4.5 Governance Challenges and Policy Implications

The research results highlight the importance of proper energy governance and harmonious policy coordination in the energy transition labyrinth. The policymakers' dilemmas lie between the national energy security imperatives and global climate goals. This has given birth to robust regulatory regimes that improve energy access and availability while at the same time encouraging technological innovation and competition in the energy sector. Multilateral approach becomes one of the main solutions of governance problems which allows developing the best practices sharing, convergence in the regulatory standards and transparency in the decision making. Hence, by implementing a collaborative and participative energy governance model, they will successfully deal with the complex geopolitical implications of the energy transition and enter a durable and resilient energy future.



Furthermore, the research underlines the importance of the policymakers in engaging stakeholders from all the sectors to ensure smooth and fair energy transition. Effective governance needs to involve multiple stakeholders such as governments, industry, NGOs, and international organizations who must take part in the development of energy policies and strategies. Fostering the dialogue, consensus, and perspective diversity is a way that policymakers can adopt for enhancing the legitimacy and effectiveness of some particular energy governance frameworks. Furthermore, the transparency, accountability, and stakeholder participation in the decision-making process should be fostered; these are main elements in trust building, innovation stimulation, and effective implementation of energy policy. In summary, by the establishment of a partnership, people-oriented and future-oriented governance system, despite the fact that the development of the energy transition may bring a series of severe challenges, the development of a sustainable energy will be strengthened, eventually, a more flexible and green energy will be visible in the future.

5.0 Discussion and Conclusion

Energy geopolitics creates a maze to watch within the world that includes both rivalry and harmony among the global energy trading partners. The literature review brings to light various insights, which form a summary of the complex and many-sided interplay. Firstly, the geopolitical feature of energy resources distribution has always been very popular, as it is pivotal national goal to control the sources of oil, natural gas, and other important energy resources for the sake of both economic and strategic interest's upgrade (Shirazi, Fuinhas et al. 2023). This belief is specifically the reason why geopolitical tensions and conflicts are prevalent, as witnessed in historical instances for instance the oil scramble in the Middle East during the last century. Furthermore, new renewable energy technologies are disrupting on than just the way we generate power, they are changing the traditional geopolitics by lessening our dependency on fossil fuels and it is possible that they also reshape the global energy trade. Alongside it, the role of intergovernmental organizations and agreements, e.g., OPEC and the Paris Accord, should be also reflected on as they are known to be shaping energy geopolitics through their way of influencing otherwise limited production quotas, they regulate pricing mechanisms, and give room for climate policies (Zhao, Mohammed et al. 2024).

Moving ahead story the facts being known, this research adds to the body of existing literature by offering an overarching picture of the geopolitics of energy industry. Through the integration of findings from interrelated sources and the introduction of the latest theories, this study presents inextricable connections between energy resources, geopolitical interests, and global governance structures. In the theory level, it sheds light on the interactions between power structures and the strategic designs in sacred energy politics. In addition to that, this study is of great significance because of the practical extent of its impact, which acts as a point of reference for decision-makers, energy business actors, and international actors, who all have the task of formulating energy policies and strategies (Uddin, Usman et al. 2023).

Nevertheless, peculiar setbacks which animate the study should be considered as well. First of all, the inter woodenness of the global energy system indicates that some conclusions will inevitably become outdated fast. Hence, it underlines the fact that further studies and research in the field should be conducted regularly (Lau, Soliman et al. 2023). Alongside that, it becomes of notice that the study is narrowed down by other factors like data availability and methodological limitations which may not be as comprehensive and generalizable as it might be otherwise. While these shortcomings might limit the ideas from this study, they will, however, contribute to a better understanding of the geopolitics of energy. Also, this study will be a good starting point for other researchers who want to expand on the future studies in this field (Koch and science 2022).

5.1 Conclusion

The polarization of geopolitical power struggle is originating from environmental issues and technological progress in the changing geopolitical environment that seems to be now

concentrated on sustainability-oriented renewable sources of energy. It is predicted that green technologies such as wind, solar, and hydroelectric power, which are expanding at an extremely fast rate, will drastically alter the world energy market in the future. By the year 2050, renewable energies which is composed of the technologies cited will take up the bulk of the global energy mix. As the result, the transition from fossil fuels to renewables will probably mean that the global energy system will be regionalized, which would reduce the energy market volatility as well since it would present an opportunity for interdependence of the national energy systems from the different countries.

Another an energy change implied as well as represented a disadvantage and an advantage for the fossil fuel dependent countries. Such Petro-states may face the situation of severe economy as well as the discontent among the social classes as the economic conditions of oil and gas industries go down. Nevertheless, such "post-petroleum peace dividend" can be expected because of diminishing of competition among the scarcest wealth resources. Research revealed that the diversification and adaptation factors play a major role in energy systems that are coated on fossil fuel in order to achieve the green transition of the energy systems in an integrated manner. First off, it has strategic repercussions that transcend just energy security and encompass dealing with climate change, spread of nuclear weapons and necessity of clean energy policies.

The last but not least thing to be pointed out is that the energy geopolitics realignment proves the interrelation of these problems like energy security, climate change and world security. The change to the renewables system as a form of energy can lead to a pivot in history. It can either have the same or opposite effect, for example, could stimulate cooperation, foster good-neighborliness with other countries, and build up basis for peaceful and sustainable future. Those states that are proficient in handling the complicatedness of the energy transition act as a key player as their efforts contribute towards the strategic collaboration, innovation and sustainability practices which develop as a tool to handle problems that are arising due to change of the world energy system and taking the benefit from advanced opportunities.

Contributions

Muhammad Usman Arshad: Problem Identification, Literature search

Bilal Saleem: Drafting and data analysis, proofreading and editing

Sartaj Alam: Methodology, Data Collection

Conflict of Interests/Disclosures

The authors declared no potential conflicts of interest w.r.t this article's research, authorship, and/or publication.

Reference

Alam, M. M., et al. (2023). "World energy economics and geopolitics amid

COVID-19 and post-COVID-19 policy direction." **2**: 100048.

Blondeel, M., et al. (2021). "The geopolitics of energy system transformation: A review." **15**(7): e12580.

Blondeel, M., et al. (2024). "Global energy scenarios: A geopolitical reality check." **84**: 102781.

Bordoff, J. and L. J. F. A. O'Sullivan Meghan (2022). "Green upheaval: The new geopolitics of energy." **101**: 68.

Bordoff, J. and M. L. J. F. A. O'Sullivan (2023). "The age of energy insecurity: How the fight for resources is upending geopolitics." **102**: 104.

Bricout, A., et al. (2022). "From the geopolitics of oil and gas to the geopolitics of the energy transition: is there a role for European supermajors?" **88**: 102634.

Chishti, M. Z., et al. (2023). "Exploring the dynamic connectedness among energy transition and its drivers: understanding the moderating role of global geopolitical risk." **119**: 106570.

Criekemans, D. (2023). Geopolitics, geoeconomics, and energy security in an age of transition towards renewables. Handbook on the Geopolitics of the Energy Transition, Edward Elgar Publishing**:** 20-43.

Hille, E. J. E. E. (2023). "Europe's energy crisis: Are geopolitical risks in source countries of fossil fuels accelerating the transition to renewable energy?" **127**: 107061.

Ibekwe, K. I., et al. (2024). "Energy security in the global context: A comprehensive review of geopolitical dynamics and policies." **5**(1): 152-168.

Khan, K., et al. (2023). "Does energy security improve renewable energy? A geopolitical perspective." **282**: 128824.

Koch, N. J. E. r. and s. science (2022). "Greening oil money: The geopolitics of energy finance going green." **93**: 102833.

Lau, C. K., et al. (2023). "Dependence structures among geopolitical risks, energy prices, and carbon emissions prices." **83**: 103603.

Liu, F., et al. (2023). "Winner or loser? The bidirectional impact between geopolitical risk and energy transition from the renewable energy perspective." **283**: 129174.

Olier, E. J. I., Revista de Economía (2023). "Geopolitics and energy." (932).

Scholten, D. (2023). Introduction: the geopolitics of the energy transition. Handbook on the Geopolitics of the Energy Transition, Edward Elgar Publishing**:** 1-18.

Shirazi, M., et al. (2023). "Sustainable economic development and geopolitics: The role of energy trilemma policies." **31**(4): 2471-2491.

Siddi, M. J. T. I. o. E. T. i. t. E.-A. S. V. f. t. Y. G. L. N. (2023). "The Geopolitics of Energy Transition: New Resources and Technologies." 73-85.

Skalamera, M. J. T. W. Q. (2023). "The geopolitics of energy after the invasion of Ukraine." **46**(1): 7-24.

Uddin, I., et al. (2023). "The impact of geopolitical risk, governance, technological innovations, energy use, and foreign direct investment on CO2 emissions in the BRICS region." **30**(29): 73714-73729.

Yang, Y., et al. (2023). "Geopolitics of the energy transition." **33**(4): 683-704.

Zhao, X., et al. (2024). "Effect of geopolitical risk and economic uncertainty indices on renewable energy." **15**(3): 101655.