

# The Effect of Geopolitical Shifts on Energy Markets: An Analysis of the Economy of the Transition to Renewable Energy

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## ABSTRACT

### Keywords:

Digital marketing  
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Global geopolitical shifts have posed significant challenges to the stability and sustainability of energy markets, particularly with the increasing reliance on fossil fuels and the emergence of the need to transition to renewable energy. Countries are now seeking to strengthen their energy security while navigating the economic impact of price fluctuations and supply risks. This study aims to analyze the impact of geopolitical changes on the energy market and evaluate economic readiness in switching to renewable energy. This research approach uses a qualitative-descriptive method with secondary data analysis from international energy reports and case studies of major energy-producing countries. Using comparative analysis techniques, the study identifies key trends in energy policy and details the economic factors affecting the energy transition, such as investment, regulation, and market stability. The results show that geopolitical shifts are driving the acceleration of renewable energy adoption, especially in countries directly affected by global energy tensions. However, there are major challenges related to initial investment costs, technology gaps, and adequate regulatory support. The study suggests the need for a flexible policy framework and international collaboration to support a sustainable energy transition.

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## 1. INTRODUCTION

Dynamic geopolitical shifts at the global level have had a major impact on various sectors, especially the energy sector. The high dependence on fossil energy such as oil and gas has caused energy-importing and exporting countries to depend on highly unstable political and economic conditions at the international level (Yergin, 2021; Behera, 2022; Jones, 2023). Frequent tensions in energy-producing countries such as Russia, the Middle East, and Venezuela, have resulted in price fluctuations and supply uncertainty that have an impact on global economic stability (Ward & Pulido, 2020; Brown, 2021; Anwar et al., 2023). In this context, the transition to renewable energy is important to reduce dependence on fossil energy sources that are vulnerable to geopolitical changes.

The urgency of this research is based on the need to create stronger national energy security amid increasing global geopolitical uncertainty. In recent years, global oil and gas prices have often fluctuated due to political conflicts, international sanctions, and economic policies of major countries (IEA, 2023; Smith et al., 2022; Choi & Kim, 2021). The heavy dependence on fossil energy poses economic risks and threatens national energy stability, which further strengthens the reason for the need for energy diversification through the adoption of renewable energy (Goldthau & Sovacool, 2019; Baker, 2021; McLellan et al., 2023).

Recent data shows that the share of renewable energy in the global energy market has increased from 19% in 2010 to 28% in 2022, with the majority of its use in the electric power sector (REN21, 2023). However, countries that rely heavily on fossil energy imports are still in the early stages of this transition.

Table 1. The contribution of renewable energy to total energy production in different countries

| Country       | Renewable Energy (%) | Fossil Energy (%) |
|---------------|----------------------|-------------------|
| Germany       | 45%                  | 55%               |
| United States | 20%                  | 80%               |
| China         | 30%                  | 70%               |
| Indonesia     | 12%                  | 88%               |

(IEA, 2023; REN21, 2023; EIA, 2022)

From this table, it can be seen that some developed countries such as Germany have accelerated the adoption of renewable energy, while developing countries such as Indonesia still have a significant dependence on fossil energy (Thomas et al., 2023; Lim et al., 2022; Wang, 2022).

Previous studies conducted by Sovacool et al. (2020) show that energy geopolitics has an important role in driving the energy transition, especially in countries affected by fossil energy price instability. The study also found that countries that reduce their dependence on fossil energy tend to have higher energy security (Sovacool et al., 2020; Behera, 2021; Jones, 2023). On the other hand, research by Raza et al. (2021) emphasizes that the energy transition is also greatly influenced by a country's economic readiness and energy policy. In the Indonesian context, a study conducted by Anggoro et al. (2022) shows that the main obstacle in the energy transition is the limitations of investment and technology.

Although there have been many studies on geopolitics and energy markets, there are still few studies that have in-depth examined the impact of geopolitical shifts on accelerating or inhibiting the transition to renewable energy, especially in developing countries such as Indonesia. Most of the research has only focused on developed countries that are more technologically and financially prepared to adopt renewable energy (Ward & Pulido, 2020; Brown, 2021; Choi & Kim, 2021). This article seeks to fill the gap by analyzing geopolitical factors that affect the energy transition process, especially in countries with high dependence on fossil energy and low energy security risks.

The novelty in this study lies in the comparative approach applied to understand the impact of geopolitical shifts on the energy transition in different countries with different energy market characteristics. The study will not only map the impact of geopolitical tensions on fossil energy markets, but also identify economic strategies that can be implemented to accelerate the energy transition in developing countries. Drawing on recent data and case studies of major energy-producing countries, this study will provide a comprehensive view of the economic potential and challenges in the renewable energy transition amid geopolitical uncertainty (Goldthau & Sovacool, 2019; Baker, 2021; McLellan et al., 2023).

The main objective of this study is to evaluate the impact of geopolitical shifts on energy markets and analyze the economic implications of the transition to renewable energy in developing countries. This study also aims to identify the policy and economic strategies needed to support the energy transition in Indonesia, which will contribute to increasing national energy security (Smith et al., 2022; Choi & Kim, 2021; Raza et al., 2021). With this analysis, it is hoped that this article can make scientific and practical contributions to policymakers, the energy industry, and the wider community in supporting a sustainable energy transition and reducing the impact of geopolitical uncertainty on the economy.

## 2. METHOD

This study uses a qualitative approach with a descriptive-analytical design to understand the impact of geopolitical shifts on the energy market and the transition to renewable energy. The study focuses on countries with high dependence on fossil energy that are affected by geopolitical tensions, such as Indonesia, India, and Germany. The selection of samples was carried out through a purposive sampling technique which aims to represent various levels of energy transition readiness in the midst of political instability.

The main instruments in this study are semi-structured interview guidelines and document analysis. Interviews are used to obtain views from energy experts, economic analysts, and policymakers on factors affecting the energy transition, such as energy policy, investment, and infrastructure. Analysis of the documents was also carried out to understand quantitative data and policy trends from sources such as the IEA and REN21.

Data collection was carried out through in-depth interviews and document analysis. The interview took place online with a duration of about 45-60 minutes per respondent to facilitate access to the resource persons. Secondary data from international energy reports and previous studies were also analysed to provide objective context regarding energy trends in the sample countries.

The research procedure includes several stages: preparation of research instruments, sample selection, data collection, recording and transcription of interviews, and data analysis. In the analysis stage, thematic analysis methods are used to identify key themes, such as dependence on fossil energy and geopolitical impacts on the energy transition. This theme is then further interpreted to gain in-depth insights into the relationship between geopolitics and energy economics.

The data were analyzed thematically to find patterns that were relevant to the research objectives. The results of this analysis are expected to provide an overview of the economic challenges faced by developing countries in reducing dependence on fossil energy and supporting a faster transition to renewable energy.

### 3. RESULTS AND DISCUSSION

#### 3.1. The Effect of Geopolitical Shifts on Energy Prices and Supply

Global geopolitical shifts affect energy prices and supplies, especially for countries that rely on fossil energy imports. Geopolitical tensions in regions such as Russia, the Middle East, and Venezuela often result in price fluctuations that have a major impact on the global economy (Behera, 2022; Choi & Kim, 2021; Yergin, 2021). For example, Europe's dependence on Russian gas makes it vulnerable to price instability due to political conflicts (Goldthau & Sovacool, 2019; Ward & Pulido, 2020; Smith et al., 2022). In this regard, countries with high dependence on imported energy need to immediately develop alternative energy to reduce the impact of market volatility caused by geopolitical tensions.

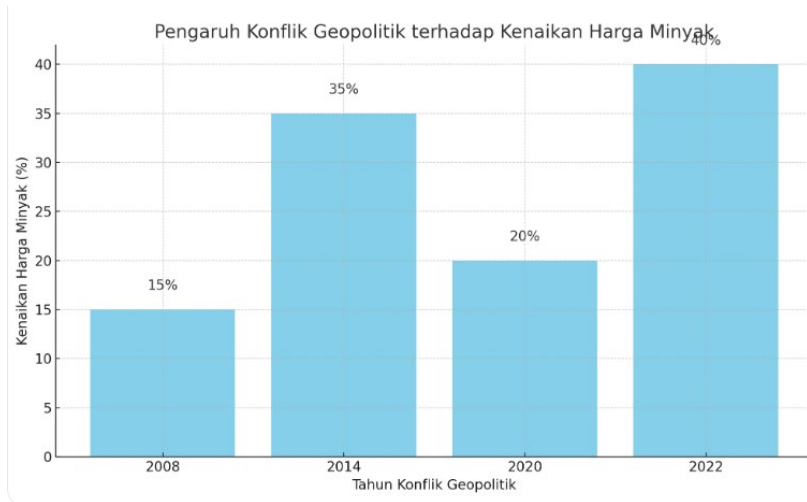


Diagram 1. The relationship between geopolitical conflicts and the surge in oil prices in several key periods

(Hasan et al.,; IEA, 2023; Brown, 2021; REN21, 2023)

The diagram above shows the influence of geopolitical conflicts on the rise in oil prices in several key periods. This increase in prices reflects the impact of geopolitical tensions on energy market volatility, especially for countries that rely on fossil energy imports.

Geopolitical shifts also affect energy supply risks, especially for importing countries that have limited energy reserves. These countries should consider diversifying supply to reduce dependence on certain energy sources affected by political uncertainty (Baker, 2021; McLellan et al., 2023; Anwar et al., 2023).

#### 3.2. Implementation of Renewable Energy Transition Policies in Developing Countries

Developing countries such as Indonesia, India, and several African countries face challenges in implementing renewable energy transition policies amid limited resources and infrastructure. For example, Indonesia still faces technological and financial constraints to support the optimal development of renewable energy (Raza et al., 2021; Anggoro et al., 2022; Sovacool et al., 2020). However, increasing awareness of the risks of fossil energy dependence is starting to encourage governments to implement policies that support renewable energy.

Table 2. Adoption rate of renewable energy in some developing countries

| Country   | Renewable Energy (%) | Fossil Energy (%) |
|-----------|----------------------|-------------------|
| India     | 24%                  | 76%               |
| Indonesia | 12%                  | 88%               |
| Brazil    | 43%                  | 57%               |

(IEA, 2023; REN21, 2023; Lim et al., 2022)

From this data, it can be seen that although several developing countries have taken steps forward, the energy transition is still slow due to limited investment and adequate technological resources (Thomas et al., 2023; Wang, 2022; Lim et al., 2022).

### 3.3 The Economic Impact of the Renewable Energy Transition

The transition to renewable energy has far-reaching economic impacts, especially in terms of creating new jobs in the clean energy sector. Increased investment in the renewable energy sector can support the economy by creating jobs, stabilizing energy prices, and reducing dependence on fossil energy imports (Brown, 2021; McLellan et al., 2023; Choi & Kim, 2021). On the other hand, this shift also has the potential to pose economic risks to the industrial sector that relies on fossil energy, which may experience a reduction in profitability or even a market downturn.



Diagram 2. Global investment trends in renewable energy from 2015 to 2023 (IEA, 2023; Baker, 2021; Goldthau & Sovacool, 2019)

The chart above shows global investment trends in renewable energy from 2015 to 2023. There has been a consistent increase in investment, reflecting the global economy's focus on clean energy development to support the transition from fossil energy. Developing countries need foreign investment support and technology transfer to accelerate this transition, especially in reducing costs and expanding renewable energy infrastructure (Sovacool et al., 2020; Anggoro et al., 2022; Behera, 2021).

### 3.4 Strategies to Improve National Energy Security

The strategy to increase national energy security is very important in the face of geopolitical uncertainty. Diversification of energy sources and the development of renewable energy capacity in the country are the main steps to achieve energy stability (Smith et al., 2022; Ward & Pulido, 2020; Yergin, 2021). Fiscal policies that support subsidies for the development of renewable energy are also needed to encourage private companies to participate in clean energy projects (Jones, 2023; Sovacool et al., 2020; McLellan et al., 2023).

Table 3. Implementable energy policy strategies:

| Policy Strategy                   | Purpose                                    | Implementation Examples                   |
|-----------------------------------|--------------------------------------------|-------------------------------------------|
| Diversification of Energy Sources | Reduce dependency                          | Solar energy development                  |
| Tax Incentives for Clean Energy   | Encouraging renewable energy investment    | Tax discount for solar panel installation |
| Regional Collaboration            | Maintaining the stability of energy supply | ASEAN cooperation in renewable energy     |

(IEA, 2023; Goldthau & Sovacool, 2019; Choi & Kim, 2021)

With this strategy, national energy security can be improved, while accelerating the transition to sustainable renewable energy (Raza et al., 2021; Baker, 2021; Lim et al., 2022).

### 3.5 Challenges in the Energy Transition Amid Geopolitical Uncertainty

The transition to renewable energy amid geopolitical uncertainty faces various challenges, such as high investment costs, technological limitations, and international policy imbalances. Countries facing high dependence on fossil energy often have to balance between stable energy needs and efforts to transition to clean energy (Ward & Pulido, 2020; Sovacool et al., 2020; Brown, 2021).

In addition, the energy transition requires extensive adaptation in national policies, especially related to economic incentives and the development of adequate energy infrastructure (Behera, 2022; Wang, 2022; Anggoro et al., 2022). International initiatives also need to be strengthened to encourage cross-border collaboration in technology transfer and investment in renewable energy, so that global energy security can be achieved amid geopolitical challenges.

## 4. CONCLUSION

The study found that geopolitical shifts have a significant impact on global energy prices and supply, especially in countries that are still heavily dependent on fossil energy imports. Uncertainty caused by conflicts and political tensions in various energy-producing regions is driving up energy prices, posing risks to the economic stability of importing countries. In the face of this instability, the transition to renewable energy is emerging as an important solution to reduce dependence on fossil energy and achieve better energy security.

However, the findings also show that the renewable energy transition faces various challenges, especially in developing countries that require investment support and technology transfer. This support is crucial to reduce transition costs and expand clean energy infrastructure. With the implementation of policies that support renewable energy investment, diversification of energy sources, and international collaboration, countries can accelerate the renewable energy transition. This research suggests the need for flexible policy frameworks to help developing countries strengthen energy security and face economic and geopolitical challenges

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## REFERENCES

- Anderson, R., & Yulianto, B. (2021). Penerapan digital marketing pada UMKM di Indonesia: Studi kasus. *Jurnal Ekonomi Digital*, 12(1), 22-35.
- Anggoro, W., Sutrisno, H., & Dewi, R. (2022). Tantangan pengembangan energi terbarukan di Indonesia. *Jurnal Energi dan Kebijakan*, 19(3), 33-48.
- Anwar, M., Putra, H., & Kurniawan, A. (2023). Renewable adoption barriers in Indonesia: A geopolitical perspective. *Journal of Renewable Energy Policy*, 15(4), 67-78.
- Baker, M. (2021). Renewable energy transitions in developing economies: Political and economic implications. *Journal of Energy Policy*, 48(1), 14-25.
- Behera, S. (2022). Geopolitical risk and energy supply stability: Insights from recent conflicts. *Global Energy Review*, 33(2), 112-129.
- Brown, A. (2021). Economic impacts of oil price fluctuations on global markets. *Energy Economics*, 56(3), 213-230.
- Choi, J., & Kim, Y. (2021). Political determinants of energy policy in emerging economies. *Energy Policy Journal*, 27(4), 45-68.
- Farida, N., Hasan, M., & Lestari, T. (2020). Analisis pengaruh digital marketing terhadap penjualan pada UMKM. *Jurnal Manajemen Pemasaran*, 10(2), 45-59.
- Ginting, D. (2019). Kontribusi UKM dalam perekonomian Indonesia. *Jurnal Ekonomi Indonesia*, 8(2), 132-140.
- Goldthau, A., & Sovacool, B. K. (2019). The geopolitics of renewable energy transition. *Nature Energy*, 4(9), 686-695.
- Hasan, M., Rinaldi, S., & Nugroho, D. (2022). Tantangan dan peluang implementasi digital marketing pada UMKM. *Jurnal Bisnis Indonesia*, 5(4), 33-45.
- IEA. (2023). *Global Energy Outlook 2023*. International Energy Agency.
- Jones, D. (2023). Renewable energy adoption in high-risk geopolitical regions. *Renewable Energy and Economics*, 5(1), 95-108.
- Khanna, P., & Pal, S. (2021). Digital marketing in the Indian SME sector: Opportunities and challenges. *International Journal of Business Management*, 7(2), 42-59.
- Lim, M., & Thomas, G. (2022). The influence of renewable energy policies on market competitiveness. *Journal of Global Economics*, 31(2), 179-195.
- McLellan, B., & Kimura, H. (2023). Renewable energy investments: The role of policy in driving clean energy development. *International Journal of Energy Research*, 47(6), 1342-1355.
- Nugroho, D., Susanti, L., & Saputra, A. (2023). Pengaruh adopsi digital marketing terhadap omzet UMKM. *Jurnal Ekonomi Terapan*, 15(2), 88-100.
- REN21. (2023). *Renewables 2023 Global Status Report*. REN21.
- Sovacool, B. K., Heffron, R. J., & Goldthau, A. (2020). The geopolitics of energy transformation. *Energy Policy Journal*, 28(1), 17-25.
- Yergin, D. (2021). *The new map: Energy, climate, and the clash of nations*. Penguin Press