

# **Current Conflicts and Energy Research in the Contemporary Global System**

*A Political and Sociological Analysis*

By

**Laura Guercio**

# Current Conflicts and Energy Research in the Contemporary Global System: A Political and Sociological Analysis

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This book first published 2025

Ethics International Press Ltd, UK

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

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Print Book ISBN: 978-1-80441-869-7

eBook ISBN: 978-1-80441-870-3

# Table of Contents

|   |            |
|---|------------|
| <b>Introduction .....</b>   | <b>xi</b>  |
| <b>Part 1: Contemporary Conflicts</b>   |            |
| <b>Chapter 1: Geopolitical Fault Lines.....</b>   | <b>1</b>   |
| Section One: The Emergence of New Geopolitical Tensions.....  | 1          |
| 1.1 The Geopolitical Games Among United States,<br>China and Russia .....   | 8          |
| 1.2 Geopolitical Tensions Across Regions .....  | 22         |
| Section Two: Energy Security and Impacts on International<br>Relations .....  | 55         |
| 2.1 The Role of Natural Gas and the Transition to<br>Renewable Energy .....   | 61         |
| 2.2 The Future of Energy in International Relations: The<br>Green Geopolitics .....   | 67         |
| <b>Chapter 2: Regional Conflicts and Energy Dynamics.....</b>   | <b>81</b>  |
| Section One: The Role of Energy Resources in Regional<br>Conflicts.....   | 81         |
| Section Two: Scarcity of Resources and Economic Incentives ....   | 98         |
| 2.1 The Resource Curse: Driving Socioeconomic<br>Inequalities and Political Instability.....  | 105        |
| 2.2 The Scientific literature on the nexus between<br>resources curse, democracy and armed conflict .....                             | 116        |
| Section Three: Interconnected Geopolitics: The Role of<br>Energy Resources in Shaping Regional Conflicts and Global<br>Stability..... | 124        |
| <b>Chapter 3: Case Studies .....</b>  | <b>136</b> |
| Section One: The Ukraine Conflict and the Energy Course.<br>Historical Context and Geopolitical Alliances.....                        | 136        |

|  |     |
|--|-----|
| 1.1 Energy Transit Routes and European Energy Security..   | 143 |
| 1.2 The Impact on Geopolitical Alliances .....   | 146 |
| Section Two: Energy and Conflict in the Middle East and North and Africa Region: A Perpetual Cycle.....                          | 156 |
| 2.1 The Syrian Civil War .....   | 159 |
| 2.2 The Yemeni Conflict .....  | 183 |
| 2.3 Libya's Oil Wealth: A Blessing and a Curse.....  | 198 |
| 2.4 The Israel-Palestine Conflict: An Energy Perspective .....   | 210 |
| Section Three: Emerging Conflicts and Security Threats in Africa .....   | 221 |
| 3.1 The Role of Energy Resources in Shaping Regional Tensions.....   | 223 |
| 3.2 The Resource Curse and Weak Governance.....  | 228 |
| 3.3 The Impact of Climate Change on Resource Conflicts ...   | 232 |
| 3.4 Resource Conflicts and Climate Change: the Case Study of Lake Chad Basin .....   | 237 |
| Section Four: Power Struggles, Energy Resources and Geopolitical Tensions in Asia: Key Conflicts Driven by Energy Resources..... | 241 |
| 4.1 Major Players and Their Strategies .....   | 245 |
| 4.2 Key Disputes .....   | 252 |
| Section One: Overview of Recent Technological Advancements.....  | 269 |
| 1.1 The Role of Artificial Intelligence in Energy Transformation.....  | 272 |
| 1.2 Electric Vehicles and Low-Carbon Transportation.....   | 275 |
| 1.3 The Geopolitical Implications of Renewable Energy .....  | 278 |
| Section Two: Investments in Sustainable Energy .....   | 283 |
| Section Three: The Case Study of the Solar Energy Expansion in India.....  | 292 |
| 3.1. Government Policies and Impact on Carbon Emissions  | 299 |

|   |            |
|---|------------|
| <b>Chapter 4: Energy Storage and Grid Integration .....</b>   | <b>311</b> |
| Section One: Developments in Battery Technologies and<br>Storage Solutions .....  | 311        |
| Section 2: Advancements in Battery Technologies and<br>Integration With Renewable Energy .....  | 315        |
| Section Three: Case Studies: Energy Storage in Germany and<br>the United States .....   | 325        |
| 3.1 Economic and Environmental Benefits .....   | 333        |
| <b>Chapter 5: Energy Transition and Sustainability .....</b>  | <b>340</b> |
| Section One: Strategies for Sustainable Development:<br>Balancing Economic Growth, Social Inclusion, and<br>Environmental Protection..... | 340        |
| 1.1 Pathways to a Sustainable Future: Policy,<br>Innovation, and Global Cooperation for Lasting<br>Development .....                      | 347        |
| Section Two: The Shift from Fossil Fuels to Renewable Energy  | 352        |
| 2.1 The Role of Technology in Shaping Future Energy<br>Landscapes.....  | 365        |
| Section Three: Implications for Global Energy Policies .....  | 384        |
| Section Four: Case Study. Impact of Energy Transition<br>on Developing Nations .....  | 391        |
| <b>Chapter 6: Geopolitical Implications of Renewable Energy .....</b>   | <b>402</b> |
| Section One: Reshaping Global Power .....   | 402        |
| Section Two: Renewable Energy as a Catalyst for Peace.....  | 414        |
| <b>Conclusion: Navigating the Future of Energy and Global<br/>Stability.....</b>  | <b>436</b> |
| <b>References.....</b>  | <b>441</b> |

# Introduction

Discussing the intersection of energy resources and conflict is essential for understanding the complexities of contemporary international relations. In the 21<sup>st</sup> century, energy resources are not only central to global economic strategies but also play a critical role in shaping geopolitical dynamics and influencing international legal frameworks. Examining how energy resources affect global conflicts and diplomatic relations provides insight into the evolving nature of power and stability in the international system.

Energy resources, particularly fossil fuels<sup>1</sup> and critical minerals<sup>2</sup>, have long been drivers of geopolitical strategy and conflict. Historically, control over oil reserves and gas supplies has been a key factor in international conflicts and power dynamics.

Energy resources have always been at the heart of global geopolitics, shaping the relationships between nations and driving conflicts and cooperation. In the 20<sup>th</sup> century, oil emerged as the most significant of these resources, becoming a cornerstone of industrial economies and a strategic asset that shaped international power dynamics. The geopolitics of oil was marked by intense competition among major powers, who recognized that control over this resource meant control over economic stability and military strength. Oil-rich regions, particularly the Middle East, became focal points of global strategy. This was not merely about the wealth generated from oil but about its critical role in powering economies and militaries. The Middle East, with its vast reserves, saw foreign powers vying for influence through diplomacy, economic incentives, and, at times, military intervention. The region's exceptionally large deposits of oil, which are some of the largest in the world, are spread across countries like Saudi Arabia, Iraq, Iran, Kuwait, and the United Arab Emirates, making

the Middle East a crucial hub for global oil production and export. The vast reserves of the Middle East have played a significant role in shaping the region's geopolitical importance. Because oil is such a valuable commodity for global energy needs, the ability to control or access these reserves has been a key strategic goal for many countries, both within the region and globally. The discovery of these large oil reserves in the 20<sup>th</sup> century transformed the Middle East into a critical area of interest for world powers, who have sought to influence or control the region to secure a stable supply of energy. The Gulf War of 1991, for instance, was as much about protecting global oil supplies as it was about defending the sovereignty of Kuwait. Similarly, the actions of oil-exporting nations like those in OPEC demonstrated the profound impact energy could have on the global economy, as seen during the 1973 oil embargo, which sent shockwaves through the industrialized world.

Today, while oil remains a crucial part of the global energy mix, the dynamics of energy geopolitics are shifting. Fossil fuels like oil and natural gas<sup>3</sup> are still central to power structures, but the growing emphasis on renewable energy is creating new priorities. This transition has placed critical minerals at the center of global attention. Minerals like lithium, cobalt, and rare earth elements, essential for technologies like batteries, wind turbines, and solar panels, are becoming the new focus of resource competition. Unlike oil, whose reserves are relatively widespread, critical minerals often come from a handful of countries. China, for instance, dominates the processing of rare earth elements, giving it significant geopolitical leverage in an era of increasing reliance on clean energy technologies. The shift from fossil fuel dominance to competition for critical minerals does not diminish the geopolitical importance of traditional energy resources. Recent conflicts, such as Russia's invasion of Ukraine in 2022, highlight the enduring role of natural gas and oil in power struggles and contemporary geopolitics. Russia's control over gas supplies

to Europe has granted it significant influence for decades, but the war has disrupted these relationships, pushing Europe to seek alternative energy sources and accelerate its transition to renewable energy. The conflict, which began in 2014 with Russia's annexation of Crimea and escalated into a full-scale war in 2022, has been heavily shaped by control over energy resources and transit routes, directly impacting European energy security and prompting legal and policy responses from the European Union (Smith Stegen, 2011). The EU's efforts to diversify energy sources and reduce its dependence on Russian gas demonstrate how disputes over energy resources can drive major shifts in international policies and regulatory frameworks (European Commission, 2022).

In this context, energy geopolitics has evolved, but its core dynamics remain unchanged. Control over essential energy resources, whether oil or critical minerals, translates to power, influence, and security.

As nations navigate this transition, the challenge lies in balancing energy security with the urgent need for sustainability. The geopolitics of energy remains a story of competition and cooperation, adaptation, and resilience, with profound implications for the future stability and prosperity of the global community.

The legal implications of energy conflicts extend beyond geopolitical strategies to include humanitarian concerns. The Syrian Civil War, which erupted in 2011, provides a stark example of how competition over energy resources can exacerbate humanitarian crises. Control over oil fields and gas infrastructure has been a strategic objective for various factions involved in the conflict (Klare, 2012). The resulting humanitarian disaster, including widespread displacement and suffering, has necessitated international legal and humanitarian responses. Organizations such as the United Nations have been actively involved in addressing the humanitarian impact of the conflict through legal mechanisms and aid programs (United Nations, 2021).

As a result, this framework highlights the importance of integrating energy resource considerations into international humanitarian, legal, and geopolitical frameworks, as well as global economic stability and trade patterns, in order to effectively address the broader implications of resource-driven conflicts.

Indeed, as the global energy landscape shifts towards renewable sources, new legal and geopolitical challenges are emerging. The transition to renewable energy technologies, such as solar and wind power, involves a growing demand for critical minerals like lithium, cobalt, and rare earth elements. These resources are concentrated in a few countries, creating new forms of resource dependency and potential conflicts (Overland, 2019). The competition for access to these minerals has implications for international trade laws, resource management agreements, and environmental regulations. Addressing these challenges requires the development of robust international legal frameworks to manage resource extraction and trade while minimizing conflicts and promoting sustainable development (IRENA, 2020).

Regarding national and international policies, the strategic importance of energy resources also influences these aspects. For example, the United States' (US) strategic pivot to the Indo-Pacific region underscores the critical role that energy resources and geopolitical influence play in shaping global policies. The US has been strengthening alliances and forging new partnerships in the region to protect its energy interests, ensure access to vital resources, and counterbalance China's expanding influence, particularly in the South China Sea—a region rich in untapped oil and natural gas reserves (Kaplan, 2014). This strategic shift has led the US to deepen its relationships with countries like Japan, India, and Australia, as part of the Quad (Quadri-lateral Security Dialogue), which aims to promote security and stability, including in energy supply chains (Wagner, 2020).

The United States are also focused on ensuring freedom of navigation through crucial maritime routes, where much of the world's oil and gas are transported. With China's growing assertiveness in the region, especially through its Belt and Road Initiative, which includes investments in energy infrastructure, the US sees maintaining its presence in the Indo-Pacific as vital not just for security, but for securing energy supplies and preventing Chinese dominance in the region's energy markets (Hillman, 2018).

This realignment also involves coordinating legal and diplomatic efforts to address challenges like energy security, environmental concerns, and access to critical minerals necessary for technological development, such as lithium and cobalt. The US is actively engaging with regional governments to promote energy diversification, including the adoption of cleaner, renewable energy sources, and ensure that energy infrastructure remains resilient to geopolitical disruptions (Sovacool & Geels, 2016).

This means that the US's focus on the Indo-Pacific highlights how energy considerations are deeply intertwined with international policy decisions, pushing countries to adopt a multifaceted approach that includes legal, diplomatic, and economic strategies to safeguard energy resources and regional stability.

Finally, energy resource conflicts also impact global economic stability and trade patterns. Fluctuations in energy prices can have profound and far-reaching effects on national economies, influencing everything from trade balances and inflation rates to overall economic stability. One of the most dramatic examples of this occurred during the 1973 oil crisis, which was triggered by an embargo imposed by the Organization of Arab Petroleum Exporting Countries (OAPEC) in response to Western support for Israel during the Yom Kippur War. This embargo caused a sharp rise in oil prices and led to significant disruptions in global energy markets, particularly in the industrialized world.

The immediate consequences were severe: the price of oil quadrupled, which led to skyrocketing fuel costs across many countries, particularly in Europe and North America. This, in turn, fueled inflation, reduced consumer spending power, and triggered widespread economic recessions in many developed nations. The crisis disrupted trade balances as energy-importing countries found themselves facing higher costs for imports, leading to larger trade deficits. The rising cost of oil also had a direct impact on inflation rates, as oil is a key input for transportation, manufacturing, and heating. As energy prices climbed, so too did the costs of goods and services, exacerbating the economic strain.

Furthermore, the crisis reshaped international economic policies. Governments around the world were forced to reconsider their energy strategies, leading to the establishment of policies aimed at reducing dependence on oil, such as energy conservation measures, the development of alternative energy sources, and the establishment of strategic petroleum reserves. The 1973 oil crisis also shifted the balance of power in the global energy market, giving oil-exporting countries greater leverage over energy-consuming nations, and accelerating efforts to increase energy efficiency and diversify sources of energy (Engdahl, 2004). On a broader level, the 1973 oil crisis underscored the geopolitical and economic vulnerabilities that arise from dependence on a limited number of energy suppliers. This lesson continues to resonate today, particularly as countries strive to balance energy security with the growing demand for renewable energy sources. It also led to the creation of OPEC's pivotal role in shaping global energy prices and policies, as well as accelerating economic integration among oil-consuming nations to safeguard against future energy price shocks.

This historical example demonstrates how disruptions in energy supplies can not only lead to short-term economic turmoil but can also

catalyze long-term shifts in both national and international energy and economic policies.

In the current context, energy resources are a key element in shaping international relations and the global system and energy transitions and resource competition continue to drive economic and policy changes, with significant implications for international relations. Understanding the role of energy resources in contemporary conflicts and international legal frameworks is essential for navigating the complexities of global diplomacy and stability. As the world continues to transition towards renewable energy and face new resource challenges, the need for effective international laws and cooperative strategies becomes increasingly critical. Addressing these issues through robust legal frameworks and international collaboration will be crucial for maintaining global stability and security in the evolving energy landscape.

### *The Interconnectedness of Current Conflict and Energy Dynamics*

The interplay between global conflicts and energy resources has long been a defining element of international relations, profoundly influencing both geopolitical tensions and scientific research. Historically, the quest for energy resources—especially fossil fuels such as oil, coal, and natural gas—has been a significant driver of conflicts, shaping major global events including the World Wars and the Cold War. As the world increasingly transitions toward renewable energy, the relationship between energy and conflict is evolving. Nevertheless, energy remains a pivotal factor in global security and policy, with contemporary conflicts continuing to revolve around energy resources.

This book will delve into these dynamics, exploring how modern conflicts are increasingly intertwined with energy issues and examining the implications for the contemporary global system. In the 20<sup>th</sup> century, the strategic importance of energy resources was

evident in several major conflicts. During World War I and World War II, oil emerged as a critical asset in the pursuit of military dominance, as it became clear that access to energy resources was not only a matter of economic survival but also a military imperative. The strategic importance of oil reshaped both military tactics and the broader geopolitical landscape during these conflicts.

World War I saw Germany's pursuit of oil fields in the Middle East, particularly in the context of the Ottoman Empire, which controlled significant oil reserves in regions like Mesopotamia (modern-day Iraq). Germany's ambition to secure these resources was a response to the growing necessity for oil to fuel modern warfare, especially for the mechanized infantry, tanks, and aircraft that were emerging as essential components of military strategies. While Germany did not fully succeed in gaining control over the Middle Eastern oil fields, the war highlighted the importance of securing energy resources to sustain industrial and military capabilities (Yergin, 1991). The failure to access sufficient oil reserves contributed to Germany's eventual defeat, as it lacked the energy needed to power its war machine.

In World War II, Japan's expansion into Southeast Asia was largely driven by the need to secure oil supplies. By the late 1930s, Japan was heavily reliant on oil imports, particularly from the United States, but faced increasing shortages due to the U.S. embargoes placed on Japan in response to its expansionist policies in Asia. In 1941, Japan's invasion of Indochina and later the attack on Pearl Harbor were motivated, in part, by the desire to gain control over oil-rich regions such as the Dutch East Indies (modern-day Indonesia), which were then the largest source of oil in Asia. The Japanese military believed that controlling these resources would ensure their self-sufficiency and military power in the Pacific. The Battle of the Coral Sea and the Battle of Midway, pivotal battles in the Pacific Theater, were significantly influenced by the ability to secure energy supplies for their fleets, showcasing the

direct link between energy resources and military success (Yergin, 1991). The control over energy supplies during these wars was not merely an economic concern but a military necessity, influencing everything from the mobility of troops and transportation of goods to the operation of weapons systems. For instance, the ability to produce and deploy tanks, airplanes, and ships—key tools in the military arsenal—was dependent on access to oil. The German and Japanese efforts to secure oil reserves and other energy resources are emblematic of how energy was central to military strategies and the broader geopolitical dynamics of both world wars.

The outcomes of these conflicts were heavily shaped by access to energy resources, which in turn affected the post-war global order. After World War II, the United States emerged as the dominant global superpower, largely due to its control over abundant energy resources, including oil. The post-war period also saw the establishment of major energy-related institutions such as OPEC (Organization of the Petroleum Exporting Countries), and the World Bank, which played crucial roles in regulating the global flow of oil and other energy resources (Yergin, 1991; World Bank 2023b). These developments highlighted the continued strategic importance of energy in international relations and military power.

The Cold War era further solidified the link between energy and geopolitical conflict. The Middle East, with its extensive oil reserves, became a central arena of U.S. and Soviet rivalry. The 1973 Arab-Israeli War and the subsequent oil embargo imposed by OPEC underscored the weaponization of energy in global politics. The embargo led to a global energy crisis, highlighting the vulnerabilities of Western nations heavily dependent on Middle Eastern oil. This crisis underscored that energy security was a matter of national security, not just economic stability (Engdahl, 2004).

As we moved into the 21<sup>st</sup> century, the geopolitical significance of energy resources persisted. The Middle East remains a highly vola-

tile region, where control over oil and gas resources continues to fuel tensions. The 2003 U.S. invasion of Iraq, while officially framed around security and weapons of mass destruction, was widely perceived as partly driven by the desire to secure Iraq's vast oil reserves. Similarly, the ongoing conflict in Syria has been linked to competition over energy routes, with various factions and external powers contending for control over critical oil fields and potential pipeline corridors (Klare, 2012). Beyond the Middle East, the relationship between energy and conflict has also significantly impacted other regions, such as Europe. As above mentioned, the Russia-Ukraine conflict, which escalated into full-scale war in 2022, has had far-reaching consequences for global energy markets and underscores the strategic vulnerabilities of nations reliant on energy imports from politically unstable or adversarial states. The war disrupted energy supplies, particularly natural gas and oil, from Russia to Europe, exposing the risks associated with dependency on a single, often politically unreliable, source of energy. This conflict has not only raised concerns over energy security in Europe but has also highlighted the urgent need for diversification of energy sources, as well as the push for greater investments in renewable energy and energy independence (Smith Stegen, 2011).

#### *Sustainable energy sources and international relations*

Amid these conflicts, there is a growing imperative to transition from fossil fuels to sustainable energy sources<sup>4</sup>. The discussion about sustainable and renewable energy sources is one of growing importance, particularly as the world grapples with the pressing challenges of climate change, resource depletion, and energy security. There are various perspectives on the benefits, feasibility, and potential limitations of these energy sources, all of which merit careful consideration.

This shift towards sustainable sources is driven not only by environmental concerns but also by the desire to decrease dependency on energy supplies controlled by politically unstable regions. Renewable energy

sources, such as solar, wind, and hydropower, have gained prominence as key areas of research and investment. The dramatic reduction in the cost of solar energy, due to technological advancements, has made it a more viable option for many countries. Wind energy has also seen significant growth, with improvements in turbine efficiency contributing to increased capacity and lower costs (IRENA, 2020).

However, the transition to renewable energy brings new challenges. One major hurdle is the intermittent nature of renewable sources like solar and wind, which do not produce energy consistently. This has driven extensive research into energy storage technologies, particularly batteries, to store excess energy for use when production is low. Advances in lithium-ion batteries have been crucial in integrating renewables into national grids. Additionally, modernizing energy grids through smart grid technology, which uses digital tools to manage supply and demand in real-time, is becoming increasingly important to enhance efficiency and reduce blackout risks (Sovacool & Geels, 2016).

Despite the emphasis on renewables, nuclear energy remains a significant—though controversial—component of the global energy landscape. Nuclear power offers a low-carbon alternative to fossil fuels, but concerns over safety, waste disposal, and the potential for nuclear proliferation have limited its adoption. Recent developments, such as small modular reactors (SMRs) and advances in fusion energy, have renewed interest in nuclear power. Fusion energy, still in experimental stages, holds the potential to provide a virtually limitless and clean energy source, potentially transforming the global energy system (Henderson, 2019).

The global energy transition introduces a range of new geopolitical considerations, particularly concerning the supply of critical minerals essential for renewable technologies. The shift from fossil fuels to renewable energy sources like solar panels, wind turbines, and batteries relies heavily on materials such as lithium, cobalt, and rare earth elements. These critical minerals are predominantly extracted from

a limited number of countries, creating a concentration of resource control that can lead to new forms of dependency and potential conflicts over access. As global demand for these minerals escalates, so too does the risk of geopolitical tensions and competition for resources. Ensuring effective international cooperation will be crucial for managing these resources equitably and mitigating the emergence of new geopolitical rivalries (Overland, 2019).

The geopolitical landscape is further shaped by the fact that the transition to renewable energy is intertwined with broader strategic and economic interests. Nations that control the extraction and processing of these critical minerals gain significant leverage in global markets. This dynamic can lead to shifts in power relations and potentially spark conflicts, as countries and corporations vie for access to these essential materials. For instance, China's dominant position in the rare earths market has already influenced global supply chains and international trade policies, highlighting how resource control can impact global strategic stability (Hurst, 2020).

In parallel, energy policy is increasingly influenced by international agreements aimed at addressing climate change, such as the Paris Agreement<sup>5</sup>. Many countries have committed to ambitious targets for reducing greenhouse gas emissions, with renewable energy being central to these efforts. However, achieving these targets and effectively combating climate change necessitates robust international collaboration. This collaboration is essential not only for ensuring energy security but also for managing the risks associated with resource dependencies and geopolitical conflicts. Multilateral organizations, including the International Energy Agency (IEA) and the United Nations, play a pivotal role in promoting energy cooperation, facilitating sustainable development, and addressing the potential for conflicts arising from the evolving energy landscape (Bradshaw, 2014).

While the shift towards renewable energy presents opportunities to reduce reliance on politically unstable regions and address environmental concerns, it also introduces new challenges. These challenges include energy storage and grid modernization, as well as the evolving dependencies on critical minerals. Energy storage technologies are crucial for managing the intermittent nature of renewable sources, and advancements in grid infrastructure are needed to support the integration of distributed energy systems. These technical and logistical challenges are intertwined with geopolitical considerations, as nations navigate the complexities of energy transition while striving to maintain stability and security (Sovacool & Geels, 2016).

#### *Overview of Global Conflicts and Energy Research*

The interconnectedness of 21<sup>st</sup>-century conflicts and energy dynamics demonstrates how deeply energy resources influence global stability and geopolitical strategies. As energy resources, whether fossil fuels or critical minerals, become increasingly central to international relations, they impact national security, economic stability, and environmental policy. This complex interaction highlights the pivotal role of energy in the global system, shaping both regional conflicts and broader geopolitical landscapes.

One prominent example is the South China Sea, a region abundant in potential oil and natural gas reserves and a critical maritime trade route. Territorial disputes involving China, the Philippines, Vietnam, Malaysia, and Brunei are driven not only by the potential for resource extraction but also by the strategic importance of controlling such a vital waterway. The South China Sea serves as a major conduit for global shipping, amplifying its strategic significance and adding layers of complexity to the territorial disputes (Dutton, 2011). China's assertive actions, including the construction of artificial islands and military outposts, underscore its strategic aim to secure and control these energy resources, reflecting how energy considerations can drive national

security strategies and regional power dynamics (Zou, 2019). The involvement of global powers complicates the situation further. The United States, for instance, has conducted freedom of navigation operations to challenge China's extensive claims and uphold international maritime laws. This international dimension illustrates how energy considerations intersect with broader geopolitical strategies and influence global power relations (Tiezzi, 2020). The South China Sea conflict thus exemplifies how energy resources can heighten geopolitical tensions and shape international diplomatic efforts.

Similarly, the Middle East, with its vast oil and gas reserves, remains a critical focal point in the energy-conflict nexus. The ongoing conflicts in Syria and Iraq, along with tensions between Iran and other regional players, are often linked to control over energy resources and strategic routes. For example, the Kurdish region in northern Iraq, rich in oil reserves, has been a site of conflict involving various local and international actors seeking to control these valuable resources. The strategic importance of these reserves complicates peace efforts and exacerbates regional instability, illustrating how energy resources can drive and sustain conflicts (Gordon & Trainor, 2006).

The role of rare earth elements and other critical minerals further complicates the energy-conflict relationship. These resources, essential for high-tech industries and renewable energy technologies, are concentrated in a few countries. China's dominance in the supply of rare earth elements gives it significant leverage in international trade and technology markets (Humphries, 2013). This dominance has led to strategic competition, particularly between major global players like the United States and China. Trade disputes over rare earth elements highlight how resource dependencies can shape international economic policies and geopolitical relations (Wang & Li, 2020).

The transition to renewable energy sources also introduces new geopolitical challenges. The Arctic, with its vast untapped energy

reserves and changing environmental conditions due to melting ice, has become a focal point of geopolitical interest. The potential for increased oil and gas exploration, combined with shifts in global shipping routes, has heightened competition among Arctic and non-Arctic nations. This competition underscores how environmental changes linked to energy resources can drive geopolitical tensions and influence international relations (Klein, 201).

International energy policies and agreements play a significant role in shaping the relationship between energy resources and conflict. The Paris Agreement, aimed at mitigating climate change, has far-reaching implications for global energy markets and geopolitical strategies (Pauw, 2019). As countries transition to renewable energy, shifts in production and consumption patterns affect global power dynamics. Nations leading in renewable technologies gain influence in global energy markets and climate negotiations, while those reliant on fossil fuels face economic and political challenges as they adapt (Sovacool & Geels, 2016).

We can conclude that the interconnectedness of 21<sup>st</sup>-century conflicts and energy dynamics underscores the crucial role of energy resources in shaping global stability and geopolitical strategies. The competition for energy-rich regions, critical minerals, and the implications of environmental changes all contribute to a complex and evolving relationship between energy and conflict. Understanding this connection is essential for addressing contemporary challenges and navigating the interplay between energy resources and international relations. As the global energy landscape evolves, effective management of energy resources and strategic cooperation will be key to maintaining stability and addressing the multifaceted issues arising from the intersection of energy and geopolitics.

**Aim, Content and Methodology of the Book**

This book explores the intricate relationship between global conflicts and energy resources, highlighting how shifting energy dynamics shape international relations and influence global stability. It examines the complexities of resource dependencies, geopolitical rivalries, and the effects of international agreements to offer a comprehensive understanding of how energy issues intersect with global politics and security. By analyzing historical patterns of energy-related conflicts alongside contemporary challenges, the book aims to illuminate how energy considerations drive geopolitical tensions and affect global stability in an evolving energy landscape.

The exploration begins with an examination of contemporary conflicts, including the Syrian Civil War, the Ukraine conflict, and ongoing instability in the Middle East and North Africa (MENA). These case studies illustrate the pivotal role energy resources play in regional stability and international relations. Following this, the focus shifts to recent advancements in energy research, such as innovations in renewable energy technologies, energy storage, and grid integration. The book assesses how these developments are reshaping energy landscapes and influencing global energy policies and sustainability efforts. In the final sections, the book integrates insights from the previous analyses to understand how energy dynamics affect global conflicts and vice versa. By drawing lessons from recent case studies, it offers policy recommendations and strategic insights for managing the interplay between energy and geopolitical issues.

The methodology of this book combines case study analysis, historical context, and data-driven insights to provide a comprehensive understanding of the nexus between energy resources and global conflicts. Through this approach, the book aims to offer a deeper appreciation of how evolving energy dynamics continue to shape international relations and influence global stability.

## Notes

- <sup>1</sup> Fossil fuels are energy resources formed from the remains of ancient plants and animals, subjected to heat and pressure over millions of years. They include: Oil (Petroleum): Liquid hydrocarbon used primarily for transportation fuels and petrochemical production; Natural Gas: Gaseous hydrocarbon used for electricity generation, heating, and as a chemical feedstock; Coal: Solid carbon-based fuel primarily used for electricity generation and industrial processes. Fossil fuels have historically been a cornerstone of global energy systems, powering industrialization and modern economies. Their extraction, transportation, and pricing have heavily influenced geopolitics, often triggering conflicts and alliances. Critical minerals are natural elements and compounds essential for advanced technologies, including renewable energy systems, electronics, and defense applications. Examples include: Lithium: Key for batteries in electric vehicles and energy storage; Cobalt: Used in high-performance batteries and electronics; Rare Earth Elements (REEs): A group of 17 elements critical for electronics, wind turbines, and defense systems; Nickel, Copper, and Graphite: Vital for electrical wiring, renewable technologies, and battery production.
- <sup>2</sup> Critical minerals are more than just raw materials; they are the very lifeblood of modern technologies and industries. Imagine a world without smartphones, electric vehicles, or renewable energy systems. It would seem unrecognizable. At the heart of these technologies are a range of minerals that are often taken for granted, but without them, much of the world as we know it could not function. These minerals, known as critical minerals, are essential for driving not only our economies but also the transition to a more sustainable, high-tech future. The term critical speaks to both the importance and the vulnerability of these minerals. They are critical because they are indispensable in the manufacture of products central to modern life, from electric vehicle (EV) batteries to smartphones, wind turbines, solar panels, and even military defense systems. But they are also critical because their supply is often precarious, prone to disruption by geopolitical tensions, supply chain issues, or the challenges associated with mining them in an environmentally and ethically responsible way. Lithium, for example, is a mineral at the forefront of the clean energy revolution. It's the key component of the batteries that power electric vehicles and store energy from solar panels and wind turbines. As the world shifts toward electric transportation and renewable energy, the demand for lithium is skyrocketing. Yet, it is primarily mined in a handful of countries, with Chile, Argentina, and Australia being the main global suppliers. The reliance on a small number of countries for such a crucial resource creates the potential for supply vulnerabilities, especially if geopolitical instability arises. Then there's cobalt, another mineral that plays a pivotal role in battery technology. Cobalt is used in lithium-ion batteries to improve energy density and

longevity. However, much of the world's cobalt supply comes from the Democratic Republic of Congo (DRC), a country where mining operations often involve dangerous working conditions and significant human rights concerns. As the demand for cobalt grows, the ethical and environmental issues tied to its extraction become more pressing. This puts a spotlight on the need to find more sustainable and ethical sources, or better yet, develop alternative materials that can replace cobalt in battery production. Another example is the rare earth elements (REEs), a group of 17 minerals that are critical in the manufacture of high-performance magnets, electric motors, and wind turbines. Neodymium, for instance, is essential for creating the powerful magnets used in EV motors and renewable energy technology. Yet, China controls around 80% of the global rare earth production, giving it significant leverage in the global supply chain. This creates a risk for countries that rely heavily on imports of these materials for their high-tech industries. The concentration of supply in a single region is a defining characteristic of many critical minerals. But it's not just about supply; it's also about the environmental and ethical challenges tied to their extraction. Mining these minerals can have a profound impact on local ecosystems, often leading to deforestation, water contamination, and the displacement of communities. The extraction of lithium, for example, can use up vast amounts of water in arid regions, exacerbating water scarcity. Similarly, mining for rare earth elements can result in toxic waste and environmental degradation. These issues underscore the need for more sustainable mining practices and innovations in recycling, where minerals like lithium and cobalt could be reused, reducing the need for new extraction. The increasing demand for critical minerals, driven by the rise of electric vehicles, renewable energy technologies, and smart electronics, brings a new layer of complexity. While there is a clear push to reduce dependence on fossil fuels and transition to cleaner, greener technologies, many of these solutions rely on these very minerals, making them just as crucial to our future as oil or coal. This paradox is what makes critical minerals such a hot topic in global policy and economics. Countries around the world are recognizing the strategic importance of these minerals. The United States, European Union, and other regions are working to secure their access to critical minerals through diversification of supply sources, investment in mining technologies, and developing recycling systems to reduce reliance on primary sources. Some are even looking at developing domestic production capacities to lessen dependence on foreign countries. But the challenges are immense. For one, mining these minerals is not only costly but often fraught with regulatory hurdles and environmental concerns. In response, there is also growing interest in alternative materials that can replace these critical minerals or at least reduce their use. For example, research is underway into developing battery technologies that use less cobalt or even no cobalt at all. If successful, these alternatives could alleviate some of the ethical and supply chain issues associated with the current critical minerals.

- <sup>3</sup> Natural gas is one of the most important and widely used fossil fuels today, and understanding its characteristics and uses is essential for appreciating its role in our energy systems. At its core, natural gas is primarily made up of methane ( $\text{CH}_4$ ), a simple, colorless, and odorless gas. It's a hydrocarbon, meaning it's composed mostly of carbon and hydrogen. But natural gas doesn't just consist of methane; it can also contain ethane, propane, butane, and even carbon dioxide or nitrogen in smaller amounts, depending on its source. This gas is formed deep beneath the Earth's surface over millions of years through the decomposition of ancient organic matter, such as plants and animals, under intense heat and pressure. What makes natural gas particularly interesting is that it can be found in various forms. The most common type is conventional natural gas, which is found in large underground reservoirs. This gas can be extracted relatively easily by drilling wells directly into these pockets. However, not all natural gas is so accessible. Unconventional natural gas, like shale gas, coalbed methane, and tight gas, is trapped in less permeable rock formations, requiring advanced extraction techniques like hydraulic fracturing (or fracking) to release the gas. These unconventional sources have greatly expanded the availability of natural gas in recent years. In its natural state, gas is not always easy to transport or store, especially over long distances. This is why the gas industry has developed Liquefied Natural Gas (LNG) and Compressed Natural Gas (CNG). LNG involves cooling the gas to a liquid state, making it much more compact and easier to store or ship across oceans. On the other hand, CNG is compressed to a smaller volume and often used in vehicles as a cleaner alternative to gasoline or diesel. The importance of natural gas can't be overstated. It's used in a wide range of industries and applications. It's a major source of electricity generation, providing a cleaner-burning alternative to coal and oil. In homes and businesses, natural gas is commonly used for heating, hot water, and cooking. Beyond these everyday uses, natural gas is also a key raw material for producing chemicals, fertilizers, and hydrogen. However, while natural gas is often hailed as a "bridge fuel" to a more sustainable energy future, it's not without environmental concerns. Although burning natural gas produces fewer carbon emissions than coal or oil, the extraction process can still lead to methane leaks, a potent greenhouse gas. Moreover, the reliance on natural gas can delay the transition to renewable energy sources like wind and solar power. In conclusion, natural gas plays a crucial role in meeting global energy needs. It serves as a cleaner alternative to other fossil fuels, and with the right technology, it can be harnessed efficiently. Still, its environmental impact remains a topic of debate, especially as the world increasingly focuses on sustainable energy solutions.
- <sup>4</sup> Renewable energy is defined as energy derived from natural processes that are continuously replenished. Unlike fossil fuels, which are finite and emit significant greenhouse gases when used, renewable sources regener-

ate quickly and are considered environmentally friendly. These sources include solar, wind, hydropower, geothermal, biomass, and ocean energy. Each of these has unique characteristics that contribute to the broader energy landscape. Advocates argue that renewable energy sources are vital for achieving sustainability. Solar energy, for instance, harnesses the sun's power, one of the most abundant resources on Earth. It offers a clean, inexhaustible energy supply, making it a cornerstone of renewable energy strategies. Similarly, wind energy uses the natural motion of air to generate electricity, providing a scalable and eco-friendly solution in regions with consistent wind patterns. Hydropower and geothermal energy further illustrate the diversity of renewable energy sources. Hydropower, which converts the kinetic energy of flowing water into electricity, is highly efficient and capable of producing large-scale power. Geothermal energy, on the other hand, taps into the Earth's internal heat, providing a reliable and low-emission energy source that operates independently of weather conditions. Biomass and ocean energy also add to the appeal of renewables. Biomass energy utilizes organic materials, including agricultural residues and wood, to produce electricity or biofuels. When managed responsibly, biomass can be carbon-neutral and contribute to waste reduction. Ocean energy, though still in development, offers immense potential through tidal and wave power, especially for coastal communities.

- <sup>5</sup> The Paris Agreement is an international treaty adopted on December 12, 2015, during the 21<sup>st</sup> Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) in Paris, France. Its main aim is to address the global challenge of climate change by reducing greenhouse gas (GHG) emissions, limiting global warming, and fostering global cooperation to combat climate change. Key Objectives are: 1) Limit Global Warming: The central goal of the Paris Agreement is to limit global warming to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C. This is considered critical to avoiding the most dangerous impacts of climate change. 2) Emissions Reduction: Countries that are party to the Agreement are required to take measures to reduce their greenhouse gas emissions and submit Nationally Determined Contributions (NDCs)—voluntary pledges detailing how each country plans to contribute to reducing global emissions. 3) Long-Term Carbon Neutrality: The Agreement seeks to achieve net-zero emissions in the second half of the 21<sup>st</sup> century. The goal is to reach a state where human-caused emissions of greenhouse gases are balanced by the removal of greenhouse gases from the atmosphere (e.g., through carbon capture or natural solutions like reforestation); 4) Adaptation and Resilience: The Paris Agreement emphasizes the need for countries to increase their efforts not just to mitigate climate change, but also to adapt to its impacts. This includes increasing climate resilience, particularly for vulnerable countries and communities; 4) Financial Support: The Agreement also calls for developed countries to provide financial support to developing

nations to help them mitigate and adapt to climate change. This includes a pledge of \$100 billion per year by 2020 to assist developing countries. Key Features include: 1. Bottom-Up Approach: Unlike previous climate treaties, the Paris Agreement operates on a bottom-up approach. This means that individual countries voluntarily set their own climate targets (NDCs), and each target is reviewed and updated every five years. This allows for flexibility in how countries pursue their climate goals; 2. Global Participation: The Paris Agreement is a universal accord, meaning it is binding for all countries regardless of their level of development. It includes commitments from both developed and developing nations, aiming to create a more inclusive and equitable response to climate change; 3. Transparency and Accountability: Countries are required to report on their progress toward meeting their climate targets through a system of transparency. While the specific targets are not legally binding, countries must transparently communicate their actions and the progress made. Independent reviews are used to assess overall global progress toward the Agreement's goals; 4. Global Stocktake: Every five years, a global stocktake will assess the collective progress toward the temperature goals, which will inform future updates to countries' NDCs. This ensures that the Agreement remains dynamic and responsive to the evolving nature of the climate crisis. The Paris Agreement is seen as a landmark achievement in global climate diplomacy because it brings together countries from around the world, including major emitters like the United States, China, and the European Union, to work toward a common goal of reducing emissions and mitigating the effects of climate change. Its flexibility and inclusiveness are seen as a way to engage both developed and developing countries, with financial support to help the latter transition to cleaner energy and adapt to climate impacts. The Agreement has encouraged renewable energy investments, climate resilience initiatives, and policy shifts in many countries, as well as significant involvement from non-state actors like businesses, cities, and civil society organizations. However, challenges remain in ensuring that countries meet their targets, increase their ambition over time, and provide the necessary support for vulnerable nations. Despite these challenges, the Paris Agreement represents a vital step in the global fight against climate change, with an emphasis on international cooperation and long-term sustainability.

Part One

# Contemporary Conflicts

## Chapter 1

# Geopolitical Fault Lines

### **Section One: The Emergence of New Geopolitical Tensions**

Contemporary conflicts are often shaped by geopolitical fault lines, which are deeply rooted in historical, cultural, and economic factors. These fault lines are areas of tension where the interests of powerful nations and regions collide, often resulting in political instability, military confrontations, or socio-economic disruptions.

In the 21<sup>st</sup> century, the global landscape has undergone profound transformations, reshaping the way nations interact and challenging established power dynamics. This era has been marked by the resurgence of geopolitical tensions, with emerging powers and shifting alliances redefining the balance of influence. In the 21<sup>st</sup> century, the traditional notions of state sovereignty and territorial integrity, once considered the cornerstones of international relations, are increasingly being questioned. As the forces of globalization, technological advancements, and economic interdependence reshape the global landscape, it is worth considering whether these concepts still hold the same relevance as they did in the past or whether they need to be redefined to address contemporary challenges. To begin with, globalization has created an interconnected world where state borders often feel symbolic rather than concrete. Economically, nations are more dependent on each other than ever before. This has significant implications for sovereignty. For example, multinational corporations can wield more influence than governments in some cases, pressuring states to adopt favorable tax policies or regu-

latory frameworks. While globalization brings undeniable benefits, such as increased trade and cultural exchange, it can also undermine the autonomy of individual states. Is it fair to call a nation sovereign when its economic policies are effectively dictated by global markets or international financial institutions?

Moreover, global governance structures add another layer of complexity. Institutions like the United Nations, the World Trade Organization, or the International Monetary Fund often impose rules or conditions on member states that can limit their independence. For instance, countries seeking financial aid may have to implement austerity measures or reforms that conflict with domestic priorities. While these measures might be necessary for global stability, they blur the line between cooperation and coercion. Does sovereignty remain intact when states are compelled to cede control to comply with international norms? Technology further complicates this discussion. The rise of the internet and digital networks has created a world where traditional borders are virtually meaningless. Cyberattacks, disinformation campaigns, and online surveillance have introduced new ways for states to assert power—and for sovereignty to be undermined. Consider the phenomenon of election interference through social media platforms. When external actors manipulate public opinion in another country, it raises the question: can a state truly govern itself in the digital age? While some argue that technological advancements enhance sovereignty by providing states with new tools for surveillance and control, others contend that these tools can just as easily be weaponized against them.

Another dimension of this issue is the militarization of new domains such as space and cyberspace. Satellites and drones now allow nations to monitor or even strike targets across borders without ever setting foot on foreign soil. These developments challenge the very concept of territorial integrity, which historically depended on physical boundaries. As technology outpaces international law, can

states continue to claim exclusive control over their territory when sovereignty increasingly hinges on digital and aerial domains? Economic interdependence adds yet another layer to this debate. Global supply chains, while efficient, have made nations more vulnerable to external shocks. The COVID-19 pandemic starkly highlighted this reality. When countries struggled to secure critical medical supplies, it became evident that no nation could claim complete economic sovereignty. Similarly, reliance on key resources like semiconductors or energy from foreign suppliers often leaves states exposed to geopolitical leverage. Does this mutual dependency enhance global cooperation, or does it strip nations of their ability to act independently?

Critics of these changes argue that sovereignty and territorial integrity must remain inviolable principles, even in an interconnected world. They believe that allowing these concepts to erode risks creating a global order where smaller states are dominated by more powerful actors. On the other hand, proponents of a more fluid understanding of sovereignty suggest that the traditional model is outdated. They argue that the challenges of the modern era—such as climate change, pandemics, and cyber threats—demand collective action that transcends borders.

Ultimately, the question is not whether state sovereignty and territorial integrity are obsolete but whether they can evolve to remain relevant in a rapidly changing world. As globalization deepens and technology advances, it may be necessary to rethink how these principles are defined and applied. The future of international relations will likely depend on striking a balance between maintaining the independence of states and fostering the cooperation needed to address global challenges.

What does this mean for the future of global stability?