MASARYK UNIVERSITY

Faculty of Social Studies

Energy Supplies as a Factor in International Relations: Policy Approaches and Implications

A Collection of Previously Published Works with Commentary

Brno, 2025

Mgr. Martin Jirušek, Ph.D.

I hereby confirm that I wrote the presented thesis, titled *"Energy Supplies as a Factor in International Relations: Policy Approaches and Implications,"* independently, using the materials listed in the references.

Brno, 29.1.2025 Martin Jirušek

Abstract

The presented thesis is written as a collection of previously published scholarly works with a commentary. The main theme of the thesis is energy and energy supplies as a factor in international relations. In this sense, the author´s work explores the misuse and weaponization of energy commodities and supplies conducted in order to leverage a relationship between the supplier and customer.

The author presents the results of his long-term research, which gave birth to an analytical model tested in several cases in the natural gas, oil, and nuclear sectors. The author´s primary focus has been the central and eastern European region, where the author investigated the potential weaponization of Russian energy supplies to these countries.

The author uses the realist tradition of thinking in international relations and the strategic approach to energy policy as a basis for his analytical model. The model is defined by a set of features manifested in reality through indicators that were looked for in the examined cases. These indicators signify the presence of strategic behaviour, i.e., conduct aimed at weaponizing the relationship and leveraging the client state. The research into Russia's conduct in the region's energy sectors provides evidence of supply weaponization and identifies potential pressure points, thus providing valuable information for academics and policymakers alike.

The presented research collection overviews the author´s work on the topic, which has been conducted over the course of several years. The first section provides an overview of the research goal, puts it into a broader context and introduces the theories underpinning the analytical model. The core of the presented material comprises the author's previously published work. The first publication introduces the analytical model, while the following three publications present its practical application in natural gas, oil and nuclear energy sectors. The fifth publication reverses the logic and presents the attitude of the Visegrad group countries vis-à-vis Russia, the potential perpetrator of supply leveraging in natural gas supply, the traditionally most efficient energy leverage in the region. The last publication provides insights into the Czech energy sector, mapping Russian influence and potential pressure points for supply leveraging, consistent with the aforementioned analytical model. Thus, the compendium offers a comprehensive perspective on the issue, introducing the analytical model, its practical application in detecting supply leveraging, and the perspective of the potentially leveraged parties.

The presented research collection, particularly the case studies, builds heavily on extensive field research and data collection conducted by the author in the examined countries, making it a valuable source of information in itself. Thanks to the comprehensive theoretical

background, the analytical model proved adaptable to various sectors, offering useful insights into the behaviour of a dominant supplier (i.e., Russia). Due to the model´s flexibility and adaptability, the author concludes that it can be further adjusted to other sectors, including commodity supply chains. Therefore, the model will remain relevant, offering applications in various commodity supply chains and providing opportunities for future research. Besides the original data collected during the field research, the analytical model poses the most significant contribution of the presented research.

Acknowledgements

I would like to thank my parents for teaching me the importance of education, supporting me throughout my life, and always encouraging me to be the best version of myself, both directly and indirectly. Without their support during my studies and early career, I would not be where I am now.

Next, I want to thank all my colleagues at the Department of International Relations and European Studies and the International Institute of Political Science at the Faculty of Social Studies, Masaryk University. Not only did I find a stimulating and supportive atmosphere here, but I also encountered people who have helped me tremendously on my journey, many of whom I am honoured to call friends now.

Last but not least, I want to express my gratitude for all the challenges I have encountered along the way. Although they were frustrating and discouraging at times, I became stronger thanks to them because every setback is a learning experience.

Table of contents

List of tables

1 Introduction

Geopolitical considerations and the security of energy supplies in Europe are closely intertwined, and have been at least since the Second World War when the Soviet Union began spreading its influence in Central and Eastern Europe (CEE). The region consequently adopted an energy-intensive, industry-focused economic model inspired by the Soviet Union. As countries in this part of the continent were resource-poor, with a handful of exceptions, such a model involved importing the necessary energy resources. Given the geopolitical setting at the time and the availability of resources in the USSR, those imports further cemented the dependence of the then-CEE satellites on the Soviet Union. Oil and gas pipelines spread like arteries across the region, bringing the much-needed energy and becoming much more than just an inanimate piece of infrastructure. While they served as connections helping to hold the Eastern Bloc together, and tied to Moscow, for the West they became the subject of political considerations and a source of concern. Such considerations became part of the public discourse when the natural gas infrastructure spread beyond the Eastern Bloc in the 1970s, and Western Europe became increasingly dependent on the so-called “Red Gas” it delivered (Högselius, 2013). Such concerns did not disappear when the infamous Iron Curtain fell. Quite the contrary, they became even more pronounced.

As the world became vitally dependent on a steady flow of fossil fuels, the lifeblood of modern economies, any outage of supply, whether intentional or not, could have disastrous consequences, as was the case, for example, during the oil shocks of the 1970s. After the fall of the Eastern Bloc, while experiencing the joy of regained independence, the newly emancipated countries became concerned about their dependence on the former hegemon. In the following years, concerns about being leveraged with energy supplies became a central part of policy making, occasionally exacerbated by various supply crises. As time went by, Russia became the ever-present elephant in the room of energy security concerns, particularly in the CEE region, its former sphere of influence.

In the first half of the 1990s, disputes between Ukraine and Belarus undermined the reliability of Russian oil supplies, prompting the first diversification efforts in some CEE countries. Furthermore, fears of intentional manipulation crept in, too. After all, as early as 1990, the Soviet Union, in a desperate attempt to keep the empire together, placed an oil embargo on Lithuania to dissuade the Baltic states from seceding, an act that heightened concern about the possible manipulation of Russian supplies in the future (Clemens, 1999). In the years that followed, souring relations between Russia and many CEE states only brought more anxiety about the scope for deliberate supply manipulation, and energy supplies from Russia and energy-related disputes made headlines on many occasions. Moldova, for

instance, became hostage to a peculiar situation in the Russian-supported separatist region of Transnistria, where the majority of its gas-based electricity was produced. Balkan states were leveraged over gas supply contracts and southeastern European states were blackmailed on several occasions.

However, intentional interference with supplies was difficult to prove as events such as price hikes and supply disputes often took place mainly in the non-liberalised energy sector of CEE. Sometimes, disruptions were blamed on technical issues caused by *force majeure*, even if their timing was suspicious, to say the least. Such was the case when a treaty was signed to agree the siting of a US anti-ballistic system in the Czech Republic – oil supplies via the Druzhba pipeline were cut the very next day (Horáček, 2008). In any case, the events surrounding the Russian full-scale invasion of Ukraine have proven that the Kremlin is able and willing to use energy as a pressure tool. The pressure it put on Europe included intentionally running down gas storage and open blackmail to dissuade the West from helping Ukraine. This was a reminder to Russia's customers that the weaponisation of energy supplies were a real part of international relations and that geopolitical aspirations played a significant role even when common sense might suggest that trade is mutually beneficial. Research into the motivations and means of actors who may use the "energy weapon" thus constitutes a highly valuable contribution to the discipline of international relations.

Besides fragmentation following the fall of the Soviet empire, CEE has also experienced an opposing trend in the past three decades. As European integration progressed, the European Union took on the challenge of integrating energy markets. In retrospect, it is clear that this has never been a new goal as post-war integration was founded on the integration of the energy and industrial sectors; however, creating a common market for electricity and natural gas meant taking the task to another level. Such a development brought with it a previously unseen conflict – the clash of policy principles in the energy sector. On one side, there was the traditional, state-guided approach that regarded energy as so vital that only a state authority should handle it. On the other, there was the market-driven approach that relied on the ability of the market to allocate sources according to changing demand with no need for state intervention. With the former approach long being the traditional principle in the sector, it was clear the market paradigm was in for a lengthy battle if it was to prevail.

Energy supplies were traditionally built in a centralised manner, typically designed within the state's borders, relying on one-directional infrastructure from the point of production to the consumer. The sector was dominated by monopolies, either natural or intentionally built. The former typically stemmed from the very features of the sector, such as the natural occurrence of sources, while the latter was often the result of policies understanding energy

supply as a public service. That was particularly true in CEE, where countries typically had centralised energy systems and Russia-sourced imports. In this region, European integration and market liberalisation thus confronted monopolised domestic markets and supply portfolios, often with a strong state influence, with energy flows coming predominantly from Russia.

The CEE was not an exemption. In essence, most European energy supplies had previously been driven by centralised policies, with the state in the controlling position since energy management was deemed too important to be left to market forces. In this state-driven (or 'strategic') understanding, energy supplies are perceived as a key function of a state, thus needing special attention. Energy commodities, especially fossil fuels, which are scarce by their nature, can be used as tools and, thus, require the state's attention. The logic of a liberalised market that became central to European integration is the polar opposite of this approach in most features. It relies on the demand-supply nexus for energy commodity distribution and opposes any state intervention. It maintains that energy commodities deserve no special treatment and are best left to market forces. The approach favours interdependence and cooperation as the means to alleviate risks and share benefits. As might have been expected, this approach clashed with the centralised economies of CEE countries and the market integration process, aiming for a flexible infrastructure and opening the market to various suppliers, fought a twofold battle in this region. Liberalisation not only transformed the governance of the sector but also began to erode the position of Russian supplies.

It would be incorrect to assume that fears of supply leveraging have been exclusive to the CEE region. The Russian invasion of Ukraine provided clear evidence that the issue is relevant for the whole of Europe. And these concerns were not entirely new. They were palpable much earlier – for instance, during the 1980s gas supply infrastructure build-up and even earlier when Soviet gas supplies to Europe began in the 1960s and 1970s (Högselius, 2013, pp. 1-8). Though supply security did not cease to be an issue for the CEE countries when the Cold War ended, for the West, the 1990s and the early 2000s were marked by a seemingly benign relationship with Russia and a ramp-up in cheap energy supplies from the East. Over the years, Western Europe increased its consumption of Russian energy (most notably natural gas) and built new supply lines. In particular, the availability of affordable resources helped Germany lift itself from the transformational hardships of the 1990s and early 2000s and increase its industrial production, which often found markets in the East, notably Russia (World Bank Group, 2023). The availability of affordable energy had a profound positive impact on key sectors of European economies, particularly machine and car manufacturing. (Observatory of Economic Complexity, 2023).

Any analysis of the weaponisation of Russia's energy supply had to look at Europe as a whole and factor in the historical and geographical context. Therefore, the research presented here covers cases outside the CEE region, serving for comparison and verification of the results obtained on CEE states. These cases were Greece and Finland. The former served as a valuable comparison to the situation in neighbouring Bulgaria, a country locked in politicised supply relations with Russia due to its own uncompetitive energy market. I used the latter as a comparison for a new Hungarian nuclear power unit.[1] With these exceptions, the majority of work presented in this compendium, and the majority of my work in general (see the literature review section for references), are on the CEE region for its historical specifics and significance. This long-term focus on the region helped me acquire a deep understanding of the internal workings and specifics of the region's energy sector and fine-tune the analytical model over time.

Due to the dominance of the Soviet Union and Russia and its energy supplies in the area, the CEE states have at most times been subject to supply politicisation, not just in fossil fuels but also in the above-mentioned case of nuclear energy, where concerns have been growing particularly in the past two decades. While fossil-fuel concerns are typically tied to infrastructure and the stable flow of supplies, with nuclear energy they are related to political pressure during the initial tendering process, blackmail overpricing and delays during construction and technological lock-in during operation and decommissioning. These security concerns have informed decision-making in several CEE countries pondering new nuclear units over the past three decades, including Lithuania, Poland, the Czech Republic, Hungary and Bulgaria. In all these states, the role of Russian companies became one of the key issues, in some cases even leading to changes in the selection process or even to the Russian participants being excluded.

In the research projects I present, I use the key dichotomy in energy policy analysis, in which the two opposing points are a state-centric attitude on one side and market-centred logic on the other. Such a dichotomy understands energy policy as an indispensable part of the system, in which the internal state dimension is linked to international politics. Determining which of the two approaches drives the energy sector and energy supply contracts is key to understanding policies and potential threats and even predicting development. In CEE, the driving approach is a key policy-making determinant, especially in relation to the geopolitical aspects of energy supply, given the region's history and current geopolitical position. Therefore, finding out if a key energy supplier from Russia misuses energy deals as political

[1] The specificity of the nuclear sector research also lies in the limited number of cases. At the given period, there were only three notable projects in Europe, out of which only two, Hungary and Finland, involved Rosatom as the supplier of the key components. See Publication 4 for details.

leverage while following the homeland's government orders poses a vital piece of knowledge for the subject states' security.

The text presented here takes the form of a compendium – a summary of my publications on the topic of energy supply weaponisation in international relations in Central and Eastern Europe, particularly concerning Russia's power projection in the region. The purpose of this compendium is to present my expertise in the field and my ability to implement the knowledge in research. However, I do not intend this compendium to be self-serving, merely a vehicle for presenting the publications in point. Thus, the following text serves as an introduction to the topic of energy weaponisation in international relations in general. Besides presenting the research results, it also introduces underlying theories, their application and the key terms necessary for understanding the concept of energy weaponisation.

Specifically, the text consists of the following parts. After this introduction, Chapter 2 is an overview of the literature to put the research in context. This review proceeds from the broader context of energy as a foreign policy tool to more granular levels of individual energy sources, their use in foreign policy in CEE, and their role in Russia's foreign policy toolbox. Chapter 3 covers the theoretical approaches to analysing the subject matter, followed by my research methods, and introduces the basic theoretical framework built upon the state vs. market dichotomy.[2] Chapter 4 describes the main features of the various energy sources. Understanding the functioning of the three main energy sectors where influence is typically exerted is crucial for identifying the potential pressure points used by the supplier. For this purpose, understanding the supply chain and how the energy commodities are produced, transported and distributed is crucial. As the chapter demonstrates, the oil and gas sectors differ from nuclear energy and the model had to be adjusted to account for the differences, as demonstrated in Chapters 5 and 6. These two chapters present the original analytical model used to identify instances of energy weaponisation and pressure points, with variants for the oil, gas and nuclear energy sectors. In both cases, the model was derived from the theoretical concepts and features of individual energy commodities, as described in the preceding chapters. Each is constructed as an ideal-type model whose manifestations (indicators) are sought in analysed cases.

Chapter 7 constitutes the core of this compendium, as it contains publications demonstrating my ability to implement my knowledge and theoretical concepts in practice in particular cases. Half of the publications included (i.e., three out of six) are concerned with

[2] In publications where I do not aim to identify instances of energy weaponisation, I use theoretical approaches to characterise policies implemented in the particular case (see Publication 5 on the energy policies of the Visegrad Group countries in Chapter 7.5), or to identify potential pressure points (see Publication 6 on the Czech energy sector and the role of Russia in it in Chapter 7.6).

Russian conduct, determining if and how weaponisation was conducted in the cases under study. The compendium also includes two publications on countries on the receiving end of energy supply leveraging in the CEE, and examines the situation in the Visegrad Group countries and their perception of Russian energy supplies. The collection of publications is a coherent representation of my toolbox and its application and my long-term research; however, it naturally does not include all my texts on the topic, though previous works laid the foundations for the knowledge presented or helped adjust the analytical model. These other works are referenced where appropriate and necessary (see the literature review further in the text and the reference list). The compendium is built on six key publications with the primary intention of demonstrating the origin of the analytical model, its applicability and the results it produced.[3]

- Publication 1 presents my analytical model and its theoretical foundations constituted by the dichotomy of realist and liberal thinking, which gave birth to the strategic (or broader 'state-guided') and market-oriented approaches to energy security. These approaches helped define the analytical model identifying supply weaponisation.

- Publications 2-4 serve as a practical demonstration of the model's application in the natural gas, oil and nuclear energy sectors. Recognising the fundamental differences between energy sources, I adjusted the model to the three sectors and demonstrated the flexibility of the analytical model and applicability across energy subsectors, allowing for future use and continuation of the research.

- Publication 5 reverses the perspective and analyses the policy reactions of the Visegrad Group countries to Russian actions. It builds on the previously examined assumptions that Russia can employ the strategic approach and use natural gas infrastructure to achieve its policy goals in the energy sector.

- Finally, Publication 6 does not work with the dichotomy directly, but provides an overview of the conduct of Russian energy companies and influence in the Czech Republic. The publication works with the dichotomy implicitly, as it examines the potentially security-disrupting nature of Russian companies, i.e., employing the strategic approach. The publication was originally published as a chapter in a book focusing on various facets of the specific Czech-Russian relationship, unveiling the nature of Russia's activities in the Czech energy sector.

[3] A more thorough elaboration on the publications and their implications can be found in Chapter 7.

Chapter 8 summarises and contextualises the findings of these six publications, while Chapter 9 closes the compendium with a discussion of avenues for potential future research into developments in energy security.

2 Literature review and context of the research

This chapter is an overview of notable works on topics related to my work covered in this compendium. It is not an exhaustive list of relevant works; compiling one would be futile from the beginning given the sheer scope of the discipline and the rapid development in the scientific community and the subjected research areas. Having said that, all the publications in this compendium feature their own literature reviews, overviewing publications relevant for the given text. In line with the stated intention of this compendium to serve as a broad introduction to the topic, this chapter aims to provide a more general and digestible introduction to the vast body of texts on relevant topics. As the compendium revolves around several key concepts, the chapter provides a context and offers a list of sources, helping readers get acquainted with them and gain a deeper understanding, should they be interested in learning more.

Energy and energy supplies have been significant factors in international relations for a very long time. Although they might not always be studied separately as a specific determinant of development, they have been recognised to contribute significantly to the development of international relations. Among the most well-known comprehensive publications are historiographic books by Daniel Yergin, notably his Pulitzer-Prize-winning book *The Prize: The Epic Quest for Oil, Money, and Power* (Yergin, 1992) that deals with the role of oil in global politics since the beginning of the industry until the late stages of the Cold War. His subsequent publications are equally significant for the discipline. *The Quest: Energy, Security, and the Remaking of the Modern World* (Yergin, 2011) deals with energy politics at the tail end of the Cold War and in the following years. Given the seminal shifts in global politics at the turn of the 1980s and 1990s, the book takes a broader view and, aside from the oil sector, examines energy supply chains in general. While the first book is driven by the history of oil and the importance of fossil fuels for the modern economy, the second focuses on specific, mainly producing, states and regions. Particular attention is given to the Soviet Union and later Russia and the newly independent states around Russia's border. Here, the author elaborates on the role of Russia's foreign policy towards the emancipated countries and its understanding of the importance of energy supplies in global politics in general. The book thus serves as a valuable insight into the Kremlin's understanding of energy as a tool in foreign policy and its view on the sovereignty of states in its former sphere of influence. As a tentative closing to the trilogy,

Yergin's latest book, *The New Map: Energy, Climate, and the Clash of Nations* (Yergin, 2021), looks at the interplay between energy and climate policies while examining the rise of geopolitical tensions between the US, China and Russia, with the latter clearly exploiting its vast energy sources in the apparently reignited struggle for global clout. The trilogy thus maps the history, pointing out the role of fossil fuels in politics and their role as foreign policy tools and sketches out potential concerns of geopolitical struggle where even the incoming new technologies will play a significant role.

Publications specifically on the role of energy flows in international politics include *Energy and Geopolitics* by Per Högselius (2019), which sets out the basics for anyone wanting to learn about the topic, and several books by Margarita Balmaceda, who focuses particularly on Russia and the former Eastern Bloc. Her earlier book *The Politics of Energy Dependency: Ukraine, Belarus, and Lithuania between Domestic Oligarchs and Russian Pressure* (Balmaceda, 2015) sheds light on the tightly woven fabric of intra-and inter-state ties in the energy sector of the post-Soviet area. As with other authors, Balmaceda concentrates on natural gas and oil for their economic importance and particular suitability for manipulation. She elaborates on why these two fossil fuels are so prone to politicisation in a well-structured manner in her more recent book, *Russian Energy Chains: The Remaking of Technopolitics from Siberia to Ukraine to the European Union* (Balmaceda, 2021). This book offers a complex explanation of the workings of energy supply chains from the wellhead to the end consumer. Such a knotty view is beneficial to understand that different energy sectors could pose different threats to a dependent consumer and that the security issues may also be different for each commodity's specifics of production, transport, marketing and distribution.

Clearly, energy is a key determinant of a functioning modern state. From the consumer perspective, energy is needed to power all economic activity, thus determining the state's functioning. Securing stable, sufficient and affordable supplies, as the International Energy Agency defines energy security, can thus quickly become a task of paramount importance in times of crisis (International Energy Agency, n.d.). On the other hand, from the supplier's perspective, energy exports can be a significant contribution to the state budget, determining the functioning of the economy and, thus, the state. In any case, energy is a key determinant of economic power and prosperity. The role of power in relation to the economy is examined by Robert Gilpin (Gilpin, 2001), who maintains that economic power is universal and, as such, can be transformed into any other kind of power, including military power. Thus, we can extrapolate the importance of energy flows for state power (see Chapter 3). The concept of energy as a weapon is elaborated on further in the text; hence, here, we can limit ourselves to noting a few significant works on this topic, e.g., another book by the already referenced Per Högselius on the beginnings of Russian natural gas in Europe and the subsequent clout the

Soviet Union and, later, Russia gained over the region using natural gas supplies – *Red Gas: Russia and the Origins of European Energy Dependence* (Högselius, 2013). A broader perspective on the oil sector is well captured by Dag Harald Claes in *The Politics of Oil: Controlling Resources, Governing Markets and Creating Political Conflicts* (Claes, 2019). The author explains why oil became a source of conflict in the past, how markets work and how politics can distort them. He also draws attention to individual producing regions, including Russia, as among the key players. To complement the picture and understand how oil can be a double-edged sword, bringing wealth and power but also restricting the economy, Emma Ashford's *Oil, the State, and War: The Foreign Policies of Petrostates* (Ashford, 2022) is recommended.

In line with Gilpin's concept of economic power as the most universal and most crucial power and given the seminal importance of energy for such power, one cannot leave out works on Russian foreign policy. Works deserving special attention in this regard include *Russia's Foreign Policy: Change and Continuity in National Identity* by Andrei P. Tsygankov (2013), which describes the foundations of Russian foreign policy and their impact on the country's foreign policy actions. A similar take is present in the work by Robert H. Donaldson and Vidya Nadkarni, *The Foreign Policy of Russia: Changing Systems, Enduring Interests* (Donaldson & Nadkarni, 2018), which takes a broader look at some historical determinants of Russian foreign policy conduct. Although not specifically about the energy sector, the book helps trace tendencies to misuse energy flows as tools in Russian foreign policy conduct over time.

As will be examined in greater detail below, the issue of Russian energy supplies to Europe and their geopolitical aspects are inextricably tied to the central and eastern parts of the continent. From the consolidation of the energy sector, the state takeover of several energy companies and clashes over energy supplies with its European partners, Vladimir Putin's first stint as Russia's president was marked by several important energy-related events. These events, thoroughly examined in Jeffrey Mankoff's *Russian Foreign Policy: The Return of Great Power Politics* (Mankoff, 2009), are central to understanding Russia's conduct in the period. Mankoff goes deeper into history before Putin became president and sketches a picture in which Russia re-assumed its position on the international stage, with its vast natural resources as one of the preconditions for power and a stepping-stone back to the highest level of global power. Although the author resorts to simplistic views on the weaponisation of energy supplies, he does regard them as the key determinant of Russia's power. Speaking of Vladimir Putin, many monographs have been written on his role in the Russian state and that state's role in the energy sector as a staple in Putin's foreign policy toolbox. One of the most well-known is undoubtedly *Putin's World* by Angela Stent (Stent, 2012).

The connections between Russian foreign policy and energy supplies to Europe have been the subject of research by many authors. In addition to the works mentioned above (e.g., by M. Balmaceda), a few notable works are particularly relevant to the region in point. Anita Orbán published her well-known book *Power, Energy, and the New Russian Imperialism* in 2008, that is, before many of the energy-related events that later affected the course of history (Orbán, 2008). Nevertheless, the book still bears significance today, as it sets out the basic features of energy politicisation in Central and Eastern Europe and Russia's role in it. A broader timeline, covering the period from the end of the Soviet Union until recently, is elaborated on in Ingerid M. Opdahl's *The Russian State and Russian Energy Companies, 1992–2018* (Opdahl, 2020). In this work, Opdahl examines the development of relations between Russian energy companies and the state in times when instances of politicisation and misuse by the Kremlin were mounting, painting a picture of a state strategically weaponising its energy resources.

As the idea of Rosatom as the Kremlin's tool is relatively novel, the body of literature dealing with the topic is rather limited. Even sources dealing with nuclear energy projects as political leverage are scarce despite the magnitude of the industry and its political aspects. The closest attention is paid to the implications of Rosatom's external strategy, which includes a plan to expand to new markets abroad, as described by Minin & Vlček (2017). The potential impacts of Rosatom's expansion and the geopolitical impacts of such conduct are discussed by just a few papers, notably Schépers (2019), Nakano (2020) and, more recently, Pan (2023) and Szulecki & Overland (Szulecki & Overland, 2023). Other works typically cover the role of the nuclear industry in the Russian economy, e.g., (Martínek, 2017) and a book by Gaddys & Ickes (2013). None of these works apply an analytical model that allows for a systematical analysis of Rosatom's external policy or a comparison of Rosatom's conduct in various cases.

In addition to the works included in this compendium, I have also authored or co-authored several works on energy security and energy supply manipulation and weaponisation. These include an earlier piece on Russia's interests in the Ukrainian gas sector (Jirušek, Leshchenko, & Černoch, 2015), a complex study of Russian conduct in the energy sector in CEE, in which the analytical model was first tested (Jirušek, et al., 2015), a study of Gazprom's strategy of expansion into Asian markets (Koďousková & Jirušek, 2016) and a monograph summarising my' research on Gazprom's conduct in southeast Europe (Jirušek, 2017). I have also published several works loosely related to the central theme of the compendium, which complement the knowledge of energy weaponisation or energy-related situations in CEE and southeast Europe. These publications include an article on EU policies aimed at strengthening natural gas infrastructure in southeast Europe (Červinková & Jirušek, 2021), a book chapter on the security situation in the Baltics (Jirušek & Vlček, 2021) and

several analytical papers – for instance, on mitigating risks stemming from Europe's dependence on Russian gas (Jirušek, 2022) and on Europe's decoupling from Russian supplies (Jirušek, 2024).

It is now clear that the end of fossil fuels is nearing. Although it may take a couple of decades before the last internal combustion engine stops for good, a shift towards new technologies seems inevitable. This issue has brought a plethora of new concerns, including those related to the security of supply. These concerns are predominantly tied to potential new dependencies on actors and states that extract and process the materials needed for energy transition and the upcoming technologies. Given that most of the raw materials are located outside the so-called global North, the concern over exchanging import dependence on fossil fuel exporters for dependence on suppliers of critical materials is very relevant. Concerns over the weaponisation of fossil fuels will likely transform into concerns over weaponisation of critical materials and related technologies. The literature has started to reflect this issue, as demonstrated by, e.g., *Material World* (Conway, 2023), *Volt Rush* (Sanderson, 2022) and *The War Below: Lithium, Copper, and the Global Battle to Power Our Lives* (Scheyder, 2024). The ever-growing body of texts on this topic and the similarly rising concerns of the potentially dependent countries demonstrate that the issue of supply security will remain relevant in the future, even after the world moves away from fossil fuels. Such a premise only adds to the relevance of the research presented here, especially since the analytical model can be modified to address various sector-specific challenges (as demonstrated in Chapters 2, 3 and 4).

As is apparent, most publications referenced in this chapter are books with a wide view of the topic. The reasons are threefold. First, this section is meant as a general introduction to the topic. For this purpose, books provide a more comprehensive image of the subject matter, given their typically broader scope than more specifically aimed articles. Second, a more specific and period-sensitive literature, including issue-focused articles, is included in the literature review sections of the publications included in this compendium. Lastly, publications dealing with theories and methods are included in the following subchapter on the theoretical foundations of the research.

Energy supplies and trade are closely connected with international politics. Much as Daniel Yergin states in his trilogy, I am convinced that the politics of energy supplies and security are an internal part of the history that formed the current world, especially since the 19th century and the Industrial Revolution. The ensuing events and developments have proven the importance of energy flows, their ownership, and supply chain functioning in general. This is particularly true in CEE, where the past of the once-Russian-controlled region, which also

served as a transit region and buyer of Russian technologies, still influences the intertwining of energy and geopolitics today. In my work I focus primarily (albeit not exclusively, see below) on this part of Europe, which provides a plethora of study materials to examine this entanglement. Concentrating on one region with the same research logic provides comparable results and deepens knowledge about the region as a whole. I believe that studying the region and Russia's conduct in it is crucial in times of heightened geopolitical tension and Russia's interference in the region's energy security, which we have witnessed in the past few years, culminating in the invasion of Ukraine.

From a theoretical and methodological perspective, I research the state-market dichotomy, based on which I derived my original analytical model to determine the presence of these approaches in the conduct of actors under observation. As explained in the following chapters, determining the presence of these approaches is essential in understanding states' behaviour and, ultimately, identifying energy weaponisation. The analytical model contributes to the discipline's toolbox, while the case studies contribute to the discipline by expanding the knowledge about specific cases of energy weaponisation and countries' security concerns and attitudes to supply weaponisation.

3 Theoretical approaches and research methods

Energy supply as a security issue stems from the state-market dichotomy, which is based on a similar dichotomy found among theories of international relations (IR). The field of IR is essentially delimited by state-centric, self-helping realism on one side of the dichotomy and the idealistic approach of cooperating actors on the other. While the former is based on the state being the main and only relevant actor in IR working primarily for survival in a naturally hostile environment where (inter)dependence is undesirable, the latter favours mutual trade and cooperation and also recognises actors other than states. These basic theoretical approaches gave birth to offsprings in the energy sector.

Naturally, although my research is based on the dichotomy between state- and market-centred approaches, it does not mean that these are the only possible ways of analysing the matter. There are various other approaches that allow it to be analysed from various positions and at different levels. Often cited are approaches that reject the notion of objective reality on which analysis can be based and offer a different approach, recognising the subjective

perception of reality.[4] Of course, I do not claim that my research approaches to analysis are the only ones possible. Nor do I assert that all states use energy supplies as weapons. However, I do observe such an attitude in international politics and seek to trace its presence and manifestations. My interest in the state-market dichotomy is driven by the very concept of energy weaponisation, which assumes the intentional (mis)use of energy commodities as tools, an approach corresponding with the realistic perspective in international relations. That is why I derived an ideal-type model of strategic behaviour, defined by specific features (see below), to determine the presence, scope and impact of such behaviour (i.e., energy weaponisation) in the cases I have examined.

The so-called strategic approach to energy policy is built on realist theories, predominantly classical realism and neorealism. From classical realism, the strategic approach mainly takes the concept of power as the defining principle of the system and the concept of a state as the main actor in the system, superior to any other actors (Burchill, 2005, pp. 30-34). It asserts that all processes within a state should serve the purpose of preserving it. In this sense, economic power is perceived as crucial as it can be converted into other types of power, including military power (Gilpin, 2001, pp. 17-19, 21-24). As mentioned above, economic power requires energy; therefore, the energy sector and energy commodities are deemed fundamental to any state's functioning. Since they are believed to be that important, practically determining the state's survival, they cannot be entrusted to a free-floating market and should be taken care of by the state. Also, given their importance for any state's survival, energy commodities and supply chains present a useful and legitimate tool in the eyes of those favouring the strategic approach (Burchill, 2005, pp. 29-34) (Jackson & Soerensen, 2015, pp. 60-67). Traditionally, the strategic approach was built on the features of fossil fuels, which, given their scarcity, add another reason for a special, state-governed treatment. Furthermore, as energy resources are limited – or, better, finite (i.e., will run out eventually) – proponents of the strategic approach, in line with the realist goal of dominating over other states, favour relative gains in the logic of the zero-sum game (Burchill, 2005, pp. 43-44) (Jackson & Soerensen, 2015, p. 306) (Waltz, 1979, pp. 79-101).

As Robert Gilpin puts it, although energy companies may typically follow economic logic in their everyday behaviour, their states of origin and governments cannot be separated from the underlying rationale for their conduct (Gilpin, 2001, pp. 17 - 19, 21 - 24). When the companies are owned by a state that views the sector from a strategic perspective, their behaviour follows the state's perception of reality, especially if their very existence depends on the conditions that the state creates. The approach also recognises several features of classic

[4] See, for instance, a work by Petr Ocelík, who offers a solid overview of some of the most widely used concepts (Ocelík, 2012).

geopolitics, especially the importance of geographical location and natural (dis)advantages, particularly in relation to the availability of resources, transit routes, chokepoints etc. (Klare, 2014). The features of classical realism relevant to the strategic approach are listed in the table below.

Table 1: Basic assumptions of classical realism - a summary

- Based on the concept of power
- States as main actors in the system, driven by the universal goal to survive in a hostile environment
- States are driven to gain superiority over other actors
- Relies on the logic of classical geopolitics (e.g., geographical determination influencing views on pipeline policy, transit routes, chokepoints etc.)
- Interstate relations are seen as a zero-sum game
- Military power is seen as the most important - Other means of power are also important; economic power may be perceived as the most universal and can be converted to military power
- Energy is seen as a scarce commodity vital to a state's existence
- State involvement in the energy sector is essential
- Market forces are not seen as reliable; states aim to maintain control over resources and supply routes

Sources: Burchill et al., 2005, pp. 30-34; Gilpin, 2001, pp. 17-19, 21-24; Jackson & Sorensen, 2007, pp. 60-67. Compilation: the author

Neorealism enriches the approach with the concept of systemic order and structure. Because they are so important, energy sources can help a state to assert dominance in the system, thus enforcing a hierarchy. The notion of structure translates into states assuming various roles in the energy supply chain – some of them being suppliers, others transit states, both wielding a unique type of power that can be used to advance a state's needs and goals (Burchill, 2005, pp. 34-35, 38-39).

Table 2: Basic assumptions of neorealism - a summary

- Emphasises the role of structure and recognises the importance of interactions between states
- Recognises the hierarchical or anarchical order of international relations
- Roles/functions are ascribed according to state characteristics (e.g., producer, transit and consumer states) and position in the system (superiority/subordination)
- Emphasises the importance of relative gains over competitors

Sources: Burchill et al., 2005, pp. 34-35, 38-39, 43-44; Gilpin, 2001, p. 15-24; Jackson & Sorensen, 2007, pp. 86-88, p. 306, 310; Waltz, 1979, pp. 79-101. Compilation: the author

Building on these theories, we can summarise the features of the strategic approach. It emphasises the naturally hostile international environment in which states, as the only relevant subjects, fight against each other for resources to secure their survival. Given the importance of energy sources for a state's functioning, these are not only the goals of their actions but also the tools and should only be entrusted to states because of their vital importance (Ciuta, 2010, pp. 129-130). Here, we can trace features of resource nationalism or mercantilism (Leverett, 2009, p. 214). In a similar vein, energy commodities should receive exceptional treatment for their importance and should not be entrusted to the market, as market forces are deemed too unpredictable. States act on their own and consider (inter)dependence as an undesirable weakness with the exception of alliances serving as tools. In achieving the goal of controlling others and ultimate survival, proponents of the strategic approach focus on relative dominance in a given situation (Waltz, 1979, pp. 79-101). In this sense, the strategic approach favours bilateral relations for their predictability over multilateral regimes. Proponents of the strategic approach advocate using geographical situations, natural conditions and the role of a state in the supply chain to their benefit (Klare, 2014).

Most features of the market-based liberal approach are the polar opposite of the strategic realist approach. The theoretical grounding can be found in neoclassical and neo-institutional economics and in the liberal stream of thought in IR. As the name suggests, this approach puts market forces and market exchange at the centre of attention. It posits that the demand-supply nexus is the most efficient way of distributing commodities, and any interventions lead to imperfect results or outright supply crises (Chester, 2009) (Nivola & Carter, 2010) (Nordhaus, 2009). Proponents of the approach believe that actors within the system, if properly informed, make the best decisions, and any emphasis on the security aspects of supplies distorts the functioning system. Similarly, it is believed that the international environment is not naturally hostile. Although the proponents recognise the importance of energy commodities, they believe that actors can achieve optimal distribution for their needs through cooperation. It is also believed that actors can maximise their benefits through cooperation despite some commodities being naturally limited or finite. Similarly, cooperation and interdependence are believed to mitigate the risk of conflict. Energy is seen as an ordinary commodity from the perspective of the market-based approach, and energy commodities are not seen as needing specific treatment (Adelman, 1973, p. 73) (Fettweiss, 2009). As the approach is based on cooperation, cost- and benefit-sharing, neither of the actors should feel the need to dominate over the other as it would not bring any additional benefit (Ciuta, 2010). Thus, maximising the benefit given the circumstances (i.e., absolute gains) is preferred. Market-based approaches recognise actors within the system other than states and argue that

multilateral cooperation should prevail over bilateral relations as a more stable and self-balancing means of cooperation.

Naturally, the state-market dichotomy is not the only way to approach the issue of energy policy; however, this distinction is particularly useful in CEE. Given the region's history and experience with a leveraged energy supply, determining if a particular energy deal is manipulated or weaponised (by determining presence of the strategic behaviour) is paramount. That applies particularly, even if not exclusively, to Russian energy supplies and energy-related deals.

The table below summarises the key features of both approaches. Specific features that were used in examined cases are elaborated on in respective articles (see Chapter 7).

Table 3: Strategic and market-based approaches – a comparison

	Strategic approach	Market-based approach
Theoretical basis	The realist tradition in IR, classic geopolitics	The liberal tradition in IR, neoclassical and neo-institutional economics
General approach to energy policy in international relations	The need for independence from external supplies of energy	Energy independence is impossible and attempts to achieve it disrupt inter-state relations
Management of energy resources	Scarcity of resources, which encourages resource nationalism	The market ensures efficient allocation
Role of energy policy in international relations	Used to influence international relations	Creates mere general rules. Politicisation of energy affairs leads to poor allocation and a less effective system
The main focus of energy policy	Emphasis on securing an adequate, secure supply	Comprehensive view, looking at the functioning of markets and infrastructure

Nature of relations and distribution of resources	Zero-sum game	Non-zero-sum game
Patterns of cooperation in an international environment	International relations are founded on bilateral relations; such a style is more predictable and is easier to influence	Cooperation with international organisations, multilateral relations
Positioning of actors in the international system	States as the main and only relevant actors	Multiple influential actors (including firms, international organisations and interest groups)
Role of the market	High risk of market failure, a substantial role for the state	Crucial role of the market. Supplies allocated effectively without state interference
Positioning of energy resources	Subject to the strategic interests of the state; they require special attention	Common market commodity
Future development	Conflicts over energy resources and transit infrastructure are possible	The scarcity of resources is best solved by cooperation among participating actors in the system
Optimal solutions	Independence or expansion	Interdependence by market means

Sources: Adelman, 1973: p. 73; Carter and Nivola, 2009; Chester, 2009: pp. 889-892; Ciuta, 2010: p. 128; Klare, 2005; Klare, 2009a; Klare 2009b; Leverett, 2009: pp. 213-227; Moran, 2009, pp. 19-23; Nordhaus, 2009; Waltz, 1979: pp. 79-101. Compilation: the author

To explain the behaviour and determine the presence of supply weaponisation in particular cases, the author used a single-case-study design, specifically, the idiographic disciplined interpretative case-study design (Odell, 2004) (Stake, 2006). The reason for choosing this design was that it uses a previously created theory, in this case the strategic approach. The disciplined interpretative design uses features of the approach sought and seeks them as indicators of that approach in the collected data. As such, the features constitute an ideal-type model, which, understandably, cannot be found in its pure form. However, the

extent to which the reality approximates to this ideal-type model helps render an image of how the actor under study operates. Thanks to this methodology, the research process could rely on firm guidance. The indicators, determined by the features of the approach, made it clear what the subject of the search was and, thus, also determined the data source material.

The publications presented here used various data sources to provide as detailed an image of reality as possible. Typically, the main facts and figures were gathered from official documents and statistics of the national institutions or international sectoral institutions (e.g., International Energy Agency, Energy Community, European Commission). Where they were needed to complete the picture, auxiliary data and supporting information were collected from specialised websites, news articles, analyses or reports. When processing the data, I typically used coding to categorise the information and infer relations between the data. More specifically, I used open coding in the initial step and axial coding in the second step when relations between the data and categories were established. In this sense, I used methods typically used in content analysis (Holsti, 1969) (Krippendorf, 2019)[5]. As a third step, semi-structured interviews were conducted where necessary to fill any gaps in knowledge that remained after the first two data-collecting steps, or to triangulate and verify the pieces of information collected. In both cases the design of the interview focused on the information that was missing or required verification. The choice of semi-structured interviews was made because such a design enabled guidance based on the targeted information while allowing leeway where necessary (Brinkmann, 2013, p. 21).

4 Features determining supply security

Research involving a compelling analysis of potential politicisation or weaponisation in the energy sector must recognise the differences among energy sectors. Concerns and threats arising in individual energy sectors are based on the following features of the particular energy commodity:

1. **Physical features of the commodity** – Physical features affect the commodity's storability, type of infrastructure via which it is delivered, its fungibility etc. The more rigid and capital-intensive the infrastructure, the fewer the actors capable of stepping into the sector, and thus the higher the risk of imperfect competition and dependence. This aspect is particularly important for oil and natural gas, which, due to their physical

[5] See respective publications for the specifics of the data collecting.

features, require a stable flow of supply that requires specific infrastructure for storage. Any supply manipulation or curtailment can thus immediately affect the client state.

2. **The way the commodity or service is traded** – This includes the types of contracts used and their flexibility. The more rigid the contract, the higher the risk of impact of any manipulation. This aspect is crucial for natural gas, where long-term, inflexible (regarding the delivered volume) contracts are often used. An inflexible contract poses an issue if the client's demand increases or decreases. In either case, the client is essentially locked into a contract that no longer serves the original purpose.

   In the nuclear energy sector, the long-term nature of any project, spanning decades, again locks the client into a relationship, which may be leveraged in many ways, e.g., prolonging the construction, overpricing, applying conditionality in material supplies, etc. Furthermore, given the complexity of nuclear projects, clients are likely to choose the same contractors for future projects in a relationship akin to a vendor lock-in.

3. **Financing of the sector development** – This feature includes the scope of investments and whether these are typically private or require state involvement at some point or to a certain degree. This aspect can be traced in the oil and gas sectors and, notably, in nuclear energy since capital-intensive projects (e.g., nuclear power plants) may provide another area for potential leveraging. In fact, in the cases studied in CEE, nuclear energy was shown to be a prime example of external financing incurring debt, which can be subsequently used as a point of pressure. The nuclear energy sector, with project costs in billions of euros, is a typical example. If the financing provider is an entity or even a state with malign intentions, the debt leaves the client state particularly vulnerable.

4. **Market foreclosure** – This feature includes any conditions for entering the market, either technical or legal. The more foreclosing conditions or the stricter they are, the fewer potential competitors will be in the market. Less competition creates a situation that the incumbents can misuse. In general, a concentrated market, or a market dominated by few or even a single actor, is easier to manipulate.

   The foreclosing conditions can be both naturally immanent in the market or intentionally imposed. For instance, the former can be found in the nuclear energy sector, where, by definition, only contractors capable of providing the technological solution (i.e., building a reactor) are active in the market. The latter can be found in the natural gas

sector in the EU, where entities supplying natural gas cannot simultaneously also own the infrastructure[6]. Conversely, market incumbents could fend off competing suppliers before the liberalisation principles were implemented by imposing tariff and non-tariff conditions. In this sense, preventing market competition catalyses greater market concentration (see below) and, thus, dependence risks.

5. **Market concentration** – This feature determines the number of actors active within the sector. Typically, the more actors, the more stringent the competition and, thus, the lower the risk of unilateral manipulation.

   This aspect is not exclusive to any of the energy sectors, although some naturally tend to be more concentrated than others. In general, the number of active entities in the market can be determined also by other aspects described in this section. In the natural gas sector, for example, market concentration can be determined by natural conditions and the physical availability of the commodity, access to the infrastructure, contractual conditions or legal regulation. The nuclear energy market is more concentrated simply because there are only a few companies capable of providing a nuclear reactor design.

   In any case, the higher the concentration or, in other words, the less the competition, the higher the risk of overpricing and potential leveraging since the number of providers to choose from is limited.

In the context of the history and structure of individual energy sectors and the potential threats discussed above, the research publications presented here focused on three sectors with the greatest potential for politicisation – oil, natural gas and power generation, specifically nuclear power. Given the region's history and energy sector development, most concerns are related to Russia. Below is a detailed explanation of why these particular sectors pose the highest risk and an evaluation of those risks.

4.1 Power generation

The power generation sector is, as expected, vastly different from fossil fuels, and that includes the threats it faces. In CEE, the particular vulnerability is nuclear energy, a subsector where there are significant international ties in all parts of the plant's life cycle, from construction to operation and decommissioning. For historical reasons, in CEE, these ties are often to Russia

[6] The condition was imposed to enhance the market competition.

(see more below), and this has become a security issue over the years. Such threats are made worse by the fact that even a single nuclear reactor represents a significant share of the overall power generation in any of the CEE states. In summary, nuclear generation would be a significant energy source for any of the CEE states' economies but, being strongly tied to Russia at all stages of the plant's life cycle, presents significant security concerns.

The history of the commercial use of nuclear energy in CEE dates back to the early 1970s when the first units were put into operation. Over the following decades, more nuclear power plants were built in several countries, with the Soviet Union providing technology and fuel. To this day, Soviet-type VVER reactors dominate the region, although they have mostly been heavily upgraded and modified. Because of this history, related industrial sectors, staff training and even education curricula have been adjusted to this type of technology, thus creating a strong path dependency in the region (see below).

The organisation of the nuclear energy industry in Russia is also a concern. Here, the Rosatom state corporation controls companies active in all parts of the nuclear facility life cycle, including fuel supply. It can offer contracts no other commercially operating competitor can match, including financing, thus strengthening its competitive position. In other words, Rosatom is set up to penetrate the sector in all parts of the plant's life cycle. Being a state company, it meets one of the key features of the strategic approach.

In this sector, customers are not dependent on an uninterrupted flow of fuel, nor are they dependent on any supply infrastructure. The threats arising are opaquer, but no less concerning. They are typically threefold. First is a path dependence or contractual lock-in carried over to later contracts, thus establishing long-term ties to the contractor. Any nuclear project is an endeavour lasting decades, affecting subcontractors, a vast array of companies in the industry and even the education sector, staff training etc. Thus, once a decision is made about the contractor (i.e., the technology provider), future projects are likely to follow a similar path since the infrastructure and experience facilitate any future work. However, such a lock-in can cause concern if the contractor or controlling actor (i.e., the state in the case of Russia) has malign intentions. Second is the complexity of the project and potential delays or project issues stemming from it. Nuclear power projects are extremely complex endeavours, entailing large numbers of various work types and subcontracts, which is why they take so long to build. In fact, most new projects around the world are delayed for periods ranging from months to even years (A Mycle Schneider Consulting Project, 2023, pp. 62-67). This is why thorough oversight is necessary during the construction and even before, when preparing the project, the budget and the documentation. Without proper oversight, there is a risk of construction delays and complications, either unintentional or intentional, weakening the contractee's

position vis-à-vis the contractor. Third are the cost overruns and financing in general that pose a threat. Closely tied to the previous threat, cost overruns are inherent in almost any project. Again, without proper oversight and expertise, the contractee can be exposed to blackmail.

Generally speaking, none of the threats described above are inherently political, but they can be misused in that way. Another observation that can be made in this regard is that all these threats are essentially finance related – the contractual lock-in, project complexity and cost overruns. Indeed, the financial aspect of any such project offers the greatest potential leverage. In essence, the scope of investment, which runs into billions of euros, coupled with the significance of the project for state energy supply, can easily be misused. If a project is delayed or financially inflated, any of the CEE states would be put in a challenging situation, such as running into a multibillion-dollar debt or not having enough power capacity, which is both economically and politically dangerous.

What really separates the nuclear energy sector from others is the somewhat elusive nature of potential threats. The complexity of a typical project presents a plethora of opportunities for the contractor or its homeland government to exert pressure on the client, most of which are tied to financing. The long-term relationship, in which there is a massive exchange of personnel, information and finance is a potential breeding ground for political lobbying, information leaks or even money laundering. Of the sectors under study, threats in the nuclear industry are the hardest to grasp, yet potentially the most damaging.

Table 4: Features determining supply security in the nuclear power sector - an overview

Feature	Description
Physical features of the commodity	The 'commodity' is the service/the actual technological solution provided by the contractor and, later, the fuel for the reactor. No specific infrastructure is needed for either of these. However, the sector has various pressure points due to its comprehensive nature and the longitudinal character of contracts
The way the commodity or service is traded	A competitive market where contractors and fuel suppliers compete for contracts. The technology contract typically lasts at least for the construction and operation periods. The fuel supply contract is typically more flexible, although a vendor lock-in may arise.

Financing of the sector development	Typically, a single nuclear reactor's costs may wary, starting from ca. €7bn without interest fees and cost overruns that may multiply the final costs. Financing thus can create potential leverage.
Market foreclosure	The market is foreclosed naturally since only a handful of contractors worldwide can provide the technological solution. The foreclosure is thus determined by mastering the technology. Such a setting represents an imperfect market where dominance can be asserted.
Market concentration	Due to the previous feature, market concentration is relatively high, with fewer than ten contractors worldwide. Such a situation limits the choices and may provide opportunity for leverage.

Compilation: The author

4.2 Oil sector

Threats in the oil sector from the perspective of the supply-dependent actor (or customer in general) stem from the physical features of the commodity. In this sense, they are similar to those present in the natural gas sector; however, the differences remain significant, as shown in this section.

The most important defining feature is the fungibility and storability of the commodity. Being an easily storable liquid material, crude oil and oil products can be transported by various means, and consumers are thus not reliant on rigid pipeline systems. Thanks to its storability, the commodity can also be easily stockpiled, shielding the consumer from unexpected supply curtailments. The fungibility means that supplies are replaceable and the consumer is not limited to a specific supplier. Although crude oil varies in its sulphur content and viscosity, which affects its processability due to the specific requirements for refineries, the replaceability of supplies is effectively a matter of cost. That means a consumer can replace a supplier if they are willing to pay the cost of importing the commodity from a greater distance, using different means of transport or adjusting the refining process. Although in CEE the prevailing means of supply is by pipeline, switching to other sources and means of supply is possible, as has been successfully demonstrated. The bottom line is, however, that crude oil is a globally traded commodity, and the unavailability of crude from a specific source does not preclude the possibility of obtaining it from somewhere else. Hence, the dependency risks stemming from

the infrastructure are not as pronounced in the oil sector as supplier switching is relatively easy, thanks to the fungibility. However, such a switch may come with additional costs.

That being said, a certain degree of structural dependency remains a limiting factor and source of potential concern, mainly the technological setting of refineries dependent on certain types of crude oil, thus determining the variety of suppliers and, eventually, financial revenues generated by the refined products. Changing a supplier can lead to potential supply disruptions and financial losses. In any case, such a change would bring additional costs. Also, the need for an uninterrupted flow of supplies, which can only be alleviated to a certain degree by stockpiling, may pose an issue in the long run. Given the importance of oil for a modern economy, any supply curtailment and resulting price hikes disrupt the economy and should thus be perceived with caution.

'Because of the low level of indigenous oil production, CEE countries have always needed significant imports of crude and refined oil. Romania and Hungary are exceptions (Trading Economics, 2024 a) (Trading Economics, 2024 b) as they have notable production, though this is not enough to change the import-dependent profile of the region as a whole. Because of the region's post-war ties to the Soviet Union, its demand for oil to feed heavy industrialisation was met predominantly by imports from the Samara region in Russia through the Druzhba Pipeline, built in the 1960s. This pipeline is still in operation; refineries connected with it are able to process high-sulphur crude oil, thus strengthening the structural dependence of CEE countries on Russian supplies[7].

Politically, such dependence became an issue after the fall of the Iron Curtain due to the political and economic instability of the Soviet Union (and later Russia) and later also because of concerns over the potential misuse of supplies. These concerns materialised on several occasions when supplies were openly halted for political reasons (e.g., in the Baltics in 1991, see above) (Clemens, 1999), due to transit disputes between Russia and Ukraine, technical issues or when the timing of such interruption was highly suspicious (Dančák, et al., 2012, pp. 34-35) (Yermakov, 2019). For instance, such an outage took place in 2008, when Russian crude stopped flowing into the Czech Republic the day after the Czech Republic and the USA signed an agreement on the anti-ballistic system located in the Czech region of Brdy (Dančák, et al., 2012, p. 34).

Russian oil companies, whether state-controlled (e.g., Rosneft, GazpromNeft) or formally private (e.g., LukOil), are all closely aligned with government policy or linked to the government personally. Concerns over the potential politicisation of supply made several CEE

[7] However, at the time of writing, most of the original importers have already stopped importing Russian oil via this route in reaction to the Russian aggression against Ukraine.

countries move to diversify their sources of oil. Despite this, Russian crude dominated the region for a long time after the Cold War, as shown in the aftermath of the Russian invasion in 2022 when several countries had to be given a transitional period to diversify their supply of crude and oil products (Radio Prague International, 2022).

Table 5 Features determining supply security in the oil sector - an overview

Feature	Description
Physical features of the commodity	The commodity can be easily stored and transported by various means, alleviating dependence on physical infrastructure and enhancing diversification. Nevertheless, supply interruptions may still cause economic problems, especially in the short- to mid-term.
The way the commodity or service is traded	Oil is a fungible commodity traded on a global market, weakening any leverage a supplier might have over a customer. Supply disruptions pose a threat, albeit in the short- to mid-term and financially.
Financing of the sector development	The sector is driven by commercial logic and is very competitive. Infrastructure investments are not as decisive since there are other means of transport. However, supply disruptions are possible.
Market foreclosure	The market is competitive, and no significant hindrances prevent new suppliers from entering. Diversification is a function of financing.
Market concentration	Due to its global nature and fungibility, the market is competitive with low concentration. Disruptions are manageable despite inflicting higher costs.

Compilation: the author

4.3 Natural gas sector

Similarly to the oil sector, concerns over potential politicisation in the natural gas sector stem from the physical features of the commodity and the infrastructure. However, the situation in the natural gas sector is markedly different because natural gas is not as easily storable and deliverable as oil. Being a gas, the commodity needs to be transported and stored in sealed containers, making it more dependent on rigid infrastructure. Hence, unlike in the oil sector, natural gas supplies are largely limited to pipelines. Therefore, established supply chains are much more rigid than the oil sector, as other means of transport are limited, making diversification challenging. Even though overseas deliveries of liquefied natural gas (LNG) have changed the global natural gas trade, pipelines are still irreplaceable for inland shipping, which concerns most CEE countries. Another complicating feature from the consumer perspective is that the need for an uninterrupted flow is much more pronounced with natural gas than with oil. The reasons are basically threefold. First, natural gas can be stored only under specific conditions, using sealed storage capable of withstanding pressurisation without leaks. Second, extracting gas from underground storage provides smaller yields over time as the pressure in the storage naturally decreases. Hence, such storage is typically suited for irregular or emergency purposes. Third, natural gas is used in sectors that need a continuous supply, typically industry and housing. The housing sector is particularly vulnerable, especially in winter. Although households that depend on natural gas for heating may not constitute a significant share of CEE states' consumption, it still means that tens or even hundreds of thousands of people may be vulnerable if any supply curtailment occurs.

Due to the dependence on physical infrastructure for supplies and distribution, the natural gas market remains partitioned to a certain extent. Although LNG has been changing the global landscape in recent years, natural gas remains largely regionalised, undermining its fungibility compared to oil. In essence, there are regions with a multitude of suppliers where switching among them is not an issue, as, for instance, in northwestern Europe. However, there are still areas in Europe where the choice is limited, even to a single supplier or pipeline, typically in southeastern Europe. CEE finds itself somewhere in between, not being the most interconnected while also not being the most diversified region, capable of switching between suppliers at will.

The supply and infrastructural situation has been largely determined by the sector's history. Natural gas was in high demand in Europe in the 1960s as a new, cleaner fuel, replacing coal in industry and heating. However, similarly to oil, European countries, aside from a handful of exceptions like Norway, the Netherlands, Romania and Hungary, do not have significant deposits, so require natural gas to be imported. The rising demand in the West was particularly tempting for the Soviet Union, which made substantial discoveries in the 1950s.

Unlike in the oil sector, building the supply infrastructure to export natural gas from the USSR was not primarily intended to supply the Eastern Bloc but rather the capitalist West to get the needed financial resources. CEE countries saw an expansion of supplies and infrastructure as a by-product of this endeavour as they became transit countries, and, as supplies were plentiful, they got their share of supplies to meet domestic demand. Over the years, the infrastructure bringing natural gas to CEE from the East grew more robust, further cementing the East-West supply pattern. After the Cold War, while some CEE states aimed to diversify due to concerns about unilateral dependence and Russian instability, others continued to rely on cheap supplies from the East. The trust in Russia's ability and will to stick to contractual obligations while keeping supplies depoliticised eroded after several supply disputes between Russia and transit states, mainly Ukraine. The most notable of these were in 2006 and 2009 and pushed the EU and CEE states to reconsider their supply arrangements. Occasional disputes and the apparent politicisation of supplies between Russia and its customers in southeast Europe, along with price gouging in less competitive markets, also undermined Russia's reputation as a reliable business partner.[8]

Until recently, Russia was the main source of gas supplies, not only for the CEE region but also for the whole of Europe. That started to change in reaction to the Russian invasion of Ukraine in February 2022, partly due to Russia's unilateral decision to restrict the supply and European countries' rapid supply diversification. The decline of the Russian gas supply was further exacerbated by the explosion of the Nord Stream pipeline system in late September 2022. The key Russian company remains Gazprom, a state-controlled entity with exclusive rights to export Russian gas via pipelines. Other Russian companies, such as the private Novatek and state-controlled Rosneft, have been trying to penetrate the European market with LNG supplies. Nevertheless, with gradual market diversification and growing supply grid density and interconnectivity, volumes of Russian gas and, thus, the Kremlin's potential clout in the market have decreased significantly. As in other sectors, concerns have been associated with all Russian gas-exporting companies for their general alignment with the Kremlin.

While the rigid infrastructure as the sector's "hardware" is the most complicating factor in natural gas supplies, the "software", or the regulatory aspects, provide another important facet. Rigid contractual conditions, such as the "take-or-pay"[9] clause or long-term buying obligations, which suppliers initially used to offset construction costs, can become restraining

[8] These instances included not only the 2009 gas supply crisis, but also several supply disputes and, arguably, blackmail by Russia in Bosnia and Herzegovina, Moldova and Serbia. See, for instance, Orbán (2008), Pirani et al. (Pirani, Stern, & Yafimava, 2009), Jirušek (Jirušek, 2017) (Jirušek, et al., 2015) or the publications included in this compendium.

[9] The contractee is obliged to pay for an agreed amount of commodity regardless of whether it is actually consumed or not.

for contractees, limiting their ability to diversify supplies. Although such conditions have not been exclusive to CEE, here, in combination with the prevailing dependence on Russian gas and related infrastructure, they constituted another hindrance preventing market flexibility. The rigidity of the market and imperfect competition were the main reasons for the liberalisation efforts of the European Commission, commencing in the 1980s (European Union, 1987) (European Union, 1985). During the 1900s and 2000s, the Commission introduced legislation that gradually liberalised the market by enforcing free access to the infrastructure and effectively banning monopolies (European Parliament, 2024). Although not exclusively aimed at Russia and its pipeline supply monopolist Gazprom, the legislation impacted mainly the Russian gas giant in CEE due to historical development. Due to this EU gas market regulation, Gazprom changed from market creator to market subject, subordinated to a higher authority – the European Commission. The most important provisions of the anti-monopoly legislation were the unbundling of supply from infrastructure ownership, fair access to the infrastructure (the third-party access principle) and the prohibition of contractual clauses limiting gas resales by the customer (the so-called destination clauses).

In the following years, despite the monopoly-fighting liberalisation legislation applied throughout the common market and gradually implemented by candidate countries, Gazprom showed an unwavering intention to navigate around these restrictions and hold on to its privileged market position. Even in the CEE EU members, Gazprom likely employed tactics such as backroom negotiations, blackmail, bribery and other law-breaking (EurActiv.com, 2014) (Radio Free Europe, Radio Liberty, 2013) (The Moscow Times, 2014) (Yardley & Becker, 2014). A prime example of the effort to navigate around the legislation was the South Stream project, which breached the third-party access and unbundling principles. Negotiations surrounding the project entailed suspected corruption in the intended transit countries, most notably Bulgaria. Eventually, the European Commission found Gazprom guilty of misusing its market position in several CEE countries (EurActiv.com, 2018) (European Commission, 2015) (European Commission, 2017).

The importance of legal regulation has not only been proven in EU member states where Gazprom was forced into obedience, but also in countries where the legal provisions were missing or not fully implemented – for example, Moldova, Serbia and Bosnia and Herzegovina.[10] The textbook example of wrongdoing was in Moldova, where price gouging and supply leveraging correlated with the country's foreign policy and its relations with Russia

[10] I included evidence of this behavior in *Politicization in the natural gas sector in South-Eastern Europe: thing of the past or vivid present?* (2017, pp. 73-85, 150-156, 186-200)

(Jirušek, 2017, pp. 150-156). Similar conduct was noted in other non-EU countries mentioned above (Jirušek, 2017, pp. 73-85, 186-200).

Structural dependence dictated by physical infrastructure and the need for an uninterrupted flow make natural gas “the perfect weapon” in the hands of those who wield it. Contractual dependence and tactics cementing the ties between Gazprom and its customers further exacerbate the danger of leveraging in dependent countries. Therefore, although the term “energy weapon” has been traditionally tied to oil, natural gas presents the potentially most significant concerns from the perspective of consumers and, thus, from the perspective of CEE countries.

For a long time, the EU was perceived as a market of such significance that the Kremlin would not dare to jeopardise its gas exports by any blatant supply politicisation. The difference in contractual conditions offered by Gazprom in the EU market compared to more isolated ones seemingly confirmed this assumption for the past three decades. Clearly, any such assumptions were refuted by the Russian invasion of Ukraine and the subsequent blackmailing of European countries, using natural gas as the bargaining chip. At the same time, using gas supplies as the main leverage only proved their suitability as an energy weapon and the sector to follow when it comes to energy weaponisation.

Table 6 Features determining supply security in the natural gas sector - an overview

Feature	Description
Physical features of the commodity	Natural gas relies on a rigid infrastructure for supply and storage, which limits its flexibility and fungibility and hampers diversification.
The way the commodity or service is traded	Partitioned market with regional differences limits fungibility and hampers diversification.
Financing of the sector development	Infrastructure development is capital-intensive. Infrastructure is crucial for market development. Limited interconnectivity and partitioned market weaken competitiveness.
Market foreclosure	Some regional markets with sparser infrastructure can be less competitive due to imperfect liberalisation and may include conditions precluding the entry of new actors.
Market concentration	Concentrated markets exist in regions with fewer suppliers and sparser infrastructure.

Compilation: the author

5 The analytical model for the oil and gas sectors

With the base theories, theoretical approaches and specifics of the sectors described above as input, I derived an analytical model for assessing the presence of energy weaponisation in the oil and gas sectors, that is, those that rely on physical infrastructure for delivering the commodity (see Chapter 4). The analytical model is an ideal-type model of behaviour, meaning that finding all the indicators (manifestations of the behaviour) is not typical since, as stated above, any political approach will find itself somewhere in between the state-driven approach on one end and the market-driven approach on the other. Hence, it is the number and type of indicators found in the given case that tell the story of whether the particular relationship or contract has been weaponised. The table below displays the specific features of the strategic approach and indicators of such behaviour that were sought in the case studies.

Historically, energy weaponisation has been tied to fossil fuels for several reasons, mainly the dependence on physical infrastructure and uneven geographical distribution. These features allow for supply manipulations and intentional supply cuts, which, due to the limited availability of these resources, lead to client states being susceptible to blackmail. In cases where the contractor's government controls the energy sector, the attention is, naturally, turned to the potential for the state's hand in the contracts.

For these reasons, indicators looked for in the given cases focused primarily on the contractor's homeland government, the government's representatives and their role in the contracts, along with deal conditionality and the correlation of the deals' conditions with mutual relations between the contractor's homeland government and the client state's government. Other indicators were of the infrastructure and efforts to control it, often from the wellhead to the consumer. That entails the supplier resisting liberalisation and market competition. Directly related are indicators pointing at intentional supply manipulation and efforts to squeeze out competition. Such behaviour includes resistance against multilateral regimes regulating trade in the given sector since bilateral ties are deemed easier to influence and steer in the desired direction. The model also looks at contract transparency, including how a contract is negotiated. The final indicator is of the contractor's market power in the long run and the steps leading to it.

It is worth noting that any indicator alone cannot prove the inclination towards supply manipulation beyond any doubt. It is thus vital to understand the case in its complexity and context. Also, temporal factors play an important role so the timing of the examined actions is

crucial. For instance, bringing financial issues or a debt owed to the contractor by the client state into the debate is not suspicious in itself; however, doing so shortly before the heating season or at times of mutual disagreement may indicate an effort to exert pressure on the client. The following table summarises the features of the strategic behaviour and indicators marking their presence in the given case. The individual features and indicators are discussed in detail in Publication 1 and implemented in practical research in Publications 2, 3 and 4 and implicitly in Publication 5 and 6.

Table 7: Features and indicators of strategic behaviour in the oil and natural gas sectors - a summary

Feature	Indicator
Energy as a tool of the state; the economy as a basis for state power	Active support by Russian state representatives for the country's state-owned energy enterprises and their activities abroad
	As a foreign supplier, Russia rewards certain behaviours and links energy prices to the client state's foreign policy orientation
	Abuse of infrastructure (e.g., pipelines) and differential pricing to exert pressure on the client state
Energy resources perceived as strategically important and deserving special treatment	Efforts to take control of the energy resources, transit routes and distribution networks of the client state
	Disruption (through various means) of alternative supply routes/sources of supply
Zero-sum game (against cooperation)	Efforts to gain a dominant market position in the client country
	Efforts to eliminate competitive suppliers
	Acting against liberalisation
Relying on bilateral relations/agreements	Preference for long-term bilateral agreements and the "take-or-pay" type of contract
	Diminishing the importance and influence of multilateral regimes such as the EU

Undesirable dependence (while increasing the dependency of others)	Attempts to control the entire supply chain (regardless of commercial rationale)
Emphasis on strategic issues (over economic logic)	Economically irrational steps taken to maintain a particular position in the client state's market

Compilation: the author

6 The analytical model for the nuclear energy sector

Although this sector differs from oil and natural gas, it is still crucial to determine if the strategic approach can be found in the contractor's conduct and, thus, if manipulation may occur. Therefore, although the indicators searched in the cases in point had to be different, the issue was approached from the same perspective of the state-market dichotomy. The nuclear energy sector is very specific in many aspects, including the involvement of contractors. Also, the contractee is not dependent on the stable flow of supplies, as it is in the oil or natural gas sectors. Risks arise from different features in the sector. First, contracts establish long-term and very complex relationships. Building a nuclear power plant is an enormous task, taking several years and requiring a substantial budget. Such a relationship typically has an immediate and long-term effect. In each project, the contractee thus opens many channels with the contractor, including information exchange (potentially even of a sensitive nature), personnel exchange (potentially with limited vetting) and substantial financial flows. Effectively, such a situation becomes a breeding ground for contract manipulation and leveraging in various project stages, with broad implications for the contractee, given the scope of a typical nuclear energy project. The long-term effect is a path dependency, a situation akin to vendor lock-in, i.e., a high likelihood that the contractee will choose the contractor again in the future due to the previously selected technology. The selected solution affects various parts of the client state's economy, including subcontractors or even educational facilities and staff training, making it more likely that the contractee will follow up on the deal in the future. A contractee locked in a long-term relationship with a contractor steered by a homeland government with malign intentions thus clearly poses a significant security issue. That is important to recognise, particularly given the prevailing presence of Russian technologies in CEE stemming from the history of cooperation during the Cold War.

These features become even more critical if we focus on the role of Russian companies in the nuclear energy sector, which are generally controlled by the Russian state (see above). Hence, features and inferred indicators are focused on the role of the contractor's homeland government and ties between the foreign policy and projects in the sector. As in the oil and natural gas sectors, the indicators were derived to analyse the role of Russian companies in CEE and the history of relations between the region and Russia. Similarly to the fossil fuel sectors, the indicators must be perceived contextually.

The majority of the indicators were of non-standard conduct in the sector. More specifically, indicators pointing out changes in the mutual relationship between Russia and the concerned state were of primary focus here, especially if they improved (or changed in general) shortly before or during the project, proving the project's importance at the governmental level. The reason for governmental interventions being a red flag is that such conduct typically indicates the government's vested interests and conditionality when the deal is used to reward or punish the client state. Notably, deals closed at the governmental level, especially without a public tender, remove a great deal of transparency. The prime example is the Russian-Hungarian deal on building the Paks II nuclear power plant (see Publication 4 for details).

Similarly, if a project is the key theme of mutual relations between the contractor's home state and the client state, it is also worth paying attention to. Projects worth billions of euros are, quite understandably, of prime concern for states in CEE. A single nuclear reactor typically poses a significant portion of any CEE state's power generation capacity, not to mention the financial aspect, so it seems natural if the project is among the key mutual themes. However, as mentioned in the previous paragraph, the greater the importance and involvement of state officials, the greater the concern that the project will be used as leverage by the contractor or its homeland government. In general, any personalisation in this regard decreases transparency and increases the danger that the project will be hijacked and become unpredictable. In the same vein, state-provided or facilitated financing coming from the contractor's home state may also pose significant political leverage as the client becomes locked in the relationship not only from the technology perspective but also financially. Therefore, financial support from the contractor or its homeland government as a condition to start the project, changes in financing correlating with mutual relations or the contractor's homeland government's financial interventions are clear red flags. Naturally, as mentioned above, in the context of CEE, where Rosatom has been a major player, concerns are predominantly tied to the company's ties to the government.

Table 8: Features and indicators of strategic behaviour in the nuclear energy sector - a summary

Feature	Indicator
Conditionality of the deal's progress or financing with the client state's behaviour	Changes in relations between Russia and the client state correlating with the project
	Improvements/changes in the relationship shortly before or during the project
The project as the key theme of mutual relations between Russia and the client state	The project representing a key/defining topic within the mutual relations of the two states
	The deal was discussed at the top political level (ministries or heads of the state)
Personal involvement of Russian state representatives in the project	Involvement or interventions by government figures aimed at influencing the project to gain benefit
	Presence of state entities or figures tied to the government while making decisions or intervening in the project
State-supported/facilitated financing as a decisive factor in the project	Financial help crucial for the project from institutions with the contractor's homeland government's backing
	Financial help provided after the government's intervention
	Changes in the financing and correlation with significant events involving the government

Compilation: the author

7 Articles and their purpose in the thesis

7.1 Publication 1

VLČEK, Tomáš and Martin JIRUŠEK. Research Design. In VLČEK, Tomáš and Martin JIRUŠEK. Russian Oil Enterprises in Europe: Investments and Regional Influence. Cham, Switzerland: Palgrave Macmillan, 2019, ISBN 978-3-030-19838-1, pp. 23-51. Available from: https://dx.doi.org/10.1007/978-3-030-19839-8.

Document type: book chapter

ABSTRACT:
This book analyses the motivation, investments, and influence of the Russian Federation and Russian companies in the European oil and gas sector, specifically in southeast Europe. The main aim of the book is to highlight the economic and political logic of Russian activities in the oil sector and provide a brief analysis of the situation in the natural gas sector. The findings help readers understand the general code of conduct of Russian energy companies and their potential ties to their homeland government. The book will appeal to academics, researchers, graduate students, field professionals, and anyone interested in Russian and European geopolitics.

- The book introduces the analytical model for assessing energy policy and detecting energy weaponisation (i.e., the tendency to use energy as a weapon). The model was built on the assumptions of the strategic and market-driven approaches to energy policy. The model was adjusted to the oil and natural gas sectors by deriving features of weaponisation specific to these two sectors. The research focused on the conduct of Russian state-owned energy companies.
- The model was constructed as an ideal-type model of behaviour whose manifestations (indicators) were sought in given cases. The presence or absence of these indicators marked the presence or absence of supply weaponisation.
- The indicators were defined as, e.g., active involvement of Russian state representatives, conditionality in supply deals tied to relations with Russia, intentional misuse of the infrastructure or market position, efforts to control the infrastructure and the market despite legal limitations, resisting liberalisation, preference for bilateral deals and economically irrational conduct aimed at retaining a market position.
- Geographically, the book focused on southeast Europe mainly because of the region's susceptibility to energy weaponisation due to the largely non-liberalised energy sector and prevailing dependence on Russian energy supplies.

Authorship contribution statement:

The research design chapter: 100%

The book: 35% (research design, chapter on the natural gas sector including data collecting)

7.2 Publication 2

JIRUŠEK, Martin and Petra KUCHYŇKOVÁ. The Conduct of Gazprom in Central and Eastern Europe: A Tool of the Kremlin, or Just an Adaptable Player? East European Politics and Societies. Thousand Oaks: SAGE Publications, 2018, vol. 32, No 4, pp. 818-844. ISSN 0888-3254. Available from: https://dx.doi.org/10.1177/0888325417745128.

Document type: research paper

ABSTRACT

This article presents the results of evidence-based research into the behaviour of Gazprom and the Russian government in selected Central, Eastern and southeast European countries (the Czech Republic, Bulgaria, Moldova and Belarus). The paper aims to determine the scope of involvement by the Russian government in problems that have arisen in supplying gas to these states and the degree to which these issues have been linked with Gazprom's conduct and Russia's foreign policy towards the countries. Another aim is to seek out the key factors that may determine this behaviour in particular environments. To address these goals, the authors monitored specific indicators defined by the strategic approach to energy security (indicators that uncover governmental support, the linking of foreign policy to gas supplies and the misuse of a dominant market position). The core of the research underlying the paper was organised as a set of individual idiographic, theory-guided case studies. Data were gathered from official documents, statistics, articles, analytical studies and semi-structured interviews with experts.

Authorship contribution statement: 60% (research design and methodology, data collecting on the Czech Republic, Bulgaria, and Moldova)

- The paper demonstrates the practical use of the analytical model for the natural gas sector in selected CEE countries. The value of the article lies in comparing Gazprom's conduct in the Czech Republic, Bulgaria, Moldova and Belarus, countries that, at that time, were all covering significant portions or all their natural gas needs from Russia but were in different positions given their energy mix and dependence on Russian supplies.
- The research employed the idiographic, disciplined interpretative (theory-guided) single case study design. Each of the selected countries is examined as a dedicated single-case study of its natural gas sector. Indicators of the strategic behaviour served as the guide and were searched in the data.
- The research found that EU membership and observing the internal energy market rules served as an effective bulwark against supply weaponisation as these rules

effectively prevent supply monopolisation and, thus, potential manipulation and leveraging. Conversely, a lack of such rules and legislation limiting the potentially harmful conduct leaves the country vulnerable.

- However, in order for these rules to work, the country has to have the physical availability of alternative (i.e., non-Russian) supplies. The importance of physical source diversification as the main precondition for secure supplies was demonstrated in the case of Bulgaria, which was leveraged despite being an EU member. The case of Moldova then demonstrated an extreme example of both missing preconditions against leveraging and, thus, a case where Gazprom clearly served as an extension of its homeland government, steering the targeted country in the desired direction. As a result, Gazprom was found to operate as an instrument of Russian foreign policy. However, the efficiency of such behaviour is directly dependent on the leeway the company is given in the given country.

7.3 Publication 3

JIRUŠEK, Martin, Tomáš VLČEK and James HENDERSON. Russia's energy relations in Southeastern Europe: an analysis of motives in Bulgaria and Greece. Post-Soviet Affairs. Abingdon: Taylor & Francis Group, 2017, vol. 33, No 5, p. 335-355. ISSN 1060-586X. Available from: https://dx.doi.org/10.1080/1060586X.2017.1341256.

Document type: research paper

ABSTRACT

Although Russian state-owned energy companies officially operate as independent entities, their actions often lead to suspicion that they are, in fact, instruments of the Russian state. Countries on the southeastern borders of Europe – Bulgaria and Greece – were prime examples of where this might have been the case since they not only had a central position in Russia's plans to penetrate European markets through new transport infrastructure but were also part of competing plans for routing non-Russian gas to Western markets. Such a position put the area at the centre of attention concerning Europe's supply security. The main focus of the research was on the natural gas and oil sectors, as these are the traditional foundations of Russian energy exports to Europe. The aim of this paper was to provide an objective, evidence-based analysis of Russian activities in these sectors in Greece and Bulgaria to establish whether its actions have been implicitly or explicitly politicised and have served to strengthen Russian influence in the region.

Authorship contribution statement: 50% (research design, data collecting on natural gas sectors in the examined countries)

- This paper demonstrates the practical use of the analytical model for both oil and gas sectors in southeast Europe, more specifically, in Greece and Bulgaria, which both pose interesting cases and provide comparison of the different tactics employed by Russian energy companies in different environments.
- At the time of the research, these two countries played a key role in the planned infrastructural projects in southeast Europe.
- These two cases proved that energy weaponisation might be difficult to detect since Gazprom's conduct in particular could be explained as economically logical, including its price gouging. Such behaviour was not considered suspicious, as it could be explained by imperfect competition in the context of which Gazprom simply misused its dominant market position. Rather, it was the timing and context of such actions that raised suspicion. In the case of gas supplies, pressure was exerted when the targeted country was either vulnerable (Bulgaria) or in need of political support (Greece).

- It was found that Russian companies work hand-in-hand with their government to establish clout in the market, which is then used in various cases when needed. Such behaviour also explains the occasional economic irrationality in the companies' behaviour as it was usually conducted with a long-term goal in mind.

7.4 Publication 4

JIRUŠEK, Martin, Tomáš VLČEK and James HENDERSON. Same but different: Rosatom as the Kremlin's upcoming leverage? Journal of Contemporary European Studies. Abingdon: Routledge Journals, Taylor & Francis, 2024, pp. 1242–1258. ISSN 1478-2804. Available from: https://dx.doi.org/10.1080/14782804.2024.2348159.

Document type: research paper

ABSTRACT

Russia's relations with the EU have worsened over the past decade, and energy-related issues have been part of this regress. Attention has mostly been turned to natural gas and Gazprom, while Rosatom, another state-controlled energy giant, has been largely overlooked, although it may be the next vehicle to foster Russia's foreign policy goals. To find out whether this is the case, Hungary and Finland were chosen as case studies to determine whether Rosatom serves as leverage for Russian political influence. The research used an original analytical model adjusted to the nuclear sector to find manifestations of strategic behaviour, pointing at political leveraging of the deals under study. The findings revealed that Russia could use Rosatom's nuclear deals as vehicles for its foreign policy goals. The outcome was, however, found to be case-specific, depending on the operating environment and permissiveness of the host country.

Authorship contribution statement: 50% (research design, data collecting on the cases)

- This paper demonstrates that concerns over energy supply politicisation are not limited to fossil fuels and rigid infrastructural settings. Specifically, the paper demonstrates the risks in the nuclear energy sector using the analytical model to seek manifestations of supply weaponisation.
- Although relying on the same theoretical grounding as the model used to study oil and natural gas, the analytical model had to be adjusted to the specifics of the nuclear sector, which does not rely on rigid supply infrastructure.
- The paper demonstrates specific kinds of threat arising in the sector, stemming from the high market concentration, technological lock-in and financial leverage the contractor might have over the customer.
- The paper identifies several potential pressure points, mainly related to non-transparency and the personalisation of contracts.
- The paper demonstrates differences between Finland and Hungary when a project is conducted under strict and transparent oversight, separated from the state's foreign policy. In Finland, the project was commercially driven, with a private consortium as the

customer and, thus, minimal government involvement. In Hungary, a close circle of state representatives was in charge of the project, which was shrouded in non-transparency, and the project was vitally dependent on financial support from Russia, which had been negotiated at the governmental level.

- The paper proved the applicability of the analytical approach in sectors other than oil and gas. Even though the nuclear energy sector has different features causing politicisation to appear in different forms, several common features remain on a general level. These are mainly the determining role of the contractor's homeland government's foreign policy, preference for individualised bilateral relations, personification and preference for strategic goals regardless of the economic logic.

7.5 Publication 5

JIRUŠEK, Martin. The attitude of the Visegrad Group Countries towards Russian Infrastructural Projects in the gas sector. Energy Policy. Oxford: Elsevier Science, 2020, vol. 139, April, p. 1-10. ISSN 0301-4215. Available from: https://dx.doi.org/10.1016/j.enpol.2020.111340.

Document type: research paper

ABSTRACT

The article analyses the positions of members of the Visegrad Group (i.e., Czech Republic, Slovakia, Poland and Hungary) on infrastructure projects in the natural gas sector built or planned by Gazprom and seeks to unearth determining factors influencing these attitudes. More specifically, the research focused on Nord Stream 2 and TurkStream, pipelines that supplied Europe with gas while circumventing traditional transit countries in CEE, including the Visegrad Group countries. The paper is organised as a series of individual case studies, each dedicated to one state under scrutiny. The author concluded that there was no common ground upon which a unified stance of the Visegrad Group could be formulated in this regard. The states also differed in adherence to theoretical attitudes to energy policy in general. Despite its declared unity, the Visegrad Group states pursued their own goals determined by economic interests or long-standing foreign policy stances. Consequently, Central Europe was fragmented on the issue and thus more prone to politicisation and leveraging over supplies.

Authorship contribution statement: 100%

- This article assumes a different approach from Papers 2-4, although it is based on the same theoretical grounding – that is, the dichotomy of the state- and market-guided approaches to energy.
- The paper presents specific cases of the Visegrad countries and their attitudes towards Russian gas infrastructure, further demonstrating the interconnectedness of energy and foreign policy. The article further demonstrates the differences among CEE states in tackling Russian influence and, thus, the difference in inclinations towards either of the approaches.
- The text is based on the assumption that energy supplies can be used as a weapon in international politics. In the research, all four states were approached individually to find out if they perceived Russian infrastructural projects in this way.
- The research found that there was misalignment among the states.

- Manifestations of different approaches to energy policy were identified in individual states' conduct, underlining the differences in attitudes and providing reasons for such misalignment.
- It was observed that there was no unity in approaching the infrastructure and Russian supplies, as Poland and Hungary clearly subscribed to the state-guided approach (specifically, the strong role of the state, use of the state's position, the strategic importance of energy, bilateral relations etc.), although both for different reasons in their relations with Russia. The other two, the Czech Republic and Slovakia, appeared to be more pro-market leaning.
- The article showed that the Visegrad Group members did not share the same viewpoints and, consequently, did not perceive Russian infrastructure projects in the same way.

7.6 Publication 6

JIRUŠEK, Martin, Petra KUCHYŇKOVÁ and Tomáš VLČEK. Business as Usual or Geopolitical Games? Russian Activities in Energy Sector of the Czech Republic. Online. In Jan Holzer, Miroslav Mareš. Czech Security Dilemma. Russia as a Friend or Enemy? Cham, Switzerland: Palgrave Macmillan, 2020, p. 117-150. New Security Challenges. ISBN 978-3-030-20546-1. Available from: https://dx.doi.org/10.1007/978-3-030-20546-1_5.

Document type: book chapter

ABSTRACT

This chapter presents an overview of the formative events in the Czech energy sector in relation to Russia and Russian companies that have taken place since the fall of the Iron Curtain. To provide the reader with a thorough understanding of the situation, the overview is not confined to the presentation of important events and facts. Rather, attention is paid to the way these key events have been presented in the political and public discourse. The chapter further maps the presence of Russian companies in the Czech energy sector and concludes by evaluating the presence of Russian capital in the sector and the way in which potential Russian influence on Czech energy policy and general security in the Czech Republic was perceived. By mapping the Russian companies' presence, the chapter weighs in on the disruptive potential of Russian influence in the Czech energy sector, building on the assumption of the strategic approach that energy assets can be weaponised.

Authorship contribution statement: 35% (data collecting and writing of respective sections)

- Publication 6 brings insights on a granular level as it takes on bilateral energy relations between Russia and the Czech Republic. Energy has been key to these two countries' relations since the Czech Republic restored its sovereignty in 1989.
- The text is constructed as an individual case study of energy relations, focusing on the natural gas, oil and nuclear energy sectors, selected for their importance for the Czech Republic as a customer, Russia as a supplier and their overall impact on energy security, as described above in this text.
- Although the text does not employ the author's analytical model, it is implicitly grounded on the dichotomy between the state- and market-oriented approaches. More specifically, the strategic approach explains why Russia has been perceived with caution in the Czech energy sector, prompting, e.g., rapid diversification in fossil fuel supplies in the 1990s.

- The chapter describes how the Czech Republic addresses the issues of politicisation of energy relations by Russia (i.e., using energy as a tool in the state-guided approach).
- The book of which the chapter is a part analyses Czech-Russian relations, recognising Russia's importance in several policy fields and, importantly, its power aspirations in Central Europe, facilitated also by energy ties to the region.

8 Main findings

The preceding text introduced in detail my long-term research into energy as a factor in international relations, more specifically, the weaponisation of energy supplies in CEE. Based on existing theories of international relations and associated theories of energy policy, I analysed the behaviour of the Russian state and Russian energy companies in their dealings with CEE countries. For that purpose, I constructed an analytical model based on these theories to identify situations when energy supplies and related contracts are misused or outright weaponised. The model was applied to the situation in the oil, natural gas and nuclear energy sectors. To complete the picture, I also analysed the behaviour of selected CEE countries towards Russia, Russian energy companies and their projects. For that purpose, I used the same theoretical foundations, presuming that energy companies deeply involved in the region's energy sector and controlled by an authoritarian regime posed a security concern. I examined the selected countries' policies towards Russian energy companies and projects to find out if they were perceived as a potential threat and if such a perception was shared across the region. By doing that, I gained a deep knowledge of the energy security situation in the region and behavioural patterns at both ends of the supply chain.

The need for such research has been proven numerous times in the past and more recently as Europe has been repeatedly reminded of its energy dependence and potential manipulability. That applies particularly to the CEE region, where the dependence on Russia was particularly strong and perceived sensitively given the region's history. Concerns over energy dependence were exacerbated by the Russian invasion of Ukraine in 2022 and the ongoing energy transition, which put additional strain on supply chains. Below are summarised the key findings of the presented research in greater detail.

It was proven that the realism vs. liberalism dichotomy, as represented by the strategic vs. market dichotomy in the energy sector, provided a useful analytical basis upon which analytical models of energy weaponisation for individual energy sectors could be built. Based on the theories, the strongest indicators of such weaponisation are typically active involvement of the supplier state's representatives, conditionality in the supplier state's foreign policy towards the client state, intentional manipulation of the infrastructure, efforts to control the infrastructure and the market despite legal limitations, resisting liberalisation, preference for bilateral deals and economically irrational conduct aimed at retaining a market position.

The analytical model, adjusted for the conditions in the natural gas sector, produced remarkable results. It was found that the Russian state company Gazprom did indeed behave as the government's tool, but the extent to which it misused its position was largely determined

by the environment within which it operates. Therefore, if the host country gave the company enough leeway, be it intentionally or by negligence, Gazprom did not hesitate to (mis)use it. The crucial factors determining the potential misuse were found to be source diversification and adherence to the rule of law, especially implementation of the EU's liberalisation principles. Several other factors that enable the misuse of market position were also identified. Among these, personal ties to the Russian government, non-transparency of the deal in question and the indebtedness of the client country were found particularly impactful. It was also found that cultural proximity could play a significant role in energy-related deals, often to the disadvantage of the client country. Narratives such as the (alleged) common Slavic heritage or church were found to be popular tropes enabling Russia to strengthen its role in a given country. In this activity, the Orthodox Church was found to be particularly active. Political representation, which is attuned and receptive towards the Kremlin, was found to be particularly helpful in facilitating Russian influence in the energy sector. However, notably, it was found that the Kremlin would leverage any state, if given the opportunity, even friendly countries with which Russia shared good relationships.

When attuned to use in the oil sector, the model produced very similar results, although, expectedly, the clout Russia or any other supplier could have over the region's supplies was weakened by the nature of the oil market where the commodity was globally traded and could be obtained from other sources relatively easily without relying on a specific rigid infrastructure. However, it was difficult to establish whether a certain action was taken to weaponise the supplies for political gain or for profit. Therefore, as in the other sectors, rather than the actual actions, it was often their timing and context that indicated manipulative intentions. In any case, Russia was found to take actions that did not always make economic sense in the short run but might prove both financially and politically effective in the long term. Such actions included building expensive infrastructure when there was no immediate need for it, taking over various parts of the supply chain etc.

In analysing the nuclear sector, the model, although based on the same theoretical groundings, had to be significantly adjusted, mainly because the service provided by Russian companies does not come in the form of energy supplies but rather a technology solution and service. However, given the vast scope of any nuclear project, it opens a host of other possibilities to manipulate the contract or the client country. Similarly to the situation in the oil and gas sector, the extent to which the contractor – i.e., Rosatom and related subsidiaries – misuses its position, is determined by the host state's adherence to the rules and by the effectiveness of the country's oversight bodies. Further pressure points were found to be the involvement of political representatives, transparency and financing. Contrary to popular perception, it is often the host state that draws up the playing field and sets the rules. If the

state is strict and adamant, room for politicisation and weaponisation could be significantly reduced. Notably, the key role of the host state in delimitating the playing field, along with the involvement of key political figures and contractual (non)transparency being the red flags, were findings shared throughout all three examined sectors.

The perspective of the client states, as examined in Publications 5 and 6, also proved valuable. These helped with understanding of the client states' perception of risks and, thus, their behaviour towards Russia. This research revealed that, despite the shared history and experience among the Visegrad Group states, their current views differed. The outcomes of these papers complement the findings in Publications 2, 3 and 4. States that perceived Russian investments and involvement as inherently concerning and reduced the playing field for Russian companies saw less suspicious or outright malign activities than countries where there were little to no concerns over Russian activities and projects.

9 Potential future research directions

During the course of my research as introduced in this compendium, I proved that the research approach grounded in the state vs. market dichotomy was widely applicable to the field of energy policy and security. The logic behind it allows the model to be adjusted to determine the presence of the strategic approach (i.e., commodity weaponisation), and it can also be recalibrated to unearth the presence of the market-driven approach. In this way, the model can gauge the extent of liberalisation, for instance, in previously centralised, state-guided sectors, thus opening new research possibilities.

While initially developed to analyse the oil and gas sectors, the model was also successfully adapted to the nuclear energy sector, proving its flexibility. Thanks to its theoretical groundings – that is, the dichotomy between the state-guided approach and liberal, free-flowing market attitude – the research approach is applicable in all cases where such a distinction is relevant. In light of growing geopolitical tensions and the ongoing debate about the most efficient way of governing the energy sector, such a distinction is set to be widely applicable in the future. It opens a host of new research opportunities in the future beyond the fossil fuel and nuclear energy sectors, such as the supply security of critical raw materials, technologies and supply chains in general. As foreshadowed in the literature review section, I recognise the future challenges stemming from the energy transition and the shift to non-fossil energy sources and other resources needed in renewable energy production, transport and storage. The concerns, or even threats, stemming from the unequal concentration of resource

ownership and supply chain issues are imminent, akin to concerns over fossil fuel dependency. Given the proven relevance of the basic theoretical underpinnings, I am convinced that the analytical model will remain applicable for future research endeavours and, thus, will stay relevant to research into energy security.

Although fossil fuels seem to be on their final stretch with a clear view of the ongoing energy transition, nuclear energy is an area where Russia still has significant leverage. Globally, Russian companies find themselves in a very competitive position due to their extensive state backing, and Rosatom can take over the baton of the leading foreign policy instrument from Gazprom, although in different markets. Most nuclear projects are located outside Europe, and Rosatom stands a good chance of securing more deals in the future. As proven in Paper 4, the nuclear energy sector presents significant opportunities for exerting pressure and politicisation. Hence, another possible future research avenue could be an analysis of Rosatom's projects outside Europe.

As the energy transition progresses and the demand for raw materials grows, attention will likely turn to non-European countries, predominantly to China, mainly due to the fact that China possesses the largest share of the most important resources needed for what are supposed to be the crucial technologies for the coming decades – batteries, wind and solar power. On top of that, China dominates in almost all parts of the related supply chains. That is, not just mining but also processing and manufacturing of components and finished products. Even in areas where China doesn't have majority control, it is still significant player. Demand for raw materials in the next two decades is set to multiply globally, with the highest increase expected in electromobility and battery storage, followed by power grids and photovoltaics. Chinese companies hold the top positions in all these areas, most notably in batteries and photovoltaics, where their market share approaches 90% (Čepelka & Šebok, 2023) (Yang, 2023).

This is a critical situation for the European Union, given the bloc's planned shift to carbon-neutrality by 2050, a transition that will require significant amounts of these materials and technologies. Unfortunately for the union, it falls behind not just in resources (due to their natural distribution which clearly cannot be changed), but also in processing and manufacturing. The EU appears to understand the challenge as it has introduced several policy proposals to tackle the issue, most notably the Critical Raw Materials Act (European Commission, 2023). But these efforts are in their early stages and do not provide the necessary guidance, given the urgency of the matter. The transition is accelerating not just in Europe but also in the United States and, importantly, in China itself, making the challenge imminent (Yang, 2023). The looming competition over resources and seminal shifts in economies have

also sounded alarms on the other side of the Atlantic. To address this issue, the US has come up with its own strategy for energy transition, potentially pitting the EU and the US against each other in economic and technological competition. Analysing the policies of the key global actors on the energy transition will thus be very important.

The concerns are also very relevant for CEE countries since their economies are energy-intensive, relying heavily on machine-building and automotive industries. At the same time, these countries are not leaders in renewables and struggle with the high share of fossil fuels in their energy mixes. That means that they will need to accelerate their effort, which will result in an incrementally high increase in demand for essential materials and technologies, leaving them particularly sensitive to any price gouging or supply manipulation. It is thus no surprise that concerns over exchanging dependence on imported fossil fuels for dependence on materials and technologies have been voiced with ever-growing urgency.

Given the role of the Chinese state administration in the energy sector and the intertwining of foreign and economic policies, Chinese activities must be approached cautiously, evaluating potential strategic manipulation, much as in the case of Russian supplies. Evidence from the past shows that China is not shy to use economic measures as a policy retaliation, including an embargo on rare earths (Armstrong, 2013) (Harell, Rosenberg, & Saravalle, 2018). Given its geopolitical aspirations and viewing a possible geopolitical struggle with the US, the importance of this issue is clear, and so is the research potential.

I see much potential in examining supply weaponisation beyond the example of fossil fuels. Critical materials, technologies and supply chains related to delivering these goods will undoubtedly become critical to economic output. These commodities will be at the centre of geopolitical competition and become determining factors of economic and foreign policy, much like fossil fuels. Given its proven flexibility, my analytical model is well suited to examine other sectors and supply chains and, thus, to open new research possibilities in the future.

10 References

A Mycle Schneider Consulting Project. (2023, December). *The World Nuclear Industry: Status report 2023.* Retrieved September 1, 2024, from World Nuclear Report: https://www.worldnuclearreport.org/IMG/pdf/wnisr2023-v5.pdf

Adelman, M. A. (1973). *The World Petroleum Market.* The Johns Hopkins University Press.

Armstrong, S. (2013, August 19). *Australian National University, Crawford School of Public Policy.* Retrieved August 6, 2024, from Digging into the rare earth embargo: https://crawford.anu.edu.au/news-events/news/2432/digging-rare-earth-embargo

Ashford, E. (2022). *Oil, the State, and War: The Foreign Policies of Petrostates.* Washington, D.C.: Georgetown University Press.

Balmaceda, M. M. (2015). *The Politics of Energy Dependency: Ukraine, Belarus, and Lithuania between Domestic Oligarchs and Russian Pressure.* Toronto: University of Toronto Press.

Balmaceda, M. M. (2021). *Russian Energy Chains: The Remaking of Technopolitics from Siberia to Ukraine to the European Union.* New York: Columbia University Press.

Brinkmann, S. (2013). *Qualitative Interviewing (Understanding Qualitative Research) .* Oxford: Oxford University Press.

Burchill, S. (2005). *Theories of International Relations.* Houndmills: Palgrave macmillan.

Ciuta, F. (2010). Conceptual Notes on Energy Security: Total or Banal Security? *Security Dialogue*, pp. 123-144.

Claes, D. H. (2019). *The Politics of Oil.* Cheltenham: Edvard Elgar.

Clemens, W. C. (1999). The Baltic Republics, Russia, and Energy: From Dependency to Interdependence? *SAIS Review, 19*(1). Retrieved Spetember 1, 2024, from https://www.jstor.org/stable/45345821?saml_data=eyJzYW1sVG9rZW4iOiJhZTQwNTJlNi02NTVmLTQzMjctYTJjZi02NzVkMzRmMTc0OTMiLCJlbWFpbCI6IjE4MTgyMUBtYWlsLm11bmkuY3oiLCJpbnN0aXR1dGlvbklkcyI6WyI4MzI3N2VmOC0yNTg5LTQ0ODktOGUwMS01MmRlM2RhZTMyNDciXX0&seq=1

Conway, E. (2023). *Material World.* WH Allen.

Čepelka, M., & Šebok, F. (2023, June 22). *Dekarbonizace mimo naši režii - Čína a kritické suroviny.* Retrieved August 6, 2024, from Asociace pro mezinárodní otázky: https://www.amo.cz/cs/klimatym/factsheet-dekarbonizace-mimo-nasi-rezii-cina-a-kriticke-suroviny/

Červinková, J., & Jirušek, M. (2021, September). Effective tool or useless list? Projects of Common Interest in the sector of natural gas in Southeastern Europe. *Energy Research & Social Science, 79*, pp. 1-10.

Dančák, B., Černoch, F., Leshchenko, A., Osička, J., Šebek, V., Vlček, T., & Zapletalová, V. (2012). *The Future of the Druzhba Pipeline as a Strategic Challenge for the Czech Republic and Poland.* Brno: Masarykova Univerzita.

Donaldson, R. H., & Nadkarni, V. (2018). *The Foreign Policy of Russia: Changing Systems, Enduring Interests.* London: Routledge.

EurActiv.com. (2014, May 28). *Barroso warns Bulgaria on South Stream*. Retrieved September 27, 2024, from EurActiv.com: https://www.euractiv.com/section/energy/news/barroso-warns-bulgaria-on-south-stream/

EurActiv.com. (2018, December 12). *Commission to fine Bulgaria over gas market distortions*. Retrieved September 27, 2024, from EurActiv.com: https://www.euractiv.com/section/competition/news/commission-to-fine-bulgaria-over-gas-market-distortions/

European Commission. (2015, April 22). *Antitrust: Commission sends Statement of Objections to Gazprom - Factsheet*. Retrieved Spetember 27, 2024, from European Commission: https://ec.europa.eu/commission/presscorner/detail/en/MEMO_15_4829

European Commission. (2017, March 13). *Antitrust: Commission invites comments on Gazprom commitments concerning Central and Eastern European gas markets*. Retrieved Spetember 27, 2024, from European Commission: https://ec.europa.eu/commission/presscorner/detail/en/IP_17_555

European Commission. (2023, March 16). *Critical Raw Materials Act.* Retrieved August 6, 2024, from European Commission: https://single-market-economy.ec.europa.eu/publications/european-critical-raw-materials-act_en

European Parliament. (2024, April). *Internal energy market.* Retrieved September 2, 2024, from Fact Sheets on the European Union: https://www.europarl.europa.eu/factsheets/en/sheet/45/internal-energy-market

European union. (1985, June 28-29). *COMPLETING THE INTERNAL MARKET: WHITE PAPER FROM THE COMMISSION TO THE EUROPEAN COUNCIL.* Retrieved September 2, 2024, from EUR-Lex: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A51985DC0310

European Union. (1987, July 1). *The Single European Act.* Retrieved September 2, 2024, from EUR-Lex: https://eur-lex.europa.eu/EN/legal-content/summary/the-single-european-act.html

Fettweiss, C. J. (2009). No Blood for Oil: Why Resource Wars Are Obsolete. In G. Luft, & A. Korin, *Energy Security Challenges for the 21st Century: A Reference Handbook* (pp. 66-77). Santa Barbara, CA: Praeger Security International.

Gaddy, C., & Ickes, B. (2013). *Bear Traps on Russia's Road to Modernization.* Abigdon: Routledge.

Gilpin, R. (2001). *Global political economy: understanding the international economic order.* Princeton University Press.

Harell, P., Rosenberg, E., & Saravalle, E. (2018, June 11). *China's Use of Coercive Economic Measures.* Retrieved August 6, 2024, from Center for a New American Security: https://www.cnas.org/publications/reports/chinas-use-of-coercive-economic-measures

Högselius, P. (2013). *Red Gas: Russia and the Origins of European Energy Dependence.* New York: Palgrave Macmillan.

Högselius, P. (2019). *Energy and geopolitics.* London: Routledge.

Holsti, O. R. (1969). *Content Analysis for the Social Sciences and Humanities.* Addison-Wesley Publishing Company.

Horáček, F. (2008, July 11). *Rusko prudce snížilo dodávky ropy do Česka.* Retrieved November 11, 2024, from iDnes: https://www.idnes.cz/ekonomika/domaci/rusko-prudce-snizilo-dodavky-ropy-do-ceska.A080711_171641_ekonomika_fih

Chépers, N. (2019, February). *Russia'S Nuclear Energy Exports:.* Retrieved August 7, 2024, from EU Non-Proliferation and Disarmament Consortium: https://www.nonproliferation.eu/wp-content/uploads/2019/03/EUNPDC_no-61_FINAL.pdf

Chester, L. (2009). Conceptualising energy security and making explicit its polysemic nature. *Energy Policy*(38), pp. 887-895.

International Energy Agency. (n.d.). *Energy Security*. Retrieved August 8, 2024, from International Energy Agency: https://www.iea.org/topics/energy-security

Jackson, R., & Soerensen, G. (2015). *Introduction to International Relations: Theories and Approaches .* Oxford: Oxford University Press.

Jirušek, M. (2017). *Politicization in the natural gas sector in South-Eastern Europe: Thing of the past or vivid present? .* Brno: Masarykova univerzita.

Jirušek, M. (2022, March 1). Natural Gas as Russia's Foreign Policy Tool and How to Mitigate the EU's Vulnerability. *Russian Analytical Digest*, pp. 5-7. Retrieved from https://www.research-collection.ethz.ch/bitstream/handle/20.500.11850/534972/RAD278.pdf?sequence=3&isAllowed=y

Jirušek, M. (2024, January). The EU's Decoupling from Russian Gas: What's the "New Normal" and How Sustainable Is It? *Russian Analytical Digest*, pp. 18-22. Retrieved from https://css.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/pdfs/Russian_Analytical_Digest_308.pdf

Jirušek, M., & Vlček, T. (2021). Structural Changes in the Baltics and the Russian Presence : Ramifications for the Region's Energy Future. In M. O. Mišík, *From Economic to Energy Transition : Three Decades of Transitions in Central and Eastern Europe* (pp. 153-180). Cham: Palgrave Macmillan.

Jirušek, M., Leshchenko, A., & Černoch, F. (2015). Russian Energy Interests in the Ukrainian Gas Sector: Strategically Motivated Conduct? *Geopolitics of Energy, 37*(4), pp. 9-20.

Jirušek, M., Vlček, T., Koďousková, H., Robinson, R. W., Leshchenko, A., Černoch, F., . . . Zapletalová, V. (2015). *Energy Security in Central and Eastern Europe and the Operations of Russian State-Owned Energy Enterprises* (1 ed.). Brno, Czech Republic: Masaryk University. Retrieved January 14, 2015, from http://www.ceners.org/energy-research/ceners-2015-energy-security-in-cee.pdf

Klare, M. T. (2014, July 15). *Twenty-first century energy wars: how oil and gas are fuelling global conflicts* . Retrieved September 4, 2019, from http://www.energypost.eu/twenty-first-century-energy-wars-oil-gas-fuelling-global-conflicts

Koďousková, H., & Jirušek, M. (2016). Is Gazprom Pushing East? Exploring Gazprom's Behavioural Patterns in the Asian Market. *The Central European Journal of International and Security Studies, 10*(1), pp. 110-133.

Krippendorf, K. (2019). *Content Analysis: An Introduction to Its Methodology.* SAGE Publications, Inc.

Leverett, F. (2009). Resource mercantilism and the militarization of resource management. In D. Moran, & J. A. Russel, *Energy Security and Global Politics: The militarization of resource management* (pp. 211 - 242). New York: Routledge.

Mankoff, J. (2009). *Russian Foreign Policy: The Return of Great Power Politics.* Landham: Rowman & Littlefield Publishers.

Martínek, S. (2017, December). Sovereign wealth funds – Driving growth of the nuclear power sector. *Energy Strategy Reviews, 18*, pp. 141-149. Retrieved June 16, 2023, from https://www.sciencedirect.com/science/article/pii/S2211467X17300597?via%3Dihub

Minin, N., & Vlček, T. (2017, September). Determinants and considerations of Rosatom's external strategy. *Energy Strategy Reviews*(17), pp. 37-44. Retrieved August 7, 2024, from https://www.sciencedirect.com/science/article/abs/pii/S2211467X17300305

Nakano, J. (2020, March). *The Changing Geopolitics of Nuclear Energy: A Look at the United States, Russia and China.* Retrieved from Center for Strategic & International Studies: https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/200416_Nakano_NuclearEnergy_UPDATED%20FINAL.pdf?heOTjmYgA_5HxCUbVIZ2PGedzzQNg24v

Nivola, P. S., & Carter, E. E. (2010). Making Sense of 'Energy Independence. In C. Pascual, & J. (. Elkind, *Energy Security: Economics, Politics, Strategies, and Implications.* Washington, D. C.: Brookings Institution Press.

Nordhaus, W. (2009, June 17). *The Economics of an Integrated World Oil Market.* Retrieved September 16, 2020, from International Energy Workshop: http://internationalenergyworkshop.org/iew2009/speakersdocs/Nordhaus_TheEconomicsOfAnIntegratedWorldOilMarket.pdf

Observatory of Economic Complexity. (2023). *EU*. Retrieved August 20, 2024, from Observatory of Economic Complexity: https://oec.world/en/profile/international_organization/european-union

Ocelík, P. (2012). *Konstruktivismus a energetická bezpečnost v mezinárodních vztazích.* Brno: Masarykova Univerzita.

Odell, J. S. (2004). Case study methods in international political economy. In D. F. Sprinz, & Y. Wolinsky-Nahmias, *Models, numbers, and cases: methods for studying international relations.* Ann Arbor: University of Michigan press.

Opdahl, I. M. (2020). *The Russian State and Russian Energy Companies, 1992–2018.* New York: Routledge.

Orbán, A. (2008). *Power, Energy and the New Russian Imperialism.* Praeger.

Pan, Y. (2023, January - February). Managing the atomic divorce: The challenges of East Central Europe's nuclear energy decoupling from Russia. *The Electricity Journal, 36*(1).

Pirani, S., Stern, J., & Yafimava, K. (2009, February). *The Russo-Ukrainian gas dispute of January 2009: a comprehensive assessment.* Retrieved September 2, 2024, from Oxford Institute for Energy Studies: https://www.oxfordenergy.org/wpcms/wp-content/uploads/2010/11/NG27-TheRussoUkrainianGasDisputeofJanuary2009AComprehensiveAssessment-JonathanSternSimonPiraniKatjaYafimava-2009.pdf

Radio free Europe, Radio Liberty. (2013, December 3). *EU Recommends Member States Renegotiate South Stream Pipeline*. Retrieved September 27, 2024, from Radio free Europe, Radio Liberty: https://www.rferl.org/a/eu-renegotiate-south-stream/25191193.html

Radio Prague International. (2022, May 5). *Czech government seeks exemption from Russian oil ban.* Retrieved September 2, 2024, from Radio Prague International: https://english.radio.cz/czech-government-seeks-exemption-russian-oil-ban-8749635

Sanderson, H. (2022). *Volt Rush.* Oneworld Publications.

Schépers, N. (2019, February). *Russia's Nuclear Energy Exports.* Retrieved August 7, 2024, from EU Non-Proliferation and Disarmament Consortium: https://www.nonproliferation.eu/wp-content/uploads/2019/03/EUNPDC_no-61_FINAL.pdf

Scheyder, E. (2024). *The War Below: Lithium, Copper, and the Global Battle to Power Our Lives.* Atria/One Signal Publishers.

Stake, R. E. (2006). *Multiple Case Study Analysis.* New York: The Guilford Press.

Stent, A. (2012). *Putin's World: Russia Against the West and with the Rest.* Twelve.

Szulecki, K., & Overland, I. (2023, February 27). Russian nuclear energy diplomacy and its implications for energy security in the context of the war in Ukraine. *Nature Energy*, pp. 413-421. Retrieved June 16, 2023, from https://www.nature.com/articles/s41560-023-01228-5

The Moscow Times. (2014, August 19). *Bulgaria Accuses South Stream Builder of Defying Project Freeze*. Retrieved September 27, 2024, from The Moscow Times: https://www.themoscowtimes.com/2014/08/19/bulgaria-accuses-south-stream-builder-of-defying-project-freeze-a38518

Trading Economics. (2024 a, June). *Romania Crude Oil Production*. Retrieved September 1, 2024, from Trading Economics: https://tradingeconomics.com/romania/crude-oil-production

Trading Economics. (2024 b, July). *Romania Crude Oil Production*. Retrieved September 1, 2024, from Trading Economics: https://tradingeconomics.com/romania/crude-oil-production

Tsygankov, A. P. (2013). *Russia's Foreign Policy: Change and Continuity in National Identity.* Lanham: Rowman & Littlefield Publishers.

Waltz, K. (1979). *Theory of International Politics.* Boston: McGraw-Hill.

World Bank Group. (2023). *GDP growth (annual %) - Germany*. Retrieved August 20, 2024, from World Bank Group: https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=DE

Yang, Z. (2023, February 21). *How did China come to dominate the world of electric cars?* Retrieved August 6, 2024, from MIT Technology Review: https://www.technologyreview.com/2023/02/21/1068880/how-did-china-dominate-electric-cars-policy/

Yardley, J., & Becker, J. (2014, December 30). *How Putin Forged a Pipeline Deal That Derailed*. Retrieved September 27, 2024, from The New York Times: https://www.nytimes.com/2014/12/31/world/europe/how-putin-forged-a-pipeline-deal-that-derailed-.html

Yergin, D. (1992). *The prize: the epic quest for oil, money, and power.* New York: Free Press.

Yergin, D. (2005, July 31). *It's Not the End Of the Oil Age.* Retrieved September 1, 2024, from The Washington Post: https://www.washingtonpost.com/wp-dyn/content/article/2005/07/29/AR2005072901672.html

Yergin, D. (2011). *The quest: energy, security and the remaking of the modern world.* New York: Penguin Press.

Yergin, D. (2021). *The new map: energy, climate, and the clash of nations.* London: Penguin Books.

Yermakov, V. (2019, June). *The Druzhba Pipeline Crisis: The Lessons for Russia and for Europe.* Retrieved September 2, 2024, from Oxford Institute for Energy Studies: https://www.oxfordenergy.org/wpcms/wp-content/uploads/2019/06/The-Druzhba-Pipeline-Crisis-The-Lessons-for-Russia-and-for-Europe.pdf

M U N I

COMMENTARY TO HABILITATION THESIS[1]

The presented thesis is written as a collection of previously published scholarly works with a commentary. The main theme of the thesis is energy and energy supplies as a factor in international relations. In this sense, the author's work explores the misuse and weaponization of energy commodities and supplies conducted in order to leverage a relationship between the supplier and customer.

The author presents the results of his long-term research, which gave birth to an analytical model tested in several cases in the natural gas, oil, and nuclear energy sectors. The author's primary focus has been the central and eastern European region, where the author investigated the potential weaponization of Russian energy supplies to these countries.

The author uses the realist tradition of thinking in international relations and the strategic approach to energy policy as a basis for his analytical model. The model is defined by a set of features manifested in reality through indicators that were looked for in the examined cases. These indicators signify the presence of strategic behaviour, i.e., conduct aimed at weaponizing the relationship and leveraging the client state. Data was collected from open sources and semi-structured interviews conducted during field research in concerned countries. The research into Russia's behaviour in the region's energy sectors provides evidence of supply weaponization and identifies potential pressure points, thus providing valuable information for academics and policymakers alike.

The presented research collection overviews the author's work on the topic, which has been conducted over the course of several years. The first section provides an overview of the research goal, puts it into a broader context and introduces the theories underpinning the analytical model. The core of the presented material comprises the author's previously published work. The first publication introduces the analytical model, while the following three publications present its practical application in natural gas, oil and nuclear energy sectors. The fifth publication reverses the logic and presents the attitude of the Visegrad group countries vis-à-vis Russia, the potential perpetrator of supply leveraging in natural gas supply, the traditionally most efficient energy leverage in the region. The last publication provides insights into the Czech energy sector, mapping Russian influence and potential pressure points for supply leveraging, consistent with the aforementioned analytical model. Thus, the compendium offers a comprehensive perspective on the issue, introducing the analytical

[1] The commentary must correspond to standard expectations in the field and must include a brief characteristic of the investigated matter, objectives of the work, employed methodologies, obtained results and, in case of co-authored works, a passage characterising the applicant’s contribution in terms of both quality and content.

model, its practical application in detecting supply leveraging, and the perspective of the potentially leveraged parties.

The research concluded that energy supplies and energy contracts can indeed serve as a foreign policy tool for the party that wields it. This has been clearly manifested in sectors depending on physical infrastructure (i.e., oil and particularly natural gas) as well as in sectors depending on services and supplied technologies (i.e., nuclear energy). However, the specific form and impact of the exerted pressure typically depend on the leeway given by the targeted country. The most critical factors in this regard are adherence to existing legislation and market principles. In the oil and gas sectors, physical diversification also plays a key role. Notable importance can also be ascribed to the personal involvement of political representatives and a general interconnectedness with the foreign policy discourse of the concerned countries.

The presented research collection, particularly the case studies, builds heavily on extensive field research and data collection conducted by the author in the examined countries, making it a valuable source of information in itself. Thanks to the comprehensive theoretical background, the analytical model proved adaptable to various sectors, offering useful insights into the behaviour of a dominant supplier (i.e., Russia). Due to the model's flexibility and adaptability, the author concludes that it can be further adjusted to other sectors, including commodity supply chains. Therefore, the model will remain relevant, offering applications in various commodity supply chains and providing opportunities for future research. Besides the original data collected during the field research, the analytical model poses the most significant contribution of the presented research.

[1][2] VLČEK, Tomáš and Martin JIRUŠEK. Research Design. In VLČEK, Tomáš and Martin JIRUŠEK. Russian Oil Enterprises in Europe: Investments and Regional Influence. Cham, Switzerland: Palgrave Macmillan, 2019, ISBN 978-3-030-19838-1, pp. 23-51. Available from: https://dx.doi.org/10.1007/978-3-030-19839-8.

- Martin Jirušek is the sole author of the referenced research design chapter. The rest of the book is a collective work of both referenced authors.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
100	100	100	100

[2] JIRUŠEK, Martin and Petra KUCHYŇKOVÁ. The Conduct of Gazprom in Central and Eastern Europe: A Tool of the Kremlin, or Just an Adaptable Player? East European Politics and Societies. Thousand Oaks: SAGE Publications, 2018, vol. 32, No 4, pp. 818-844. ISSN 0888-3254. Available from: https://dx.doi.org/10.1177/0888325417745128.

- Martin Jirušek is the author of the methodology and the author of half of the conducted case studies.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
60	60	60	80

[3] JIRUŠEK, Martin, Tomáš VLČEK and James HENDERSON. Russia's energy relations in Southeastern Europe: an analysis of motives in Bulgaria and Greece. Post-Soviet Affairs. Abingdon: Taylor & Francis Group, 2017, vol. 33, No 5, p. 335-355. ISSN 1060-586X. Available from: https://dx.doi.org/10.1080/1060586X.2017.1341256.

- Martin Jirušek is the author of the methodology and research in the natural gas sector.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
40	50	40	90

[2] Bibliographic record of a published scientific result, which is part of the habilitation thesis.

[4] JIRUŠEK, Martin, Tomáš VLČEK and James HENDERSON. Same but different: Rosatom as the Kremlin's upcoming leverage? Journal of Contemporary European Studies. Abingdon: Routledge Journals, Taylor & Francis, 2024, pp. 1242–1258. ISSN 1478-2804. Available from: https://dx.doi.org/10.1080/14782804.2024.2348159.

- Martin Jirušek is the author of the methodology and the author of half of the conducted case studies.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
40	50	40	90

[5] JIRUŠEK, Martin. The attitude of the Visegrad Group Countries towards Russian Infrastructural Projects in the gas sector. Energy Policy. Oxford: Elsevier Science, 2020, vol. 139, April, p. 1-10. ISSN 0301-4215. Available from: https://dx.doi.org/10.1016/j.enpol.2020.111340.

- Martin Jirušek is the sole author of the article.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
100	100	100	100

[6] JIRUŠEK, Martin, Petra KUCHYŇKOVÁ and Tomáš VLČEK. Business as Usual or Geopolitical Games? Russian Activities in Energy Sector of the Czech Republic. Online. In Jan Holzer, Miroslav Mareš. Czech Security Dilemma. Russia as a Friend or Enemy? Cham, Switzerland: Palgrave Macmillan, 2020, p. 117-150. New Security Challenges. ISBN 978-3-030-20546-1. Available from: https://dx.doi.org/10.1007/978-3-030-20546-1_5.

- Martin Jirušek is the author of one-third of the text.

Experimental work (%)	Supervision (%)	Manuscript (%)	Research direction (%)
35	35	35	35