Decades of Dependency: The Political Legacy of Hungary's Energy Reliance on Russia

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ABSTRACT

This thesis explores the persistent dependency of Hungary on Russian energy, an issue that has come under intense scrutiny following Russia's invasion of Ukraine in 2022 and the subsequent imposition of sanctions by the European Union. Addressing the deep historical, political, and economic roots of this dependency, which dates back to the Cold War era, this research utilizes a qualitative methodology to analyze a wide range of primary and secondary sources, including governmental reports, academic studies, and expert commentary. The investigation examines how, despite the broader efforts within the EU to diversify energy sources, decisions made during Prime Minister Viktor Orbán's administration since 2010 have not only perpetuated but also deepened Hungary's reliance on Russian energy. These decisions encompass a series of renationalization efforts, long-standing contracts with Russian energy firms, and significant national projects like the Paks II nuclear power plant. Furthermore, the study contrasts Hungary's situation with Poland's strategic shift towards energy independence, highlighting the role of political determination in mitigating similar dependencies. Conclusively, the thesis posits that Hungary's energy dependency is not merely a result of geographical constraints but is significantly shaped by deliberate political choices made over decades. This bachelor's thesis provides detailed insights into the interplay of historical legacies and contemporary political decisions in shaping national energy policies, with recommendations for future research directions including an examination of the impact of asymmetrical energy dependencies on national security and economic resilience within the broader European context.

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INTRODUCTION

Following Russia's large-scale invasion of Ukraine in February 2022 and the subsequent sanction packages proposed and implemented by the European Union, Hungary's energy dependency on Russia quickly became a subject of criticism. This dependency, deeply rooted in various historical, political, and economic factors, created yet another debate within the EU at a time when collective pushback against Vladimir Putin's aggression was necessary. Hungary's energy relationship with Russia has a long history dating back to the Cold War era, during which Warsaw Pact countries in Eastern Europe were made reliant on Soviet energy supplies as the Soviet leadership wanted to provide economic assistance to its allies but also exert another layer of economic and political influence. In Hungary's case, this reliance continued well into the post-Soviet times during the 1990s and persisted during its integration into the EU. Prime Minister Viktor Orbán, who began his second term in office in 2010, has since made strategic choices that only reinforced this dependency, despite the broader EU efforts to diversify and invest heavily in renewable energy production. Examples of this are not limited to oil and natural gas but are evident in cases such as the construction of the Paks II nuclear power plant, financed by a Russian loan and designed by Rosatom, providing Moscow with even greater political leverage. (Ámon and Deák, 2015, p. 91)

In this thesis, I propose the following hypothesis: Hungary's long-standing dependency on Russian fossil fuels is not merely a result of geographic factors, being a landlocked country with limited natural resources, but a result of decades-long political deliberation that was only strengthened by the strategic decisions of Viktor Orbán's regime since 2010. This bachelor's thesis aims to explore and verify the hypothesis by examining Hungary's energy policies,

economic considerations, and geopolitical strategies, as well as a brief comparison with Poland's markedly different economic strategy to wean off Russian fossil fuels. This is crucial since in the past couple of years Poland, alongside Hungary, has had issues with the European Council regarding the Rule of Law and democratic backsliding, resulting in the pair being labeled as "hybrid regimes". (Bozóki and Hegedűs, 2018, p. 1174) The thesis aims to provide the reader with convincing evidence for the hypothesis through a qualitative analysis of primary and secondary sources, including reports published by the Hungarian government agencies, academic papers, and expert reports, with the thesis being structured into several key sections. The Literature Review is divided into four subsections: Historic Context, The Orbán Regime's Energy Policy (2010-present), Current Energy Infrastructure, and Impact of EU Sanctions. Through these subsections, the goal is to provide a comprehensive understanding of Hungary's historical energy dependency on Russia, with notable events such as the Cold War era, the 2009 gas crisis, Hungary's integration into the EU, and the Orbán regime's policies that have strengthened said phenomenon. Each of these subsections builds on the hypothesis by demonstrating how political choices and strategic decisions have perpetuated Hungary's reliance on a sole energy supplier. Following the Literature Review section, the thesis examines the current Geopolitical Implications of such a heavy energy reliance within the EU and NATO, followed by possible ways to mitigate the sustained dependency by domestic solutions under Alternative Energy Sources. The final section examines the case of Poland, a former Warsaw Pact member with historically heavy reliance on Russian energy, but one which has made serious efforts to decouple from the Soviet-built pipeline system and limit its energy exposure to Russia. The evaluation of Poland's proactive measures to reduce dependency on Russian energy, such as its strategic investments in liquefied natural gas (LNG) infrastructure, diversification of energy imports, and alignment with EU energy policies, ideally should serve as a counterpoint to Hungary's continued reliance. Notably, this comparison underscores the

role of political will and strategic decision-making in achieving energy independence. Finally, the thesis ends with a Conclusion that combines the key findings, reaffirms the hypothesis, and suggests areas for further research. As for the thesis itself, it aims to contribute to a deeper understanding of the complexities of energy security in Central and Eastern Europe and the interplay between domestic policies and international dynamics.

LITERATURE REVIEW

Historic Context

Hungary's energy dependency on Russia has deep historical roots that span several decades, characterized primarily by significant reliance on Russian natural gas, oil, and nuclear fuel. During the Cold War, Hungary, as part of the Eastern Bloc and as a Warsaw Pact member, was heavily influenced by economic and political strategies dictated directly by Moscow. In the 1950s, the Soviet leadership's attention turned to the creation of an interdependent supply network within its sphere of influence that included establishing energy dependencies to ensure political and economic control – this decision, made far away from Budapest, should explain why Hungary's energy infrastructure was developed in a manner that facilitates this dependency, with significant investments in East-West flowing pipelines and other energy transport systems that linked Hungary directly to Soviet resources. According to Isaacs and Molnár, before the Russian invasion of Ukraine, Hungary imported roughly 75% of its natural gas and 85% of its oil demand, with over 80% of its gas imports originating from Russia and the remaining coming from Turkmenistan and other post-Soviet countries. (Isaacs and Molnár, 2016, p. 112) This dependency was beneficial during the Cold War when residential consumption accounted for approximately 35% of total gas demand, making affordable and reliable energy supply a critical issue, especially during the winter months. (Isaacs and Molnár, 2016, p. 113) The strategic positioning of pipelines, such as the Brotherhood pipeline traversing through Ukraine, reinforced this dependency by ensuring a steady flow of energy from the Soviet Union to Hungary, Czechoslovakia, and East Germany. However, the geopolitical implications of this dependency were profound. Hungary's reliance on Soviet energy supplies created a highly asymmetrical politically and economically interdependent relationship that wasn’t simply a matter of energy security but also an important tool in the Soviet Union’s

arsenal to exert influence over Hungarian domestic and foreign policies. The integration of Hungary into the Soviet energy system meant that any disruption in the supply from the Soviet Union would have immediate and severe consequences for Hungary's economy and political stability. In the early 1990s, the collapse of the Soviet Union marked a significant turning point for Hungary. The dissolution of the Eastern Bloc and the transition to a market economy required Hungary to re-evaluate its energy policies and infrastructure, yet (despite the political and economic shift) Hungary's dependency on Russian energy persisted due to the existing infrastructure and long-term contracts that had been agreed during the Cold War era. Throughout Hungary's transition from a centrally planned economy to a market economy there was a clear push for privatization and liberalization of the energy sector, which was part of a broader strategy to integrate Hungary into the global economy and reduce its dependency on Russia. As Hungary enacted free market economic reforms and foreign investment poured in, many state-owned energy enterprises ended up in the hands of Western companies that had only recently entered the Hungarian market. Despite these changes "consecutive governments have focused on diversifying the routes rather than the sources of gas supply to Hungary. This has been a political decision with consideration of price above all and driven by the belief that Russia is a reliable economic and political partner.". (Jóźwiak and Zaniewicz, 2022, p. 1) Additionally, the strategic location of Hungary in Central Europe made it a valuable transit country towards the West, which only reinforced Hungarian commitment to the status quo as it could benefit economically from transit fees moving through its borders.

Hungary's 2004 accession into the European Union introduced a fresh start to its energy policy, as the EU's Energy Charter Treaty (ECT) and the Third Energy Package (TEP) aimed to promote energy security through market liberalization, privatization, and the creation of a unified European energy market. These policies were designed to reduce the dependency of

member states on external energy sources, particularly from Russia, and to ensure the free flow of energy across national borders. Again, despite these efforts, Hungary's energy policies frequently conflicted with EU directives, as the Hungarian government's decisions often reflected a rather pragmatic approach to energy security, prioritizing reliable and affordable energy supplies over complete alignment with EU policies. For instance, Hungary's insistence on proceeding with the South Stream project, which would have allowed Gazprom to control both the generation and transmission of natural gas, was seen as a direct challenge to the EU's energy policies. Additionally, the deal between Viktor Orbán and Vladimir Putin in 2014, which saw Rosatom awarded the contract to construct two new reactors at the Paks nuclear power plant without a competitive tender, further strained Hungary's relationship with the EU. Attempts to scrutinize and regulate energy deals between member states and non-member states, such as the intervention by the Euroatom Agency to impose financial and technical requirements on the Paks project, were perceived by the Hungarian government as infringements on national sovereignty, highlighting internal tensions and the challenges Hungary faced in balancing its historical energy ties with Russia and its commitments as an EU member state. (Isaacs and Molnár, 2016, p. 120) One of the most significant events that underscored Hungary's energy vulnerability was the 2009 gas crisis, triggered by a dispute between Russia and Ukraine over gas prices and debts, which ultimately led to Gazprom cutting off gas supplies to Ukraine in January 2009. (Pirani et al, 2009) Since a significant portion of Europe's gas supply, including Hungary's, transited through Ukraine, the disruption had immediate and severe impacts leading to shortages and increased domestic prices, further exacerbating energy poverty. The crisis exposed the risks associated with Hungary's heavy reliance on a single supplier and transit route for its natural gas needs, leading to the Hungarian government taking steps in response – these included investments in exploring alternative supply routes and sources along with increasing its gas storage capacity, as Hungary's strategic

storage facilities (which could already cover several months of domestic consumption) were expanded to buffer against future supply disruptions. Additionally, Hungary sought to enhance its interconnectivity with neighboring countries to diversify its energy supply routes and mitigate its vulnerability to transit disruptions. There was also an increase in domestic energy production, investment in renewable energy sources, and the exploration of new supply routes from Azerbaijan and Croatia's LNG terminals. (Isaacs and Molnár, 2016) Despite these efforts, significant challenges remained. The existing infrastructure, long-term contracts with Russian suppliers, and the economic benefits of being a transit country continued to tie Hungary to Russian energy, although the 2009 crisis did catalyze renewed efforts to enhance energy security. As discussed in this section, the historical context of Hungary's energy dependency on Russia is marked by a series of geopolitical, economic, and policy-driven developments. From the Cold War era's establishment of dependency through Soviet influence to the challenges of post-Cold War transitions and EU integration, Hungary's energy landscape has been predominantly shaped by its reliance on Russian energy, despite major events such as the 2009 gas crisis highlighting the vulnerabilities inherent to this approach.

The Orbán Regime's Energy Policy (2010-present)

Since Viktor Orbán's return to power in 2010, his government has pursued an aggressive and often controversial energy policy. The following section examines the strategic decisions and political deliberations made by the Orbán regime since 2010 concerning Hungary's energy sector, focusing on renationalization efforts, long-term agreements with Russia, the Paks II nuclear project, and domestic energy policies – en masse, these decisions reveal the complex interplay between domestic political objectives and Hungary's maintained dependency on Russian energy.

One of the key strategies of the Orbán administration has been the renationalization of the energy sector. Following Orbán's landslide election victory in 2010, his government embarked on a campaign to reverse the trend of foreign ownership and increase state control over critical energy infrastructure. This move, known as "rezsiharc" or utility war, was aimed at reducing energy prices for Hungarian households and gaining political support by suppressing the influence of foreign energy conglomerates. (Szabo and Fabok, 2020) The Hungarian government initiated the purchase of significant stakes in major energy companies, including the acquisition of stock in MOL (the second largest company listed on the Hungarian stock exchange) and control over electricity and natural gas distribution systems through the National Public Utilities (Nemzeti Közművek). These actions were facilitated by the state's use of political and regulatory tools to suppress asset prices or by pressuring foreign firms into selling their shares (Szabo and Fabok, 2020). According to Ámon and Deák, this policy led to a wave of nationalization efforts that saw major international companies like E.ON, GDF, and RWE exit the Hungarian market, with their positions being taken over by state-owned entities like MVM (Magyar Villamos Művek) and the National Public Utility Company. The renationalization efforts allowed the government to cap or reduce end-user utility bills, which, although popular among the electorate, created significant financial tensions within the gas sector, while the EU regulations limiting subsidies further complicated the sustainability of these populist policies. Without concessions from Russian suppliers like Gazprom, which provided significant price reductions and adjusted contract terms, Hungary's utility rate cut policy would have been unsustainable even in the medium term. Apart from the renationalization efforts, the Orbán regime has consistently sought to maintain and strengthen Hungary's energy ties with Russia, a strategy that is evident in the long-term agreements signed with Russian energy giants and the reinforced dependency on Russian suppliers. A notable

example is the extension of Hungary's gas supply contract with Gazprom, negotiated by Viktor Orbán himself, which included favorable terms for Hungary. (Ámon and Deák, 2015) Furthermore, the Paks II nuclear power plant project, a cornerstone of Orbán's energy policy and a major contributor to Hungary's energy mix, is heavily reliant on Russian technology and financing. The deal, signed with Rosatom in 2014, aims to expand Hungary's nuclear capacity by adding two new reactors to the Paks nuclear power plant. (Szabo and Fabok, 2020) Unsurprisingly, there has been serious controversy surrounding this agreement due to its lack of transparency and the bypassing of competitive tender processes, raising concerns about corruption and excessive Russian influence over Hungary's energy sector, while at the same time providing an example of the Orbán government's preference for large-scale, centralized energy projects that can be controlled by the state. (Antal, 2019) All things considered, the new power plant is portrayed as a viable path to ensure Hungary's long-term energy security and reduce reliance on renewable energy sources, even though it binds Hungary more closely to Russia both economically and politically. (Szabo and Fabok, 2020)

On the one hand, the Orbán government's implementation of specific policies aimed at reducing energy costs for consumers and increasing state control over the energy market was popular among voters, even if the price cuts created market distortions. These were particularly problematic through cross-subsidization between the household and industrial sectors, as the artificially low prices for households led to increased costs for industrial users, negatively impacting Hungary's competitiveness and requiring ongoing state subsidies to maintain low prices. (Ámon & Deák, 2015) On the other hand, the Orbán government's approach to renewable energy has been less supportive. Despite Hungary's potential for wind, solar, and biomass energy, the Hungarian government has consistently favored nuclear power and large-scale projects over decentralized renewable energy solutions. For instance, a wind tender in

2010 was abruptly canceled, and no new tenders have been issued since, effectively capping the growth of wind energy in Hungary. Similarly, the development of solar energy has been slow and plagued by regulatory uncertainty, despite high guaranteed prices for solar-generated electricity. Meanwhile, the focus on nuclear power was reinforced by the government's commitment to the Paks II project, which has been prioritized over renewable energy initiatives using the government's narrative that emphasized the reliability and long-term benefits of nuclear power, while downplaying the potential of renewable energy sources to meet Hungary's energy needs. (Antal, 2019) As presented in this section, the energy policies of the Orbán regime since 2010 reflect a complex blend of domestic political objectives, economic considerations, and geopolitical strategy. The aggressive renationalization of the energy sector, long-term agreements with Russia, prioritization of nuclear power through the Paks II project, and the mixed approach to renewable energy development illustrate the unorthodox nature of Hungary's energy policy and the lack of political deliberation to decouple from a sole energy supplier.

Current Energy Infrastructure

Hungary's current energy infrastructure is therefore heavily reliant on fossil fuels, particularly natural gas and crude oil, with a significant portion of these imports originating from Russia, resulting in serious implications for Hungary's energy security and geopolitical stance. (Csernus, 2023, p. 3) Natural gas dominates Hungary's energy mix, accounting for approximately 34.3% of primary energy consumption as of 2021, with the natural gas infrastructure relying on several key pipelines and interconnections – notably the TurkStream and Balkan Stream pipelines, which facilitate direct transportation of gas from Russia to Hungary, bypassing Ukraine and reinforcing Hungary’s dependence on Russian energy. (Leof,

2023, p. 22) To mitigate energy concerns, Hungary did develop interconnections with neighboring countries, including Austria, Romania, and Serbia, which have been upgraded to allow bidirectional flow, enhancing supply security amidst regional tensions. (MEKH, 2023, p. 11) Despite the ongoing war in Ukraine and the energy crisis leading Hungary to seek diversification of its natural gas sources, the country's reliance on Russian gas remains deeply entrenched, with alternative sources such as the Krk LNG terminal in Croatia facing logistical and financial challenges that limit their immediate impact. (Leof, 2023, p. 24) Crude oil likewise continues to be a significant component of Hungary's energy consumption, representing 29.3% of the primary energy mix in 2021, with a similar historical reliance on Russia providing 64% of Hungary's crude oil imports in 2020. (Csernus, 2023; Leof, 2023) Hungary imports crude oil primarily through the Adria pipeline from Croatia, which has a capacity of 14 million tons per year, sufficient to meet domestic demand if fully utilized. However, following the start of the war in Ukraine and the subsequent EU sanctions gradually banning the refinement of Russian crude oil, significant investments are required to upgrade Hungarian refineries to process non-Russian crude oil. (Leof, 2023, p. 26) As discussed in the previous section, nuclear energy likewise plays an important role in Hungary's electricity generation, with the Paks Nuclear Power Plant contributing approximately 44% of the country's electricity in 2021 – however, the existing units at Paks are scheduled for decommissioning between 2032 and 2037, necessitating the development of new capacity to maintain energy security. (Csernus, 2023, p. 3) Consequently, the construction of the Paks II Nuclear Power Plant, agreed upon with Russia's Rosatom in 2014, aims to address this future gap through the building of two new units with a combined capacity of 2.4 GW. Financed primarily by Russian loans covering 80% of the cost, in combination with the ongoing geopolitical uncertainties and potential construction delays, there are significant risks regarding the project, especially given

Hungary's reliance on Russian technology and nuclear fuel. (Leof, 2023, p. 23; Csernus, 2023, p. 3)

Despite some progress in renewable energy development, particularly in solar photovoltaic (PV) systems, their overall impact on Hungary's energy mix remains limited. By 2022, the installed capacity of solar PV reached 4,000 MW, a stark increase from 160 MW in 2015, yet this growth is overshadowed by the dominance of fossil fuels in the energy landscape. (Csernus, 2023, p. 5) The integration of renewable energy into the national grid faces significant challenges as well due to inadequate infrastructure and regulatory barriers, for instance in November 2022 the government temporarily suspended new grid connections for solar installations, citing grid capacity issues, which led to uncertainty and disrupted market dynamics. (Csernus, 2023, p. 5) Wind energy remains severely underutilized due to restrictive legislation that limits the construction of new wind turbines near inhabited areas, although there have been recent governmental announcements to revisit these restrictions. (Csernus, 2023, p. 9) Additionally, Hungary's renewable energy strategy includes exploring geothermal energy for district heating, showcased in the recent inauguration of the EU's largest geothermal heating system in Szeged, which provides clean energy to over 28,000 households, but it still represents a relatively small contribution compared to the country's overall energy consumption. (MEKH, 2023, p. 12) Above all, Hungary remains dependent on electricity imports to meet its consumption needs, with net imports accounting for 25.4% of total consumption in 2022. (MEKH, 2023, p. 12) To enhance energy security and support the integration of renewable energy, the Hungarian government plans to build energy storage facilities with a total capacity of around 500-600 MW by 2026, potentially increasing to 1 GW by 2030, alongside investments in conventional natural gas-based technologies to ensure a continuous and reliable energy supply during the transition to renewable energy. These plans, although amounting to

serious investments, only emphasize the continued reliance on fossil fuels and the slow pace of transitioning to renewable sources. (MEKH, 2023, p. 14)

Impact of EU Sanctions

The EU's sanction packages on Russia following its invasion of Ukraine in 2022 have had serious effects on Hungary, directly resulting from its dependency on Russian energy. As mentioned in previous sections, prior to the war Hungary imported over 90% of its oil and natural gas from Russia, making it highly susceptible to disruptions in the supply chain. (Csernus, 2023, p. 1) To mitigate the immediate impacts of the sanctions, Hungary sought and secured several exemptions (along with other landlocked countries such as Slovakia and Czechia) from the EU. Prime Minister Viktor Orbán successfully leveraged Hungary's veto power to block further sanctions on Russian oil in May 2022, a strategic move that allowed Hungary to continue importing Russian crude oil and oil products – a crucial step as the country's primary refinery at Százhalombatta is specifically configured to process Russian oil blends and modifying it to accommodate different oil types would take several years and necessitate significant investments. (Csernus, 2023, p. 8) Despite the sanctions, Hungary remained heavily involved in the Russian energy market. In January 2024 alone, Hungary imported $343 million worth of oil and gas from Russia, making it the largest EU purchaser of Russian energy. This didn't escape the attention of the Ukrainian government, which accused Hungary of indirectly financing Russia's war efforts. In response, Hungarian Foreign Minister Peter Szijjártó argued that "The security of Hungary's energy supply requires uninterrupted transportation of gas, oil and nuclear fuel. To meet these three conditions, Hungarian-Russian energy cooperation must be uninterrupted. It has nothing to do with political preferences.". (Ridgewell, 2024, p. 2) As the sanction packages were implemented, Hungary was forced to

take steps to diversify its energy imports by securing additional LNG supplies from Croatia and considering new import routes from the Romanian Neptun Deep and Azeri Shah Deniz 2 gas fields. (Csernus, 2023, p. 9) Nevertheless, these alternatives still necessitate significant investments in infrastructure and time to become operational, indicating that Hungary's dependency on Russian energy cannot be easily or quickly diminished.

The domestic economic impacts of the sanctions have likewise been substantial, resulting in the Hungarian government implementing a seven-point action plan to enhance energy resilience. This plan included boosting domestic lignite production, relaunching blocks of the Mátra lignite power plant, and accelerating the construction of the Paks 2 nuclear power plant. The latter is particularly noteworthy as it involves significant Russian participation, making Hungary's position in balancing EU sanctions with its energy needs even more difficult. (Csernus, 2023, p. 9) Furthermore, the Hungarian government introduced measures such as price caps on household energy consumption and petrol to mitigate the rising costs, which were initially intended to handle high energy prices, but over time increasingly strained the state budget as market prices continued to rise. By July 2022, the government had to impose a ceiling on the amount of energy that could be purchased at subsidized prices, pushing many households into financial difficulty. (Csernus, 2023, p. 7) In purely economic terms, the sanctions have significantly increased energy costs and disrupted business operations, with Hungarian energy companies now facing higher procurement costs due to the necessity of sourcing energy through longer and more expensive routes. (Mohos, 2023, p. 2) These disruptions have consequently led to higher operational costs and reduced competitiveness, particularly against American firms that benefit from lower energy prices and more supportive regulatory environments. The combination of high energy prices and the need to import energy over longer routes have placed additional financial burdens on key Hungarian industries that are particularly energy-intensive

(car manufacturing, EV, and battery production), with Zsolt Hernádi, CEO of the Mol Group, claiming that the increased energy costs and regulatory burdens have exacerbated the challenges facing European industries. He noted that "the long-term high-cost levels pose a serious competitiveness problem for the industry, especially compared to the United States". (Mohos, 2023, p. 3) In addition to direct economic impacts, the sanctions have also led to political and legal challenges within the EU, where Hungary has become a prominent player in the diplomatic and legal battles surrounding the sanctions, frequently lobbying for the removal of specific individuals and entities from the EU sanctions list, reflecting its strategic interests in maintaining certain economic ties with Russia. (Portfolio, 2024, p. 1)

Despite these internal divisions, the sanctions have also had some unintended positive effects in accelerating Hungary’s shift towards renewable energy sources, as the EU's REPowerEU plan (designed to reduce dependency on Russian fossil fuels and promote clean energy) led to an increase in renewable energy projects across Europe. Having said that, the Hungarian government's abrupt suspension of new solar energy installations in November 2022, citing grid capacity issues, has caused significant setbacks in this sector. (Simson, 2024, p. 3) Another positive effect of the sanctions was driving Hungary to seek closer energy ties with other regions. The diversification efforts towards LNG imports from Croatia and the exploration of new gas fields in Romania and Azerbaijan could indicate a shift in strategic thinking that would reshape Hungary's energy landscape in the long term, however, these efforts require significant investment and time to develop fully, leaving Hungary in a transitional phase where it must balance immediate energy needs with long-term sustainability goals. (Csernus, 2023, p. 9)

GEOPOLITICAL IMPLICATIONS

Hungary's continued reliance on Russian energy sources, even in the third year of Russia's large-scale invasion of Ukraine, has profound geopolitical implications that impact its domestic policies, its relations within the European Union, and its standing with NATO allies. The continued asymmetric dependence on Russian energy, amounting to approximately 75% of its natural gas and 85% of its oil imports, positions Hungary in a strategically vulnerable spot and allows Russia to maintain influence over Hungary, since it is evident that any disruption in Russian energy supplies can have a severe impact on Hungary's economic and domestic political dynamic. (Isaacs and Molnár, 2016, pp. 112-113; Deák et al., 2014, p. 68) Ever since 2010, the Orbán regime's energy policies have conflicted with broader EU objectives of reducing reliance on Russian energy and increasing energy diversification, made evident in the Hungarian government's unorthodox strategy of limiting the development of renewable energy through regulations, sponsoring centralized and costly expansions of existing natural gas and oil infrastructure (along with the expansion of the Paks nuclear power plant), renationalizing domestic energy suppliers under the umbrella of state enterprises, as well as questionable energy policies in return for momentary political gains. In the hopes of affordable and reliable energy supplies from Russia, the Orbán regime's economic and political decisions have led Hungary into a tough situation, one that has seriously impacted the country's economy and its prospects following the implementation of the EU's various sanction packages against Russia. This approach of prioritizing a sole energy supplier, regardless of it being the status quo for the past 60 years, meant that Hungary had unnecessarily alienated itself from the rest of the European community as it stood collectively against Russian aggression, which was only made worse by Hungary's efforts to gain exemption from EU sanctions and the Orbán administration's leveraged use of its veto power to block further sanctions. (Leof, 2023, p. 24) These actions

have clearly strained Hungary's relations with other EU member states, which view energy independence from Russia as crucial for regional security and political cohesion, while Hungary's continued cooperation with Russia undermines EU solidarity and complicates collective efforts to present a united front against Russian aggression. Leaving the EU aside, Hungary's reliance on Russian energy also affects its standing within NATO. As a NATO member, Hungary is expected to contribute to the alliance's collective security objectives, which include countering Russian influence in Europe, yet the country's need to maintain favorable relations with Russia for energy security reasons can be perceived as a potential weak link in the alliance, raising concerns about Hungary's reliability as a NATO partner. (Krickovic, 2015, p. 34) This situation is particularly problematic given the broader regional security context – Russia's aggressive actions in Ukraine and its attempts to exert influence over Central and Eastern Europe have understandably heightened security concerns among NATO members. As far as they are concerned, any disruption in Hungarian-Russian relations could lead to energy shortages, affecting Hungary's ability to meet its defense commitments and maintain internal stability. (Paillard, 2010, p. 92)

Economically, Hungary's reliance on Russian energy has both immediate and long-term implications. On the one hand, until 2022 Hungary benefited from relatively stable and affordable energy supplies, which supported its growing industrial base and domestic energy needs, while on the other hand, this dependency came at the cost of limited energy sovereignty and exposure to external shocks. Examples of this occurred well before the 2022 invasion of Ukraine with the 2009 gas crisis, triggered by a dispute between Russia and Ukraine, resulting in significant disruptions to Hungary's energy supply, emphasizing the risks of overreliance on a single supplier even then. (Casier, 2011, p. 17) In response to these vulnerabilities, Hungary has made some efforts to diversify its energy sources, including exploring alternative supply

routes, such as the Krk LNG terminal in Croatia and gas imports from Azerbaijan and Romania's Black Sea fields, however, these alternatives require continued investments in infrastructure and face logistical challenges, limiting their immediate effectiveness in reducing Hungary's dependency on Russian energy. (Solodkyy, 2019, p. 53) Furthermore, despite Hungary's heavy investments in solar energy production, the integration of renewable energy sources into the national grid has been slow and difficult, as fossil fuels continue to dominate the energy mix. (Szabo and Fabok, 2020, p. 19)

ALTERNATIVE ENERGY SOURCES

In large part due to the EU's sanctions on Russian fossil fuels and the Orbán regime's forced hand to look for alternative energy sources elsewhere, renewable energy production has been given a positive push in Hungary. As discussed previously, solar energy seems to have developed quite well, although still not to an extent that can meaningfully substitute Russian oil and natural gas, and there is still untapped potential in wind energy, biomass, and geothermal energy, as well as overall energy efficiency. The development of these alternative energy sources and solutions may not substitute Russian fossil fuels in the short and medium term, but it is possible that they can provide some buffer regarding geopolitical tensions and supply shortages in the long term. Notably, as an EU member, Hungary could receive funds from the EU to develop green technologies, reduce the country's heavy dependency on fossil fuels, and align with the European Union's climate neutrality goals by 2050.

Diving into the specifics, geothermal energy holds significant promise for Hungary due to its favorable geological conditions in the Pannonian Basin – in 2019 alone, over 900 active thermal water wells produced about 90 million cubic meters of thermal water, with significant projects in cities like Miskolc and Szeged, and a geothermal power plant in Tura with a capacity of 3 Mwe. (Toth, 2020, pp. 1-4) Despite these positive developments, the sector faces regulatory challenges and the need for comprehensive geothermal databases to develop further. Another alternative energy source is wind energy, which, despite its current underdevelopment, likewise holds substantial potential. Unfortunately, similarly to geothermal, legislative restrictions have limited the installation of new wind turbines, with a 12-kilometer distance requirement from inhabited settlements effectively curbing new developments. Recently there have been

government announcements indicating a potential easing of these restrictions that could stimulate growth in wind energy capacity along with the Hungarian government's plans to increase installed wind capacity from 330 MW to 1000 MW by 2030 – reflecting a broader commitment to diversify the renewable energy mix and enhance energy security. (MEKH, 2023, p. 14) Biomass and biogas-based energy production could also become important components of a renewable energy strategy, as they could be utilized for heat production, with ongoing efforts to integrate biogas into the existing natural gas grid. The potential for biogas and biomethane technologies is likewise promising, with projected production capacities of up to 1.7 billion cubic meters by 2040, ideally reducing Hungary's dependency on natural gas imports from Russia in accordance with the EU's long-term energy plans. (MEKH, 2023, p. 15) The above-mentioned three possible alternatives (geothermal, wind energy, biomass, and biogas) all pose legislative and technical challenges in their own right and their integration into Hungary's national grid requires political deliberation and significant investments in infrastructure, both of which are yet to be realized. Additionally, the deployment of smart grid technologies and demand-side management solutions will be essential for enhancing grid stability and accommodating the increasing share of renewables. (MEKH, 2023, p. 15) Notably, the so-called Energy Efficiency Obligation Scheme (EEOS) operated by the Hungarian Energy and Public Utility Regulatory Authority (MEKH) significantly contributes to national energy-saving targets by "incentivizing suppliers, commericeal companies and universal service providers engaged in the retail trade of gas, electricity and transport fuels to implement energy efficiecy measures that will lead to final energy savings. Regarding energy efficiency gains, the renovation of the residential building stock promises the biggest saving potential." (MEKH, 2023, p. 15)

THE CASE OF POLAND

Poland's successful transition away from Russian energy dependency provides a stark contrast to Hungary's ongoing reliance on it. Despite both countries sharing similar historical contexts as former Warsaw Pact and Eastern Bloc members, Poland has managed to secure its energy independence through a series of strategic initiatives and infrastructure investments. This success is particularly notable given Poland's previous dependence on Russian energy imports and its classification as a "hybrid regime" similar to Hungary – proving that with the necessary political deliberation the dependency on Russian energy can be broken, regardless of political stance. (Bozóki and Hegedűs, 2018, p. 1174) One of the key elements of Poland's energy strategy has been the diversification of its natural gas imports. Before the full-scale invasion of Ukraine, Poland's largest energy import partner was Russia, which supplied significant portions of its oil and natural gas. Interestingly, Poland had already been laying the groundwork for energy independence with the construction of the Świnoujście LNG terminal in 2016, a project which marked a significant step towards decoupling from Russian energy, allowing Poland to import LNG from various global suppliers and resulting in Poland's gas supply coming through its LNG ports rising from 8% in 2016 to 22% in 2022. (Harper, 2022, p. 3) This strategic investment ensured that when Gazprom halted gas supplies in April 2022 due to Poland's refusal to pay in Russian rubles, Poland still managed to fill its natural gas storage by the end of May, demonstrating the resilience of its diversified supply routes. (Harper, 2022, p. 4) In addition to expanding LNG capacity, Poland has also strengthened its pipeline infrastructure. The completion of the Baltic Pipe in September 2022, connecting Poland to Norwegian gas fields via Denmark, provided an annual capacity of 10 billion cubic meters, covering a significant portion of Poland's gas consumption. (Csernus, 2023, p. 9) This project, combined with other interconnectors with neighboring countries, has enabled Poland to support not only its own

energy needs but also those of its neighbors, further enhancing regional energy security. The country's approach to oil imports has likewise been proactive – prior to the war in Ukraine, oil imports from Russia were already declining, and the country moved quickly to eliminate the remaining dependency. By the time Russia ceased its oil exports to Poland via the Druzhba pipeline in February 2023, Poland had already secured alternative supplies from Saudi Arabia, Norway, the UK, the US, Kazakhstan, and Nigeria. (Csernus, 2023, p. 10) The expansion of storage and transshipment capacities in Gdańsk further bolstered Poland's ability to handle and distribute these imports efficiently, ensuring a stable supply even amidst geopolitical disruptions. (Csernus, 2023, p. 11)

Another crucial aspect of Poland's energy independence strategy is its investment in renewables and nuclear power, apparent in the significant increase in its use of renewable energy, growing from 9.5% of its total energy use in 2010 to 16% in 2020. (Isaacs and Molnár, 2016, p. 118) The country has also embarked on the construction of its first nuclear power plant in partnership with Westinghouse Electric Company (a US-based nuclear power company, as opposed to Hungary's choice of Rosatom), with the power plant expected to begin operations in 2032. This diversification into nuclear energy is intended to provide a stable, long-term energy source that is independent of fossil fuels. (May, 2023, p. 6) Poland's energy independence is also underscored by its robust legislative and regulatory framework, with the government implementing various policies to support energy diversification and security, including financial incentives for renewable energy projects and regulations to ensure the stability and reliability of energy supplies – measures that have been instrumental in attracting investment and fostering innovation in the Polish energy sector. (Casier, 2011, p. 541) Poland has also leveraged its geopolitical position to enhance its energy security by developing strong ties with the United States and other NATO allies and securing alternative energy sources to reduce its

vulnerability to Russian pressure. The above-mentioned initiatives reflect a comprehensive strategy that has allowed Poland to effectively eliminate its dependency on Russian energy by investing in diversified import capacities, enhancing infrastructure, and developing renewable and nuclear energy sources. As it stands now, Poland has not only secured its energy future but has also positioned itself as a crucial energy hub in Central and Eastern Europe. This strategic foresight and execution stand in direct contrast to Hungary's continued reliance on Russian energy, highlighting different paths taken by two nations with similar geopolitical histories. (Leof, 2023, p. 24) It must be recognized that although both Hungary and Poland are located in Central and Eastern Europe, the two countries have markedly different options for expansion. Hungary is a much smaller country with little to no natural resources, while it is well-known that Poland sits on a large coal deposit. What this section aims to demonstrate is a case of historic Russian energy dependency ended through political deliberation and long-term strategic thinking. Hungary, being a landlocked country, may not have the option of developing an LNG port, however, closer energy cooperation with its fellow EU members, such as Poland and Croatia, and investments in North-South rather than East-West flowing pipelines could ultimately limit its political and economic exposure to Russia, ultimately strengthening its position within the European community and ensuring its long-term energy security.

CONCLUSION

This bachelor's thesis examined Hungary's heavy reliance on Russian energy, with the central hypothesis stating that Hungary's sustained dependence on Russian fossil fuels is a direct result of historic events and strategic political and economic choices rather than unavoidable geographic constraints, which were particularly reinforced by Viktor Orbán's regime since 2010. The historical context section highlighted Hungary's deep-rooted energy dependence on Russia, tracing it back to the Cold War era when the Soviet leadership established a highly interdependent supply network within Eastern Europe, resulting in Hungary's energy infrastructure (built to facilitate dependency) remaining intact even after the fall of the Soviet Union. Since Viktor Orbán's return to power in 2010, his government has consistently pursued policies that further reinforced Hungary's dependence on Russian energy, with the renationalization of the energy sector, long-term agreements with Russian energy giants, and the controversial Paks II nuclear project as significant examples. These policies have primarily been driven by domestic political objectives, such as reducing energy prices for Hungarian households, which garnered political support in the short term but increased financial and geopolitical risks in the long term. Consequently, Hungary's present-day energy infrastructure remains heavily reliant on Russian fossil fuels, despite the diversification efforts made in both renewable energy and alternative sourcing of oil and natural gas. The European Union's sanctions on Russia following its invasion of Ukraine in 2022 significantly affected Hungary due to its high dependency on Russian energy imports, leading Hungary to utilize its veto power to secure exemptions from various sanctions, ultimately straining Hungary's relations with other EU member states and NATO allies. The exploration of alternative energy sources domestically, including solar, wind, biomass, and geothermal energy, shows potential for reducing dependency on fossil fuels, however, legislative and regulatory challenges, inadequate

infrastructure, and slow integration into the national grid have hindered significant progress. The thesis also provided the case of Poland as a positive example of long-term political deliberation in the name of energy sovereignty, with Poland's current situation being markedly different from that of Hungary despite starting from a similar position in the early 1990s.

In conclusion, this thesis has demonstrated that Hungary's dependency on Russian fossil fuels is a result of long-standing political decisions and strategic choices. While geographic factors do play a role, the sustained reliance on Russian energy is rooted more deeply in subsequent Hungarian governments' strategic economic and political decisions. Breaking off this energy dependency requires a multifaceted approach, including political will, strategic investments in alternative energy sources, and regional cooperation within the EU. Building on this thesis, future research could investigate the long-term impacts of asymmetrical economic dependencies akin to that of Russia and Eastern Europe and its effects on national security, political stability, and economic resilience, as well as the effectiveness of EU energy policies and the role of regional cooperation in enhancing regional stability.

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