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Nuclear Path Dependency: The Construction of Nuclear Energy Legitimacy in Hungary Through Discourse across Political Regimes from the 1940s-2022

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Vienna, 22 September, 2025

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for the degree of Doctor of Philosophy and entitled: Nuclear Path Dependency: The Construction of Nuclear Energy Legitimacy in Hungary Through Discourse across Political Regimes from the 1940s-2022
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This dissertation offers lessons on how nuclear energy legitimacy was constructed and contested through political and public discourse in the history of Hungary from the 1940s until 2022 across different political regimes and how historical events and geopolitical dependencies shaped this legitimacy. The case of Hungary presents the ever-changing socially constructed nature of legitimacy and offers lessons on how past decisions can create legitimacy that constrain future political actions.

The different political regimes construct and contest nuclear energy legitimacy through discourse, framing it as a national priority, a symbol of progress, or an economic necessity, depending on the political regime and context. In Hungary's case, while historical decisions have strongly influenced the path of nuclear energy, individual political choices and events, such as the shift in political ideology after 2006, also shaped the country's nuclear energy discourse. This illustrates how initial decisions and alignments can set the stage for future political actions and reactions, creating a path-dependent process that shapes policy outcomes over time. The Communist and State Socialist Regimes' relationship with the Soviet Union determined Hungary's continued commitment to Russian nuclear technology. This historical trajectory created a path-dependent relationship that continued during the democratic and hybrid regimes. The decision to expand the Paks Nuclear Power Plant plant with Russian technology in the hybrid regime presents how Hungary's historical decisions influenced the country's present policies, even with the presence of political opposition discourse that contested the geopolitical influence of Russia.

Analyzing the nuclear energy discourse in Hungary through the frameworks of legitimacy, discourse, and path dependency, the dissertation provides insights into how political regime ideologies and historical events influence nuclear energy legitimacy and how discourse served as an essential tool in constructing and contesting this legitimacy over time.

Keywords: path dependency, nuclear energy, discourse, legitimacy, Russia

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1. Introduction

The war in Ukraine heightened concerns about the energy sector in Europe (Tollefson 2022), particularly regarding the dependence on Russian energy sources (Szulecki and Overland 2023). However, despite the evolving geopolitical tensions (Gherasim 2023), Hungary is continuously committed to nuclear energy use: 47% of the country's electricity production comes from nuclear energy ("Hungary Energy Overview" 2023). Hungary's historical commitment to nuclear energy and its ties to Russian nuclear energy technology provide insights into the geopolitical dependencies and challenges countries face in the Central-Eastern European region (Gherasim, 2023). Using Path Dependency Theory and Critical Discourse Analysis, this dissertation demonstrates how nuclear energy legitimacy was constructed and contested through discourse in the history of Hungary from the 1940s until 2022 across different political regimes and what role historical events and geopolitical dependencies played in forming this legitimacy. This research approach illustrates how nuclear energy legitimacy is not stagnant but repeatedly contested by historical events, power dynamics, and dialogue (Weber 1978). Discourse has an important role as a tool through which legitimacy is constructed (Fairclough 2010), therefore, in understanding the historical developments and legitimacy of nuclear energy in Hungary, mainly when analyzed in the context of path dependency and political regimes. Discourse is also an important factor in framing nuclear energy in the country, shaped by the trajectory of past decisions and political ideologies (Pierson 2000; David 2007; Garud, Kumaraswamy, and Karnøe 2010). Hungary has gone through significant political changes in the twentieth century (Körösényi 1999; 2015; Mevius 2005; Bozóki 2011; Kornai 2015; Fabry 2023), which makes its case unique to analyze as each political regime brought different discourses and ideologies which formed the legitimacy of nuclear energy.

According to Lijphart (1971) single case studies allow for a focused analysis of a political entity and reveal details otherwise missed in broader comparative studies. Analyzing a single case over time allows to track better continuity and change in political systems (Lijphart 1971). Single case studies can also help understanding political change and development as they provide the contextual specificity to understand how particular political systems develop (Nissen 1998). Presenting the case of Hungary is also important, as single-country studies often overrepresent certain regions, particularly English and Spanish-speaking regions (Pepinsky 2019).

The case of Hungary offers lessons that researchers can apply in other cases and policy contexts. For example, CEE countries like Slovakia and Bulgaria are facing geopolitical challenges similar to Hungary's nuclear energy strategies; they are currently exploring Russian nuclear energy technology to expand their nuclear energy capacities (Schneider, Froggatt, and Hazemann 2025). Considering the long-term implications of policy decisions (e.g., environmental assessment), discourse and history's role in avoiding path-dependent lock-ins can also be a valuable lesson for researchers.

2. Theoretical Framework

The development of nuclear energy in Hungary serves as a case study for understanding how historical events and political ideologies impacted the construction of nuclear energy legitimacy through discourse in Hungary. Path Dependency Theory provides a perspective for analyzing the factors influencing the discourse. Critical Discourse Analysis and the regime lens serve as analytical tools to present the influence of different political regimes on the discourse that constructed the legitimacy of nuclear energy over time. This chapter presents the theoretical framework of how legitimacy is rooted in social construction (Weber 1978) and shaped by discourse, which serves as a tool that constructs legitimacy (Pettit 2012). The main theory used in the theoretical framework, path dependency theory, suggests that historical events and decisions play a role in shaping the trajectory of political systems, often leading them down paths that are hard to change over time, which can extend to past discourses on nuclear energy, as in the case of this research (Pierson 2000; David 2007; Garud, Kumaraswamy, and Karnøe 2010).

2.1. Legitimacy as a Social Construction

The contemporary discussion of legitimacy is rooted in social construction and originated from Max Weber (1978). According to Weber (1978), a legitimate political regime means citizens believe or have faith in it. Weber (1978)claimed that people believe in a political system that rules for a long time because they trust the ruler or its legality. This concept shows that legitimacy is not stagnant but repeatedly constructed by social and political processes (Weber 1978).

Legitimacy is important in ensuring social order and consent (Lasswell 1936). Power without legitimacy can lead to social breakdown, as coercive measures alone cannot sustain authority (Lasswell 1936).

In contrast, a legitimate government encourages a cooperative relationship with its citizens, which is necessary for maintaining social order (Lasswell 1936). Legitimacy is essential for political stability as well (Rawls 1999). A well-organized society is one where institutions are perceived as legitimate by their members, which results in social cooperation and stability (Rawls 1999). In crisis times, the legitimacy of a government can significantly impact its ability to maintain order (Easton 1965), and governance effectiveness is closely tied to legitimacy (Beetham 1991). Legitimately perceived governments are more capable of implementing policies and reforms since citizens are more likely to support and engage with those initiatives (Beetham 1991). Legitimacy, according to Laswell (1936) and Rawls (1999), can be reframed as different social and political factors influencing it; hence, what is considered legitimate can change over time (Lasswell 1936; Rawls 1999). But for example, Philip Pettit (2012) disagrees with the traditional consent-based theories of legitimacy and suggests that legitimacy should include a broader view of control and popular participation since, for example, in times of crisis, governments may exercise authoritarian measures that can further undermine their legitimacy (Pettit 2012). Pettit's (2012) critique highlights how the original legitimacy theories underestimated the role of public participation and a broader view of control, while these processes (such as discourse) have a significant role in shaping legitimacy.

Legitimacy is also important for energy policymaking. The political legitimacy of energy policies is essential for developing and maintaining public-and political support, especially for the long-term (Verma 2022; Jacobs 2017).

Legitimacy can increase the strength of policy implementations, as stakeholders are more likely to get involved in the execution when they view the policies as legitimate (Verma 2022; Jacobs 2017). A legitimate policy framework can also efficiently moderate the stakeholders' different interests in the energy industry field, which is important for leveling economic, environmental, and social interests (Ryghaug, Skjølsvold, and Naess 2023). These concepts (Verma 2022; Jacobs 2017; Ryghaug, Skjølsvold, and Naess 2023) again show how legitimacy is socially constructed, primarily through discourse, and several political, economic, etc., factors contest and reframe it over time. Politicians construct legitimacy through their policies and decision-making, then discuss them with the public through media, parliamentary speeches, or other public forums, which serve as a tool through which the legitimacy of the political regime is contested and constructed (Verma 2022; Jacobs 2017; Ryghaug, Skjølsvold, and Naess 2023).

2.2. The Construction of Nuclear Energy Legitimacy

Eastern European authoritarian regimes served as domestic and international structures and established legitimized institutions at both levels (O'neil 1999). This era was beneficial for the political actors and elites and for advancing nuclear energy (O'neil 1999). Nuclear energy was framed and perceived similarly to electricity in the 1920s (O'neil 1999), being portrayed as a symbol of national strength, socialist internationalism, and a sign of revolutionary progress (O'neil 1999). These regimes used their political and ideological power to legitimize nuclear energy and constructed this legitimacy through state-driven discourse (O'neil 1999).

Sovacool and Valentine (2010) identify factors that are critical for the development of nuclear energy, including strong state involvement in economic development, centralized national energy planning, efforts to associate technological advancement with national rejuvenation, the influence of technocratic ideologies on policy-making, the suppression of opposition to political authority, and minimal civic activism. These factors framed through political discourse construct nuclear energy legitimacy and shape it by several influences, such as centralized planning or technocratic ideologies; therefore, political legitimacy is fundamental to developing nuclear energy (Sovacool and Valentine 2010).

More recent literature also suggests that political regimes can significantly influence shifts in nuclear energy strategies (Bosman et al. 2014). Political regimes play a role in designing and regulating nuclear energy and sustaining or enhancing its development (Barben 2007). The influence of political elites on decision-making processes is also a key factor in developing nuclear energy (Barben 2007). Various social, political, and economic conditions shape a global nuclear renaissance (Sovacool and Valentine 2010). Countries meeting many of these conditions pursue nuclear energy, considering each nation's unique circumstances (Sovacool and Valentine 2010). Adopting nuclear energy involves more than just technological transfer; it requires shaping societies with the appropriate norms, values, political systems, and economic conditions that support centralized planning, technocratic development strategies, and suppressing opposition (Sovacool and Valentine 2010).

The discussion above shows that actions and decisions taken by political regimes have a significant impact on nuclear energy. Analyzing the discourse of these processes that shaped nuclear energy legitimacy gives an insight into how nuclear energy legitimacy was constructed and contested in the history of Hungary through discourse.

This section shows that legitimacy is not stagnant but constructed through social forces, essentially through discourse (Weber 1978). Political regimes establish legitimacy through their narratives (policies, ideologies, etc.) (Verma 2022; Jacobs 2017; Ryghaug, Skjølsvold, and Naess 2023). Whether in political speeches, media representations, or public debates, discourse can be the primary tool through which legitimacy is constructed and contested.

2.3. An Overview of Path Dependency Theory

Path Dependency Theory is a framework for understanding the evolution of social, economic, and political systems (David 2007; Pierson 2000). Path dependency suggests that historical events and decisions shape the trajectory of these systems, often leading them down paths that are hard to change over time (Pierson 2000; David 2007; Garud, Kumaraswamy, and Karnøe 2010). Path Dependency Theory illustrates how past actions and choices lay the foundation for circumstances and prospects and the impact of historical legacies on the present and the future (Bennett and Elman 2006). Path Dependency Theory also reveals how factors, effects, and feedback mechanisms contribute to maintaining existing conditions (David 2007; Pierson 2000). Path Dependency Theory questions assumptions about how political outcomes can be foreseen and managed efficiently by promoting the idea of looking at politics through a time-based lens (Pierson 2000). It suggests that policymakers must consider contexts to avoid repeating mistakes or injustices and make informed decisions (David 2007).

Path dependency is a significant factor in shaping energy security in the European energy market context, mainly because of the historical dependence on Russian energy sources (LaBelle 2024). Overcoming path dependency is essential for a more independent and secure energy future (LaBelle 2024).

While Path Dependency Theory has made contributions, it also has limitations (Kay 2005). It can simplify history by focusing too much on predetermined outcomes and not enough on individual choices, random events, and the potential for change (Kay 2005).

The following analytical framework chapter reflects on the theoretical limitations and includes different approaches to deepen the understanding of the nuclear energy discourse in Hungary.

3. Methodology

3.1. Analytical Framework

The use of Path Dependency Theory offers a lesson on how nuclear energy legitimacy is cultivated and contested through discourse in Hungary throughout different political regimes, as it highlights how historical decisions and discourse play a role in shaping the trajectories of future choices (Pierson 2000; David 2007; Garud, Kumaraswamy, and Karnøe 2010). Critical Discourse Analysis (CDA) (Fairclough 2010) is important in understanding Hungary's historical developments and support of nuclear energy, especially in path dependency and political regimes. Combining it with an analytical tool like Critical Discourse Analysis (CDA) (Fairclough 2010) is important to effectively apply Path Dependency Theory and avoid its previously discussed limitations (Kay 2005).

Framework	Research Question	Key Focus Areas
Path Dependency Theory	How do past decisions shape future choices?	Key Events
		Lock-In Effect
		Trajectory of Choices
Critical Discourse Analysis	How do language and power shape discourse, and how that constructs legitimacy?	Textual Analysis
		Interdiscursive Analysis
		Contextual Analysis
Regime Lens	How do political regimes influence the legitimacy and discourse of nuclear energy?	Political Regimes Differences
		Discourse shifts

Figure 1. Theoretical Framework of the Dissertation (including Path Dependency, CDA, and Regime Lens)

As seen in Figure 1, Path Dependency Theory identifies the key historical events that had an impact on the nuclear energy discourse while also helping to determine how past political decisions influence and contest future changes (Pierson 2000; David 2007; Garud, Kumaraswamy, and Karnøe 2010). With path dependency theory, the analysis can also include how the historical decisions influence current nuclear energy discourse and construct nuclear energy legitimacy (Pierson 2000; David 2007; Garud, Kumaraswamy, and Karnøe 2010). CDA provides an understanding of how power and language frame discourses (Fairclough 2010) over the history of Hungary and how these discourses construct legitimacy throughout the different political regimes. Implementing the regime lens demonstrates how the different political regimes shape the nuclear energy discourse over time. The regime lens is applied to track the changes in nuclear energy legitimacy and show whether they were cultivated or contested by the political powers, as well as to compare the shifts due to the changes in the political regime type.

Understanding Critical Discourse Analysis (CDA) as an Analytical Tool

Critical Discourse Analysis (CDA) is an analytical tool that presents the relationship between discourse and power (Fairclough 2010) and how that impacts the legitimization of nuclear energy. It also helps to demonstrate how certain nuclear energy discourses evolved over the historical period and how they have been used to contest or cultivate the legitimacy of nuclear energy. Critical Discourse Analysis (CDA) is an interdisciplinary approach that analyses the relationship between power, language, and society and discovers how social and power structures and ideologies shape and are shaped by discourse (Fairclough 2010). Discourse is a practice that constitutes social reality, and language is influenced by and exists within social context and power dynamics (Fairclough 2010).

The role of topics in discourse is also important, as they serve as a framework to understand discourse and describe them as global meanings that are implied rather than directly observable (Wodak and Meyer 2001).

Discourse analysis started emerging in the 1970s (Fairclough 2003) in linguistics to understand how language serves beyond sentences and focus on its meaning in communication (Fairclough 2003). The traditional linguistics approaches concentrate on grammar and syntax-discourse analysis, which focuses on analyzing the text (written and spoken) in context (Fairclough 2003). Scholars like Michel Foucault (1972) introduced social theories into discourse analysis, focusing on social context and power relations (Foucault 1972). Foucault (1972) viewed discourse as a system of knowledge and power that links language and social practices. Foucault's (1972) research on how discourse shapes knowledge and power relations was essential to Fairclough's understanding of language (Fairclough 2003). But Fairclough (2003) was also inspired by Mikhail Bakhtin's work (1981) on dialogism and the variety of voices in texts, as he included these ideas to study how texts are interconnected and how discourse interacts in the texts. Ludwig Wittgenstein's (1953) work also impacted Fairclough, especially his views on language as a social practice. Fairclough (2003) emphasizes that language represents reality and is part of a social action. Jürgen Habermas's (2003) theories on the public sphere and communicative rationality affected the CDA concept, too, as they gave the idea of how discourse can promote or prevent understanding and democratic dialogue (Fairclough 2013). Systemic functional linguistics also impacted Fairclough's (2003) work by providing tools to analyze text linguistically and connect it with broader social issues.

Fairclough's (2013) CDA is a theory and methodology for analyzing discourse as a component of political, economic, and social contexts. While CDA is rooted in normative critique, it also provides insights into social phenomena and focuses on identifying structural causes of social issues (Fairclough 2013). In 2013, Fairclough (2013) introduced a version of CDA that integrated argumentation analysis to understand better how solutions and problems are constructed in the policy discourse, contributing to a more practical engagement in policy analysis.

Fairclough's (1992) CDA approach consists of a three-dimensional framework to analyze discourse: textual, interdiscursive, and contextual. Textual analysis (written, spoken, multimodal) focuses on linguistic features, meaning, and structure and presents how texts reveal social meanings and power relations (Fairclough 1992). Interdiscursive analysis explores how different discourses and styles are interrelated in a text (Fairclough 1992). According to Fairclough (1992), texts use and articulate multiple discourses that can reflect broader social and ideological structures. Contextual analysis examines the wider historical and sociocultural contexts in which texts are produced (Fairclough 2003). This dimension of CDA shows how language shapes and is shaped by social and power relations (Fairclough 1992).

Path Dependency Theory and CDA: a Combined Analytical Approach

The combination of Path Dependency Theory and Fairclough's CDA presents how past nuclear energy discourses influence the development of nuclear energy legitimacy and the continuity and change in the nuclear energy legitimacy in Hungary.

Path Dependency Theory helps to determine how the historically established paths create constraints (Pierson 2000; David 2007; Garud, Kumaraswamy, and Karnøe 2010) in the case of Hungary and how the discourse can reinforce or transform these paths (Fairclough 2003). It also shows why the legitimacy of nuclear energy remains stable over time in the country despite changes in the political regimes (Pierson 2000; David 2007; Garud, Kumaraswamy, and Karnøe 2010). By combining it with CDA, discursive practices to the long-term development of nuclear energy legitimacy can be connected (Fairclough 2003), which presents how historical political decisions were shaped by discourse and how they created a specific path that influenced the legitimacy of nuclear energy in Hungary, both reinforcing and contesting past choices.

CDA also helps to understand the role of discourse in shaping policy over time (Fairclough 2003). It shows how different discursive practices (Fairclough 2003) in the past political regimes cultivated or contested the legitimacy of nuclear energy in Hungary, focusing on the language and power relations in political and media texts. It also presents the ideological justifications embedded in discourse (Fairclough 2003) that help legitimize or contest nuclear energy. When combined with path dependency, CDA helps to show how different political regimes used discourse to legitimize or contest nuclear energy, thus ensuring the continuity of a path-dependent state despite challenges (Fairclough 2003; Pierson 2000; David 2007; Garud, Kumaraswamy, and Karnøe 2010). CDA also helps to understand the role of external actors (Fairclough 2003) in forming Hungary's nuclear energy history.

3.1.1. The Regime Lense: An Analytical Perspective

As legitimacy is constructed through discourse (Fairclough 2003), and discourse is framed by the different political and historical contexts (Pierson 2000; David 2007; Garud, Kumaraswamy, and Karnøe 2010), to understand the various governance structures, decision-making processes, and public engagement dynamics in the history of Hungary, it is crucial to include the regime lens as a tool in the analytical framework.

Authoritarian regimes can be characterized by a concentration of power in the hands of a single leader or a small group (Győrffy and Martin 2023; Diamond 2015; Diamond, Linz, and Lipset 1995; Kneuer 2021; Karolewski, Libin, and Patapan 2023). These regimes often lack political pluralism, electoral competition, and checks and balances (Győrffy and Martin 2023; Diamond 2015; Diamond, Linz, and Lipset 1995; Kneuer 2021; Karolewski, Libin, and Patapan 2023). The executive branch dominates the political system, limiting the independence of other branches of government, and elections are frequently manipulated or maintain the ruling party's power (Győrffy and Martin 2023; Diamond 2015; Karolewski, Libin, and Patapan 2023; Kneuer 2021). On the contrary, democratic regimes have political pluralism, free and fair elections, and respect for civil liberties and human rights (Győrffy and Martin 2023). Power is distributed among multiple branches of government, with checks and balances in place to prevent abuse of power and citizens (Kneuer 2021; Győrffy and Martin 2023). Participation in political processes, expressing views freely, and holding leaders accountable through regular elections are also characteristics of democratic regimes (Győrffy and Martin 2023). Hybrid regimes combine democratic and authoritarian characteristics (Diamond 1994; 2015; Karolewski, Libin, and Patapan 2023; Kneuer 2021).
Hybrid regimes often hold elections but with the restrictions of the opposition (Diamond 2015; Kneuer 2021).

The success of hybrid regimes in achieving democratic consolidation depends on factors such as economic development, civil society's strength, and effective state institutions (Kneuer 2021; Diamond 2015; Győrffy and Martin 2023).

Throughout the history of Hungary, different political regimes (Körösényi 1999; 2015; Mevius 2005; Bozóki 2011; Kornai 2015; Fabry 2023) have legitimized the use of nuclear energy. In the dissertation, I considered these aspects through the lens of each political regime: this includes looking at how nuclear energy decisions were made, the level of involvement in these decisions, transparency and accountability in decision-making processes, enforcement of environmental and safety regulations, and the presence or absence of political diversity within each regime (Körösényi 1999; 2015; Mevius 2005; Bozóki 2011; Kornai 2015; Fabry 2023). Understanding these factors helps to analyze and compare how different political regimes used discourse to construct the legitimacy of nuclear energy and what historical events shaped these discourses.

3.2. Overview of the Research Approach

The mixed-methods approach in the research uses qualitative and quantitative data analysis (Nefes 2022; Bazeley 2012; Mason 2006; Moseholm and Fetters 2017) to offer a comprehensive view of how legitimacy was cultivated and contested through discourse in the field of nuclear energy throughout different political regimes in Hungary. Qualitative data analysis plays an important role in methods such as content analysis (Herzog, Handke, and Hitters 2019; Lochmiller, n.d.; Tuckett, n.d.), thematic analysis (Moseholm and Fetters 2017; Bazeley 2012; Mason 2006; Mäntylä, Graziotin, and Kuutila 2018; Nefes 2022) and comparative analysis (Maguire and Delahunt 2017; Grimmer and Stewart 2013; Laver, Benoit, and Garry 2003; Lochmiller, n.d.; Herzog, Handke, and Hitters 2019).

The thematic analysis supports identifying key themes across different political regime periods, showing how discourse patterns evolved and changed around nuclear energy (Moseholm and Fetters 2017; Bazeley 2012; Mason 2006; Mäntylä, Graziotin, and Kuutila 2018; Nefes 2022). The regime lens presents how political and historical factors influenced regime discourse and how that contested or cultivated nuclear energy legitimacy in Hungary throughout its history (Körösényi 1999; 2015; Mevius 2005; Bozóki 2011; Kornai 2015; Fabry 2023). Comparative analysis considers historical legacies, political transitions, and external events (Maguire and Delahunt 2017; Grimmer and Stewart 2013; Laver, Benoit, and Garry 2003; Lochmiller, n.d.; Herzog, Handke, and Hitters 2019). The mixed-methods analysis helps present Hungary's nuclear energy discourse patterns by emphasizing the significance of historical context, policy evolution, and regime comparisons (Nefes 2022; Bazeley 2012; Mason 2006; Moseholm and Fetters 2017). It presents various perspectives, insights, and data sources, providing a more complex view of the research topic (Nefes 2022; Bazeley 2012; Mason 2006; Moseholm and Fetters 2017). Given the historical context and the need to trace discourse patterns over time, a mixed-method approach effectively utilizes the collected data and the theoretical framework. Combining qualitative and quantitative data can analyze the nuances of historical processes and policy trajectories (Nefes 2022; Bazeley 2012; Mason 2006; Moseholm and Fetters 2017).

This methodology strengthens the research findings and allows for a more nuanced interpretation of the data (Nefes 2022; Jeffries and Walker 2012). It also allows to cross-validate findings from different data sources and methods to enhance the credibility and validity of the research outcomes by reducing bias and increasing the reliability of the results (Jeffries and Walker 2012; Moseholm and Fetters 2017; Mason 2006; Bazeley 2012; Mäntylä, Graziotin, and Kuutila 2018; Nefes 2022).

3.3. The Selection Process and Data Collection Methods

3.3.1. The Parliamentary Discourse

The research period from 1948 to 2022[1] provides a comprehensive analysis of parliamentary narratives on nuclear energy in Hungary, as it allows for a longitudinal study of how nuclear energy discourse developed over time, including key historical events and political transitions that influenced the construction of the nuclear energy legitimacy in the country. The data collection process involved sourcing materials from archives, with documents from 1948-1989 obtained from The National Archives of Hungary and those from 1989-2022 gathered from the Hungarian National Assembly's archives. All documents were available online, and I used keywords to collect all relevant data. The keywords were nuclear energy, atomic energy, and Paks. I tried to ensure the authenticity of the data with this systematic approach, allowing a thorough analysis of the legislative and policy frameworks of nuclear energy in Hungary. I included proposals, bills, laws, previously classified material, and speeches from parliamentary plenary sessions and committees to offer an understanding of how the nuclear energy discourse was shaped in the decision-making processes and debates and how it constructed the legitimacy of nuclear energy. Preliminary data collection included all documents that discussed nuclear energy. That dataset included general discussions of nuclear energy, military use, radioactive waste issues, etc.

I narrowed the raw dataset to documents directly discussing Hungarian nuclear energy development and Paks. The final dataset consists of 206 policy papers and 30 plenary speeches.

[1] 1948 was the first year when official parliamentary documents discussed nuclear energy in relation to Hungary.

While I made efforts to create a comprehensive database, I acknowledge the potential exclusions due to manual processing. The dataset provides a foundation for analyzing the nuclear energy discourse in Hungary across different historical periods and political regimes. It shows how these discourses constructed the legitimacy of nuclear energy.

I cataloged the collected historical- and policy documents to provide a comprehensive analysis and easy reference during the research process. I coded the documents to the following categories: year, title, form of the document, actors, the submitter's name, decision, summary, sentiment score (-1 for negative, 0 for neutral, 1 for positive), and keywords. To ensure the validity of the documents, I conducted cross-referencing with multiple sources (e.g., archived articles). The quantification of the keywords and the sentiment score provides statistical insight; at the same time, the analysis of the texts presents a qualitative study of how the discourse patterns and their impact on nuclear energy legitimacy changed during the research timeframe.

3.3.2. The Discussion in the Media

The media analysis presents how nuclear energy legitimacy is contested and cultivated in the public discourse. Analyzing news sources and narratives about nuclear energy in Hungary gives us insights into how nuclear energy legitimacy evolved through public perceptions, debates, and controversies. The dataset consists of 413 newspaper articles from 20 national daily-and weekly newspapers. All the newspapers were digitally available on Arcanum, a Hungarian digital archive (Arcanum, n.d.). I used their search tool to collect all the articles that contained text about nuclear energy and Paks (more than 1000). Then, I narrowed the number of articles to a dataset, including articles that discussed nuclear energy and Paks. For decades, these newspapers were the primary news sources for the Hungarian public and the platform where politicians communicated their messages.

Relying on offline news sources keeps the consistency of the dataset throughout the research period. Since the research timeframe began in the 1940s, this dataset also helped to better understand the narrative about nuclear energy during the Communist and State Socialist Regimes, as stakeholders from that period are either elderly or passed away.

As the dissertation presents how nuclear energy legitimacy is constructed in Hungary through discourse across different political regimes from the 1940s until 2022, these sources provide valuable details for such analysis. The dataset includes opposition newspapers after 1990, when the authoritarian regime transitioned into a democratic one, as shown in Figure 2.

Name of the Newspaper	**Political Stance**
Magyar Távirati Iroda	Pro-government
Népszabadság	Pro-state before 1989, socialist-liberal after 1989
Esti Hírlap	Pro-government
Népszava	The official newspaper of trade unions until 1989, after 1989 social-democratic
Magyar Nemzet	Pro-government, conservative
Magyar Hírlap	Pro-government (till 1989), liberal (till 2006, conservative till 2022)
Figyelő	Christian-conservative (after 1989)
Pesti Hírlap	Conservative
Élet és Irodalom	Left
Vasárnapi Hírek	Social democrat
168 Óra	Left
Világgazdaság	First newspaper, which was allowed direct access to Western news agencies, then economic
Heti Válasz	Conservative
Napi Gazdaság	Independent, pro-government after 2013
Magyar Demokrata	Conservative, neo-Nazi
Magyar Fórum	Radical right
Bécsi Napló	Left
Amerikai Magyar Hírlap	Left

Figure 2. Media Dataset and Political Stances of the Newspapers from the 1940s-2022

While including online sources might have given a greater variety of sources, it could also be repetition (as most of these newspapers also post their articles online) or make the dataset unbalanced, as there would be more sources from the online time.

Due to the long research period, I focused on offline sources in the media analysis. I coded 413 articles to the following categories: article ID, publication date, title, author, newspaper name, political stance, summary and/or quotes, keywords, and sentiment score (-1, 0, 1). Then, based on this dataset, I identified key themes (based on summaries/quotes and keywords) to present the patterns of legitimization (based on quotes and sentiment score) and the argumentation patterns (based on quotes and sentiment score). The quantification of the political stance of the articles and the sentiment score provides statistical insight into the development of the nuclear energy discourse. At the same time, the analysis of the quotes shows how the discourse patterns changed during the timeframe. I used comparative analysis for key themes and patterns data to present how and why they changed over time and during the different political regimes.

3.3.3. The Stakeholder Interviews

I conducted in-depth interviews with key stakeholders to understand how stakeholders contribute to and contest the legitimacy of nuclear energy through discourse influenced by their interests and concerns that influence decision-making processes in the sector. I choose the stakeholders from the following three categories that reflect the theoretical framework. 1. Senior staff at nuclear facilities 2. Local- and national politicians who were part of the regulatory processes of nuclear energy. 3. Leaders of non-governmental organizations dealing with nuclear energy. With purposeful sampling, I identified 15 stakeholders who could provide insights from their 20-40 years of experience in the field (Robinson, O. C. 2013). During the sampling process, it was important to include stakeholders with long-time experiences to provide links between historical-and current practices (Roy et al. 2015). This selection gave the longitudinal perspective to the research for understanding the historical-and path-dependent processes (Roy et al. 2015).

One of the obstacles to the sampling was the research timeframe. People from the early days of nuclear energy history have already passed away. Therefore, triangulation was used throughout the dissertation to strengthen the interview findings with archival data (Sandelowski 2000). The purposeful sampling of the stakeholders ensures quality information on the subject, and the limited access to the stakeholders and the sensitive nature of nuclear energy justify the smaller sampling size (Vasileiou, Barnett, and Thorpe 2018; van Rijnsoever 2017). Out of the 15, five stakeholders agreed to participate in the interviews that belong to the first two categories: 1. Senior staff at nuclear facilities 2. Local- and national politicians who were part of the regulatory processes of nuclear energy. No one from category three, Leaders of non-governmental organizations dealing with nuclear energy, responded or agreed to participate in the interviews, and one denied participating, claiming that they are now in a situation where they cannot speak openly about their role and thoughts about nuclear energy. Nuclear energy is often a divisive topic with strong opinions and emotions attached to it (Abrecht et al. 1977). This sensitivity was another limitation of the interview inquiries, as it affected the willingness of some stakeholders to participate. I sent a three-pager to the stakeholders with a detailed summary of the dissertation and the interview process (See Annex I.) to encourage participation. The five participants also received a Declaration of Consent form, with which I provided them with additional information on how their data is handled ethically based on the CEU regulations.

The interviews were conducted online and on the phone (when encountering WIFI issues) in Hungarian during the COVID-19 pandemic in May 2021. All interviews were recorded (with the interviewees' consent) and guided by the interview protocol (See Annex II.).

The five participants received the following same questions:

- How did you get involved in nuclear energy?
- How would you describe your involvement in the evolution of nuclear energy in Hungary?
- What do you see as the most critical events during the time of your involvement?
- Were there any turning events along the way? If so, can you tell me about them?
- What do you think had the biggest impact on how people in Hungary viewed nuclear energy at that time?

The recordings of the interviews were then subscribed, translated, and analyzed based on the analytical framework.

3.3.3.1. The Profile of the Stakeholders

The five stakeholders represented two of the three categories that I identified based on the theoretical framework (1. Senior staff at nuclear facilities and 2. Local- and national politicians who were part of the regulatory processes of nuclear energy); two came from the first and three from the second category. During the interviews, thematic saturation took place, as no new themes emerged after a while, which indicates that I captured all the important narratives, which justifies the sample size (Nelson 2017; Saunders et al. 2015).

Senior staff at nuclear facilities

Dr. Szabolcs Hullán is a mechanical energy engineer (Hungarian Atomic Energy Authority 2014). He started working at the Hungarian Atomic Energy Agency in 1992 and worked as a deputy director general during the interview (Hungarian Atomic Energy Authority 2014). Before this position, he worked in the office as head of department and deputy director general of nuclear security (Hungarian Atomic Energy Authority 2014).

Dr. Antal Kovács has been an employee of the Paks Nuclear Power Plant since 2005 ("Dr. Antal Kovács CV," n.d.). In the beginning, he assisted in the construction and development of the regional connection system of the power plant ("Dr. Antal Kovács CV," n.d.). After obtaining his doctorate in 2012, he has been the communications director of the Paks NPP and the head of the Information and Visitor Center ("Dr. Antal Kovács CV," n.d.). Dr. Kovács was born in Paks and is Hungary's first Olympic- and world champion in judo ("Dr. Antal Kovács CV," n.d.).

Local- and national politicians who were part of the regulatory processes of nuclear energy

Attila Aszódi is a professor at the Institute of Nuclear Techniques of the Budapest University of Technology and Economics and was a Government Commissioner responsible for the maintenance of the capacity of the Paks Nuclear Power Plant (The Institute of Nuclear Techniques (NTI) of the Budapest University of Technology and Economics, n.d.). After the incident in the Paks NPP in 2003, he worked as Ministerial Commissioner for Paks until June 2004 (The Institute of Nuclear Techniques (NTI) of the Budapest University of Technology and Economics, n.d.).

After the Fukushima accident, he participated in the risk and safety assessment of the European Nuclear Power Plants as an expert for the European Commission. Between 1999 and 2014 (with a one-year interruption), he was head of the Training Reactor of the University (The Institute of Nuclear Techniques (NTI) of the Budapest University of Technology and Economics, n.d.).

Benedek Jávor is a Hungarian environmentalist and a founding member of the Dialogue for Hungary party ("Benedek Jávor MEP CV," n.d.). In the 2010 general elections, he won a seat in the Hungarian National Assembly, he was Chair of the Sustainable Development Committee for most of his mandate, and he was a member of the European Parliament for Dialogue for Hungary for two terms ("Benedek Jávor MEP CV," n.d.). Benedek is a founding member of the environmental NGO Védegylet (Protect the Future!) and holds a PhD. in biology ("Benedek Jávor MEP CV," n.d.).

Dr. József Kóbor has a PhD in biophysical sciences and is a physicist and licensed radiation safety expert (European Committee of the Regions and Members Page, n.d.). Between 1997 and 2009, he was a member of the Hungarian Committee on Sustainable Development and Committee for Environmental R & D, representing the Hungarian NGO movements (European Committee of the Regions and Members Page, n.d.).Dr. Kóbor was also a member of the City Council of Pécs (LMP-Politics Can Be Different -Hungarian Green Party) and member of the Party Board (European Committee of the Regions and Members Page, n.d.). The next chapter presents how these data sources were analyzed and guided by the analytical methods, reflecting the dissertation's analytical framework.

3.4. Analytical Methods

I included the following analytical methods, as shown in Figure 3, to present how nuclear energy legitimacy was constructed and contested through discourse in the history of Hungary from the 1940s until 2022 across different political regimes and what role historical events and geopolitical dependencies played in forming this legitimacy. Chronological, thematic analysis (Moseholm and Fetters 2017; Bazeley 2012; Mason 2006; Mäntylä, Graziotin, and Kuutila 2018; Nefes 2022) was used throughout the analytical chapters to demonstrate how past decisions on nuclear energy shaped future choices. Content (Herzog, Handke, and Hitters 2019; Lochmiller, n.d.; Tuckett, n.d.) and thematic analysis and coding strategies (Jeffries and Walker 2012; Laver, Benoit, and Garry 2003; Grimmer and Stewart 2013; Nefes 2022) were used to how language and power shaped discourse in the history of Hungary and how that discourse constructed legitimacy. I used textual-, interdiscursive- and contextual analysis methods (Fairclough 1992) to present how nuclear energy discourse was contested in the public discourse. The comparative analysis helped to integrate the regime lens (Maguire and Delahunt 2017; Grimmer and Stewart 2013; Laver, Benoit, and Garry 2003; Lochmiller, n.d.; Herzog, Handke, and Hitters 2019; Fairclough 1992).

Framework	Research Question	Analytical Methods
Path Dependency Theory	How do past decisions shape future choices?	Chronological Thematic Analysis (Key Events, Lock-In Effect, Trajectory of Choices)
Critical Discourse Analysis (Textual Analysis, Interdiscursive Analysis, Contextual Analysis)	How do language and power shape discourse, and how that constructs legitimacy?	Content Analysis
		Thematic and Coding Strategies
Media Discourse Analysis	How was nuclear energy discussed and contested in the media?	Thematic Analysis (Textual Analysis)
		Narrative Analysis (Textual Analysis)
		Coding Strategies (Interdiscursive Analysis)
		Comparative Analysis (Contextual Analysis)
Interview Analysis	How was nuclear energy discourse shaped by key stakeholders?	Thematic Analysis (Textual Analysis)
		Narrative Analysis (Textual Analysis)
		Interdiscursive Analysis
		Contextual Analysis
Regime Lens	How do political regimes influence the legitimacy and discourse of nuclear energy?	Comparative Analysis (Political Regimes Differences, Discourse Shifts)

Figure 3. Analytical Framework of the Dissertation (including CDA, Media Discourse Interview Analysis, and Regime Lens)

3.4.1. Analytical Approach to Analyzing Parliamentary Data

Analyzing parliamentary speeches, policies, and texts during different political regimes in Hungary is viewed through the lens of the regime's perspective within the analytical framework. I used the regime lens to understand the impact of political elites and actors on policy trajectories, considering how governments constructed nuclear energy legitimacy through discourse in the history of Hungary and how different past events and political contexts shaped the discourse of legitimacy.

Conducting a chronological, thematic analysis (Moseholm and Fetters 2017; Bazeley 2012; Mason 2006; Mäntylä, Graziotin, and Kuutila 2018; Nefes 2022) of nuclear energy policies aligns with the Path Dependency Theory within the theoretical framework.

Content analysis (Herzog, Handke, and Hitters 2019; Lochmiller, n.d.; Tuckett, n.d.) of policy documents reveals continuity and change in nuclear energy policies, presenting how historical events and feedback mechanisms shape policy decisions. Using coding strategies as part of the thematic analysis (Jeffries and Walker 2012; Laver, Benoit, and Garry 2003; Grimmer and Stewart 2013; Nefes 2022) helps to present discourse patterns linked to path dependency and the regime characteristics and shows how different political regimes constructed nuclear energy legitimacy. Content and thematic analysis help to demonstrate how the parliamentary discourses construct meaning (textual analysis), in our case, legitimacy, and how they influence each other within the discourse (interdiscursive) (Fairclough 1992). Understanding the historical context of the discourses presents how the parliamentary discourses reflect the context and show the social and political structures impacted by them (contextual analysis) (Fairclough 1992).

Finally, to utilize the regime lens, I conducted a comparative analysis (Maguire and Delahunt 2017; Grimmer and Stewart 2013; Laver, Benoit, and Garry 2003; Lochmiller, n.d.; Herzog, Handke, and Hitters 2019) to present how nuclear energy legitimacy was constructed and framed through parliamentary discourse in different political regimes.

3.4.2. Analytical Approach to Media Discourse

I used three primary analytical methods, guided by the analytical framework, to analyze the media discourse: thematic-, narrative- and comparative analysis (Jeffries and Walker 2012; Laver, Benoit, and Garry 2003; Grimmer and Stewart 2013; Nefes 2022; Maguire and Delahunt 2017; Grimmer and Stewart 2013; Laver, Benoit, and Garry 2003; Lochmiller, n.d.; Herzog, Handke, and Hitters 2019). With the help of thematic analysis, I identified key themes in the newspapers, focusing on political rhetoric (textual analysis) (Fairclough 1992).

This presents how the public sphere discussed nuclear energy during the research period and shows how nuclear energy was contested and cultivated by the policymakers and the public. The narrative analysis consists of analyzing the newspaper article dataset (textual analysis) (Fairclough 1992). I used coding strategies to identify the different patterns of legitimation and argumentation in the discourse, which were used by the newspapers throughout history to support or oppose nuclear energy (interdiscursive analysis) (Fairclough 1992). Throughout the media analysis, I included the comparative angle to present how nuclear energy discourse changed during the different political regimes and how historical events (contextual analysis) (Maguire and Delahunt 2017; Grimmer and Stewart 2013; Laver, Benoit, and Garry 2003; Lochmiller, n.d.; Herzog, Handke, and Hitters 2019; Fairclough 1992) influenced it.

3.4.3. Analytical Approach to Interviews

To identify key themes (based on summaries/quotes and keywords), legitimization, and argumentation patterns in the discourse (textual analysis) (Jeffries and Walker 2012; Laver, Benoit, and Garry 2003; Grimmer and Stewart 2013; Nefes 2022; Fairclough 1992) I used thematic-and narrative analysis of the coded interview transcripts. The study of the interviews shows how key events and policy decisions shaped nuclear energy discourse and how these events and decisions affected the stakeholders, what impact they had on these, and eventually, on the construction of legitimacy (interdiscursive and contextual analysis) (Fairclough 1992).

3.5. Ethical Considerations

Considering the ethical aspects of the dissertation, this research relies on CEU's Ethical Research Policy document. I implemented measures to uphold ethical standards throughout the research (e.g., stakeholders signed a Declaration of Consent form, which lists how their data is ethically used and stored based on the CEU regulations). I handled potentially sensitive contexts with discretion and respect for the ethical guidelines of CEU (e.g., only the researcher can access the folders that store the datasets and interview transcripts). Through the analysis, I tried to ensure that the data interpretation was unbiased and accurately reflected the research findings. I used the mixed-methods analysis because it allows for the cross-validation of findings from different data sources and methods and increases the reliability of the results (Jeffries and Walker 2012; Moseholm and Fetters 2017; Mason 2006; Bazeley 2012; Mäntylä, Graziotin, and Kuutila 2018; Nefes 2022).

3.6. Limitations

One of the research's most significant advantages and disadvantages is the long-time frame and the nature of the selected data. For example, people from the early days of nuclear energy history have passed away. Therefore, triangulation (Sandelowski 2000) was used throughout the dissertation to strengthen the findings with archival data, and the purposeful sampling of the stakeholders ensures quality information on the subject (Vasileiou, Barnett, and Thorpe 2018; van Rijnsoever 2017). While I made efforts to create a comprehensive database, I acknowledge any potential exclusions due to the manual processing.

Nuclear energy is a divisive topic; in many cases, with strong opinions and emotions (Abrecht et al. 1977). This sensitivity, as mentioned in the Methodology Chapter, was one of the limitations of the interview inquiries, as it affected the willingness of some stakeholders to participate. I maintained transparency regarding data availability and quality throughout the research process. Any constraints in accessing historical documents or archival materials are openly acknowledged, and I tried to maximize the complexity of the analysis within these limitations.

4. Political and Historical Context of Nuclear Energy in Hungary

The legitimization of nuclear energy through discourse within the historical context of Hungary has been closely connected with the political regimes that have governed the country over time. This chapter offers an overview of the key political themes and events from the 1940s until 2022 in Hungary and identifies the historical moments of nuclear energy development. This political- and historical context offers a comprehensive understanding of how nuclear energy legitimacy was constructed through discourse in the history of Hungary. This chapter provides a frame for the analytical chapters, as it presents the different characteristics of the political regimes throughout the research period. Understanding the regime characteristics and key events is crucial in analyzing the discourse that shaped nuclear energy legitimacy in Hungary.

4.1. Nuclear Energy in the Communist and State Socialist Regimes (1940s-1989)

4.1.1. The Political Framework of the Communist and State Socialist Regimes

During the 1940s authoritarian regime, Hungary went through significant political shifts with the rise of the Hungarian Communist Party (Mevius 2005). The Soviet occupation from 1948 until 1989 in Hungary was characterized by a totalitarian dictatorship established by the Communist Party (Mevius 2005). The period leading up to the 1956 Hungarian Revolution was a period of repression and centralized governance under the Hungarian Communist Party led by Mátyás Rákosi (Körösényi 1999).

Rákosi established a Stalinist regime with severe political repression, including show trials and the imprisonment or execution of political opponents (Felkay 1989).
The Communist Party gained increasing power and influence through political, financial, and secret-service support from the occupying Soviet authorities (Felkay 1989). The oppressive nature of Rákosi's rule led to dissatisfaction, ending in the 1956 Hungarian Revolution (Körösényi 1999). The revolution was a nationwide uprise against the government and the Soviet-imposed policies, which initially succeeded in forcing the government to compromise (Ripp 1998). However, the revolution was brutally suppressed by Soviet military intervention, resulting in significant casualties and a restraint on dissidents (Ripp 1998).

As a result of the revolution, János Kádár was appointed as the new leader by the Soviets (Ripp 1998), and the new ruling party became the Hungarian Socialist Workers' Party (Skyba 2022). During the Communist and State Socialist Regimes, Hungary's governance was described as centralized decision-making, with the state exerting control over every part of life (McStea, Jodah 2006; Felkay 1989). Körösényi (1999) describes this period as an extremist tyranny, transitioning into a dictatorship in the 1960s and 1970s and an autocracy in the 1980s. Public participation was minimal as political control extended from the private sphere into economic, social, and cultural domains (Körösényi 1999). Transparency and accountability were nonexistent with decisions made by a small elite group; the regime focused on economic improvements for legitimacy, often at the expense of environmental considerations, which were largely ignored (Körösényi 1999). The Hungarian economy under János Kádár went through significant changes with the implementation of various economic plans (Körösényi 1999). Among the prominent programs were the Three- and Five Year Plans, which focused on the stabilization and growth of the Hungarian economy during the beginning of Kádár's leadership (Román 1970; Hetényi 1976).

These plans included the energy-related plans and the foundation of the Paks Nuclear Power Plant (Román 1970; Hetényi 1976). The Three-Year Plans were shorter-term initiatives concentrated on immediate post-crisis recovery and stabilization (Román 1970; Hetényi 1976).

The First Three-Year Plan (1958-1960) focused on rehabilitating the economy after the 1956 Revolution (Hetényi 1976; Mommen 2017; Balassa 1959; Román 1970; Vandorffy 1973). It prioritized industrial recovery, increasing agricultural productivity, and infrastructure development (Mommen 2017). The Second Three-Year Plan (1961-1963) proposed sustained economic growth and modernization (Mommen 2017). The key focuses included economic decentralization, technological advancement, and the production of consumer goods (Hetényi 1976). There were only two Three Year Plans during the Communist and State Socialist Regimes (Hetényi 1976). The Five-Year Plans were more comprehensive and structured, focusing on long-term economic development, similar to the Soviet economic model (Hetényi 1976). The first Five-Year Plan (1950-1954) came about before the beginning of the Communist and State Socialist Regimes (Hetényi 1976; Mommen 2017; Balassa 1959; Román 1970; Vandorffy 1973). It focused on rapid industrialization and collectivization of agriculture (Balassa 1959). The second Five-Year Plan (1956-1960) started after the 1956 revolution, so the priority was stabilizing the economy and rebuilding the damaged infrastructure (Hetényi 1976). Hungary's Third Five-Year Plan (1961-1965) included balanced industrial investments with improved consumer goods production and living standards (Balassa 1959).

The Fourth Five-Year Plan (1966-1970) introduced the New Economic Mechanism in 1968, which promoted market-oriented reforms within the socialist framework (Román 1970).

The New Economic Mechanism aimed to increase productivity by allowing greater flexibility in pricing, investment, and production decisions (Hetényi 1976).

After this period, the Fifth Five-Year Plan (1971-1975) focused on consolidating the New Economic Mechanism reforms by promoting technological advancements and improving resource allocation (Hetényi 1976). There were subsequent Five-Year Plans, which also focused on integrating market mechanisms, improving living standards, and maintaining economic stability in the face of external economic pressures (Vandorffy 1973). Kádár's policies, often called "Goulash Communism", significantly differed from the strict Stalinism of his predecessor (Román 1970). They allowed for some level of political-and economic liberalization, which contributed to a more stable and relatively prosperous period in the history of Hungary, differentiating the country from other Soviet-bloc countries (Urbán 1989). As this discussion illustrates, policies and laws of this time provided a foundation for the Nuclear Power Plant in Hungary and reflected the close ties with the Soviet Union.

4.1.2. The Historical Context of Nuclear Energy in the Communist and State Socialist Regimes

In the middle of the 1940s, Soviet scientists were expressing optimism about the Soviet Union's capabilities in nuclear energy in Hungarian newspapers, stating: "*The Soviet state will be able to show successful results in the field of nuclear energy soon. The examination of nuclear power issues is included in the five-year plan*" ("*Orosz tudós a szovjet atomkutatásró"'*, Magyar Távirati Iroda 1946). This quote reflects an early commitment to developing nuclear technology within the national planning framework.

By 1947, Soviet leaders, like Minister Kaftanov, emphasized that nuclear energy should serve peaceful purposes, and criticized capitalist nations for focusing on its destructive potential in the Hungarian newspapers: "*Today's capitalists also only want to use nuclear energy for destruction, not for peaceful labor. Soviet culture preserves traditions, creates new values, and marks a higher stage in the cultural development of all humanity*" (*"Kaftanov miniszter a szovjet értelmiségről",* Magyar Távirati Iroda 1946*)*.

Hungarian professors also discussed nuclear energy's potential for peaceful uses at a political conference, highlighting social changes expected in the nuclear age: "*Nuclear energy appears to people today primarily as a terrible weapon of desolation. There can be no doubt that human society and our entire system will change in the nuclear age. America prevents its peaceful use by all means to protect monopoly capital*" ("*Megnyílt az MNDSZ politikai akadémiája",* Magyar Távirati Iroda 1947*)*. As we can see from the early days, nuclear energy discourse highlighted the technological and economic advantages and its peaceful use in opposition to military use in the Western world.

In 1956, the pace of Hungary's economic development was linked to its trade relations and technical exchanges with the Soviet Union and other countries in the Soviet Block, illustrated in the following quote ("*Erősödik a testvériség",*Magyar Távirati Iroda 1947). The Soviet Union's help in organizing nuclear energy production was part of this mutual support: "*The growth of Hungary's economic development is facilitated by the further expansion of equal, mutually beneficial trade relations established with the Soviet Union and the people's democratic countries. The Soviet Union helps Hungary organize nuclear energy production and peaceful use*" (*"Erősödik a tesvtvériség",* Magyar Távirati Iroda 1947).

The Central Committee of the Soviet Communist Party called for the reduction of ammunition and the promotion of nuclear energy for peaceful progress on Labor Day (May 1), stating: "*Workers of the 4th World! Strive to reduce armaments and armed forces. Demand a ban on nuclear, hydrogen, and other weapons of mass destruction. Nuclear energy must serve the peaceful progress of humanity*" (*"Az SzKP Központi Bizottságának 1956. május 1.-i jelszavai",* Magyar Távirati Iroda 1956).

And while the Soviet Union called for ammunition reduction, Hungary's uranium deposits gained significant interest from the Soviet Union for both energy production and potential military applications: "*Moscow is most interested in Hungarian uranium because it can be used to produce energy, but also a bomb against the West*" (Magyar Távirati Iroda 1956). By 1956, large uranium ore deposits had been discovered in Hungary, transforming villages like Kővágószőlős into centers of the nuclear industry (*"Miért titkolják el a magyarországi uránérc-telepek létezését?",* Magyar Távirati Iroda 1956). This discovery led to extensive mining operations and significant security measures, including armed forces guarding the area: "*Work in the mine has started in full force. Workers started furnishing the apartment buildings. The newspaper calls this small village a future nuclear city. Other reports state that nearly four thousand workers work in the uranium mine around the village. The mine area is occupied by the armed forces of the Ministry of the Interior and the State Protection Authority (ÁVH), and you can only enter the mine area with a special work permit. The workers were forbidden to give any information about the mine under the burden of heavy punishment* (*"Miért titkolják el a magyarországi uránérc-telepek létezését?",* Magyar Távirati Iroda 1956). The Government's serious commitment to developing nuclear energy is illustrated well by the State Protection Authority's presence at the mine.

In 1967, Hungarian scientists and specialists concluded that building a Nuclear Power Plant in Hungary was valuable: "*Is it worth building a Nuclear Power Plant in Hungary? Scientists, energy industry specialists, and economists are looking for an answer to the question with the help of computers, various scientific methods, and tests. And the answer is: it's worth it*" (*"Világítson Atomenergiával",* Magyar Távirati Iroda 1967). This sentiment paved the way for a 1966 intergovernmental agreement between the Soviet Union and Hungary to create a Nuclear Power Plant in the country(*"Megkezdték a paksi atomerőmű földmunkáit",* Magyar Nemzet 1969). The government completed the technical plans and selected the location near Paks, by the river Danube (Moldován 1967).

Factors like water demand and flood safety were crucial in choosing Paks over other locations (*"Egy lassan gyorsuló építkezés",* Népszava 2002). Deputy Minister of Heavy Industry Géza Szili, in a speech in 1969, emphasized that the construction of the Paks Nuclear Power Plant marked a new chapter in Hungary's nuclear technology (*"A paksi atomerőmű új fejezetet nyit az atomtechnikában,* Magyar Nemzet 1969). The vision of a city powered by nuclear energy, as described by Fréderic Joliot-Curie during his visit to Budapest, highlighted the transformative potential of nuclear power: *"Imagine a city whose apartments, factories, and streets are supplied with electricity by the uranium load of a single railway car instead of millions of tons of coal*" (Berényi 1969).

By 1972, discussions were progressing about integrating nuclear energy into Hungary's energy system: "*The Pécs-Baranya Technical and Economic Month opened in Pécs on Friday. Dr. Gyula Szekér, the heavy industry minister, presented the current problems of our energy management and the transformation of our country's energy structure. By the 1980s, nuclear energy was also among the energy sources. It will be made possible by the first Hungarian Nuclear Power Plant, which was built in Paks with Soviet help*" (*"A hazai energiaforrások között megjelenik az atomenergia",* Népszava 1972).

This transition was part of a broader global trend towards nuclear energy, which was becoming a significant source of energy production worldwide: "*Nuclear energy is no longer the future but the source of energy production in our daily lives*" (*"Épül a paksi atomerőmű",* Magyar Hírlap 1972).

In 1973, the continuation of the Paks Nuclear Power Plant construction was authorized, following the temporary postponement in 1968: "*A new chapter follows in the life of Paks: The Economic Committee authorized the continuation of the construction of the first Hungarian Nuclear Power Plant, which temporarily stopped in 1968, at the beginning of this year. The power plant's first unit will start operating in 1980 with a capacity of 440 megawatts*" (*"Pakson folytatják az atomerőmü építését",* Magyar Nemzet 1973).

By 1974, the construction of the nuclear city around the Paks power plant was progressing, with infrastructure and housing developments underway: "*The houses of the 'nuclear city' are being built according to schedule. The road and public utilities covering the huge area are under preparation. It means the previous 880-megawatt program will be doubled, i.e., realized with four reactor blocks*" (*"Önálló településként fejlesztik Paksot, Elkészült az atomerőmű műszaki terve",* Magyar Hírlap 1974).

The construction of the Paks Nuclear Power Plant was the most significant investment of Hungary's fifth Five-year plan by 1976 (Víg 1976). Parliamentary committees closely monitored the project's progress, ensuring that construction was on schedule and addressing any issues quickly: "*At the moment, the workers of three construction companies. are working hard on the construction. Investors and deputy ministers also praised the builders*" (Víg 1976). In 1977, the member countries of the Council for Mutual Economic Assistance "*agreed that the member countries would primarily rely on their energy sources, including mostly on nuclear energy*" (Gyulay 1977). This regional cooperation highlights the strategic importance of nuclear energy within the socialist bloc.

By 1978, experts from the Council for Mutual Economic Assistance (CMEA) countries gathered in Budapest to discuss the latest thermophysical research outcomes: "*This Budapest seminar is an important point in the work plan of the CMEA's permanent committee dealing with the peaceful use of atomic energy*" (*"KGST -atomkutatás, Hőfizikai szeminárium",* Magyar Hírlap 1978). This seminar was part of ongoing efforts to develop water-water energetic reactor (VVER) reactors central to the member countries' Nuclear Power Plant construction programs " (*"KGST -atomkutatás, Hőfizikai szeminárium",* Magyar Hírlap 1978). In 1979, preparations for producing nuclear energy in Hungary were ongoing, with the Paks Nuclear Power Plant finalized (*"Új iparág született",* Magyar Nemzet 1979): "*The safe use of the powerful natural energy source, the construction, management, and operation of reactors that are free from carbon pollution and keep nuclear processes perfectly under control are new architectural solutions*" (Faludi 1979).

János Kádár's visit to the Paks Nuclear Power Plant in 1979 highlighted the project's political- and economic significance (*"Kádár János látogatása a paksi atomerőműnél",* Népszabadság 1979). Kádár praised the construction work and the community efforts, emphasizing the importance of achieving the investment's primary goals (*"Kádár János látogatása a paksi atomerőműnél",* Népszabadság 1979). This visit reflected the high level of state support and the critical role of the Paks Nuclear Power Plant in Hungary's energy future. In 1980, the construction of the Paks Nuclear Power Plant made significant progress (*"Éjjel-nappal dolgoznak a paksi atomerőművön",* Magyar Nemzet 1980). The factory and machine operator company hired 230 specialists to work with Paks, maintaining a continuous work schedule that significantly improved the construction process (*"Éjjel-nappal dolgoznak a paksi atomerőművön",* Magyar Nemzet 1980).

Simultaneously, the Legal, Administrative, Judicial, and Industrial Committees of the National Assembly discussed the draft law on nuclear energy, which emphasized the peaceful utilization of nuclear energy and the importance of adhering to strict safety regulations, along with thorough information dissemination and specialist training (*"Atomenergia békés, biztonságos keretek között",* Népszava 1980).

By the end of the year, the first reactor body arrived at the Paks site, marking a critical moment in the project's development (*"Pakson az első reaktortest",* Magyar Hírlap 1980). It was managed by specialists from the Power Plant Investment Company (*"Pakson az első reaktortest",* Magyar Hírlap 1980). In 1982, the Nuclear Power Plant was viewed as a great prospect for Hungary, signaling the country's entry into the era of scientific and technical progress (Pintér 1982). The Nuclear Power Plant was expected to positively affect the Hungarian industry and economy (Pintér 1982). Hungary's electricity consumption increased in 1983, with the Paks power plant playing a crucial role in meeting this demand (Pintér 1982). László Kapolyi, State Secretary of the Ministry of Industry, highlighted the importance of Paks for its competitive electricity production and enabling the more efficient use of hydrocarbons in other sectors (Kozma 1983).

The inauguration of reactor block 1 was a significant event of that year, attended by key political figures, including György Lázár, the President of the Council Ministers, and Soviet Deputy Prime Minister Aleksey Antonov (*"Avatóünnepség a Paksi Atomerőműben",* Magyar Nemzet 1983). The ceremony underscored the project's importance to Hungary and the socialist bloc. In 1984, the second reactor block started operating, which reflected the ongoing developments in Hungary's nuclear energy potential (Zádor 1984).

However, the 1986 Chornobyl disaster drew attention to concerns about nuclear safety in the country (*"Újabb jelentés a csernobili atomszerencsétlenségről",* Népszabadság 1986). The Paks Nuclear Power Plant was trying to reassure the Hungarian citizens about Paks's safety systems (*"Újabb jelentés a csernobili atomszerencsétlenségről",* Népszabadság 1986). In 1986, the third reactor unit was inaugurated in an event marked by speeches from significant Hungarian and Soviet officials emphasizing the continued importance of nuclear energy for Hungary's economic revitalization and energy needs (*"A Pakson összpontosuló szellemi energiát hasznosítani kell a nemzeti programmá vált kongresszusi határozat érdekében",* Magyar Nemzet 1986). The efficient and safe operation of the Paks plant was highlighted as critical for Hungary's energy strategy and its economic stability (*"Atomerőművek a KGST együttműködés keretében",* Magyar Hírlap 1986). By 1987, international cooperation had led to the development new safety equipment, including a full-scale simulator for Paks, jointly built by Hungarian and Finnish experts (*"Atomerőmű üzemeltetéshez, Újabb biztonsági berendezések",* Magyar Távirati Iroda 1987). As this Finnish collaboration shows, the political atmosphere started to change in Hungary, and the country was slowly moving towards regime change; Hungary was more open to cooperating with non-Soviet block countries as well. The fourth reactor block started operating in 1987, marking the completion of the first stage of the Paks investment (*"Pénteken avatás Pakson",* Népszabadság 1987). This stage significantly influenced Hungary's energy system, technical development, and international cooperation, particularly with Soviet institutions (*"Pénteken avatás Pakson",* Népszabadság 1987).

In 1988, the government allocated funds to expand the Paks Nuclear Power Plant further, including preparations for two new 1,000-megawatt blocks (*"Bővítik a hazai villamos erőműveket",* Népszabadság 1988).

The Nuclear Power Plant had become crucial to Hungary's energy infrastructure, providing a significant share of the country's electricity at a lower cost than other sources (*"Bővítik a hazai villamos erőműveket",* Népszabadság 1988). The power plant had a good safety record, with no incidents reported (*"A legolcsóbb a nukleáris",* Magyar Hírlap 1988).

As the historical overview shows, throughout this period, Hungary's political and economic relations with the Soviet Union and other socialist countries affected its nuclear energy development. This cooperation was important in advancing Hungary's nuclear energy progress, from construction to ongoing operational improvements and expansions. The Paks Nuclear Power Plant became the foundation of Hungary's energy industry.

4.2. Nuclear Energy in the Democratic Regime (1989-2006)

4.2.1. The Political Framework of the Democratic Regime

The authoritarian regime's fall led to a transition towards democracy from 1989 to 1998, which Körösényi (2015) describes as the beginning of Hungary's journey towards a consolidated democracy until 2006. In late 1989, the Hungarian Socialist Workers' Party transformed into the Hungarian Socialist Party, adopting social-democratic principles (Körösényi 2015). The first free elections in 1990 saw the emergence of several new political parties (Fazekas and Fekete 2018). The Hungarian Democratic Forum (MDF), a center-right party, played a significant role in the transition period, as well as the Alliance of Free Democrats (SZDSZ), a liberal party advocating for civil liberties and economic reforms; Independent Smallholders, Agrarian Workers and Civic Party (FKGP), representing rural and agrarian interests; Christian Democratic People's Party (KDNP) and Fidesz (Alliance of Young Democrats), initially a liberal youth party (Fidesz later shifted to the right under Viktor Orbán's leadership) (Fazekas and Fekete 2018).

MDF won the first elections and formed a coalition government with FKGP and KDNP between 1990-1994 (Martis et al. 1992). In 1994, the Hungarian Socialist Party, the successor of the former communist party, won the parliamentary elections and formed a coalition with SZDSZ, bringing a center-left government to power (Martis et al. 1992).

Fidesz succeeded in the 1998 elections, and the party shifted from a liberal to a right-wing conservative and formed a coalition government with FKGP and MDF (Kristóf 2015). MSZP returned to power between 2002 and 2010, creating a coalition with SZDSZ again, and managed Hungary during a significant economic crisis (Batory 2016). Besides the multiparty system and free elections, this period introduced representative governance, political pluralism, and public participation in Hungary; decision-making processes became more inclusive with an emphasis on transparency and accountability (Racz 2003). However, the consolidation of democracy had challenges, including incomplete reforms due to weak political support, inadequate implementation tools, and lack of accountability (Kornai 2015). A shift toward a hybrid regime with democratic and autocratic features happened after 2006 (Körösényi 2015). While Hungary has politically distanced itself from the former Soviet Union, there was no distance in the field of nuclear energy, as we will see in the following historical chapter. The development of laws and policies during this time set the foundation for Hungary's support for using nuclear energy, highlighting safety, transparency, and collaboration on an international level.

The Historical Context of Nuclear Energy in the Democratic Regime

After the regime change in 1990, Professor Edward Teller, 'the father of the hydrogen bomb,' visited the Paks Nuclear Power Plant (*"Teller Ede Pakson, Kell az atom",* Népszabadság 1990). His visit highlighted the role of expertise in nuclear energy, which the government previously emphasized (*"Teller Ede Pakson, Kell az atom",* Népszabadság 1990). In line with the new political regime expectations, in 1991, Paks adopted the international nuclear event scale to improve transparency and safety communication, with the first reported minor malfunction occurring in July (*"Üzemzavar Pakson",* Magyar Nemzet 1991). In 1992, the Nuclear Power Plant underwent significant upgrades, increasing its capacity to 1,840 MW, and played an essential role in the Hungarian energy supply (Hajnal 1992). Despite these advancements, the aging of other power plants necessitated decisions on future energy sources (Hajnal 1992).

The early 1990s was a turning point for not only the political system but also for nuclear energy in Hungary, with a greater focus on its economic and environmental benefits leading to reduced global resistance and affirmations from the International Atomic Energy Agency regarding Hungary's compliance with safety and environmental standards (Gubcsi 1992). The Paks Nuclear Power Plant commemorated its tenth anniversary in 1992 (*"Ahonnan a hazai energia-termelés fele származik",* Magyar Hírlap 1992). In 1993, Paks celebrated its advancements in nuclear safety, with two of its units ranked among the world's ten safest Nuclear Power Plant units (Fahidi 1993). An exhibition at the cultural center in Paks honored the plant's history by reflecting on its significant contributions to Hungary's energy landscape (Fahidi 1993). Despite the celebratory events, the issue of radioactive waste storage remained unresolved (*"Pakson megoldást keresnek",* Népszabadság 1993).

Hungary's 1966 intergovernmental agreement with the Soviet Union did not cover the return of radioactive waste, creating challenges under the new Russian environmental laws (*"Pakson megoldást keresnek",* Népszabadság 1993). The government established temporary storage solutions to ensure the continued operation of the Paks Nuclear Power Plant (*"Pakson megoldást keresnek",* Népszabadság 1993).

In the following years, discussions around the radioactive waste storage and disposal of spent fuel continued, with public and political narratives emphasizing the critical need for a solution: the Hungarian-Russian protocol on nuclear waste faced political and environmental difficulties, both domestically and internationally (Tóth and Sztankay 1994). However, Russia agreed to receive the spent fuel from Paks, allowing the plant to maintain operations while the country developed plans for a temporary storage facility in Hungary (Tóth and Sztankay 1994). By 1995, preparations for transporting spent fuel to Russia were in place, with approvals from the Ukrainian and Russian authorities (*"Indulásra vár az atomvonat",* Magyar Hírlap 1995). The AGNES program, initiated in 1991, ensured continuous safety evaluations and improvements at Paks, reinforcing high safety standards (*"Paks megfelel az előírásoknak",* Magyar Hírlap 1995). International Atomic Energy Agency's post-inspection of Paks noted significant improvements in operational efficiency and incident reduction, further strengthening the power plant's status as a leading example of safe nuclear energy production (*"Kevesebb a paksi üzemzavar",* Magyar Nemzet 1995).

Hungary updated its nuclear legislation in 1996 to address contemporary challenges and ensure long-term safety and financial planning (*"Készülőben az új atomtörvény",* Vasárnapi Hírek 1996). The new law mandated the creation of a Central Nuclear Financial Fund to finance radioactive waste storage and the eventual decommissioning of the Paks Nuclear Power Plant (*"Készülőben az új atomtörvény",* Vasárnapi Hírek 1996).

This legislative change aimed to balance the country's nuclear energy use with environmental and safety concerns, promoting economic and scientific development (*"Készülőben az új atomtörvény",* Vasárnapi Hírek 1996).

The Paks Nuclear Power Plant's international training center started in 1997, providing advanced training for nuclear professionals across Eastern Europe and strengthening Hungary's leading role in nuclear safety and education (*"Nemzetközi oktatóbázis a paksi atomerőműben",* Népszava 1997).

By 1999, the Paks power plant was exploring alternative nuclear fuel sources to ensure long-term energy security (Kriván 1999). The collaboration with the British Nuclear Fuel and Finnish companies led to the development special fuels, reducing dependence on Russian uranium (Kriván 1999). The plant's organizational structure was also reviewed to increase efficiency and safety (Kriván 1999). During the EU accession process, Paks met all necessary standards and faced no objections from EU authorities (*"Csak Pakssal szemben nincs kifogása az EU-nak",* Világgazdaság 1999). Nuclear safety and radiation protection were crucial to Hungary's negotiations for EU accession (*"Üvehután épül meg a tároló",* Népszabadság 2000). József Rónaky, Director General of the National Atomic Energy Agency, announced that Hungary had closed the energy chapter of the talks in 2000, stating that the Hungarian nuclear energy laws met EU standards and were considered compatible with the EU energy angle (*"Üvehután épül meg a tároló",* Népszabadság 2000). By 2001, significant organizational changes took place at the Paks Nuclear Power Plant (*"Paks saját üzemeltetője",* Magyar Nemzet 2001).

From the beginning of the year, Paks Nuclear Power Plant Corporation (Paks Atomerőmű Rt.) took over the operation of the power plant from Hungarian Electrical Works Private Limited Company (Magyar Villamos Művek Rt.), following a decision by the National Atomic Energy Agency's nuclear safety board (*"Paks saját üzemeltetője",* Magyar Nemzet 2001). This change was made after it was confirmed that Paks Nuclear Power Plant Corporation could safely manage the facility (*"Paks saját üzemeltetője",* Magyar Nemzet 2001).

Additionally, an agreement was signed between Hungary and Australia, allowing Paks to source uranium from Russia and other countries, including the British BNFL company and Australia (Mayer 2001). This change introduced competition and potentially lowered the cost of nuclear energy carriers (Mayer 2001). In 2002, the Russian Federal Supreme Court ruled that the transportation of radioactive waste and spent fuel from Paks to Russia was illegal, following a lawsuit by residents and environmental groups in the Chelyabinsk region (*"Itthon marad az atomszemét",* Magyar Nemzet 2002).

This decision complicated radioactive waste management for Hungary, which hasn't shipped spent fuel to Russia since 1996 despite having legal authority (*"Itthon marad az atomszemét",* Magyar Nemzet 2002).

Paks Nuclear Power Plant's life-expansion and performance-enhancing program was essential for meeting Hungary's growing energy needs (Mayer 2002). Renewable energy sources have not yet been considered sufficient to replace traditional energy sources, making nuclear energy more important in the Hungarian energy system (Mayer 2002). In 2003, a malfunction happened in the fuel rod cleaning system at Paks due to a fault in the tank designed by the German-French company Framatome (*"Pakson a tratály hibás",* Budapest Day 2003).

This incident highlighted concerns that management prioritized economic-and political considerations over safety, prompting the Atomic Energy Agency to propose stricter control (*"Pakson a tartály hibás",* Budapest Day 2003).

Despite the malfunction, the Paks accident was non-threatening to public health or the environment but damaged the prestige of the nuclear energy industry. Russian experts expressed concern over the separation between Paks and Russian institutes and offered cooperation to demonstrate the safety of Soviet-designed reactors (Szalai 2003). Negotiations were also underway with Russia to manage the disposal of spent fuel, which was crucial given EU restrictions on accepting radioactive materials from non-EU member states (*"Újabb paksi üzlet készül Oroszországban",* Magyar Nemzet 2003). In 2004, the Paks plant's business plan included reactor two's restart, which was not operating due to the previous year's malfunction (Ötvös 2004). Environmental and legal organizations demanded transparency from the National Atomic Energy Agency regarding expert opinions on the restart (Ötvös 2004).
By 2005, the ongoing issues with radioactive waste disposal and operational safety continued to challenge Paks's management (Haraszti 2005b). The protest of environmental organizations and the complexities of the lifetime expansion of the reactors highlighted the need for more public dialogue (Haraszti 2005b).
Hungarian and Russian experts collaborated to practice recovery work after the severe 2003 malfunction, and the restoration of reactor two was further delayed due to the complexities involved (Haraszti 2005a). In 2006, discussions about constructing new reactor blocks at Paks started, driven by the need to address Hungary's long-term energy demands and the cost-effectiveness of nuclear energy compared to conventional power plants (*"Új atomerőmű a megoldás Magyarország energiaellátására?",* Magyar Hírlap 2006). Prime Minister Ferenc Gyurcsány argued that nuclear energy was a broader issue, which includes energy policy,

security, and environmental protection (*"Új atomerőmű a megoldás Magyarország energiaellátására?",* Magyar Hírlap 2006).

Sergey Kiriyenko, Head of the Russian Atomic Energy Agency, reaffirmed Russia's commitment to safe spent fuel disposal and ongoing cooperation with Hungary (*"2 perces Interjú: Szergej Kirijenko",* Magyar Hírlap 2006a). During President Vladimir Putin's visit in 2006 in Hungary, discussions included potential financing and collaboration for the reconstruction and expansion of Paks (*"Oroszok fejlesztenék Paksot",* Magyar Hírlap 2006). Despite that, Prime Minister Gyurcsány argued that constructing new reactor blocks was not inevitable but could be considered in the future through a referendum (*"Oroszok fejlesztenék Paksot",* Magyar Hírlap 2006).

Meanwhile, Austrian Greenpeace activists protested against the continued operation of the Paks Nuclear Power Plant, urging their government to pressure Hungarian authorities (Szászi 2006a). In 2009, Paks began using a new type of fuel supplied by the Russian company, Tvel, which extended the fuel replacement period from three to five years (*"Új típusú üzemanyag Paksra",* Magyar Nemzet 2007). The debate continued constructing a new nuclear reactor in the upcoming years, when experts emphasized the need to address Hungary's increasing energy dependence and the environmental benefits of nuclear power (Pindroch 2009).

The Hungarian parliament's preliminary support for expanding Paks was critical in ensuring long-term energy security and addressing climate change concerns (Dékány 2009).

4.3. Nuclear Energy in the Hybrid Regime (2006-2022)

4.3.1. The Political Framework of the Hybrid Regime

Since 2010, Fidesz has dominated Hungarian politics; they maintained dominance through consecutive elections in 2014, 2018, and 2022, allowing them to pass significant legislative reforms and consolidate power (Bozóki 2011). Apart from Fidesz, the notable parties of this period in the Hungarian Parliament differed from the years before as new parties entered politics. Jobbik was initially a far-right party but moderated its stance in recent years; Democratic Coalition (DK), a left-liberal party founded by former Prime Minister Ferenc Gyurcsány; LMP (Politics Can Be Different), a green party focusing on environmental issues and direct democracy; Dialogue for Hungary (PM) another green, left-wing political party, founded in 2013 by former members of LMP; Momentum Movement (Momentum Mozgalom), a centrist political party founded in March 2017 and Our Homeland Movement (Mi Hazánk Mozgalom) which was established in 2018 by former members of Jobbik (Kornai 2015; Fabry 2023).

MSZP remained a significant player but struggled to regain its former influence (Batory 2016; Fábián, n.d.; Trebeljahr 2022; Pirro and Róna 2018). This period had a weakening of checks and balances, the politicization of public service, and the influence of the executive branch over the legislature (Bozóki and Hegedűs 2017). Political pluralism eroded with significant constraints on free media, opposition parties, and civil society; decision-making became more centralized, reducing public participation and transparency (Bozóki and Hegedűs 2017). While Hungary remained a member of the EU, dismantling environmental institutions has weakened the representation and enforcement of environmental and safety regulations (Bozóki and Hegedűs 2017).

4.3.2. The Historical Context of Nuclear Energy in the Hybrid Regime

In 2010, a Hungarian-Russian summit highlighted several key issues, including the expansion of the Paks Nuclear Power Plant (Máté 2010). Russian Prime Minister Vladimir Putin emphasized the importance of building a new block at Paks (Máté 2010). Viktor Orbán stated that this decision would be based on the best offer rather than nationality (Máté 2010). In 2011, Hungary committed to a stress test at Paks to ensure safety, reflecting a unified European approach to Nuclear Power Plant safety in the aftermath of the Fukushima disaster in Japan (Dékány 2011). This year, the government adopted a National Energy Strategy, underlining the importance of nuclear energy, with plans to build new nuclear reactor blocks at Paks between 2020 and 2030 (Dékány 2011; Népszava 2011; Marnitz 2011).

By 2012, Rosatom, the Russian state nuclear energy corporation, expressed a strong interest in expanding Paks, offering to finance the project and have local suppliers for the construction (Stier 2012; Szalontay 2012). This expansion became a strategic decision led by Prime Minister Orbán's government committee (Stier 2012; Szalontay 2012). In 2013, Rosatom continued the preparations for the Paks expansion, highlighting their experience and the potential for Hungarian suppliers to participate (Stier 2013). Public opinion in Hungary remained supportive of nuclear energy (Stier 2013). Hungary and Russia signed agreements to construct two new nuclear reactors at Paks with Russian loans in 2014 (Leszák 2014). Debates and criticism sparked from opposition parties and environmental organizations because the agreements were made without a tender (Leszák 2014).
Despite the criticism, the Hungarian government advocated that the investment was crucial for Hungary's energy security and economic growth (Leszák 2014).

In 2015, Hungary and Russia signed nuclear education and training agreements, reinforcing the historical cooperation in the nuclear industry (*"Nukleáris szakembereket képeznek",* Magyar Hírlap 2015). Regardless of the concerns and opposition, the Hungarian government continued to push forward with the expansion plans and emphasized the project's significance for energy security and economic development (*"Jó üzlet Paks új blokkjainak megépítése",* Magyar Hírlap 2015). In 2016, environmental groups, e.g., Greenpeace, raised concerns about the financial feasibility and environmental impact of Paks II (Hárfás 2016b). Despite this, Rosatom remained committed, and the European Commission eventually approved the investment, stating that it complied with EU state aid rules (Illés 2016; Topolay 2016; Hárfás 2016a). In 2017, the National Atomic Energy Agency issued the site permit for Paks II, and János Süli was appointed as minister for the Paks project, which strengthened the Hungarian government's commitment to the expansion (Somogyi 2017; Hargitai 2017).

In 2018, concerns about geological risks at the Paks site arose, and the government and experts discussed temporary radioactive waste storage plans, but despite these challenges, the project continued, with Hungary relying on nuclear energy to meet its climate protection goals (Hargitai 2018; Somogyi 2018; Hárfás 2018; Marnitz 2018). In 2019, significant progress was made, with over four hundred permits granted for the Paks II project (*"Készülnek a paksi engedélyek",* Magyar Hírlap 2019). Rosatom's international forum in Pécs highlighted the role of nuclear energy in climate protection, and the construction permit applications were ongoing (*"Készülnek a paksi engedélyek",* Magyar Hírlap 2019).

In 2020, the official application for the construction permit was submitted, with expectations for approval by September 2021 (Hertelendy 2020; Somogyi 2020).

The project continued despite the pandemic, with Hungarian and Russian officials assurances about its importance for energy security and climate goals (Hertelendy 2020; Somogyi 2020). In 2021, the government restructured the financing of the Paks II project, and the selection and training of the operating staff began-the Hungarian government remained committed to the expansion, emphasizing its benefits for energy security and economic growth (Somogyi 2021).

The transition from an authoritarian to a democratic to a hybrid regime in Hungary had significant implications for the country's governance, as each regime influenced the decision-making process, the level of public participation, transparency and accountability standards, and the extent of political pluralism. These transitions are important for understanding the nuclear energy discourse and how these discourses constructed nuclear energy. Throughout the presented historical times, the principle of path dependency is apparent in illustrating how historical choices and institutional legacies constrain and enable future policy options in nuclear energy. The strategic importance placed on nuclear energy from the early stages under Soviet influence set the path that continues to shape nuclear energy discussion and legitimacy, reflecting continuity and change over time. The changing legal- and institutional frameworks and strategic international partnerships highlight the complexity of navigating past decisions and commitments in shaping the legitimacy of Hungary's nuclear energy.

The following analytical chapters use this historical overview frame with Path Dependency Theory and Critical Discourse Analysis to present how discourse constructed nuclear energy legitimacy in the history of Hungary and how past events and political context shaped this legitimacy.

The chapters correspond to the three political regimes (the Communist and State Socialist Regimes, the Democratic Regime, and the Hybrid Regime) and present the political discourse and media analysis focusing on how discourse patterns of nuclear energy evolved and how these discourses constructed nuclear energy legitimacy. The chapters also discuss how nuclear energy discourse is contested and cultivated in the public sphere and present the perspectives and insights of various stakeholders involved in Hungary's nuclear energy throughout history.

5. Analytical Chapter I. The Communist and State Socialist Regimes (1948-1989)

Analytical Chapter I highlights Hungary's early challenges, key events, and geopolitical dependencies and shows how the country's continuous commitment to nuclear energy began. It includes media analysis by demonstrating how the nuclear energy discourse was contested and cultivated in the public sphere during the Communist and State Socialist Regimes. The media analysis section also offers insights into how public perceptions, debates, and controversies shaped the nuclear energy discourse and impacted the legitimacy of nuclear energy from the 1940s until the regime change in 1989.

5.1. Analytical Framework of the Communist and State Socialist Regimes Chapter

Framework	Research Question	Analytical Methods
Path Dependency Theory	How do past decisions shape future choices?	Chronological Thematic Analysis (Key Events, Lock-In Effect, Trajectory of Choices)
Critical Discourse Analysis (Textual Analysis, Interdiscursive Analysis, Contextual Analysis)	How do language and power shape discourse, and how that constructs legitimacy?	Content Analysis
		Thematic and Coding Strategies
Media Discourse Analysis	How was nuclear energy discussed and contested in the media?	Thematic Analysis (Textual Analysis)
		Narrative Analysis (Textual Analysis)
		Coding Strategies (Interdiscursive Analysis)
		Comparative Analysis (Contextual Analysis)
Regime Lens	How do political regimes influence the legitimacy and discourse of nuclear energy?	Comparative Analysis (Political Regimes Differences, Discourse Shifts)

Figure 4. Analytical Framework of the Communist and State Socialist Regimes Chapter (including Path Dependency Theory, CDA, Media Discourse Analysis and Regime Lens)

As shown in Figure 4. and discussed in more depth in the Methodology Chapter, the analytical framework analyzes parliamentary speeches, policies, and texts during the Communist and State Socialist Regimes through the lens of the regime's perspective.

When considering how nuclear energy legitimacy was constructed through discourse from the 1940s until the regime change in 1989 and how different events and the political context of this era shaped the legitimacy, the regime lens is used to understand the impact of political elites and actors on policy trajectories.

Thematic-and content analysis of policy documents is used to reveal patterns of continuity and change in nuclear energy discourse (Jeffries and Walker 2012; Laver, Benoit, and Garry 2003; Grimmer and Stewart 2013; Nefes 2022; Fairclough 1992). Three primary analytical methods, guided by the analytical framework, were used to analyze the media discourse: thematic-, narrative- and comparative analysis. Throughout the media analysis, I use the comparative angle to present how was nuclear energy discourse shaped during the Communist and State Socialist Regimes and how key events (contextual analysis) influenced these narratives (Maguire and Delahunt 2017; Grimmer and Stewart 2013; Laver, Benoit, and Garry 2003; Lochmiller, n.d.; Herzog, Handke, and Hitters 2019).

5.2. The Communist and State Socialist Regimes: Key Characteristics and External Influences on Nuclear Energy

Figure 5 displays the key characteristics of authoritarian regimes, as discussed in the previous historical overview. During the leadership of János Kádár, decision-making was highly centralized, with minimal involvement from the public, and political control extended into economic, social, and cultural domains (András Körösényi 1999). A small elite group made decisions, transparency and accountability were lacking, and the political opposition was oppressed (András Körösényi 1999; Andrew Felkay 1989; Zoltán Ripp 1998). The regime's focus on economic growth came at the expense of environmental concerns, and they enforced safety regulations selectively to align with the regime's goal (András Körösényi 1999).

Characteristics	Authoritarian Regimes	Communist and State Socialist Regimes (1950s-1989)
Decision-making	Centralized decision-making by a single leader or a small elite group. Policies are made at the top level with minimal consultation or input from the public (Győrffy and Martin 2023; Diamond 2015; Diamond, Linz, and Lipset 1995).	Decision-making was highly centralized, with minimal involvement from the public or lower levels of government (Körösényi 1999).
Level of involvement in decisions	Limited involvement from lower levels of government or citizens. Decisions are made without broad consultation or participation (Győrffy and Martin 2023; Kneuer 2021).	Public participation was minimal and political control extended deeply into economic, social, and cultural domains (Körösényi 1999).
Transparency and accountability in decision-making	Low transparency and accountability. Decision-making processes are not transparent (Győrffy and Martin 2023; Karolewski, Libin, and Patapan 2023).	Transparency and accountability were nearly non-existent, with decisions made by a small elite group and the regime focused more on economic improvements (Körösényi 1999).
Enforcement of environmental and safety regulations	Enforcement is inconsistent, with safety and environmental regulations being enforced only when they align with the regime's goals (Diamond 2015; Karolewski, Libin, and Patapan 2023).	The regime's focus on economic growth came at the expense of environmental concerns and safety regulations were enforced selectively to align with regime goals (Körösényi 1999).
Presence or absence of political diversity	Absence of political diversity. Political pluralism is suppressed (Győrffy and Martin 2023; Kneuer 2021).	Political pluralism was suppressed. Political opposition was not tolerated and dissent was repressed (Felkay 1989; Ripp 1998).

Figure 5. Key Political Regime Characteristics and External Influences on Nuclear Energy during the Communist and State Socialist Regimes (1940s-1989)

As the Historical Chapter presented, this period in Hungary was the beginning of nuclear energy and the development of the Paks Nuclear Power Plant. During this era, the government worked to gain support for the new energy source and promote it in line with Soviet expectations ("45th Session of the 1953 National Assembly" 1953). The peaceful use of nuclear energy, in opposition to its military use *"Az SzKP Központi Bizottságának 1956. május 1.-i jelszavai",* Magyar Távirati Iroda 1956), and its technological advancements (Heténi 1976), just as the role of the Soviet Union in the investment, were key topics in the Communist and State Socialist Regimes' discourse, as we saw from the historical overview- several external and internal events shaped this discourse (see in Figure 6).

Year	External Event
1945	**End of WWII**: The U.S. drops atomic bombs on Hiroshima and Nagasaki, increasing global interest in nuclear energy and weapons.
1946	**Cold War Begins**: Tensions between the Soviet Union and the West frame nuclear energy discourse, with Soviet leadership advocating peaceful uses of nuclear power.
1954	**U.S. Atoms for Peace Program**: The U.S. promotes peaceful nuclear energy, influencing global nuclear discussions.
1956	**Hungarian Revolution**: The revolution leads to political instability but also affects nuclear energy plans, as Hungary remains committed to Soviet-led nuclear technology.
1963	**Partial Nuclear Test Ban Treaty**: The U.S., USSR, and UK sign the treaty, influencing global nuclear policy and promoting peaceful uses of nuclear energy.
1973	**Oil Crisis**: The global oil crisis heightens the need for alternative energy sources, increasing interest in nuclear energy worldwide.
1977	**CMEA Agreement**: The Council for Mutual Economic Assistance member states, including Hungary, agree to rely on nuclear energy as a primary energy source.
1986	**Chernobyl Disaster**: The Chernobyl disaster raises global concerns about nuclear safety.
1989	**Fall of the Berlin Wall**: The decline of Soviet influence begins to change Hungary's political and economic landscape.

Figure 6. Key Events that Influenced the Nuclear Energy Discourse and Legitimacy during the Communist and State Socialist Regimes (1940s-1989)

The end of World War II (WWII) increased the global interest in nuclear energy and weapons, primarily due to the Hiroshima and Nagasaki atomic bombings by the United States (*"Hogy vélekedik a sajtó az időszerű kérdésekről?", Magyar Távirati Iroda (MTI)* 1945).

The start of the Cold War in the 1950s increased the tension between the West and the Soviet Union on how to frame nuclear energy discourse, with the Soviets advocating for the peaceful use of nuclear energy (*"Az SzKP Központi Bizottságának 1956. május 1.-i jelszavai",* Magyar Távirati Iroda 1956). As we will see from the media analysis, the Hungarian newspapers also discussed the peaceful use of nuclear energy with the influence of the Soviet Union. While the 1956 Hungarian revolution (Ripp 1998) led to political instability, the commitment to Soviet nuclear energy technology remained. In the 1970s, the oil crisis heightened the need for alternative energy sources worldwide, and the CMEA Agreement of 1977 strengthened Hungary's goal to use nuclear energy as a primary energy source (Gyulay 1977).

However, safety concerns about nuclear energy arose globally due to the Chornobyl disaster of 1986 (*"Újabb jelentés a csernobili atomszerencsétlenségről",* Népszabadság 1986), which significantly impacted the Hungarian nuclear energy discourse, as we will see from this analysis. The end of the Communist and State Socialist Regimes came with political and economic changes that led to a democratic transition. The analysis below presents how the regime characteristics and key events shaped the parliamentary and media discourse on nuclear energy and how the country's continued commitment to nuclear energy began.

5.3. The Role of Parliamentary Discourse in Shaping Nuclear Energy Discourse during the Communist and State Socialist Regimes

Hungary's 1940s-1989 period marked the beginning of the nuclear energy discourse and the development of the Paks Nuclear Power Plant. Hence, the themes discussed in the parliamentary documents reflect this new technological investment in the country and the political situation, namely the close relationship with the Soviet Union, as shown in Figure 7. below.

The most frequent keywords, such as the International Atomic Energy Agency, development, or peaceful use, show how the government positioned nuclear energy in the parliamentary discourse, in line with the country's geopolitical alignment and in reflection of the historical events of that time (e.g., Cold War).

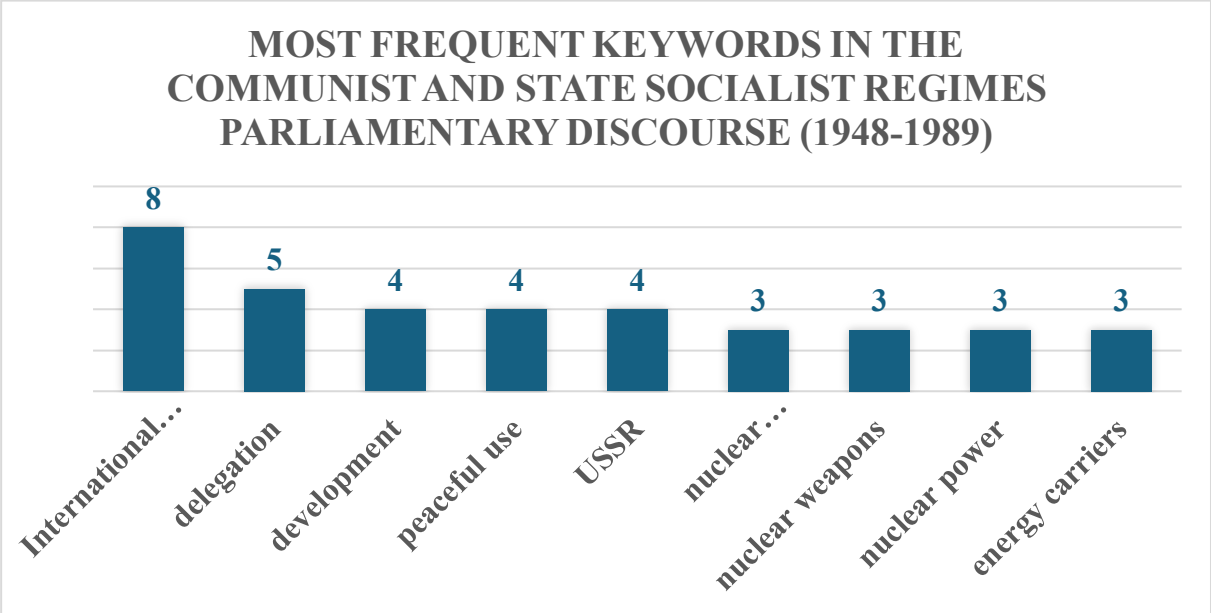

Figure 7. Most Frequent Keywords in the Communist and State Socialist Regimes' Parliamentary Discourse on Nuclear Energy from the 1940s until 1989

During this era, the government's role in nuclear energy was to gain support for the new energy source and promote it in line with Soviet expectations.

The first discussions about nuclear energy in Hungarian politics were at the 45th session of the National Assembly in January 1953 ("45th Session of the 1953 National Assembly" 1953), which showed that the government views nuclear energy as a strategic importance for improving Hungary's domestic energy supply.

The construction of an experimental nuclear reactor at Csillebérc (*Presentation of a Council of Ministers Decision* 1955) was proof of Hungary's commitment to developing nuclear energy research, facilitated by agreements within the framework of the International Atomic Energy Agency ("26th Session of the National Assembly" 1953) and bilateral cooperation with the Soviet Union ("26th Session of the National Assembly" 1953). The peaceful use of nuclear energy, in opposition to its military use (*"Az SzKP Központi Bizottságának 1956. május 1.-i jelszavai",* Magyar Távirati Iroda 1956), and its technological advancements (HeténYi 1976) were apparent in the parliamentary discussions, just as the role of the Soviet Union in the investment.

Throughout the 1950s and 1960s, a series of agreements and decisions, including the 1955 agreement on cooperation with the Soviet Union for a Nuclear Power Plant ("Convention between the Revolutionary Worker-Peasant Government of the People's Republic of Hungary and the Soviet Socialist Between the Government of the Union of Republics on Cooperation in the Establishment of a Nuclear Power Plant in the People's Republic of Hungary" 1955) and the 1956 decision to address energy shortages with Soviet assistance ("Convention between the Revolutionary Worker-Peasant Government of the People's Republic of Hungary and the Soviet Socialist Between the Government of the Union of Republics on Cooperation in the Establishment of a Nuclear Power Plant in the People's Republic of Hungary" 1955), reflected Hungary's increasing engagement with nuclear energy. These legislations aimed to establish a nuclear power infrastructure, demonstrating the country's energy security and scientific advancement.

Legislative actions from the 1950s until the 1980s included the establishment of regulations for state licensing and control of Nuclear Power Plants ("35th Session of the National Assembly" 1985),

the 1987 Ministerial Decrees on assistance in nuclear accidents (29/1987 of 9 August 1987 MT Regulation in the Event of a Nuclear Accident or Radial Emergency Assistance 1987; Decree-Law No 8/1987 Promulgating the Convention on the Physical Protection of Nuclear Material 1987; 8/1987 of 9 August 1987 MT Regulation on Nuclear Accidents, Promulgation of the Convention on Rapid Notification 1987) and efforts to diversify the energy mix to reduce oil dependence ("3rd Session of the National Assembly" 1988) highlighted Hungary's approach to nuclear energy development.

5.4. Legitimization and Argumentation Patterns of Nuclear Energy in the Parliament during the Communist and State Socialist Regimes

Key events, such as Chornobyl, were used in the political arguments opposing nuclear energy and highlighted the concerns about using this technology. During the Communist and State Socialist Regimes, the government tried to emphasize the safety of Paks, as seen from the Historical Overview chapter, despite the catastrophic disaster in Chornobyl, to strengthen the governmental position towards nuclear energy and the connection with the Soviet Union. Environmental concerns or safety risks became part of the parliamentary discussions only after the Chornobyl accident.

	Patterns of Argumentation	**Patterns of Legitimization**
1948–1989	State-Centered Discourse Limited Public Debate Focus on National Development	State Control Energy Security Economic Modernization

Figure 8. Patterns of Legitimization and Argumentation in the Parliamentary Discourse During the Communist and State Socialist Regimes (1940s-1989)

The legitimacy patterns of the parliamentary narratives reflect the argumentation patterns during the Communist and State Socialist Regimes, as seen in Figure 8. As the regimes did not provide space for opposition voices, transparency, or public participation, the small elite group that governed the country (András Körösényi 1999; Andrew Felkay 1989; Zoltán Ripp 1998), heavily influenced by the Soviet Union, shaped the nuclear energy discourse. The key legitimacy pattern was the control of the state, emphasizing the control over the energy sources. The self-imposed role of the state was to gain public support for nuclear energy, as they framed it as part of national sovereignty and independence. The government also presented nuclear energy as the driver for socialist economic modernization.

5.5. The Role of Media Discourse in Shaping Nuclear Energy Discourse during the Communist and State Socialist Regimes

Similarly to the parliamentary discourse, the authoritarian regime highly impacted the development of nuclear energy's media discourse. During the Communist and State Socialist Regimes, sentiments of the newspaper articles were overwhelmingly positive, with 79%. Only 3% of the newspapers discussed nuclear energy negatively, and 18% were neutral, as shown in Figure 9.

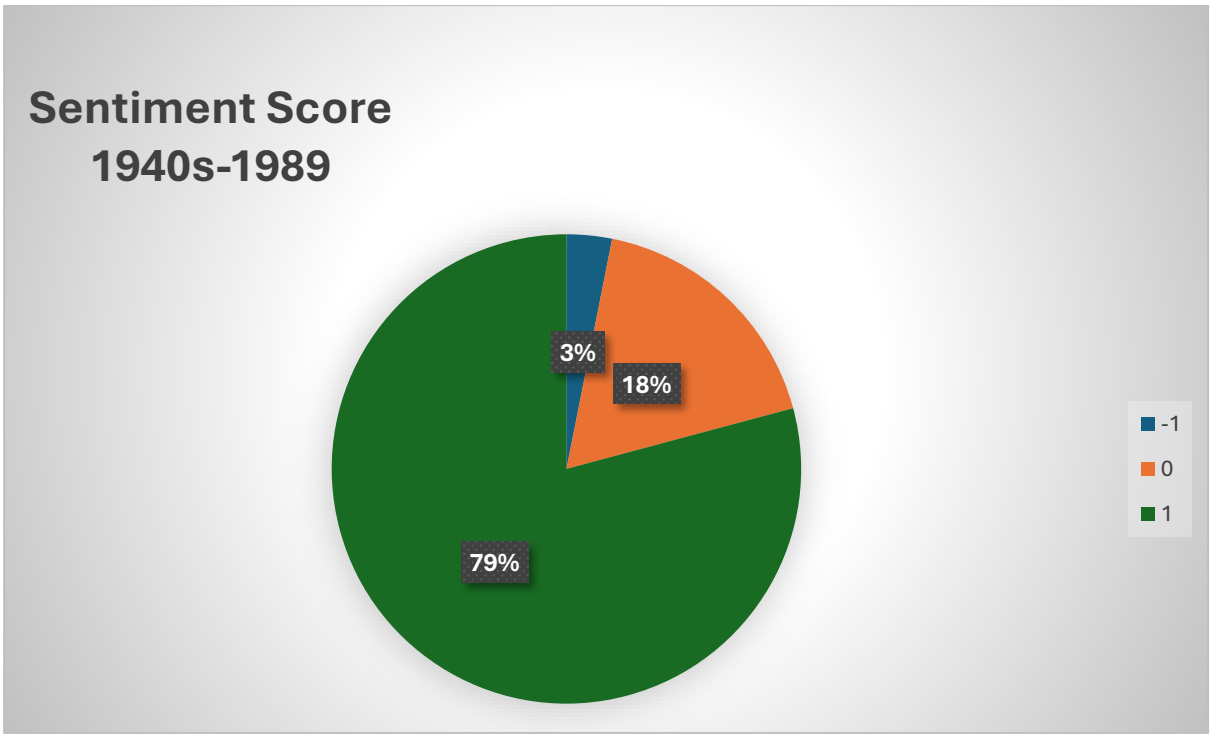

Figure 9. Sentiment Scores based on Newspaper Articles from the Communist and State Socialist Regimes (1940s-1989)

During this period, the topic of nuclear energy was introduced to Hungary through political and public discourse, and the country was tied ideologically and politically to the Soviet Union. The articles' most used words connected to nuclear energy were ‘Soviet Union, ‘Paks,’ ‘science,’ ‘development,’ and ‘economy,’ which is apparent from Figure 10. It aligns with the themes previously identified in the parliamentary discourse because, during the Communist and State Socialist Regimes, the government restricted media freedom and oppressed opposition voices.

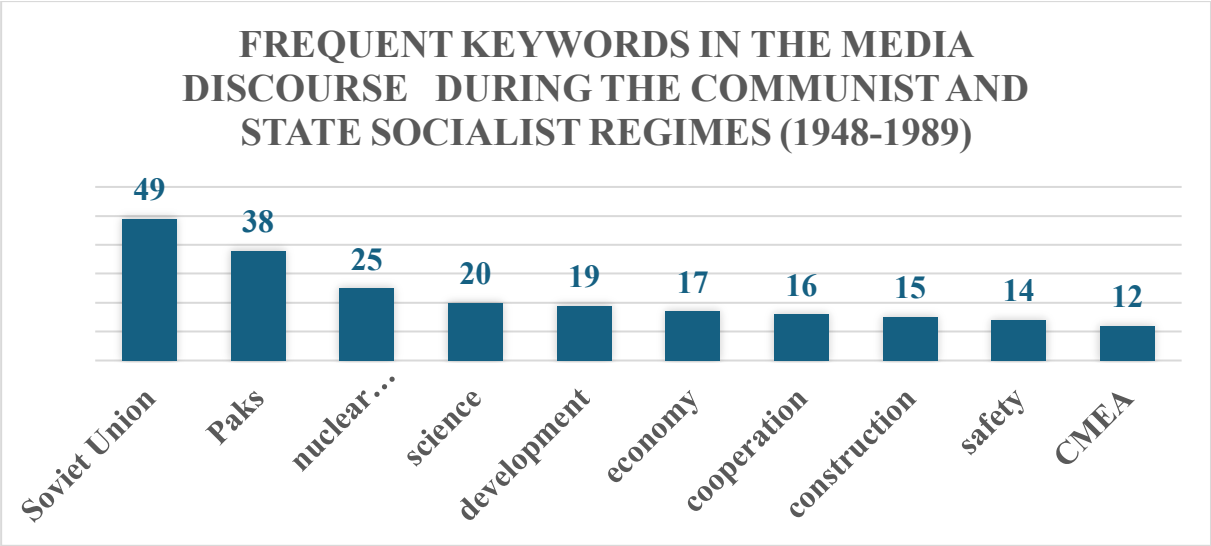

Figure 10. Frequent Keywords in the Media Discourse During the Communist and State Socialist Regimes (1940s-1989)

The earliest articles about nuclear energy in Hungary also focus on the economic potential of the energy source. In 1945, the Hungarian Telegraphic Office translated a Daily Mail article that discussed how the UK was utilizing nuclear energy for their economic interest, stating that *"The first nation that can use this nuclear energy economically will set an example for all the peoples of the world"* (*"Hogy vélekedi az angol sajtó az időszerű kérdésekről?",* Magyar Távirati Iroda 1945b). The tone of this quote reflects on the scientific novelty of nuclear energy and where Hungary wanted to place itself in the geopolitical world after the First World War with close cooperation with the Soviet Union.

The economic argument became prominent in the Hungarian public discourse by the 1960s - and 70s as the country progressed with its Nuclear Power Plant construction. As seen in the historical chapter, this aligned with the official Soviet narrative. The development of nuclear energy was continuously part of the Five-Year Plans of the Communist and State Socialist Regimes, and it was a critical connection point with the Soviet Union (Román 1970; Hetényi 1976). The construction of the Paks Nuclear Power Plant was viewed in the newspapers as a crucial step in Hungary's economic future at that time.

There was also a shift in these decades from the scientific and research angle of nuclear energy to the industrial: "*Ever since the decision was made to build the first Hungarian Nuclear Power Plant in Paks with the help of the Soviet Union, a new phase in the field of nuclear technology has begun in our country. Our previous research and experimental work expanded with the problems of the industrial utilization of nuclear energy. Excellent cooperation developed between the Soviet and Hungarian planning and operating bodies*" (*"A paksi atomerőmű felépítésével új szakasz kezdődik hazánkban az atomtechnika terén",* Magyar Hírlap 1969). The investment in nuclear energy was substantial in the relationship between Kádár and the Soviet Union. As the historical chapter presented, the late 1960s to early 1970s marked a new area in the energy market, and due to the oil crisis, countries started exploring other energy sources as well (Gyulay 1977). The role of nuclear energy in the country's economic development also became more apparent in the 1970s articles. As seen in the previous chapters, environmental concerns, energy shortages, and the finite nature of energy sources became more evident in the public discourse. "*Our relative poverty in energy carriers demands that our country utilizes the possibilities inherent in the integration of socialist countries to the fullest extent in constructing nuclear power*" (Keserű 1973). This quote illustrates how the government used the economic and demand angle to strengthen the ideological discourse on nuclear energy. As the country's economic plans evolved, so did its energy demand; the planned economic progress was no longer viable without new energy sources: "*The energy crisis and the environmental protection program are increasing the interest in Nuclear Power Plants,*" said János Valkó, a physicist in the Népszava (Koltay 1975). However, it is also evident from the earliest articles of the era that governmental discourse tied nuclear weapons to ideological and political narratives.

In 1946, for Marx's 128 birthday anniversary, Máté György (1946) wrote, "*The theory and practice of Marxism is an inexhaustible comrade-in-arms of the struggle for the liberation of the workers. The basis of Marx's philosophy and the worldview of socialism is dialectics. Not only the development of society but also the modern natural sciences, radium, the transformation of the elements, and the use of atomic energy have proved Marx's dialectical materialism against the idealist worldview as a decisive argument*" (György Máté 1946). Nuclear energy, framed as a 'collective good,' continued to appear in the articles of the Communist and State Socialist Regimes.

In an interview, the President of the National Atomic Energy Commission, for example, also highlighted the role of ideology in nuclear energy, stating that "*In our socialist society, Nuclear Power Plants do not endanger anyone's interests, but serve the interests of the entire community, at the same time, the state strictly guards the enforcement of the aspects of safety and environmental protection*" (Pető 1978). This quote again shows how the state positioned nuclear energy as national sovereignty and independence, as well as a safe and peaceful energy source (in opposition to the Western powers, as we saw from the previous section, who used nuclear weapons). The newspapers frequently mentioned safety issues, especially as the Paks Nuclear Power Plant developed. Around the time when the Paks construction started, newspapers were using their platform to calm the public and educate them about nuclear energy: *"The question may arise involuntarily: how the people of Paks received the news that a Nuclear Power Plant is under construction in the large village, which, according to the plans, will receive city status by 1980. But the people of Paks know the thermal reactor can never become a nuclear bomb; it can never explode. Opponents of Nuclear Power Plants come from those who do not know their operating principle or the data and only think about the potential danger. In Paks, you can hardly meet "opponents".*

The social organizations- among them the Patriotic People's Front- did everything to ensure that the residents of Paks received the necessary information" (Gyulay 1977). This quote shows how the government shaped the discourse through the media and tried to gain support for the Nuclear Power Plant construction.

It also shows how the regime used incentives-"Paks will receive city status"- (Gyulay 1977) to deepen the legitimacy of nuclear energy. As we can see from this quote, the pro-government newspapers not only educated and calmed the public but also strengthened the government's position by mentioning the country's ideological stance and positioning themselves against the opponents of nuclear energy.

Nevertheless, public perception of nuclear energy in Hungary sharply turned in 1986 after the Chornobyl disaster (*"Újabb jelentés a csernobili atomszerencsétlenségről",* Népszabadság 1986). It increased the concerns about nuclear energy and safety and introduced a new theme in the discourse-transparency. As the Soviet authorities, and consequently, the Hungarian authorities, were several days late reporting about the accident and then failed to explain why Chornobyl happened, the lack of transparency and safety issues became more mainstream themes about nuclear energy in Hungary.

Journalists quickly responded to the concerns and wrote articles about the increased safety and transparency at Paks. "*Following the Chornobyl accident, in addition to the technical issues of the safety of Nuclear Power Plants, legal problems also came to the fore. At that time, neither Hungary nor the Soviet Union was a member of any nuclear liability convention, so we could not claim compensation for the damage caused to our country. The Paks Nuclear Power Plant was the first of the nuclear facilities of the Eastern Bloc, an international expert group organized by the IAEA. The staff working at Paks are great; we believe this is the most important thing*" (Nagy Lantos 1989).

1989 was the year of the regime change in Hungary, so interestingly, while the newspapers were still pro-government, we can already see an effort to distance Hungary from the Soviet Union and the Eastern Bloc.

Despite the slow alienation from the Soviet Bloc in the late 1980s, Hungary's nuclear history was always closely tied to the Soviet Union during Kádár's leadership. And this cooperation frequently appeared in the discourse during this regime.

Since the beginning of the cooperation on Paks, the technical and scientific support of the Soviet Union was evident in the articles. Soviet experts trained the Hungarian workers in Novovoronezh, Soviet Union, where a Nuclear Power Plant similar to Paks was under construction. "*As always, to prepare for taking notes, I put the cigarette on the table, and I already know who ours is because of Symphonia. Introduces us to each other in a cheerful glance-wavelength that runs around. These eleven Hungarians are neither the first nor the last study group here in Novovoronezh because, since 1972, the Nuclear Power Plant has been a major international school for construction, installation, and repair management*" (Diósdi 1976). This quote shows how the country's strong ties to the Soviet Union shaped the media discourse and how vital this collaboration was for the regime. It also emphasizes the role of the Hungarian workers in building Paks, which was in line with the state discourse.

However, Diósdi wasn't the only enthusiast for nuclear technology during this period. Several other journalists praised the construction of Paks and its achievements (*"A paksi atomerőmű felépítésével új szakasz kezdődik hazánkban az atomtechnika terén",* Magyar Hírlap 1969; *"Épül a paksi atomerőmű",* 1972; *"A paksi atomerőmű új fejezetet nyit a magyar atomtechnikában",* Magyar Nemzet 1969).

While the articles praised the Soviet technology and cooperation, they also discussed the challenges of nuclear energy.

The need and responsibility of the skilled workers were evident even from the previous quote. However, newspapers also frequently discussed the developments of the safety measures at Paks, especially after 1980. As the anti-nuclear movement already appeared in the Western world during this decade (Szatmáry 1981), and safety concerns skyrocketed after Chornobyl (*"Újabb jelentés a csernobili atomszerencsétlenségről",* Népszabadság 1986), it was important for the government to counterbalance and communicate about the progress they were making at the power plant.

In 1981, the Magyar Hírlap reported about improving safety measures in consultation with IAEA: "*The National Atomic Energy Agency reviewed the work of the state energy and energy safety technical supervision in the establishment of the Nuclear Power Plant and adopted a proposal for the creation of a coordinated official, environmental and radiation protection control system for the Nuclear Power Plant*" (*"Tanácskozás Pakson",* Magyar Hírlap 1981). The role of the authorities was crucial in highlighting the safety of nuclear energy to the public, and to legitimize Paks. A year later, the media discussed that the *"operational safety is also a matter of life for people in this profession, and environmental protection issues preoccupy the population living near power plants worldwide. At Paks, we use proven technical solutions to protect against the harmful effects of radioactive materials produced during nuclear fission, and several independent protection systems protect the external environment"*(*"Tájékoztató a Paksi Atomerőműről",* Magyar Hírlap , 1982). In response to the Chornobyl accident, another newspaper wrote in 1986 that "*The Paks Nuclear Power Plant is designed for overpressure, so in the event of a malfunction, radioactive contamination cannot escape from the hermetic space—This is one of the most modern and safest solutions*" (*"Újabb jelentés a csernobili atomszerencsétlenségről",* Népszabadság 1986). As we saw from the most frequent themes in the articles of this time, safety was one of the key arguments the regimes used to legitimize nuclear energy.

5.6. Conclusion

Common Themes in the Media Discourse during the Communist and State Socialist Regimes (1940s-1989)
Economic
Economic benefits and potenials of nuclear energy
Ideology and Politics
Soviet block, energy dependency, peaceful use in oposition of Western military use
Safety and Public Perception
Safety focus, post-Chernobyl regulatory changes
Soviet Cooperation
Nuclear energy development together and with the help of the Soviet Union. Scientific and industrial cooperation.
Technology
Focus on the advantages of nuclear energy technology, enhancing safety, training skilled workers.

Figure 11. The Most Common Themes in the Media Discourse during the Communist and State Socialist Regimes (1940s-1989)

Figure 11. above shows the five main themes that determined the beginning of nuclear energy history. Several historical and political events and factors shaped these discourses, and eventually, they constructed the legitimacy of nuclear energy in Hungary. While at the beginning of the era, many articles focused on the ideological, technical, and economic benefits of nuclear power to gain legitimacy for the technology, new topics emerged during the 1970s and 1980s. At first, safety and public perception were used to strengthen the support for nuclear energy. However, because of the Chornobyl accident, the discourse shifted, and the newspapers used their platform to discuss the improved safety measurements at Paks. The themes of this period's discourse were technological and economic advancements, the development of public perception and Soviet cooperation, and the increased concerns around safety in nuclear energy.

As Hungary was under Soviet influence during this time, the most used discourse by the government to gain legitimacy was the economic and technical discourse. Nuclear energy development and the construction of the Paks Nuclear Power Plant were part of the Three-and Five-Year Plans and were presented as a potential to improve the Hungarian economy. National sovereignty and independence were another theme of the regime's discourse. The government discussed nuclear energy as a solution for Hungary's independence.

And while Hungary was closely tied to the Soviet Union, as Benjámin Szabó, the Nuclear Power Plant Investment Commissioner in the 1970s, wrote, there were sometimes ways to sneak this desire for independence into official documents: *„We knew that for neither economic nor political reasons there was no realistic chance to buy a Nuclear Power Plant from a Western country, but just in case, we deleted the second sentence from the following two sentences of the material that we prepared for the Political Committee, "The nuclear program is beyond the frames' of Hungary . The solution to this issue is possible for us only within the bloc "*(Szabó 2004). Because of the historical events, such as the Cold War, the peaceful use of nuclear energy and international cooperation were other main discourse themes during this era. The positive aspect of the Soviet-Hungarian collaboration was highlighted in several articles (Magyar Hírlap 1986; McStea, Jodah 2006; Magyar Távirati Iroda 1946; 1947a; Ripp 1998), as stated, "*excellent cooperation developed between the Soviet and Hungarian planning and operating bodies*" (*"A paksi atomerőmű felépítésével új szakasz kezdődik hazánkban az atomtechnika terén",* Magyar Hírlap 1969). Peaceful use of nuclear energy was one of the key themes of this period, and the government used it not only to gain legitimacy for nuclear energy but also to position Hungary and the Soviet Bloc as the opposite of the Western world. As a scientist, Dr. István Kovács said at a lecture about nuclear energy: "*The political role of the liberation of nuclear energy began with the two atomic bombs dropped on Japan*"(*"Atombombát gyártani minden ország tud-Kovács István dr. műegyetemi tanár előadása az atomenergia felszabadításáról",* Magyar Távirati Iroda 1949). The Minister of Justice Imre Markója also pointed out "*that one of the outstanding results of the scientific and technical revolution of our time is the utilization of nuclear energy for peaceful purposes*" (*"Atomenergia békés, biztonságos keretek között",* Népszava 1980). This thought represents the official regime narrative and the Soviet one.

Just as with the general argumentation patterns, safety concerns-and risk management were one of the key arguments to legitimize nuclear energy during the Communist and State Socialist Regimes. The key historical event that caused the spread of this argument was the Chornobyl accident in 1986 (*"Újabb jelentés a csernobili atomszerencsétlenségről",* Népszabadság 1986). After that, narratives around radiation concerns were more frequent and visible. The aftermath of the Second World War and the Cold War both raised concerns about the ethical-and moral use of nuclear power (*"A londoni ifjúsági értekezlet határozatai", Magyar Távirati Iroda (MTI)* 1945; *"Atombombát gyártani minden ország tud-Kovács István dr. műegyetemi tanár előadása az atomenergia felszabadításáról",* Magyar Távirati Iroda 1949; *"Az SzKP Központi Bizottságának 1956. május 1.-i jelszavai",* Magyar Távirati Iroda 1956). The public discourse, as presented in the media analysis, was focused on the atomic bomb and how the Western world would utilize nuclear energy. For example, Hungarian newspapers were reporting about President Truman's statement in 1945, where he "*denied that the trade minister had demanded that the secret of the atomic bomb be revealed to Russia and the other powers at the ministerial meeting on Friday*" (*"Truman az atombombáról",* Magyar Távirati Iroda 1945a). The distance between Hungary and the Western world deepened by these reports, and they also presented the disadvantages of nuclear power. This period's geopolitical tensions and foreign influence were another dominant argument due to the close ties with the Soviet Union. The following analytical chapter presents how the discourse changed after the regime change 1989 and what changes the democratization brought to nuclear energy legitimacy.

6. Analytical Chapter II. The Democratic Regime (1990-2006)

Analytical Chapter II. presents Hungary's challenges throughout the democratization process, key events, geopolitical dependencies, and how the democratic regime shaped Hungary's continuous commitment to nuclear energy. The media analysis in the chapter shows how the nuclear energy discourse is contested and cultivated in the public sphere. It also offers insights into how public perceptions, debates, and controversies shaped the nuclear energy discourse and impacted the legitimacy of nuclear energy from 1990 until 2006. The analysis of the in-depth interviews with key stakeholders is also demonstrated in the chapter to provide an understanding of how nuclear energy discourse was shaped by key events and policy decisions, how these events and decisions affected the stakeholders, what impact they had on these, and eventually, on the construction of legitimacy (interdiscursive-and contextual analysis) (Fairclough 1992).

6.1. Analytical Framework of the Democratic Regime Chapter

This chapter uses the analytical framework's tools, shown in Figure 12. In contrast to the previous chapter on the Communist and State Socialist Regimes, this chapter (and the following) includes an analysis of the stakeholder interviews.

While some stakeholders started their careers in nuclear energy in the 1980s, their experience is more relevant to the democratic and hybrid regime periods.

Framework	Research Question	Analytical Methods
Path Dependency Theory	How do past decisions shape future choices?	Chronological Thematic Analysis (Key Events, Lock-In Effect, Trajectory of Choices)
Critical Discourse Analysis (Textual Analysis, Interdiscursive Analysis, Contextual Analysis)	How do language and power shape discourse, and how that constructs legitimacy?	Content Analysis
		Thematic and Coding Strategies
Media Discourse Analysis	How was nuclear energy discussed and contested in the media?	Thematic Analysis (Textual Analysis)
		Narrative Analysis (Textual Analysis)
		Coding Strategies (Interdiscursive Analysis)
		Comparative Analysis (Contextual Analysis)
Interview Analysis	How was nuclear energy discourse shaped by key stakeholders?	Thematic Analysis (Textual Analysis)
		Narrative Analysis (Textual Analysis)
		Interdiscursive Analysis
		Contextual Analysis
Regime Lens	How do political regimes influence the legitimacy and discourse of nuclear energy?	Comparative Analysis (Political Regimes Differences, Discourse Shifts)

Figure 12. Analytical Framework of the Democratic Regime Analytical Chapter (including Path Dependency Theory, CDA, Media Discourse and Interview Analysis, Regime Lens) from 1990-2006

Thematic-and narrative analysis of the coded interview transcripts are used in the study to identify key themes, legitimization, and argumentation patterns in the discourse (textual analysis) (Jeffries and Walker 2012; Laver, Benoit, and Garry 2003; Grimmer and Stewart 2013; Nefes 2022; Fairclough 1992).

6.2. The Democratic Regime: Key Characteristics and External Influences on Nuclear Energy

Characteristics	Democratic Regimes	The Democratic Regime in Hungary (1990-2006)
Decision-making	Decision-making is more decentralized and involves consultations with various stakeholders (Győrffy and Martin 2023).	Decision-making processes became more inclusive with an emphasis on transparency and accountability Racz 2003).
Level of involvement in decisions	High involvement from various branches of government, civil society, and the public. Decisions are made through collaborative processes (Győrffy and Martin 2023; Kneuer 2021).	Public participation increased during the transition, new political parties emerged and government formed coalitions based on democratic principles (Fazekas and Fekete 2018).
Transparency and accountability in decision-making	High levels of transparency and accountability. Decisions are made transparently, with regular review from media, opposition parties and public institutions (Győrffy and Martin 2023).	Transparency and accountability were emphasized (Racz 2003).
Enforcement of environmental and safety regulations	Environmental and safety regulations are enforced, with independent regulatory agencies and judicial oversight ensuring compliance (Győrffy and Martin 2023; Kneuer 2021).	The government started focusing on nuclear safety and international standards (Hungarian Gazette 1992).
Presence or absence of political diversity	Political pluralism is present, with a wide range of political parties,ideologies and competitive elections. Citizens can freely express opposition and elect their leaders (Győrffy and Martin 2023).	Political pluralism emerged with the introduction of several new political parties, such as the Hungarian Socialist Party, MDF, Fidesz, and SZDSZ (Fazekas and Fekete 2018).

Figure 13. Key Political Regime characteristic that shaped the Nuclear Energy Legitimacy During the Democratic Regime (1990-2006)

The Fall of the Berlin Wall in 1989 and the collapse of the Soviet Union marked the beginning of democracy in Hungary (Körösényi 2015), as the discussion in the historical chapter presented. Figure 13. summarizes the key characteristics of the democratic regime type based on the overview of the historical chapter. The democratization brought more inclusive, transparent, and accountable decision-making to the country (Racz 2003). Public participation increased, and political pluralism appeared during this era (Fazekas and Fekete 2018). New political parties emerged, and governments formed coalitions based on democratic principles (Fazekas and Fekete 2018).

At the beginning of democracy, the government focused more on nuclear safety and international standards (*"Ahonnan a hazai villamosenergia-termelés fele származik*Magyar Hírlap 1992).

As Figure 14. presents one of the key events that impacted the emergence of stricter safety regulations: the International Atomic Energy Agency compliance (Gubcsi 1992) and, later in this era, the EU accession negotiations (*"Csak Pakssal szemben nincs kifogása az EU-nak",* Világgazdaság 1999). Nuclear safety and radiation protection were crucial to Hungary's negotiations for EU accession (*"Üveghután épül meg a tároló Paks termeli a legolcsóbb áramot",* Népszabadság 2000). While the Soviet Union collapsed, Hungary continued cooperating with Russia in nuclear energy due to its' previous commitment to Soviet nuclear technology: the two countries strengthened their relationship by signing a fuel agreement during this era (Government Decree No 244/2004 The Government of the Republic of Hungary and the Government of the Russian Federation between the Paks NPP Russian-Made Spent Nuclear Fuel to the Russian Federation on the Publication of a Signed Protocol on the Conditions for Its Return 2004). As we will see from this analytical chapter, path-dependent relationships became contested during the democratic regime. The malfunction at Paks in 2003 revoked the discourse on safety, and many started to challenge the government's economic and political reasoning for nuclear energy (*"Egy üzemzavar anatómiája",* Magyar Hírlap 2003; *"Pakson a tartály hibás",* Budapest Day 2003).

Year	External Event
1989	**End of the Cold War**: The fall of the Berlin Wall and the collapse of the Soviet Union led to Hungary's shift towards democracy and integration into Western political structures.
1992	**International Atomic Energy Agency (IAEA) Compliance**: Hungary's nuclear industry aligned more with global safety and environmental standards, reducing global resistance to nuclear power.
1994	**Hungary-Russia Agreement on Spent Fuel**: Hungary and Russia negotiate to manage spent nuclear fuel and radioactive waste, continuing Hungary's reliance on Soviet-era agreements.
1996	**EU Integration**: Hungary's nuclear policies and safety standards were aligned with EU norms.
1999	**EU Accession Negotiations**: Hungary closed the energy chapter of EU accession talks.
2000	**Hungary's Nuclear Legislation Meets EU Standards**: Hungary's nuclear energy laws were found compatible with EU requirements.
2001	**Agreement with Australia on Uranium Supply**: Hungary diversifies its uranium sources, reducing dependence on Russia.
2003	**Malfunction at Paks NPP:** concerns that management prioritized economic–and political considerations over safety

Figure 14. Key Events that shaped the Nuclear Energy Legitimacy Through Discourse During the Democratic Regime (1990-2006)

The analysis below presents how the democratic regime characteristics and key events shaped the parliamentary and media discourse on nuclear energy and how the country's commitment to nuclear energy continued.

6.3. The Role of Parliamentary Discourse in Shaping Nuclear Energy Discourse during the Democratic Regime

The policies of the democratic period reflect the transformative years. The alignment of the Vienna Conventions through Government Decree No. 130/1992 (*Government Decree No 130/1992 (IX.3.) the Vienna Convention on Civil Liability for Nuclear Damage and the Paris on Civil Liability in the Field of Nuclear Energy Joint Convention for the Application of the Convention, Signed on 20 September 1989 Publication of Minutes* 1992) established a framework for nuclear energy liability. Subsequent laws like Act CXVI of 1996 (*Act CXVI of 1996 on Nuclear Energy* 1996) set guidelines for the peaceful utilization of nuclear energy in Hungary. These legislative acts illustrate Hungary's dedication to harmonizing its nuclear energy policies with safety standards and practices influenced by democratization and changing geopolitical circumstances.

Hungary's involvement with nuclear safety frameworks, including ratifying the Additional Protocol to the Convention with IAEA in 1999 (*Bill Adopted by the United Nations General Assembly on 10 September 1996 Comprehensive Nuclear-Test-Ban Treaty on Its Ratification and Promulgation by the Republic of Hungary* 1999) and implementing the Joint Convention on Safety of Spent Fuel Management in 2001 (*Act LXXVI of 2001 Spent Fuel within the Framework of the International Atomic Energy Agency Management Safety and Radioactive Waste Management Promulgation of the Joint Convention on Security* 2001) demonstrated a stance towards nuclear safety and non-proliferation. On May 1st, 2004, Hungary became part of Euratom (European Commission 2005) upon joining the European Union.

In 2004, the government's decision to send back the spent nuclear fuel to Russia (*Government Decree No 244/2004 The Government of the Republic of Hungary and the Government of the Russian Federation between the Paks NPP Russian-Made Spent Nuclear Fuel to the Russian Federation on the Publication of a Signed Protocol on the Conditions for Its Return* 2004) highlighted the significance of handling radioactive waste under strict EU regulations.

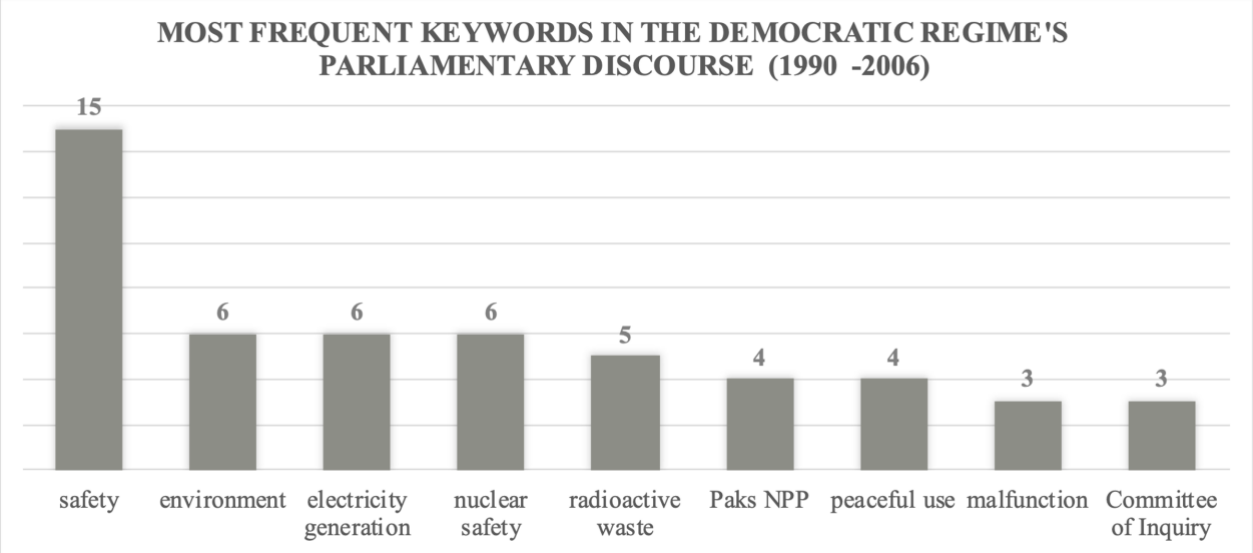

Figure 15. Most Frequent Keyword in the Parliamentary Discourse on Nuclear Energy During the Democratic Regime (1990-2006)

As shown in Figure 15., in the democratic contexts, between 1990-2006, parliamentary debates reflect a wider range of opinions than during the Communist and State Socialist Regimes. With the emergence of new parties, the Hungarian parliamentary culture became democratic, and politicians freely expressed their views (Győrffy and Martin 2023). The most frequent discussions on nuclear energy focused on safety and environmental issues, which reflected the new democratic values of the country; both supporting and opposing discourses on nuclear energy appeared in Parliament, as illustrated in the quotes below.

"*Most of our compatriots refer to this word as Chornobyl or perhaps Hiroshima. For many, this word is a word of fear. Still, this fear is fueled by fear of the human weaknesses that caused these two tragedies*" Dr. Miklós Simon (FKGP, Independent Smallholders, Agrarian Workers, and Civic Party) ("Debate on the Report on the Safety of the Domestic Use of Nuclear Energy in 1999, as well as the Related Parliamentary Resolution Proposal" 2001).

"*The past decades have proved that Nuclear Power Plants can be operated properly and safely by regularly and continuously maintaining appropriate safety standards and continuously raising the level of control*" Imre Sződi (MSZP, Hungarian Socialist Party) ("Continuation of the General Debate on the Proposal for a Parliamentary Resolution on the Government Actions Necessary Due to the Construction of the Mohi Nuclear Power Plant" 1995).

Key events, such as Chornobyl and Hiroshima, were used in the parliamentary discourse to oppose nuclear energy and highlight the concerns about the use of this technology ("Debate on the Report on the Safety of the Domestic Use of Nuclear Energy in 1999, as well as the Related Parliamentary Resolution Proposal" 2001). While during the Communist and State Socialist Regimes, the government tried to highlight the safety of Paks, in the democratic era, the opposing voices appeared in the political debates. However, in the 1990s, the Hungarian Socialist Party continued to support nuclear energy, as seen in the quote by Imre Sződi above ("Continuation of the General Debate on the Proposal for a Parliamentary Resolution on the Government Actions Necessary Due to the Construction of the Mohi Nuclear Power Plant" 1995).

This support will be contested during the hybrid regime, as discussed in the following chapter, which shows how certain political actors reshape their discourse on nuclear energy to delegitimize the technology due to external factors and events. Benedek Jávor (Jávor 2021) also mentioned the socialist support of nuclear energy in the interviews.

As he explained, a political support group for nuclear energy was formed during this period, until 2010, within the Parliament Jávor (Jávor 2021). Jávor described it as they called, the 'Fónagy Podolák Pact' (Jávor 2021).

János Fónagy, MP of Fidesz, was the leading energy politician at the time; Podolák was of MSZP, and thus, in the Hungarian energy sector, there was roughly a consensus between the two sides that nuclear energy would be in the Hungarian energy mix in the long term (Jávor 2021).

Compared to the Communist and State Socialist Regimes, the argumentation patterns changed during the democratic period. The more pluralistic political landscape in the parliament (Kiss 2019; Győrffy and Martin 2023; Racz 2003) reflected diverse topics in nuclear energy, such as environmental concerns and transparency.

Opposing narratives arose in the parliamentary debates, and public engagement became more prominent (e.g., as seen in the Historical Overview, the emergence of the anti-nuclear NGOs also influenced the discussion on nuclear in the Parliament (Székely 1996). In Figure 16., we also see how, after 1989, the democratization process influenced the legitimization patterns in the parliamentary discourse.

Period	Patterns of Argumentation	Patterns of Legitimization
1990–2006	Diverse Opinions Balancing Economic Benefits with Environmental and Safety Concerns Increased Transparency and Public Debate	Democratization Public Safety Environmental Sustainability EU Integration

Figure 16. Patterns of Argumentation and Legitimization in the Nuclear Energy Discourse Throughout the Democratic Regime (1990-2006)

The safety concerns raised several times were due to the key events of this period, like the 2003 malfunction (Magyar Hírlap 2003; Hungarian Atomic Energy Authority 2003; Zoltán Szalai 2003; Budapest Day 2003).

However, even the Chornobyl disaster raised safety concerns about nuclear energy, apparent from the parliamentary debates ("Debate on the Report on the Safety of the Domestic Use of Nuclear Energy in 1999, as well as the Related Parliamentary Resolution Proposal" 2001). With the emergence of environmental NGOs (Székely 1996), environmental issues (e.g., radioactive waste) also shaped the nuclear energy discourse. The EU accession process was another determinative event during this era, which affected the legitimacy patterns in the nuclear energy discussion (Világgazdaság 1999; Népszabadság 2000).

6.4. The Role of Public Discourse in Shaping Nuclear Energy Discourse during the Democratic Regime (Media Analysis and Stakeholder Interviews)

The regime changes in Hungary not only transformed the country's political system but also altered the public debate on nuclear energy. From 1990 until 2006, new issues emerged in the public discourse, and critical and opposition voices entered the discussions, similar to what the parliamentary analysis discussed.

With the new democratic system anti-nuclear movement, radioactive waste issues and the political angle of nuclear energy became more prominent.

As the Paks Nuclear Power Plant experienced its' first serious malfunction in 2003, concerns around safety and maintenance became more frequent (*"Pakson a tartály hibás",* Budapest Day 2003): this is evident from Figure 17 on the most frequent keywords in the media discourse. While Hungary officially detached itself from Russia, the historical relationship due to Paks's technology, several binding agreements, and the continuous commitment to nuclear energy were still prominent topics in the public narrative. The determinative event of the period was Hungary's EU accession, which required legal changes in nuclear energy (*"Csak Pakssal szemben nincs kifogása az EU-nak",* Világgazdaság 1999; *"Üveghután épül meg a tároló Paks termeli a legolcsóbb áramot",* Népszabadság 2000).

The economy and the price of nuclear energy were still part of the discussion but not as frequently as during the Communist and State Socialist Regimes.

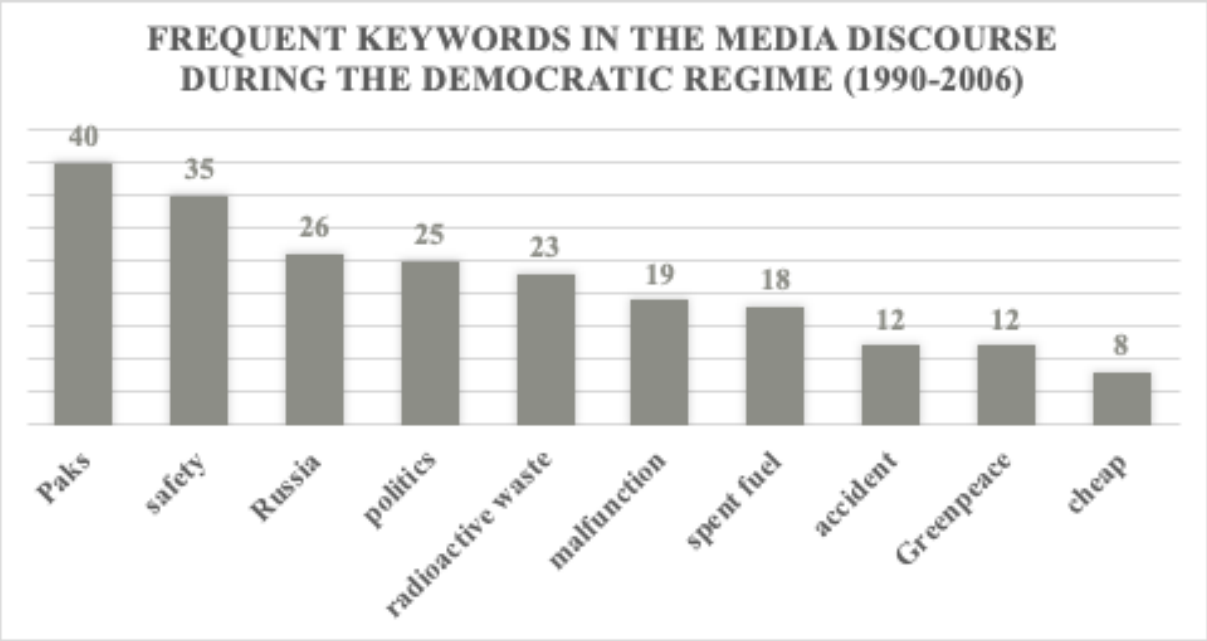

Figure 17. Most Frequent Keywords in the Media Discourse on Nuclear Energy During the Democratic Regime (1990-2006)

The sentiment scores present the shift in the democratic era as well in Figure 18. The articles from this period show balanced data. 43% of the articles discussed nuclear energy as positive, 33% as negative, and 24% neutral.

The appearance of the anti-nuclear voices, the more diverse political landscape, and the more frequent issues with Paks explain the higher number of negative sentiments. The neutral sentiments come primarily from the articles discussing the changing legal framework of nuclear energy due to the EU accession (*"Csak Pakssal szemben nincs kifogása az EU-nak"*Világgazdaság 1999; *"Üveghután épül meg a tároló Paks termeli a legolcsóbb áramot"*Népszabadság 2000).

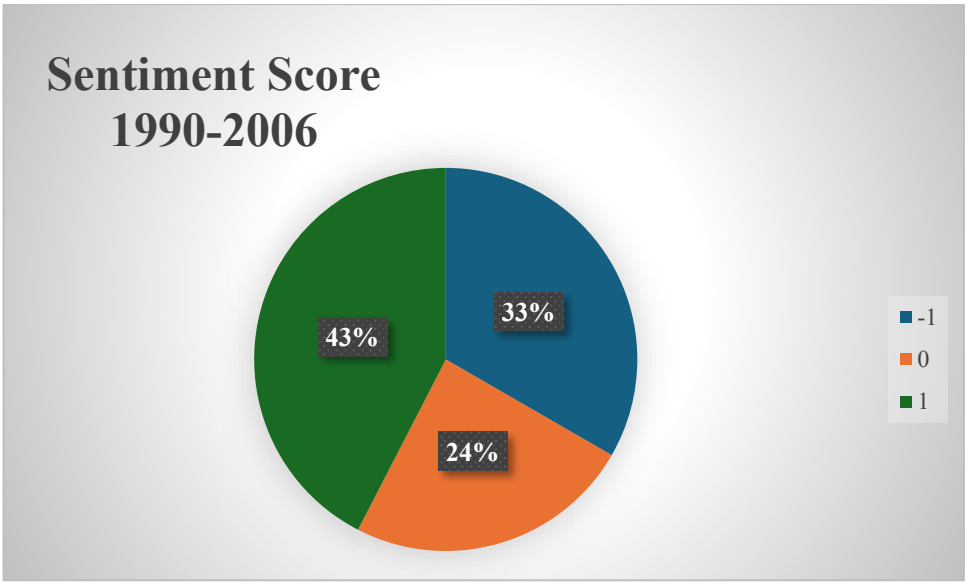

Figure 18. Sentiment Score of the Newspaper Articles on Nuclear Energy During the Democratic Regime (1990-2006).

After the Chornobyl accident, the safety concerns increased, and new safety issues appeared at Paks. While the narrative around the safety measurements was evident in the articles during the late 1980s, in 1991, the problem of the power plant's location came to the surface and became part of the discussion. "*Apart from unavoidable human errors, Paks is also endangered because it is located along a geological fault line. Since the Paks power plant is built on the bottom of the Danube basin, in the event of a disaster, it is conceivable that the spilled radioactive pollution would settle in the basin itself. The energy strategy of the decades during Kádár (many of the developers of which are still sitting at their desks today) was used by Stalin's gigantomania to solve the country's increasing need for electricity in the coming decades by expanding Paks*" (Lipták 1991). In the early 1990s, Paks became a symbol of the Soviet Union and the project that the public started questioning. The newspapers echoed the public concerns around the over-politicization of the nuclear energy industry and the environmental consequences of the power plant.

With the democratic transition, opposition voices and non-governmental organizations also appeared in the public debates by the middle of the 1990s. International environmental organizations, such as Greenpeace, started to protest against nuclear energy and raised concerns about the safety of Paks. "*The fact is that Paks is not safe enough either, says Greenpeace. They pulled out documents, including a report from the International Atomic Energy Agency on Paks, which stated: There have been persistent problems in the power plant operation due to weaknesses in personal vigilance and safety culture. Many problems attributed to deficiencies in control and monitoring may indicate the aging of the equipment and the weakness of preventive maintenance. In other words, the people of Paks once acted like the poor man: if your clothes are tattered and you don't have money to patch them, close half your eyes*" (Székely 1996).

The increasing transparency and accountability of the governments of this period due to the democratic transition (Dóra Győrffy and József Péter Martin 2023; Barnabas Racz 2003; Fazekas, Csaba and Fekete, Sándor 2018) encouraged the public to participate in the nuclear energy discussion, and public participation allowed the green movement to start expressing their concerns and contest nuclear energy. Although, as Benedek Jávor mentioned in the interview: "*The Greens were basically against nuclear energy on principle and due to environmental and safety risks, but there was not really a mature proposal as to what would replace it if Paks were removed*" (Jávor 2021). So, while the contesting civil society voices got more space in the public discourse on nuclear energy, they did not offer tangible solutions then. Dr. Attila Aszódi (2021) also mentioned in the interview why sometimes he collides with the Greens or opposition, claiming that he has a technical picture of how this system works.

He explained, "*For a while, I thought these people had to be convinced, but today, I don't think so because I think that what I misunderstood or thought wrong was that I didn't think through the motivation. There are always civil organizations where the goal is not to clarify a technical, professional, scientific, or social issue. Still, I realized that these actors often fulfill some political goal*" (Dr. Attila Aszódi 2021). While it is clear that for Dr. Aszódi, the role of science and technology is essential, this quote (together with the previous ones) highlights how little credit the Greens received when working on nuclear energy. Based on these discussions, there is a clear distinction between technical and civil actors in the nuclear energy field. It is also transparent that while the democratic regime provided civil society with more participation rights, politicians and experts criticized how they framed their concerns about nuclear energy.

The AGNES program aimed to address environmental concerns (*"Paks megfelel az előírásoknak",* Magyar Hírlap 1995); however, as we saw in Figure 17, safety continued to dominate the public narrative during this time and allowed the opposition of nuclear energy to keep the debate on the newspapers' agenda. Dr. Szabolcs Hullán, who worked as a deputy director general at the Hungarian Atomic Energy Authority during our interview, explained, "*When I came here in 1992, a modern authority that met the expectations of that time had already begun to take shape, and in fact, this process was completed over the past 30 years"* (Hullán 2021). He added that the "*official tools have not changed fundamentally; at most, the activities we carry out have become more diverse, and the emphasis may have changed*" (Hullán 2021). Dr. Hullán confirmed the comprehensive regulations the Authority and the Nuclear Power Plant must follow based on the OECD, IEA, and EU directives (Hullán 2021).

The previous section shows that the democratic process emphasizes safety and a strong regulatory framework. One of the key events of this period was Hungary's accession to the EU, and the transition required the country to make significant changes in the legal-, economic- and policy fields. The legal transition of Paks went smoothly, which is apparent from the articles during this time: "*Nuclear safety and radiation protection are two of the EU's negotiations chapter —energy, environmental protection - was also mentioned. The success of domestic nuclear energy is that, among the countries awaiting accession, the energy chapter of our country was closed. It means that from an energetic point of view, Hungarian atomic energy is EU-compatible, informed József Rónaky, Director General of the Hungarian Atomic Energy Authority*" (*"Üveghután épül meg a tároló Paks termeli a legolcsóbb áramot",* Népszabadság 2000). The strengthened safety regulations were crucial not only for EU accession but also to further distance the country from the Soviet Union. However, the articles show the transition away from the Soviet past to the EU future was not without tensions. "*When we built it [Paks], there was no appeal. It's just an advantage. Now for the cons. They say and certify that it is safe…The people of Paks are looking for a solution. It takes money. Billions. Yes, please, more and more money is needed for safety. We play Reactor Roulette. We plan to build - because we need energy - and then we protest because there are also dangers. We want to keep the danger and garbage safe somewhere else"* (*"Reaktorrulett",* Népszava 1995). This quote demonstrates that the economic theme was just as frequent in this period as during the Communist and State Socialist Regimes, but the sentiment changed from positive to negative. While some articles still discussed the affordability of the Nuclear Power Plant (*"Üveghután épül meg a tároló Paks termeli a legolcsóbb áramot",* Népszabadság 2000), other themes, such as environmental issues, contested these narratives often.

The malfunction in 2003 opened a national debate about the safety of Paks: "*The specialists of the Austrian environmental protection organization Global 2000 could not be swayed from the state of general mistrust. At the end of the week, they visited Paks with their measuring instruments. Global 2000 is happy that finally, after more than a week's delay, the management of Paks and the Hungarian government admitted that radioactive contamination was also released into the environment of the power plant. However, it did not pose a danger*" (*"Egy üzemzavar anatómiája",* Magyar Hírlap 2003). But safety wasn't the only issue constantly visible in the media discourse. Radioactive waste management and spent fuel were also frequent topics. From the 1990s, it became clear that the Hungarian government was struggling to find a solution for radioactive waste storage: "*The spent fuel from the Paks Nuclear Power Plant have been - and are being transported - back to Russia, but due to the uncertain Russian political and economic conditions, a temporary storage facility was built in Paks, with the possibility of storage for about fifty years. At the initiative of the Hungarian Atomic Energy Agency, the government launched a national project in 1992 that was suitable for selecting locations and building storage. It is worth remembering that the first plan, the proposed placement in Ófalu in Baranya County, was opposed by the population in early 1990 and failed*" (Szentgyörgyi 1998). This quote also illustrates the struggle with the path-dependent relationship with Russia.

Besides the issue of radioactive waste, environmental protection, and sustainability themes have become more prominent in public discourse these decades. One of the biggest debates about nuclear energy concerning the environment was whether nuclear energy is a sustainable option or an energy source for the future of Hungary.

As József Kovács, the head of the Paks Nuclear Power Plant Ltd., stated: "*For the sake of sustainable development, we must not give up on nuclear energy… even exploiting renewable energy sources can be more efficient by relying on nuclear energy*" (*"Paks termeli a legolcsóbb áramot",* Magyar Nemzet 2005).

Gyula Hegyi, socialist party member of the European Parliament's environmental protection committee, said that *"regarding nuclear energy: Paks will have to be closed when its production can be replaced by renewable energy. Those who want to close the Nuclear Power Plant to make us even more dependent on imported and environmentally harmful fossil energy, on the international oil lobby, do not serve the country's interests or the environment*" (*"Megújuló energia-és gondolkodás",* Magyar Hírlap 2005).

It is important to mention that in 2005, the Hungarian Socialist Party was governing Hungary, and, as we saw already from the above sections, the socialists later became opponents of Paks. But during this time, they were in favor of nuclear energy. Meanwhile, environmental organizations were contesting nuclear energy in the media discourse: "*The Austrian Greenpeace not only listed objections to the Paks nuclear reactor but also made proposals for the substitution of nuclear energy*" (Szászi 2006b). However, the environmental angle was not the only one discussed regarding the future of nuclear energy. In the 1990s and early 2000s, it became clear that something should change with Paks due to the growing energy demand of Hungary. As the then CEO of Paks Nuclear Power Plant, Csaba Baji, also explained, "*The construction of a new block or blocks also comes up again and again. In this regard, what is the situation now? - This requires parliamentary consent, environmental studies must be prepared, public forums must be organized, and it must be decided which type of reactor has already been proven in terms of its safety and performance.*

We cannot expose ourselves to the danger that the political course change that may occur on the Russian side in any way affects nuclear waste disposal" (Regős 2002).

This quote illustrates the frequent official narrative of this period well and highlights the main themes that determined the discourse in this era, as shown in the section below.

6.5. Legitimization and Argumentation Patterns of the Public Discourse during the Democratic Regime

After the political transition, the Hungarian governments typically used economic stability and energy security legitimacy patterns to gain-and maintain public support for nuclear energy. As Ede Teller stated, "*Nuclear energy is not only irreplaceably necessary but also clean, cheap, and safe. Paks, for example, is a first-class, completely safe power plant, and a decision should be made on its future in time. And the future - according to the law of knowledge and life - is not downsizing, but modernization*" (Füzes 1995). The prominent legitimization pattern of the democratic regimes was the environmental benefits and climate change mitigation strategy: "*The value of renewable energies is rising due to the gradual exhaustion of traditional energy carriers. However, due to high prices and uncertain technical limitations, these currently do not meet the growing energy demands. Therefore, the Paks Nuclear Power Plant, which provides 40 percent of domestic electricity production, must play an increasing role in the future, stated György Szerdahelyi, the Head of Department at the Ministry of Economy. According to György Mészáros, chairman of the board of the Paks Nuclear Power Plant Ltd., nuclear energy production is decisive from the point of view of environmental and climate protection*" (Mayer 2002).

One of the key historical events of this era was Hungary's EU accession (*"Csak Pakssal szemben nincs kifogása az EU-nak",* Világgazdaság 1999; *"Üveghután épül meg a tároló Paks termeli a legolcsóbb áramot",* Népszabadság 2000), another legitimization pattern governments used for nuclear energy.

These regulatory changes provided a base for arguing for the modernization of the power plant, as shown in the following quote: "*The Paks Nuclear Power Plant can be considered safe even by the standards of the European Union. However, the facility's modernization has not stopped today either. Security-enhancing interior renovations are ongoing… Just recently - in connection with the EU accession - we investigated: do these security philosophies work, and it turned out that they do* "(*"Mindvégig a biztonság volt a legfontosabb",* Népszava 2002).

In contrast to the safety and regulatory discourse, while the Chornobyl disaster was further away in time, it was still frequently a topic in the Hungarian newspapers. The economic cost of nuclear energy was another prominent argument of this era (as seen from Ede Teller's quote in the above section), especially concerning the aging Paks reactors and the increasing need for power plant expansion. As the discussion above shows, while contesting discourse appeared during the democratic transition, the concerns about radioactive waste also increased. After the 2003 Paks Nuclear Power Plant malfunction, these concerns gained more attention in the public discourse. The economic cost of nuclear energy was another important argument, especially when comparing nuclear and renewable energy sources. Furthermore, the democratization process increased the pattern of public opinion and democratic accountability in the arguments.

Environmental organizations now had a chance to openly oppose or protest nuclear energy and discuss their concerns in the public sphere. For example, experts of environmental organizations were able to attend Parliamentary Committee meetings and raise opposing voices in the debate about the possible expansion of Paks (when all political parties were in favor of the proposal): "*The only opponent of the ideas was András Perger, who spoke on behalf of the Energiaklub, Greenpeace, the Clean Air Action Group and Friends of the Earth Hungary…*

In his opinion, the proposal for a resolution on a principled position is not suitable for a parliamentary debate, among other things, because its justification is only one and a half pages, even though it is a decision for sixty years" (Dékány 2009). Dr. József Kóbor (2021) also discussed in the interview that before 2010, Members of the Parliament appreciated his nuclear energy knowledge and experience.

He recalled that "b*efore 2010, Fidesz called me twice to discuss the nuclear law… 1996, Fidesz read the material I wrote for Energiaklub as a Fidesz position in the Parliament. And then, screaming with rage, I called Illés (Zoltán): what the hell? And then Illés said, Józsika (nickname for József), then come in as an expert. So, I was an expert for Fidesz's position on nuclear law in 1996. At that time, I attended parliamentary committee meetings several times"* (Kóbor 2021). The following analytical chapter presents how the inclusion of civil society and experts in the nuclear energy discourse in the Hungarian Parliament changed with the hybrid regime.

6.6. Conclusion

As Figure 19. shows some changes in the mainstream themes about nuclear energy during the 1990s and early 2000s compared to the Communist and State Socialist Regimes. After the regime change in 1989, the relationship with Russia altered, and there were more negative sentiments about the two countries' cooperation in nuclear energy in the public debate. While during the Communist and State Socialist Regimes, energy security-and dependence meant that Hungary must work together with the Soviet Union, in the democratic times, it became clear that these phrases meant the distancing from Russia.

Common Themes in the Media Discourse during the Democratic Regime (1990–2006)
Environmental Issues
Radioactive waste and spent fuel issues, search for storage, hightened awarness about climate change and renewables
Political and Economic Changes
Regime change, transitioning from the Soviet Union to EU, energy security, energy dependence
Public Perception
2003 Paks malfunction created distrust, anti-nuclear movement gets more prominent
Safety
Alignments with Western safety standards
Technology
Operational challenges, lifetime expansion, EU accession

Figure 19. Common Themes in the Media Discourse on Nuclear Energy During the Democratic Regime (1990-2006)

Due to the emerging opposition voices, more emphasis was placed on environmental concerns in the public discourse, especially on radioactive waste management and the role of nuclear in the fight against climate change. Distrust in nuclear energy also grew, especially after the 2003 malfunction at Paks (*"Egy üzemzavar anatómiája",* Magyar Hírlap 2003; Budapest Day 2003). Because of Hungary's EU accession, discussions on safety and technology became more prominent in public discourse (*"Csak Pakssal szemben nincs kifogása az EU-nak",* Világgazdaság 1999; *"Üveghután épül meg a tároló Paks termeli a legolcsóbb áramot",* Népszabadság 2000).

Nuclear energy was part of the political discourse, whether there was a discussion about the future energy sources or regulatory questions. The last analytical chapter presents the analysis of the hybrid regime. It shows how discourse shaped nuclear energy legitimacy during that period, what shaped this discourse, and how that strengthened the government's commitment to nuclear energy.

7. Analytical Chapter III. The Hybrid Regime (2006-2022)

Analytical Chapter III presents key events and geopolitical dependencies from the hybrid regime period and how Hungary strengthened its commitment to nuclear energy during this era. The parliamentary discourse and media analysis show the growing opposing narratives about nuclear energy and show how the legitimacy of nuclear energy was contested and cultivated. The stakeholder interview analysis provides an understanding of the nuclear energy discourse and presents the impacts that framed the legitimacy of nuclear energy through discourse. The Hybrid Regime Analytical chapter timeframe was established based on Körösényi's regime characterization (2015), as he described the period after 2006 as a shift towards a hybrid regime with a mix of democratic and autocratic features (Körösényi 2015).

7.1. Analytical Framework of the Hybrid Regime Chapter

This chapter utilizes the analytical tools provided by the analytical framework, as seen in Figure 20. I used thematic-and narrative analysis of the coded interview transcripts in the study to identify key themes, legitimization and argumentation patterns in the discourse (textual analysis) (Jeffries and Walker 2012; Laver, Benoit, and Garry 2003; Grimmer and Stewart 2013; Nefes 2022; Fairclough 1992) combined with comparative analytical tools (Maguire and Delahunt 2017; Grimmer and Stewart 2013; Laver, Benoit, and Garry 2003; Lochmiller, n.d.; Herzog, Handke, and Hitters 2019).

Framework	Research Question	Analytical Methods
Path Dependency Theory	How do past decisions shape future choices?	Chronological Thematic Analysis (Key Events, Lock-In Effect, Trajectory of Choices)
Critical Discourse Analysis (Textual Analysis, Interdiscursive Analysis, Contextual Analysis)	How do language and power shape discourse, and how that constructs legitimacy?	Content Analysis
		Thematic and Coding Strategies
Media Discourse Analysis	How was nuclear energy discussed and contested in the media?	Thematic Analysis (Textual Analysis)
		Narrative Analysis (Textual Analysis)
		Coding Strategies (Interdiscursive Analysis)
		Comparative Analysis (Contextual Analysis)
Interview Analysis	How was nuclear energy discourse shaped by key stakeholders?	Thematic Analysis (Textual Analysis)
		Narrative Analysis (Textual Analysis)
		Interdiscursive Analysis
		Contextual Analysis
Regime Lens	How do political regimes influence the legitimacy and discourse of nuclear energy?	Comparative Analysis (Political Regimes Differences, Discourse Shifts)

Figure 20. Analytical Framework of the Hybrid Regime Analytical Chapter (including Path Dependency Theory, CDA Media and Interview Analysis, and Regime Lens)

7.2. The Hybrid Regime: Key Characteristics and External Influences on Nuclear Energy

As Körösényi (2015) describes, there was a shift towards a hybrid regime with a mix of democratic and autocratic features after 2006. Figure 21. presents how, after 2010, Fidesz dominated Hungarian politics with more centralized decision-making (Bozóki 2011; Bozóki and Hegedűs 2017). Public participation became minimal, and opposition parties faced restrictions (Bozóki and Hegedűs 2017).

Characteristics	Hybrid Regimes	The Hybrid regime in Hungary (2006-2022)
Decision-making	Decision-making is a mix of centralized and decentralized processes. While top leaders often have significant influence, there are also consultation with other political actors and institutions (Diamond 1994; 2015).	More centralized decision-making with Fidesz dominating the Hungarian politics. The regime passed significant legislative reforms, reducing public participation and transparency (Bozóki 2011; Bozóki and Hegedűs 2017).
Level of involvement in decisions	There is moderate involvement from political elites, institutions and sometimes the public. Opposition parties often face restrictions in participating meaningfully in decision-making (Diamond 2015; Kneuer 2021).	Public participation became minimal and opposition parties faced restrictions. Decision-making was more centralized, with Fidesz controlling major policies, reducing the role of opposition parties (Bozóki and Hegedűs 2017).
Transparency and accountability in decision-making	Transparency and accountability are inconsistent. While there may be some level of openness, the process is restricted, with selective media freedom and limited political opposition (Diamond 1994; 2015; Kneuer 2021).	Transparency was undermined as decision-making became less open. The media faced significant restrictions and opposition parties had limited space to influence policy (Bozóki and Hegedűs 2017).
Enforcement of environmental and safety regulations	Enforcement of environmental and safety regulations vary significantly. While some regulations are in place, enforcement is selective or inconsistent, influenced by political interests (Kneuer 2021; Diamond 2015).	The government's focus on economic growth weakened the enforcement of environmental and safety regulations, particularly in the nuclear sector, despite EU membership (Bozóki and Hegedűs 2017).
Presence or absence of political diversity	Political diversity exists, but it is often restricted. Opposition parties exist and elections occur, but they are not free or fair, with limitations on the opposition's ability to compete (Diamond 2015; Kneuer 2021).	Political pluralism became eroded. While several parties existed, their ability to influence policy was restricted and Fidesz maintained dominance through electoral reforms (Bozóki 2011; Batory 2016; Fabry 2023).

Figure 21. Political Regime Characteristics of the Hybrid Regime that Influenced the Nuclear Energy Legitimacy Through Discourse in the Hybrid Regime Period (2006-2022)

Transparency and the freedom of media decreased, and opposition parties had limited space to influence policy-making (Bozóki and Hegedűs 2017), and Fidesz maintained dominance through electoral reforms (Bozóki 2011; Batory 2016; Fabry 2023). It is not just the regime characteristics that impacted the nuclear energy discourse in Hungary; several determinative events occurred during this era, as summarized in Figure 22. One of the main events that shaped the discourse during this time was the Fukushima disaster in 2011 (Dékány 2011). The disaster led Hungary to commit to conducting stress tests in alignment with the EU safety standards (Dékány 2011).

Year	External Event
2011	**Fukushima Nuclear Disaster**: The disaster led Hungary to commit to conducting stress tests on its nuclear facilities, including Paks, aligning with European safety standards.
2013	**EU Debate on Nuclear Energy Post-Fukushima**: EU reinforced nuclear safety regulations and stress tests, influencing Hungary's nuclear safety policies and practices.
2014	**Continued Russian Involvement in the Hungarian Nuclear Energy**: Hungary signed an agreement with Russia for the construction of two new reactors at Paks.
2015	**EU State Aid Approval for Russian Financing**: The European Commission approved Hungary's nuclear expansion plan.
2019	**EU Green Deal**: The EU's Green Deal emphasized clean energy, Hungary continued to prioritize nuclear energy as part of its strategy to meet EU climate and energy goals.
2021	**European Commission's Final Approval for Paks II**: The European Commission confirmed that Paks II complied with EU energy regulations.

Figure 22. Key Events that Shaped the Nuclear Energy Discourse and Legitimacy during the Hybrid Regime (2006-2022)

As shown in Figure 22., the EU's Green Deal in 2019 (European Commission 2019) was another external factor that shaped the discourse on nuclear energy, in which Hungary continued to prioritize nuclear energy as part of its strategy to meet EU climate goals.

However, the most influential event of the hybrid regime period was the agreement between Hungary and Russia, signed in 2014, to expand the Paks NPP and build two new reactors with Russian technology 2014 (Leszák 2014; *"Atomról tárgyalunk",* Magyar Nemzet 2014; *"Nem nyilvánosak a számok",* Napi Gazdaság 2014). Interestingly, according to the communication director of Paks, when it comes to key events in the Hungarian nuclear energy history, it is necessary to distinguish between the real event and the one that is significant from the point of communication and can have a great impact on society (Kovács 2021). As he explained this point of view in the interview, perhaps the most significant challenge recently for them, from a communication point of view, was the release of the Chernobyl series on HBO since, as he stated, "*it is visible that people's attitude towards nuclear energy itself is not too positive*" (Kovács 2021). The communication director elaborated that "*if we look at it from a marketing point of view, nuclear energy belongs to the category of unwanted products. Everyone accepts that electricity is needed, but the number of fans of nuclear energy is relatively small"* (Kovács 2021). As Dr. Kovács explained, based on his experiences, people usually hear about nuclear energy when there's an accident (for example, Fukushima or Chornobyl) or see a series like Chernobyl on HBO, and their perception gets distorted (Kovács 2021). Dr. Attila Aszódi (2021) also mentioned the Chernobyl series by HBO in the interview. He said that while it "*has recently been covered a lot, we were also asked much about it. I see that it does not excite people. That is not what they have in mind. Perhaps migration and climate change preoccupy people much more, which is not their interest"* (Aszódi 2021).

In the following sections, the analysis of the parliamentary and public discourse presents how these key events shaped the trajectory of nuclear energy and how the sentiments of nuclear energy were shaped by them, as highlighted by the interview with Dr. Antal Kovács (2021).

7.3. The Role of Parliamentary Discourse in Shaping Nuclear Energy Discourse during the Hybrid Regime

The Hybrid Regime era had several initiatives to strengthen nuclear safety and new expansion investments, security, and financing. The implementation of the Treaty on the Non-Proliferation of Nuclear Weapons in October 2006 (Minister for Justice and Law Enforcement 2006) laid a foundational framework for the peaceful use of nuclear energy. In this period, the Paks Nuclear Power Plant expansion project began through the Teller-project in July 2007, establishing the groundwork for the new reactor blocks at Paks (*Parliamentary Resolution 25/2009* 2009). A parliamentary resolution 2009 (*Parliamentary Resolution 25/2009* 2009) supported this initiative.

As presented in the historical overview chapter, in 2014, the Fidesz government signed the expansion agreement 2014 (Leszák 2014; *"Atomról tárgyalunk",* Magyar Nemzet 2014; *"Nem nyilvánosak a számok",* Napi Gazdaság 2014) , and in 2006, the MSZP government started exploring the expansion of Paks and negotiated with Russia. The Teller-Project was a foundational initiative in Hungary's nuclear energy strategy (NS Energy 2022). This project aimed to evaluate the technical specifications and environmental impacts of building the new reactors to ensure compliance with safety and environmental regulations (NS Energy 2022). Key studies were completed by July 2007, leading to parliamentary recognition of the need for new reactors ("Background of the Project," n.d.). Further legislative efforts such as Act XX of 2007 (*Act XX of 2007 on the International Convention for the Suppression of Acts of Nuclear Terrorism Proclamation of the Convention* 2007), which aligned with the International Convention for the Suppression of Acts of Nuclear Terrorism, and the December 2007 Protocol amending the Treaty establishing the European Atomic Energy Community (*T/4678* 2007), adapted Hungary's nuclear energy policies according to the European Union regulations.

The Lévai-Project ("Lévai-Project" 2012), following the 2009 parliamentary resolution (*Parliamentary Resolution 25/2009* 2009), was another initiative to support the Paks Nuclear Power Plant expansion plans. The project began after completing the Teller-Project's feasibility studies ("Background of the Project," n.d.).

The Lévai-project focused on securing finances, defining the framework for future expansion, and preparing the investment tender, which was essential for the investment's technical- and commercial conditions ("Lévai-Project" 2012). The strategic partnership with Russia, particularly through Act II of 2014 (*Act II of 2014 between the Government of Hungary and the Government of the Russian Federation in the Peaceful Use of Nuclear Energy on the Proclamation of the Convention on Cooperation* 2014), enabled cooperation in nuclear energy, focusing on the maintenance, performance improvement, and safety of Paks.

The establishment of MVM Paks II Ltd. in November 2014 ("The Story of the Project," n.d.) for constructing new units and modifications to Act CXVI of 1996 on nuclear energy (*Act CXVI of 1996 on Nuclear Energy* 1996) addressed the licensing procedures, safety regulations and the financial framework of the project. Other legislations were made by the government, including revisions in April 2021 to ensure adequate financing for the Nuclear Power Plant Fund (*T/15989 CXVI of 1996 on Nuclear Energy. on Amending the Law* 2021) and in May 2021 (*T/16224 on the Amendment of Certain Laws in Connection with the Legal Status of the Nuclear Energy Supervisory Body* 2021) to clarify and strengthen the status of the nuclear energy authority. These legislations illustrate the government's dedication to an advanced regulatory framework. As anticipated, the most frequent keywords in the Hybrid Regime's Parliamentary discourse reflected on these legislations and previously discussed key events, as shown in Figure 23. The Paks expansion plans with Russian technology impacted key themes and the nuclear energy discourse, such as finance and safety.

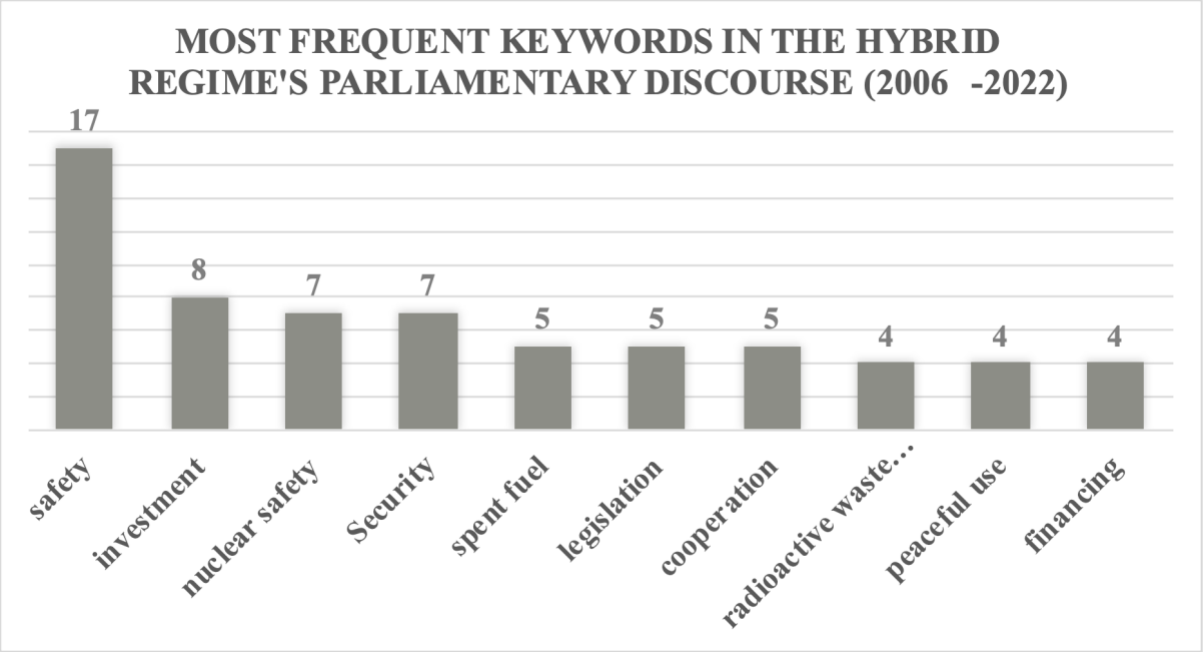

Figure 23. The Most Frequent Keywords in the Parliamentary Discourse on Nuclear Energy in the Hybrid Regime Period (2006-2022)

"*The Paks Nuclear Power Plant investment. guarantees Hungary's energy supply, the increase of our competitiveness, and the success of our sustainable energy policy in the long run*" ("What Does the Paks Agreement Deprive Hungary of? Political Debate" 2014) said Péter Szijjártó, Minister of Foreign Affairs, after 2014 when Hungary signed the agreement with Russia. While the Minister of Foreign Affairs highlighted the economic benefits of nuclear energy in the discourse ("What Does the Paks Agreement Deprive Hungary of? Political Debate" 2014), opposition parties argued that investment in nuclear energy is not the way of the future. As the following quote illustrates, many politicians debated that the government's lack of transparency is unacceptable: "*You forgot to ask the Hungarian people their position on this issue. But you also forgot to ask politicians because there was no political debate on this issue in this country. And you forgot to ask experts who have not been heard in the Hungarian Parliament for the past 27 years*" ("What Does the Paks Agreement Deprive Hungary of? Political Debate" 2014).

Dr. Bernadett Szél (LMP- Hungary's Green Party) (2014) quote illustrates how public participation and transparency decreased during the hybrid regime in the political discourse. The lack of debate on nuclear energy, claimed by the opposition, shows how the hybrid regime controlled the discourse on nuclear energy.

After 2010, not only did the government change (Bozóki 2011), but the stance of the Socialist Party on nuclear energy and how they legitimized nuclear energy through their discourse also changed) ("General Debate on the Draft Law on the Promulgation of the Convention on Cooperation between the Government of Hungary and the Government of the Russian Federation in the Field of the Peaceful Use of Nuclear Energy" 2014). As presented in the previous sections, the socialists supported nuclear energy while they were in power. Still, after 2010, and especially after 2014, when the Fidesz government signed the contract with Rosatom to expand Paks, they began publicly opposing it, as illustrated below. *"In the case of Paks, I can say that you have indeed made a serious turnaround on the socialist benches. Today, you say the opposite. You said that 'the use of nuclear energy creates opportunities to produce cheap electricity' at the time. Today, you say the opposite*" (Antal Rogán, Fidesz-Hungarian Civic Alliance)("General Debate on the Draft Law on the Promulgation of the Convention on Cooperation between the Government of Hungary and the Government of the Russian Federation in the Field of the Peaceful Use of Nuclear Energy" 2014). This partisan perspective on nuclear illustrates how political ideologies and affiliations on nuclear energy can shift by different factors, e.g. key events.

The evolution of political stances regarding the expansion of the Paks presents a case of path dependency and illustrates the complexities of international relations, particularly in Hungary's relationship with Russia. Initially, the Paks Nuclear Power Plant expansion started under the government of former Prime Minister Ferenc Gyurcsány in 2007 (*Parliamentary Resolution 25/2009* 2009). This legislation was part of a broader energy strategy that aimed to strengthen Hungary's position within the regional energy landscape and to ensure a stable and reliable energy supply for the country.

However, as seen in the discussion, the political landscape underwent a significant shift with the election of Prime Minister Viktor Orbán in 2010 ("Composition of the Parliament" 2010). Ferenc Gyurcsány's new party, the Democratic Coalition (DK), also began to express opposing opinions to the expansion project that Gyurcsány himself had initiated: "This non-regular technology implemented with Russian money, which they want to implement, cannot be an alternative for Hungary, it cannot be a question" *said* Gábor István Harangozó *(*MSZP, Hungarian Socialist Party) ("General Debate on the Draft Law on the Promulgation of the Convention on Cooperation between the Government of Hungary and the Government of the Russian Federation in the Field of the Peaceful Use of Nuclear Energy" 2014). This shift shows how the historical trajectories and commitments of the actors involved can influence political decisions. In this case, becoming a political opposition changed the trajectory of nuclear energy support.

MSZP's and DK's opposition against the Paks expansion under Orbán's regime is a strategic repositioning in response to changing political dynamics and public sentiment. Additionally, the involvement of Russia in the expansion adds another layer of complexity to the situation. Russia's role in the expansion raised questions in the public sphere about energy sovereignty and geopolitics.

This shows how initial decisions and alignments can set the stage for future political actions and reactions, creating a path-dependent process that shapes policy outcomes over time. Proponents of nuclear energy often discuss nuclear energy in Parliament as a necessary step towards energy security and economic development, as seen in the quote by Ferenc Tóth, Fidesz- Hungarian Civic Alliance: "*The domestic use of nuclear energy is quite clearly in the interest of the common good, even under the influence of the Japanese disaster. it also significantly reduces the country's vulnerability by contributing to the country's security of supply…. It is abundantly clear that nuclear energy cannot be bypassed to maintain humanity's current prosperity. The aim is not only to make people accept that we need this energy but also to win the support of society*" ("General Discussion on T/3288" 2015). In contrast, opponents of nuclear energy highlight the ethical implications of potential environmental damage and safety risks in their parliamentary discourse, as the quote by Benedek Jávor (LMP) illustrates below, reflecting on the proposed bill for the Paks II expansion: "*Bearing in mind that, partly due to the Fukushima disaster, increased safety requirements are expected to escalate the costs of building nuclear reactors, while the costs of renewable energy sources and energy efficiency investments are decreasing, we do not know when these curves will intersect. There is no guarantee in the law that the user of nuclear energy will be obliged to provide society with comprehensive, convincing, accurate, and up-to-date information. At the same time, we are convinced that the present bill does not guarantee that the domestic use of nuclear energy regulations will be sufficiently strict and that licensing and control will be sufficiently strengthened. As a result, nuclear safety will increase*" Benedek Jávor (LMP- Hungary's Green Party) ("General Discussion on T/3288" 2015).

These quotes demonstrate the Hungarian parliament's diverse discourse on nuclear energy during the hybrid regime. They present that political parties framed their discourse to legitimize nuclear energy through various economic, environmental, safety, and national sovereignty lenses.

The quotes also highlight the complexity of constructing nuclear energy legitimacy through discourse, reflecting on the interplay between political narratives, ethical considerations, and the influence of regime types and key events on these debates.

Period	Patterns of Argumentation	Patterns of Legitimization
2006–2022	Partisan Polarization National Interest vs. Environmental and Safety Concerns Impact of International Relations	Geopolitical Considerations. Energy Independence Economic Growth Environmental Sustainability

Figure 24. Legitimization and Argumentation Patterns of Nuclear Energy in the Hybrid Regime Period (2006-2022)

As the political regime shifted to hybrid democracy, legitimacy patterns in the parliamentary discourse altered, and the theme of energy dependence appeared again in the debates, as shown in Figure 24. With the plans to expand Paks, geopolitical considerations also influenced the legitimacy patterns, especially concerning Russia. The government emphasized that Russian investment is required to maintain Hungary's national sovereignty and security (*"Orbáni kettős beszéd az energiapolitkáról",* Népszava 2014b). Nuclear energy, once again (just like during the Communist and State Socialist Regimes), was argued to be vital for the country's economic development and sustainable future.

7.4. The Role of Written Questions in the Parliamentary Discourse in Shaping Nuclear Energy Discourse during the Hybrid Regime

Written questions have several vital functions in parliamentary work, including information gathering and reporting, government control, and expression of representative activity (Sebők et al. 2015). Analyzing the written questions is important because it helps understand the dynamics of parliamentary work during the hybrid regime, the politicians' priorities, the given political situation, and the government's responses (Sebők et al. 2015). Through this analysis, the dynamics behind the political processes, the areas of interest of the representatives, and the content and style of the government's responses can also be revealed (Sebők et al. 2015). With this, we can understand the role of discourse in shaping nuclear energy legitimacy in the parliamentary work more deeply. Figure 25 presents the dominant narrative of the written questions. Most negative sentiments (78%) show a critical stance towards nuclear energy, emphasizing the previously discussed concerns over safety, environmental sustainability, and ethical implications.

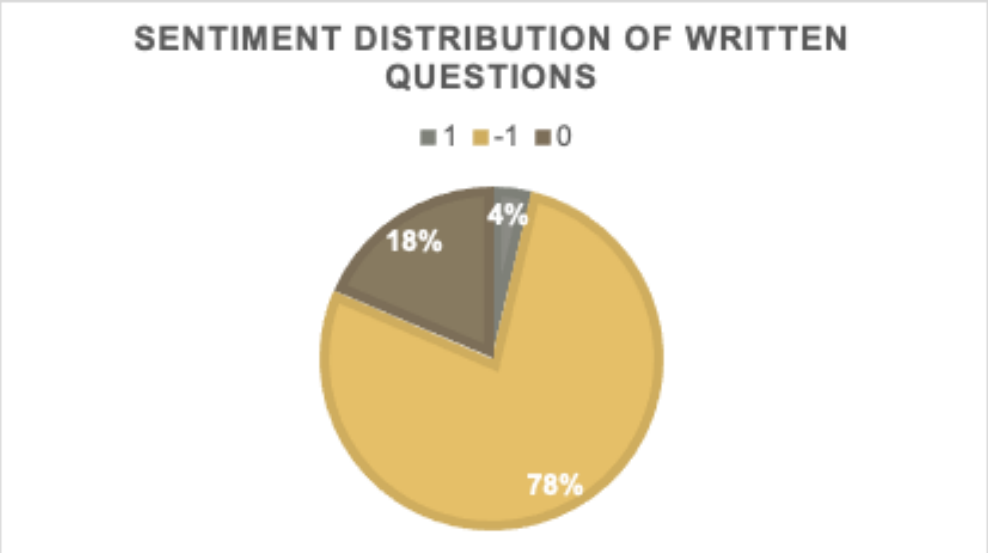

Figure 25. Sentiment Distribution of the Written Questions in the Parliamentary Discourse of Nuclear Energy in the Hybrid Regime (2006-2022)

If we look at the key themes of the written questions in Figure 16., themes such as Paks II, safety, and risks are identified. The identified key themes illustrate a parliamentary debate that questions the feasibility and safety of nuclear energy and framing nuclear energy in opposition to renewable energy.

This opposition is rooted in ethical considerations about the long-term environmental impact of nuclear waste and the potential risks of nuclear accidents. But as Dr. Antal Kovács (2021) emphasized in his interview, "*It is very important that we do not compete with renewables, but rather try to support and strengthen the idea of the scenario of renewable and nuclear energy*" (Dr. Antal Kovács 2021).

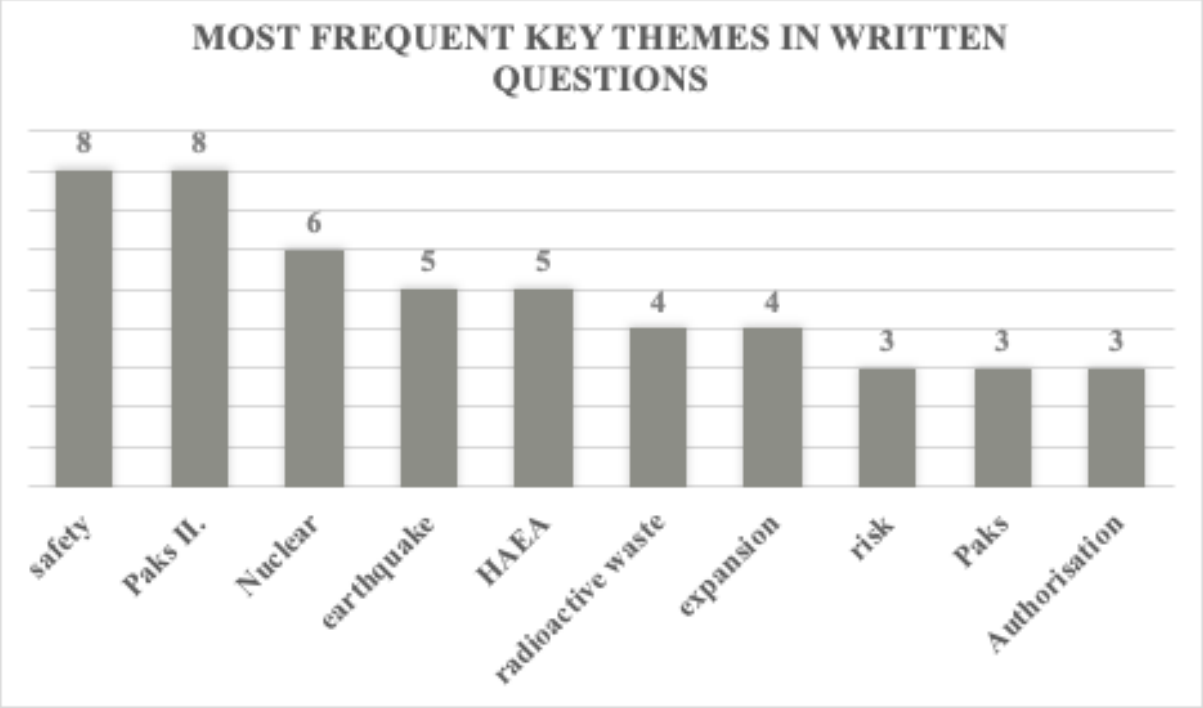

Figure 26. The Most Frequent Keywords in the Written Questions on Nuclear Energy in the Parliamentary Discourse During the Hybrid Regime (2006-2022)

In a democratic regime, written questions serve as a mechanism for accountability, allowing policymakers to challenge government policies (Sebők et al. 2015), such as nuclear energy.

The evident critical stance in the majority of the written questions highlights the democratic value of skepticism and inquiry, particularly on issues of significant public concern (Written Question of Dr. László Lóránt Keresztes (LMP- Hungary's Green Party) to Dr. László Palkovics, Minister for Innovation and Technology, "The people are protesting, but the government does not stop the Boda works?") (Dr. László Lóránt Keresztes 2021b) and potential risk (Written Question of Dr. László Lóránt Keresztes (LMP- Hungary's Green Party) to János Süli, Minister without portfolio responsible for the design, construction and commissioning of the two new units of the Paks Nuclear Power Plant, "Does Paks 2 cause difficulties, risks or delays The Hungarian Atomic Energy Authority understaffing?") (Dr. László Lóránt Keresztes 2021a).

Additionally, the negative sentiments expressed in the written questions also reflect concerns about Hungary's dependence on Russian technology and resources for nuclear energy (Written Question of Dr. Lajos Oláh (DK, Democratic Coalition) to Gergely Gulyás, Head of the Prime Minister's Office minister, "Does the Government contribute to the Paks2 power plant for the commencement of foundation works, the establishment approving the construction of the new units before issuing a license?") (Dr. Lajos Oláh 2019). This concern links to the regime lens by highlighting the geopolitical implications of energy policy decisions, where dependence on an authoritarian regime, like Russia, for critical infrastructure raises questions about national sovereignty, security, and the long-term sustainability of Hungary's nuclear energy policy. A question raised by Olivio Kocsis-Cake (Párbeszéd-Dialogue) concerning the contentment with the Paks II project's progress indirectly touches upon the ethical obligation to ensure that a clear understanding of their long-term safety and environmental impacts are considered for such significant investments (Olivio Kocsis-Cake 2002).

Including keywords like safety and investment alongside this question illustrates the ethical considerations in deciding to proceed with or question the expansion of the Nuclear Power Plant. Another example is a written question by Dr. Bernadett Szél, an independent MP, about the government's calculations underpinning its support for Nuclear Power Plants, which explores the issue of transparency and the public's right to understand and inspect the justification behind significant energy policy decisions (Dr. Bernadett Szél 2019).

The discourse on the need for a Nuclear Power Plant expansion to support Hungary's climate goals, raised by Dr. László Lóránt Keresztes (LMP- Hungary's Green Party), reflects a broader ethical consideration of how energy policy is formed and implemented (Dr. László Lóránt Keresztes 2021c). The negative sentiments of the written questions by the opposition suggest that the government's discourse after 2010 on nuclear energy lacks sufficient legitimacy. The analyzed written questions present these concerns over safety, environmental impact, and the ethical considerations of relying on nuclear energy. Actors who oppose nuclear energy use these themes in their discourse to delegitimize nuclear energy. The parliamentary discourse analyzed through written questions on nuclear energy illustrates a complex exchange of ethical considerations and the dynamics of democratic accountability in constructing nuclear energy legitimacy. In this context, the opposition contested nuclear energy legitimacy through their discourse with concerns about sustainability, safety, and ethical implications.

7.5. The Role of Media Discourse in Shaping Nuclear Energy Discourse during the Hybrid Regime

During the hybrid regime, some themes dominated the newspapers' public discourse and narrative about nuclear energy. 'Russia,' 'economy,' and 'politics 'appear frequently in the studied articles. However, new themes also emerged namely several political parties that became more active in the nuclear energy debate. Naturally, as one of the key events of this period was the discussion and then the decision of the Paks expansion, 'Paks II' was the most frequent theme of this public discourse.

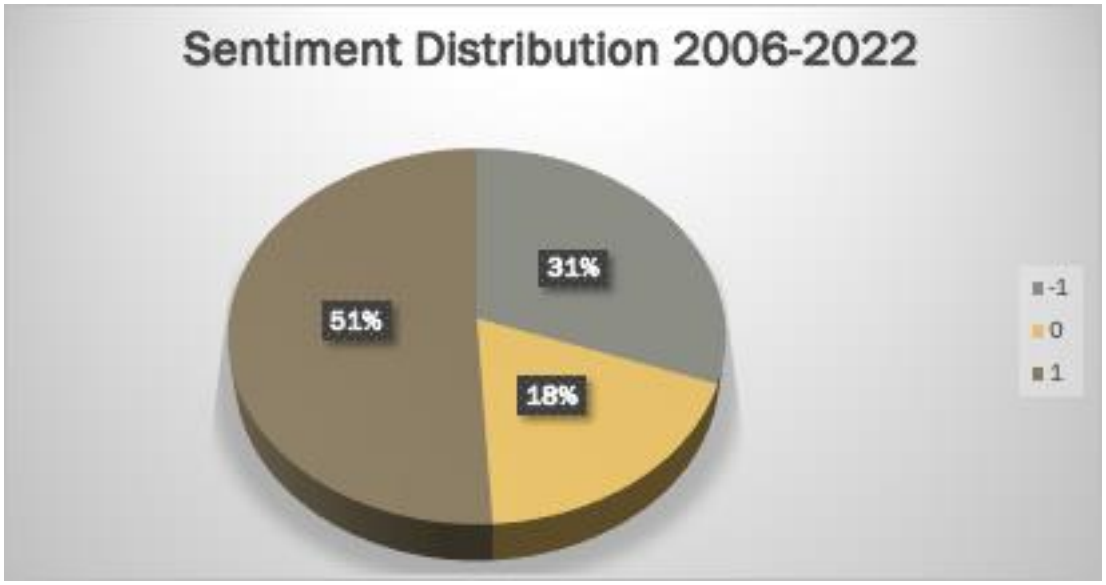

Figure 27. Sentiment Distribution in the Media Discourse on Nuclear Energy During the Hybrid Regime (2006-2022)

As more political parties got involved in the nuclear energy public discourse, and many favored the Paks II project, the sentiment scores altered compared to the previous period, as shown in Figure 27. The positive sentiments increased by 8%, while the negative sentiments decreased by 2%. However, as Dr. Antal Kovács (2021) concluded in his interview, "*Energetics and nuclear energy itself are outside the scope of interest at the moment*" (Dr. Antal Kovács 2021). This quote suggests that the over-politicization of the topic of nuclear energy has lost interest from the public perspective.

The lack of knowledge on nuclear energy might be another reason the public is less interested in nuclear energy during this era; as Dr. Szabolcs Hullán (2021) stated in the interview, "*The media mostly influence public opinion, I am quite sure of that. Precisely because very few people have more detailed knowledge about it"* (Hullán 2021). He added that "*generally when a statement is published in the press, it is visible that what the speaker says does not always reveal accurate knowledge. I think this is often seen in action in the press. So, if nuclear energy is covered in the press, it surely influences people, and suddenly everyone has an opinion. It is said that we are a country of 10 million football captains in Hungary. We are now a country of 10 million virologists. And I'm not sure it would be perfect for the industry and security to be the 10 million nuclear energy experts' country"* (Hullán 2021). While the stakeholders of the nuclear energy industry critiqued the role of media in shaping nuclear energy discourse, the newspaper of this era paints a more diverse picture.

The keyword overview in Figure 28 shows that there were reoccurring arguments from the previous period in the public discourse; one example was the role of nuclear energy in Hungary's future. As the Napi Gazdaság reported, "*According to experts' opinions, the energy of the future and the main strategic goals cannot be achieved in the European Union or Hungary without the use of nuclear energy… nuclear energy should be considered an indispensable element of electricity production not only today, but also in the long term, so the operating license of the Paks Nuclear Power Plant must be extended, as there is no realistic alternative to extending the operating time. In addition, in the examined time interval, i.e., until 2030, the construction and commissioning of new Nuclear Power Plant blocks must be expected*" (*"Drága a megújuló energia Érdemes számolni új blokkok építésével",* Napi Gazdaság 2006).

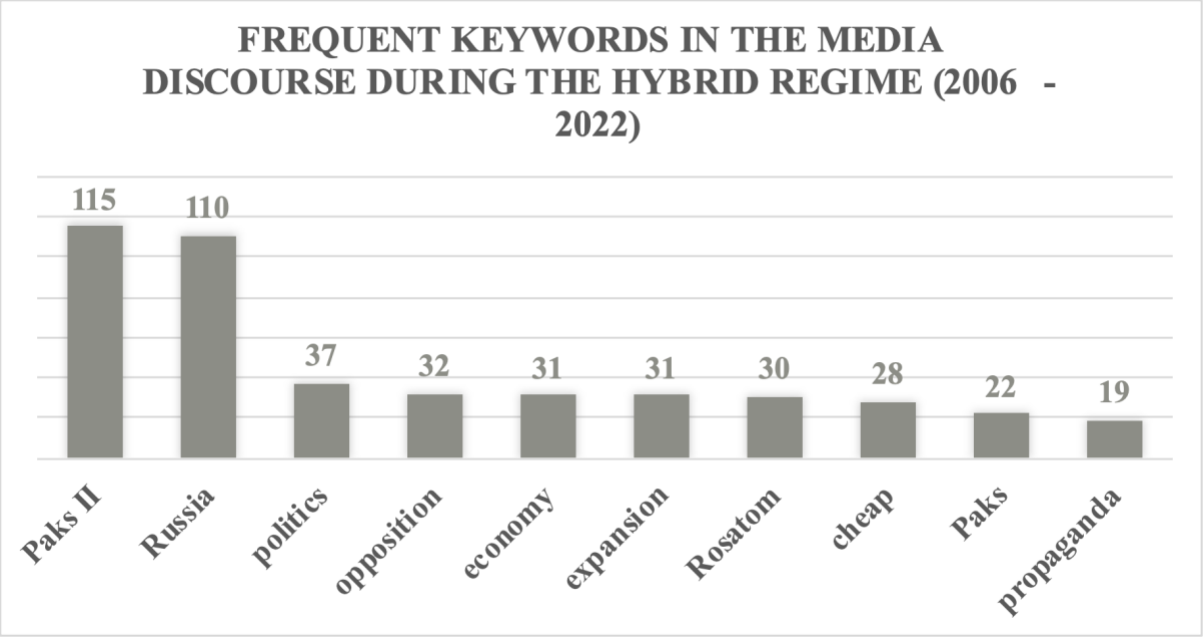

Figure 28. The Most Frequent Keyword in the Media Discourse on Nuclear Energy During the Hybrid Regime (2006-2022)

Attila Aszódi, the director of the Hungarian Technical University's Nuclear Technical Institute, also echoed the socialist government's sentiment when he said, "*After analyzing the renewable and nuclear energy sources, there is no alternative to nuclear energy in Hungary, neither now nor in the next decades*" (*"Szakmai konferencia a Műegyetemen Nincs alternatívája a Paksi Atomerőmű üzemidő-hosszabbításának",* Magyar Nemzet 2006). Another recurring theme was the relationship between Hungary and Russia, specifically the Paks expansion in this timeframe. "*On February 26, 2010. Prime Minister Gordon Bajnai called the expansion of the Paks Nuclear Power Plant a national, strategic matter and expressed joy that an unusually unified, broad-based political consensus emerged. This is where the story also began, from a year earlier, when Ferenc Gyurcsány - then Prime Minister - announced in parliament the start of the expansion of the Paks Nuclear Power Plant as a significant and necessary energy investment*" (Bayer 2014). As we can see from this article (Bayer 2014), the discussion with Russia on the expansion of Paks started in 2009.

By 2014, when the socialists were no longer the governing party but Fidesz, the stance and sentiment of the party and their officials changed completely: *"According to the opposition parties, Orbán concluded a contract for the expansion of the Nuclear Power Plant illegally and irresponsibly. István Józsa, deputy leader of the Hungarian Socialist Party, and Bertalan Tóth, member of the party's presidency, emphasized in their statement that the concluded contract puts Hungarian energy policy, economic policy, and the quality of life of the future generation on a long--term path: A responsible politician does not decide on a Nuclear Power Plant in Hungary, behind the backs of the Hungarian people. If Orbán undertakes an obligation without parliamentary authorization, it is irresponsible, and an irresponsible politician cannot remain in power, they wrote"* (*"Sokba kerül Orbán titkos üzlete",* Népszava 2014d).

The main themes that emerged from the discussion about Paks II were energy dependence, lack of transparency, secrecy, and the long-term implications of the contract for Hungary's future. Other opposition parties also critiqued the decision, adding additional themes to the public discourse, namely the expansion's price and environmental consequences: "*According to András Schiffer (LMP), prices will increase with the investment, and the environmental risk cannot be estimated. He called about what is happening with Moscow now: treason. In Gábor Vona's (Jobbik) opinion, the government gave the opposition a high ball by not discussing the decision in parliament*" (Katona 2014). This discussion highlights again the political nature of nuclear energy, primarily that many parties, not only the governing Fidesz but also the Socialist Party, oversaw the preliminary negotiations with Russia about the expansion: "*Gábor Vona also criticized the socialists because they had a different opinion. Antal Rogán (Fidesz) also drew attention to the shift of the socialists.*

According to the fraction leader of Fidesz, their opinion cannot be taken seriously, and it is also certain that they are incapable of governing the country. In response to the opposition representatives, the prime minister (Orbán) told those sitting in the MSZP row they supported the expansion earlier, and he is sure that they will support it after April 7[2]" (Katona 2014). During his interview, Benedek Jávor (2021) also criticized MSZP in the Paks II process, saying that "*MSZP started to look at the matter on a political basis… This (Paks II) will be a hotbed of corruption, which didn't bother the socialists until it looked like they would be part of it, too. But then it became clear that corruption money would only flow in one direction. Then it started to bother them here that this cannot be done because it will be a breeding ground for corruption, so an international tender is for that reason alone. Even then, they were not against nuclear energy. They objected to the terms of the Hungarian-Russian agreement on Paks itself*" (Jávor 2021).

This shift in legitimacy by MSZP illustrates how political ideologies and party alignments can change the nuclear energy discourse. In the 2014 parliamentary election campaign, Paks II was a prominent discourse in all parties' communication; while the socialists previously supported nuclear energy and the Paks II expansion, by 2014, they became opponents of the projects and used their argument to fight against Fidesz. Uncertain voices from Fidesz also emerged: "*Former President of the Hungarian Republic, László Sólyom condemns the hasty construction in Paks. Zoltán Illés, State Secretary for Environmental Protection of the Ministry of Rural Development, prefers renewable energies to nuclear energy. Illés put it this way: I don't support using nuclear energy. I support renewables.*

[2] Prime Minister Viktor Orbán referred to the parliamentary elections in 2014 ("Parliamentary Election 6th April 2014," n.d.)

He added that if he had a time machine, he would return to 1969 and prevent the construction of the Paks Nuclear Power Plant. László Sólyom pointed out that the responsible decision should only be made with adequate information and after thorough preparation.
In the case of Paks, it is about more than electricity production: the fate of future generations, decision-making, constitutional culture, foreign policy strategy, the moral issue of risk-taking, and the power of civil society: it requires sufficient information to make a decision, he said" (*"A Fidesz sem egységes a reaktorépítés ügyében",* Népszava 2014a).

Besides the political-and environmental opposition, there was a new voice in the public discourse opposing the use of nuclear energy in Hungary. Ombudsman for Future Generations, Sándor Fülöp, expressed his concerns about nuclear, stating that "*it grossly violates the rights of future generations. Cheap nuclear energy can be produced at such a price that many generations later will have to worry about waste disposal and the fate of closed power plants. Therefore, there cannot be a compromise opinion on unacceptable energy from the point of view of future generations. He called it worrisome that officials, decision-makers, and politicians more often consider social participation to be the swagger of those who don't understand it, which, according to them, needs to be suppressed for the development of the economy*" (*"Ma szavaz a parlament Paksról",* Magyar Távirati Iroda 2009).

Dr. Antal Kovács (2021) also highlighted the tendency in the interview "t*hat nuclear energy has entered the levels of political battles, and it is very difficult to do anything about it when newspaper articles are published one after another in which perhaps even the author of the article himself knows that it is not real"* (Kovács 2021). He continued, "*It is a big challenge when there are elections, and nuclear energy is at the center of the battles to stay away from politics and try to operate only with professional, rational interests. That is why we must constantly maintain this social support*" (Kovács 2021).

This quote illustrates how the management of Paks continued to focus their discourse on nuclear technology and science to maintain the legitimacy of nuclear energy. Several themes reoccurred in the public discourse from the previous periods during 2006-2022; however, most of them linked to the topic of the Paks II project.

The nuclear energy discourse included concerns about safety, dependency on Russia, energy security, and environmental issues. Besides, the most important distinction from previous periods was the over-politicization of nuclear energy and the divisive voices from left to right. While we saw from the earlier sections that Fidesz unanimously supported the Paks NPP expansion in the Parliament, the public discourse presented that there were also opposing voices within the governing party.

7.6. Legitimization and Argumentation Patterns of the Public Discourse during the Hybrid Regime

After the Hungarian government signed the contract with Russia in 2014 on the Paks expansion, energy security, and independence became the dominant discourse themes to legitimize nuclear energy. Fidesz politicians frequently emphasized the role of Paks II in Hungary's energy dependency, which was well suited to the government narratives. However, some considered this discourse contradicted, as they explained: "*Prime Minister Viktor Orbán's statements regarding energy policy strongly contradict each other. A double emphasis characterizes the words of our Prime Minister. The Orbán government, on the one hand, is promoting a continuous fight for independence from the European Union. On the other hand, it is urging the creation of a close energy union. At the same time, Orbán also considers reducing dependence on Russian energy sources desirable, while the agreement with Moscow on expanding the Paks Nuclear Power Plant will strengthen our country's vulnerability more than ever before.*

Orbán made it clear that Hungary views Europe's energy security situation with deep concern, which is why he called for a common energy policy stronger than the current one with José Manuel Barroso. Viktor Orbán called cheap energy the most important issue regarding the future of European competitiveness" (*"Orbáni kettős beszéd az energiapolitikáról",* Népszava 2014b).

Another legitimization pattern in the government discourse can also be observed from this quote by Orbán, the economic, which was apparent in the public discourse frequently after 2014. Throughout the hybrid regime period, the government used environmental sustainability and climate change in its discourse to legitimize nuclear energy. It was part of the discussion, too, when Alexey Likhatsov, CEO of the Russian state nuclear energy company Rosatom, visited Viktor Orbán at the Carmelite monastery in Budapest: "*To achieve climate protection goals, Hungary must rely on both nuclear energy and renewable energy sources in the long term. From the point of view of the long-term competitiveness of the Hungarian economy, it is crucial that Hungarian people and domestic businesses have access to cheap electrical energy from a predictable, clean, domestic source*" (Somogyi 2020b). This quote also identifies a legitimization pattern, the technological modernization of nuclear energy.

Economic and safety concerns during this era characterized the opposing discourse. The Paks II project influenced the most prominent opposing discourse. "*The experts described it as a hasty and irresponsible step that Prime Minister Viktor Orbán, during his meeting with Vladimir Putin in Moscow, concluded an agreement with Russia on the expansion of the Paks Nuclear Power Plant by another two units and also agreed to take out a loan of around ten billion euros for the investment. The government did not hold any social, professional, or political consultations before the decision that would determine the country's energy production structure for decades.*

He awarded the construction project to the Russian state nuclear energy company, Rosatom, without competition or prior parliamentary authorization. According to some experts, Orbán laid the foundations of an investment that will never pay off, the burden of which is enormous" (*Sokba kerül Orbán titkos üzlete",* Népszava 2014c). This quote highlights two argumentation patterns: political implications and public opinion in the discourse.

The previous sections revealed that the decision on Paks II by the Fidesz government in 2014 lacked public consultation and transparency. Consequently, Paks II also became a dominant topic during the 2014 parliamentary elections and formed the public discourse on nuclear energy until 2022.

7.7. Conclusion

The hybrid regime period introduced new themes to the nuclear energy discourse, influenced by the key events that determined the trajectory of nuclear energy legitimacy, as shown in Figure 29. Due to the Fukushima disaster and the aging reactors at Paks, environmental concerns became more prominent than during the previous regime periods. However, the most determinative event of this period was the agreement with Russia to expand Paks, reaffirming Hungary's commitment to Russian nuclear technology despite contesting discourse and geopolitical circumstances (Leszák 2014; *"Atomról tárgyalunk",* Magyar Nemzet 2014; *"Nem nyilvánosak a számok",* Napi Gazdaság 2014).

Due to the lack of transparency regarding the loan from Russia, financial concerns appeared in the opposing discourse on nuclear energy, which also reinforced the worry about Hungary's energy security ("What Does the Paks Agreement Deprive Hungary of? Political Debate" 2014).

Common Themes 2006–2022
Economic
Concerns about Paks II's financial situation, loan from Russia
Energy Security
lifetime expansion, Paks II, role of nuclear in Hungary's energy security
Environmental Issues
Discussions on whether nuclear energy is clear or not, role of renewables, nuclear energy in climate change debates
EU
Changes in regulation and safety standards due to EU membership
Relationship with Russia
Concerns about the Paks II project, the role of Russia, question of dependency and lack of transparency
Safety and Aging Paks
need for changing maintanance, lifetime expansion of Paks, malfunctions

Figure 29. Common Themes Connected to Nuclear Energy in the Media Discourse During the Hybrid Regime (2006-2022)

While the opposition used these themes in their discourse to undermine the legitimacy of nuclear energy, the government used these topics to sustain it. The chapter presented how the government used these themes in favor of nuclear energy, and their discourse focused on how the Paks II expansion by Russia would enhance Hungary's energy security and support the country's sustainable and clean future. The following discussion chapter synthesizes the analytical chapters' main findings.

8. Discussion

The analytical chapters presented how nuclear energy legitimacy was constructed and contested through discourse in Hungary from the 1940s until 2022 and the role of historical events and geopolitical dependencies in forming the legitimacy. Path Dependency Theory and Critical Discourse Analysis demonstrated that nuclear energy legitimacy is not stagnant but repeatedly contested by historical events, power dynamics, and dialogue (Weber 1978). The chapters presented the political discourse of nuclear energy in Hungary by showing how discourse patterns evolved in the parliament and how the governments constructed nuclear energy legitimacy through these discourses. They highlighted the country's challenges and geopolitical dependencies and emphasized Hungary's continuous commitment to nuclear energy despite evolving geopolitical tensions.

The analytical chapters also demonstrated how the nuclear energy discourse is contested and cultivated in the public sphere by offering insights into how public perceptions, debates, and controversies shaped the nuclear energy discourse and impacted the legitimacy of nuclear energy throughout time. The interviews presented in the chapters offered an understanding of how stakeholders contribute to and contest the legitimacy of nuclear energy through discourse. The discussion below synthesizes the analytical chapters' findings by implementing the regime lens to demonstrate how nuclear energy legitimacy was constructed and contested through discourse in Hungary from the 1940s until 2022 throughout the different political regimes.

8.1. Constructing Legitimacy: Political Discourses and the Construction of Nuclear Energy Legitimacy from 1940s-2022

As the analytical chapters presented, discourse has an important role as a tool through which legitimacy is constructed (Fairclough 2010), therefore, in understanding the historical developments and legitimacy of nuclear energy in Hungary, mainly when analyzed in the context of path dependency and political regimes. It is also an essential factor in the framing of nuclear energy in the country, shaped by the trajectory of past decisions and political ideologies (Pierson 2000; David 2007; Garud, Kumaraswamy, and Karnøe 2010). CDA provides an understanding of how power and language frame discourses over the history of Hungary and how these discourses construct legitimacy throughout the different political regimes (Fairclough 2003; Pierson 2000; David 2007; Garud, Kumaraswamy, and Karnøe 2010).

The 1940s-1990 Communist and State Socialist Regimes period in Hungary marked the introduction of nuclear energy and the development of the Paks Nuclear Power Plant. During this era, the role of the government when it came to nuclear energy was to gain support for the new technology and to promote it in line with the Soviet expectations ("45th Session of the 1953 National Assembly" 1953). The peaceful use of nuclear energy, in opposition to its military use in the Western world (*Az SzKP Központi Bizottságának 1956. május 1.-i jelszavai"*Magyar Távirati Iroda 1956; *"Erősödik a testvériség",* 1956), and its technological advancements (Hetényi 1976), just as the role of the Soviet Union in the investment, were key topics in the Communist and State Socialist Regimes' discourse to legitimize nuclear energy.

As the Communist and State Socialist Regimes did not provide space for opposition voices, transparency, and public participation, a small elite group that governed the country, heavily influenced by the Soviet Union (András Körösényi 1999; Andrew Felkay 1989; Zoltán Ripp 1998), shaped the nuclear energy discourse.

The key legitimacy pattern was the control of the state, emphasizing the control over the energy sources. The self-imposed role of the state was to gain legitimacy for nuclear energy, as they framed it as part of national sovereignty and independence. Nuclear energy was also presented as a driver for socialist economic modernization by the government to legitimize its use further. During the Communist and State Socialist Regimes, the government highlighted the safety of Paks, despite the catastrophic disaster in Chornobyl, to strengthen the governmental legitimacy of nuclear energy and the connection with the Soviet Union (*"Újabb jelentés a csernobili atomszerencsétlenségről",* Népszabadság 1986). Environmental concerns or safety risks became part of the parliamentary discussions only after the Chornobyl accident. The Communist and State Socialist Regimes shaped the nuclear energy discourse through the media to gain legitimacy for the Nuclear Power Plant construction. The regime used incentives in their public discourse (e.g., Paks will receive city status (Gyulay 1977a) to deepen the legitimacy of nuclear energy.

The role of the pro-government newspapers was not only to educate and calm the public about nuclear energy but also to strengthen the government's position by mentioning the country's ideological stance and positioning themselves against the opponents of nuclear energy. The democratization brought more inclusive, transparent, and accountable decision-making to the country (Racz 2003). Public participation increased, and political pluralism appeared during the democratic regime; new political parties emerged, and the governments formed coalitions based on democratic principles (Fazekas and Fekete 2018).

At the beginning of democracy, the government focused more on nuclear safety and international standards (*"Ahonnan a hazai villamosenergia-termelés fele származik",* Magyar Hírlap 1992). These legislative acts illustrate the Hungarian government's dedication to harmonizing its nuclear energy policies with safety standards due to democratization and the changing geopolitical circumstances. The new democratic values of the country are reflected in the most frequent discussions on nuclear energy, focusing on safety and environmental issues.

Both supporting and opposing discourses on nuclear energy appeared in Parliament to cultivate and contest its legitimacy. While during the Communist and State Socialist Regimes, the government tried to highlight the safety of Paks, in the democratic era, opposing voices appeared in the political debates. Compared to the Communist and State Socialist Regimes, the argumentation patterns changed during the democratic period, as shown in Figure 30.

Period	Legitimation Patterns	Argumentation Patterns
1948–1989	State Control, Energy Security, Economic Modernization	State-Centered Discourse, Limited Public Debate, Focus on National Development
1990–2006	Democratization, Public Safety, Environmental Sustainability, EU Integration	Diverse Opinions, Balancing Economic Benefits with Environmental and Safety Concerns, Increased Transparency and Public Debate
2006–2022	Geopolitical Considerations, Energy Independence, Economic Growth, Environmental Sustainability, National Sovereignty	Partisan Polarization, National Interest vs. Environmental and Safety Concerns, Impact of International Relations (e.g., Russia)

Figure 30. Key Argumentation and Legitimization Patterns in the Parliamentary Discourse that Shaped Nuclear Energy Legitimacy Throughout Different Political Regimes in Hungary (1940s-2022)

The more pluralistic political landscape in the parliament (Kiss 2019; Győrffy and Martin 2023; Racz 2003) reflected diverse topics in nuclear energy, such as environmental concerns and transparency.

While Hungary, as a state, officially detached itself from Russia, the historical relationship due to Paks's technology and several binding agreements and the continuous commitment to Russian nuclear technology was still prominent in the public narrative (e.g., due to the difficulties of the radioactive waste storage).

In the early 1990s, Paks became a symbol of the Soviet Union and, therefore, the project that the public started to question. The newspapers of this era echoed the public concerns around the over-politicization of the nuclear energy industry and the environmental consequences of the power plant.

The economic theme was just as frequent in this period as during the Communist and State Socialist Regimes, but the sentiment changed from positive to negative. While some articles discussed the affordability of the Nuclear Power Plant (*"Üveghután épül meg a tároló Paks termeli a legolcsóbb áramot",* Népszabadság 2000; *"Kiszállításra várnak Pakson a kiégett fűtőelemek",* Magyar Hírlap 1995), environmental concerns often contested these narratives. The prominent legitimization pattern of nuclear energy by the democratic regimes was the environmental benefits and climate change mitigation strategy.

Period	Themes	Overview
1940s–1989	Economic	Economic benefits and potenials of nuclear energy
	Ideology and Politics	Soviet block, energy dependency, peaceful use in oposition of Western military use
	Safety and Public Perception	Safety focus, post-Chernobyl regulatory changes
	Soviet Cooperation	Nuclear energy development together and with the help of the Soviet Union. Scientific and industrial cooperation.
	Technology	Focus on the advantages of nuclear energy technology, enhancing safety, training skilled workers.
1990–2006	Safety	Alignments with Western safety standards
	Political and Economic Changes	Regime change, transitioning from the Soviet Union to EU, energy security, energy dependence
	Public Perception	2003 Paks malfunction created distrust, anti-nuclear movement gets more prominent
	Environmental Issues	Radioactive waste and spent fuel issues, search for storage, hightened awarness about climate change and renewables
	Technology	Operational challenges, lifetime expansion, EU accession
2006–2022	Safety and Aging Paks	Need for changing maintanance, lifetime expansion of Paks, malfunctions
	Energy Security	Lifetime expansion, Paks II, role of nuclear in Hungary's energy security
	Economic	Concerns about Paks II's financial situation, loan from Russia
	EU	Changes in regulation and safety standards due to EU membership
	Relationship with Russia	Concerns about the Paks II project, the role of Russia, question of dependency and lack of transparency
	Environmental Issues	Discussions on whether nuclear energy is clear or not, role of renewables, nuclear energy in climate change debates

Figure 31. Key Themes that Shaped Nuclear Energy Legitimacy Through Discourse in Hungary (1940s-2022)

The Paks expansion plans with Russian technology shaped the key themes and the nuclear energy discourse during the hybrid regime. While the Minister of Foreign Affairs highlighted the economic benefits of nuclear energy in the discourse, opposition parties argued that investing in nuclear energy is not the way of the country's future. Many politicians debated that the lack of transparency provided by the government is unacceptable.

The lack of debate on nuclear energy shows how the hybrid regime controlled the discourse on nuclear energy. After 2010, not only did the government change, but the stance of the Socialist Party on nuclear energy and how they legitimized nuclear energy through their discourse also changed. The socialists supported nuclear energy while they were in power. Still, after 2010, and especially after 2014, when the Fidesz government signed the contract with Rosatom to expand Paks, they publicly opposed it.

This partisan perspective on nuclear energy offers insights into how political ideologies and affiliations on nuclear energy can shift by different factors, e.g. key events.

Ferenc Gyurcsány's new party, the Democratic Coalition (DK), also began expressing opposing opinions to the expansion project that Gyurcsány initiated. Through the lens of path dependency, this shift suggests that political decisions and alignments are often influenced by the historical trajectories and commitments of the actors involved (Pierson 2000; David A. 2007). In this case, becoming the political opposition changed the trajectory of nuclear energy support. Russia's role as a key partner in the Paks expansion raised questions about energy sovereignty, geopolitical leverage, and Hungary's autonomy in its energy policy. This suggests that initial decisions can set the stage for future political actions and reactions, creating a path-dependent process that shapes policy outcomes over time.

The hybrid regime legitimized nuclear energy in the Parliament as a necessary step towards energy security and economic development (*"Sokba kerül Orbán titkos üzlete",* Népszava 2014). In contrast, opponents of nuclear energy highlighted the ethical implications of potential environmental damage and safety risks in their parliamentary discourse.

8.2. Past Decisions, Present Discourses: The Historical Construction of Nuclear Energy Legitimacy

Path Dependency Theory illustrated in the analytical chapters how nuclear energy legitimacy was cultivated and contested through discourse in Hungary. It highlighted the historical decisions and discourse that played a role in shaping the trajectories of future choices. With the application of path dependency theory, the analysis identified the key historical events that impacted the nuclear energy discourse and determined how past political decisions influenced and contested future changes.

The end of World War II increased the global interest in nuclear energy and weapons, mainly due to the Hiroshima and Nagasaki atomic bombings by the United States (*"Truman az atombombáról", Magyar Távirati Iroda (MTI)* 1945; *"Amerikai javaslat az atombomba ügyében", Magyar Távirati Iroda (MTI)* 1945; *"Amerika nem gyárt több atombombát", Magyar Távirati Iroda (MTI)* 1945; *"Félhivatalos angol beszámoló az atombomba körüli nemzetközi helyzetről", Magyar Távirati Iroda (MTI)* 1945; *"Megnyílt az MNDSz politikai akadémiája",* Magyar Távirati Iroda 1947). The start of the Cold War in the 1950s increased the tension between the West and the Soviet Union on how to frame nuclear energy discourse, with the Soviets advocating for the peaceful use of nuclear energy (*"Az SzKP Központi Bizottságának 1956. május 1.-i jelszavai",*Magyar Távirati Iroda 1956). While the 1956 Hungarian revolution led to political instability, the commitment to Soviet nuclear energy technology remained. The oil crisis in the 1970s and the CMEA Agreement in 1977 strengthened Hungary's stance on nuclear energy being a primary energy source (Gyulay 1977b).

However, due to the Chornobyl disaster in 1986, nuclear safety concerns were raised globally, significantly impacting the Hungarian nuclear energy discourse (*"Újabb jelentés a csernobili atomszerencsétlenségről",* Népszabadság 1986).

The end of the Communist and State Socialist Regimes came with political and economic changes that led to a democratic transition. The democratization brought more inclusive, transparent, and accountable decision-making to the country (Racz 2003). Public participation increased, and political pluralism appeared during this era; new political parties emerged, and governments formed coalitions based on democratic principles (Fazekas and Fekete 2018).

At the beginning of democracy, the government focused more on nuclear safety and international standards (*"Ahonnan a hazai villamosenergia-termelés fele származik",* Magyar Hírlap 1992). One of the key events that impacted the emergence of stricter safety regulations was the International Atomic Energy Agency compliance (Gubcsi 1992) and, later in this era, the EU accession negotiations (*"Csak Pakssal szemben nincs kifogása az EU-nak",* Világgazdaság 1999). Nuclear safety and radiation protection were crucial to Hungary's negotiations for EU accession (*"Üveghután épul meg a tároló Paks termlei a legolcsóbb áramot",* Népszabadság 2000). While the Soviet Union collapsed, Hungary continued cooperating with Russia in nuclear energy due to the country's previous commitment to Soviet nuclear technology. That path-dependent relationship started to become contested during the democratic regime. The malfunction at Paks in 2003 revoked the discourse on safety, and many challenged the government's economic and political reasoning for nuclear energy (*"Egy üzemzavar anatómiája",* Magyar Hírlap 2003; *"Pakson a tartály a hibás",* Budapest Day 2003).

One of the main events that shaped the discourse of the hybrid regime was the Fukushima disaster in 2011 (Dékány 2011). Due to the disaster, Hungary conducted stress tests in alignment with the EU safety standards (Dékány 2011). Hungary continued prioritizing nuclear energy to meet EU climate goals due to the EU's Green Deal in 2019 (European Commission 2019).

However, the most influential event of this regime period was the agreement between Hungary and Russia, signed in 2014, to expand the Paks NPP and build two new reactors with Russian technology.

8.3. Key Similarities and Differences Between How the Different Political Regimes Framed Nuclear Energy (1940s-2022)

As Figure 32 presents, there were some key similarities and differences in how the different political regimes constructed legitimacy through discourse in Hungary. Nuclear energy was framed as a key for economic growth and energy security during all regime periods. The Communist and State Socialist Regimes legitimized nuclear energy through socialist economic modernization and energy independence. This topic continued to frame the discourse in the democratic and hybrid regimes as well.

	Communist and State Socialist Regimes (1940s-1990)	Democratic Regime (1990s-2006)	Hybrid Regime (2006-2022)
Legitimacy Framing	symbol of Soviet-aligned technological progress and national sovereignty	safety, environmental concerns, and international standards	energy security, economic benefits, and national interest
Control over Discourse	controlled by the state; limited public participation and opposition	More pluralistic, with political debate and public participation; opposition voices	Government-controlled discourse, lack of transparency
Geopolitical Influence	strong alignment with Soviet nuclear technology	continued reliance on Russian technology, but with more open discourse on safety and environmental concerns	ongoing reliance on Russian technology
Safety and Environmental Concerns	focus on peaceful use of nuclear energy	focus on nuclear safety	ongoing concern about safety
Technological Framing	nuclear energy as a tool for economic modernization	alignment with international safety standards	energy security and economic development, environmental benefits
Public Discourse	shaped by government and pro-Soviet narratives	inclusive with political pluralism	government-dominated discourse with limited public debate
Political Party Support	unified political support	diverse supporting and opposing	polarized political support
Environmental and Ethical Considerations	minimal	significant	emphasis on ethical concerns regarding environmental impact
Path Dependency	strong reliance on Soviet nuclear technology	continued dependence on Russian technology	path-dependent decisions

Figure 32. Key Similarities and Differences in How the Different Political Regimes Constructed Legitimacy Through Discourse in Hungary Over Time (1940s-2022)

Another recurring issue that framed nuclear energy legitimacy and was emphasized in the discourse was the relationship with Russia. The Communist and State Socialist Regimes were aligned with Soviet interests, and this connection continued in the democratic and hybrid regimes, too. Environmental and safety concerns are also continuous topics in the nuclear energy discourse. While the Communist and State Socialist Regimes minimized the safety and environmental concerns to legitimize nuclear energy, the democratic regime focused more on nuclear safety and aligning with international standards. During the hybrid regime, safety concerns continued to frame the nuclear energy discourse, primarily due to the expansion of the Paks.

A significant shift happened in the nuclear energy discourse after the agreement with Russia to expand Paks in 2014. MSZP, which previously supported nuclear energy, started to contest the expansion. This demonstrates how political ideologies and party alignments can change the nuclear energy discourse, opposite to the authoritarian era when nuclear energy was unchallenged in political debates. This section shows that the Communist and State Socialist Regimes's relationship with the Soviet Union determined Hungary's continued commitment to Russian nuclear technology. This historical trajectory created a path-dependent relationship that continued during the democratic and hybrid regimes. The decision to expand the Paks plant with Russian technology in the hybrid regime presents how Hungary's historical decisions influenced the country's present policies, even with political opposition who contested the geopolitical influence of Russia.

9. Conclusion

The contribution of this dissertation lies in providing an understanding of how nuclear energy legitimacy was constructed and contested through discourse in the history of Hungary from the 1940s until 2022 across different political regimes and the role historical events and geopolitical dependencies played in forming this legitimacy.

As the theoretical framework presented, the contemporary discussion of legitimacy is rooted in social construction (Weber 1978). Weber claimed that people believe in a political system that has ruled for a long time because they trust the ruler or its legality, which shows how social and political processes repeatedly construct legitimacy (Weber 1978). According to Laswell (1936) and Rawls (1999), what is considered legitimate can change over time since different social and political factors influence it. Politicians construct legitimacy through their policies and decision-making, then discuss them with the public through media, parliamentary speeches, or other public forums, which serve as a tool through which the legitimacy is contested and constructed. Political legitimacy is crucial to secure long-term support and smooth implementation of energy policies (Verma 2022; Jacobs 2017). In the case of Hungary, the state-driven discourse was used by the different political regimes to construct nuclear energy legitimacy.

Authoritarian regimes in Eastern Europe, such as the Communist and State Socialist Regimes in Hungary, used nuclear energy to symbolize progress, national strength, and socialist internationalism (O'neil 1999). These regimes are intensely involved in economic development and centralized energy planning, which allows them to promote nuclear energy as a symbol of technological and political power (O'neil 1999). The development of nuclear energy in such contexts is often tied to political legitimacy, as regimes use it to maintain their domestic and international image (Sovacool and Valentine 2010).

During the Communist and State Socialist Regimes, nuclear energy legitimacy was constructed not only by state policies and ideologies but also through discourses that framed nuclear energy as a national priority and a key to economic modernization. The Communist and State Socialist Regimes' efforts to promote nuclear energy were tied to its political legitimacy, as it framed nuclear energy as part of the country's technological development and economic growth. After the regime change in 1989, the nuclear energy discourse shifted and became contested. The Democratic Regime faced new challenges in constructing nuclear energy legitimacy. Public participation and political pluralism became important during this era (Dóra Győrffy and József Péter Martin 2023; Barnabas Racz 2003; Fazekas, Csaba and Fekete, Sándor 2018), and the state used control and economic benefits to legitimize nuclear energy, like in the Communist and State Socialist Regimes, but also through a reaction to public concerns, for example, environmental or safety concerns. While Hungary transitioned to democracy after 1989, the close relationship with the former Soviet Union shaped its nuclear energy discourse and legitimacy; this shows how political regimes play a crucial role not just in shaping energy policy but in maintaining and changing the trajectory of the discourse through which legitimacy is constructed, as discussed in the theoretical framework (Pierson 2000; David 2007; Garud, Kumaraswamy, and Karnøe 2010). It was also apparent during the Hybrid Regime when the lack of debate on nuclear energy showed how the regime controlled the discourse on nuclear energy. The altered opinion of MSZP after 2010 shows how political ideologies and affiliations on nuclear energy can shift due to different factors, e.g., lost election.

The Hybrid Regime legitimized nuclear energy in the Parliament as a necessary step toward energy security and economic development (*"Sokba kerül Orbán titkos üzlete",* Népszava 2014). While the government discourse supported nuclear energy, the opposition argued

about the environmental and safety risks in the Parliament; this illustrates how nuclear energy was contested and cultivated through the public discourse.

The Communist and State Socialist Regimes' decision to develop nuclear energy in Hungary created a trajectory that is hard to change despite the political regime changes; this demonstrates how early political decisions impact later future legitimacy debates.
The case of Hungary offers lessons that researchers can apply in other cases and policy contexts. Considering the long-term implications of policy decisions (e.g., environmental assessment), discourse and history's role in avoiding path-dependent lock-ins can be a valuable lesson for researchers.

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Participant Information Sheet

On a Nuclear Journey: How the Modern History of Hungarian Nuclear Energy Developed Throughout Different Political Regimes

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Who am I?

I am Eszter Mátyás, a second year PhD candidate at Central European University, Department of Environmental Sciences and Policy. I am also a junior research fellow at the Centre for Social Sciences, Institute for Political Science, Department of Government and Public Policy.

More information:

https://envsci.ceu.edu/people/eszter-matyas

https://politikatudomany.tk.hu/en/researcher/matyas-eszter

What is the project about?

From the dawn of nuclear energy's history, Hungary's regime type has changed three times: from dictatorship to democracy and, in recent times, to a hybrid democracy. This unique historical situation allows us to elucidate the differences between each political regime's period and present who and how influences the nuclear energy 'development,' or as it will be referred to in the following, the 'nuclear journey,' under these different political-ideological regime times in the modern times of Hungary.

The dissertation and connected papers serve the purpose of addressing the gap in the literature on the Hungarian nuclear journey history, as they will present the impacts and ever-changing actors of nuclear energy history and demonstrate what factors are decisive in influencing the legitimacy of nuclear energy. Examining this topic in progress, we can understand why certain political regimes may choose to use nuclear energy and what aspects arise in such a process that are crucial for the nuclear journey.

Why do I want to interview you?

In order to understand the processes of how the nuclear journey evolved under different political regime types in Hungary, as part of the dissertation's data collection, interviews are conducted. Participants selected from the following stakeholder groups with purposeful snowball selection and following the model by Geels and Verhees (2011)[3]:

local and national politicians who were part of one of the regulatory environments of the nuclear energy history; management of the nuclear facilities, who are part of the business environment and leaders of NGOs who are or were working in the field of nuclear energy and are part of the wider societal environment.

Being a stakeholder in nuclear energy, your insight would help me understand more about the relations between the three environments, regulatory, business and broader society to be analyzed in the dissertation and related papers.

What does your participation involve?

Your participation involves an in-depth interview with open-ended questions. Questions will be related with Hungarian nuclear energy history topics and objectives, especially dealing with the processes of how the nuclear journey evolved under different political regime types in Hungary. It will take approximatively 60-90 minutes. The interview will be recorded and your answers will be collected on a summary/paraphrases as well as 3-5 quotes. Participation is voluntary and you can withdraw your consent at any moment.

Your personal privacy - how I will store and use your personal data

I will only use your personal data for the project purposes. I will process your contact information confidentially and in accordance with data protection legislation at CEU (Data Protection Policy: https://documents.ceu.edu/file/12683/download?token=DBIzHoRS).

For inclusion matters, I would like to hold and display your personal information such as your name and occupation, to ensure I interviewed the most appropriate stakeholders to the dissertation topic.

Your rights

So long as you can be identified in the collected data, you have the right to:

- access the personal data that is being processed about you

[3] Geels, F.W., and B. Verhees. 2011. "Cultural Legitimacy and Framing Struggles in Innovation Journeys: A Cultural-Performative Perspective and a Case Study of Dutch Nuclear Energy (1945-1986)." *Technological Forecasting and Social Change* 78, no. 6: 910-30. https://doi.org/10.1016/j.techfore.2010.12.004

- request that your personal data is deleted
- request that incorrect personal data about you is corrected/rectified
- receive a copy of your personal data (data portability)
- exercise your rights and send a complaint regarding the processing of your personal data

After reading the above, please indicate in the statement of consent below if you agree and confirm your participation by signing the form.

Statement of Consent

Please underline or circle which applies:

I confirm that my participation in this research project is voluntary:

YES **NO**

I understand that I will not receive any payments for participating in this research interview:

YES **NO**

I understand that the researcher will identify me by name and position:

YES **NO**

I have read and understood the explanation provided to me:

YES **NO**

I have been given a copy of the consent form:

YES **NO**

I agree that the researchers may publish documents that contain quotations by me:

YES **NO**

Place and date: _____

Signature: _____

11. Annex II. Interview Protocol

Interview Protocol

Dear… thank you for accepting my interview request and signing the participant information sheet I sent you. As I previously explained to you in my email, I'm a PhD candidate at CEU, Department of Environmental Sciences and Policy and currently working on Hungarian nuclear energy journey topic. Being a stakeholder in nuclear energy, your insight would help me understand more about how you experienced the process.

Do you have any questions?

- First, I would like to hear about how you got involved in nuclear energy.
- How would you describe your involvement in the evolution of nuclear energy in Hungary?
- What do you see as the most critical or important events during the time of your involvement?
- Were there any turning events along the way? If so, can you tell me about them?
- What do you think had the biggest impact on how people in Hungary viewed nuclear energy at that time?

Follow up questions to all, if needed:

What lead you to believe this?
How did you conclude that.
Tell me more about that.