

Ákos Péter Mernyei

Can We Keep Up with Energy? – Energy Policy in the European Union During the 2011 Hungarian EU Presidency and at the Doorstep of 2024

Energy is a cornerstone of modern societies. It surrounds us virtually in every minute. Our life can hardly be imagined in its absence. Nevertheless, one might have believed for long that energy stands at our disposal almost as certainly as the air does. Lately, however, the energy market shock has arisen due to international political and economic events proving that just the opposite is true: the mankind of the 21st century, our economies and societies are strongly vulnerable. It became obvious that the presence of energy is not only a question of financing, or to put it even simpler: a question of money, but it carries a fundamental issue of security of supply and consequently one of sovereignty. The respective issues are of cross-border nature – hence, many aspects are to be dealt with by the European Union as well. Accordingly, the energy policy plays a major role also in the European political arena. As a matter of fact, energy policy became one of the most prominent field of debates within the EU today. This study – after a brief historical introduction – discusses the results of the 2011 Hungary Presidency and reviews the most important challenges, which – either on the level of the EU or that of the member states – Europe, if it wants to preserve the security of energy supply of its nations, the competitiveness of its economy, as well as its very ability to take any kind of serious independent action in international politics, shall face in the near future.

Introduction

“Nem az a legény, aki adja, hanem aki állja” [The true lad is not him, who gives the punches, but he who stands them] – goes the old Hungarian saying, and it seems to be true for the energy policy field and, particularly, security of supply issues in today’s Europe. The true “lad” is not him who owns plenty of energy resources and may even be able to export significant quantities of them, enabling the operation of its economy amid the trials of our times – first the Covid-19 pandemic, then the wartime crisis – but rather, those who can successfully face the respective challenges without possessing the essential energy resources provided by nature.

To analyse this topic somewhat deeper, it is necessary to understand that energy is more than a simple industry. Energy shall be approached as a comprehensive field dealing simultaneously with the production, transportation, trade and delivery of the fundamental necessities indispensable for creating the material conditions of modern human life. All of this is done while at the same time striving to limit oneself and, in part, by transforming the composition of the energy carriers used and introducing new



technologies, with a focus on promoting sustainability, circular economy, consumer protection, and the list can be continued for long.

“If there is electricity, there is everything” says the familiar slogan, and indeed, for a long time, it seemed that even if maybe not everything is provided for, but at least the availability of electricity (as well as gas, district heating, etc.) was hardly a question anywhere in Europe. Before the 2010s, we took the security of these energy carriers for granted, and as a consequence whether something is at our disposal or not, did not depend upon the availability of energy resources.

In the 2010s, particularly after the Fukushima nuclear accident, support for sustainable and environmentally conscious investments were strengthened among investors in the energy sector as well. Financial institutions became either reluctant to finance fossil energy based investments or did only at a high cost, leading to delays regarding the substantial or even critical infrastructure projects. To counter the effects of Covid-19, the United States and Western countries embarked on significant economic stimulus programs, accompanied by a substantial increase in energy demand (energy hunger). These processes, coupled with unfavourable weather conditions for renewable energy sources in the summer of 2021 and problems surrounding the new Nord Stream pipeline, led to a historic peak in gas prices in June 2021.¹ In the winter of 2022, with the outbreak of the Russo–Ukrainian war, the situation deteriorated significantly.² The price of natural gas, indispensable both as a primary energy carrier and as a raw material for electricity generation, skyrocketed, and in Germany, the economic powerhouse of Europe, public TV began to broadcast programs demonstrating survival techniques in case interruptions in the heating service occur. The energy crisis had arrived to Europe.

After the sad experiences of the Covid-19 pandemic, it became evident once again that the fundamental life conditions of humanity could be endangered. This time, however, it was not the appearance of a tiny virus, but the disappearance of other small things, namely, natural gas molecules and electrons.

In 2023, at the time of writing of this study, resolving the issues of security of supply in Europe has become one of the most urgent problems on the continent. In the summer of 2024, Hungary will take over the EU Presidency for the second time, at a period when energy policy is likely to become not only the most significant policy area, but also the most crucial issue for the continent from both sovereignty and competitiveness perspectives.

This study aims to present the historical development, economic-social-environmental determinants, and achievements of the first Hungarian EU Presidency in 2011, the challenges the EU is facing today in this field, and the areas where the European Union, led by the Hungarian Government, for half a year from 1 July 2024, must find answers.

¹ Trading Economics s. a.

² Elemzőközpont 2023.

A historical development of energy policy

The evolution of European Union energy policy shows a varied picture. Although one of the communities that preceded the Union, namely the European Coal and Steel Community, was partially created to regulate coal trade in 1951, and the Spaak Report of 1956 identified the electricity sector as a key area, the formation of a common energy policy through strategy and legislation only began much later, after 1990, with the first liberalisation package. Initially, there was no regulation regarding the joint use of traditional energy carriers (oil, natural gas, electricity). A particular area was nuclear energy, where in 1957, the founding six member states entered into the Euratom Treaty, marking the first significant common European step for the peaceful use of this source of energy.

The Treaties on the European Union and on the Functioning of the European Union, which constitute the primary legal basis for the EU, did not explicitly include provisions or regulations regarding energy or energy policy in their original forms. What was included in the Treaty of Rome, which later served as the basis for legislation, were the four freedoms, particularly the free movement of goods and services. This is not surprising considering that in the 1950s and 1960s, energy supply was not a pressing issue in the former EU member states. The first significant shift and movement towards a common energy policy occurred in the early 1970s with the first major oil crisis, but some member states saw the solution not in the integration but in maintaining their national jurisdictions.³ However, in 1974, the International Energy Agency (IEA) was established to facilitate intergovernmental coordination.⁴

It took a decade for community activity in the energy sector to be strengthened. In 1983 and 1985, high-level political discussions took place among EU decision-makers on energy issues. Intense debates arose about whether and how to create a unified internal energy market. These discussions led to the Commission presenting an official document entitled *Internal Market in Energy* in 1988, initiating secondary legislation.⁵ The document outlined several steps, such as removing technical and financial barriers to liberalisation, ensuring transparency in pricing, regulating the transmission of electricity, and extending competition rules to the entire energy sector (including state aid rules).⁶ It seemed that comprehensive thinking had begun at the EU level regarding the organisation of energy markets.⁷

³ HOERBER et al. 2021: 316.

⁴ In the late 1960s and the 1970s, several community directives were introduced concerning the stockpiling of crude oil and fuels: Directive 68/414/EEC of the Council, Directive 72/425/EEC of the Council, Directive 73/238/EEC of the Council, Directive 75/339/EEC of the Council.

⁵ Commission of the European Communities 1988.

⁶ In parallel with EU legal regulations, a parallel process unfolded in international law: following the dissolution of the Soviet Union, Western states and former Eastern Bloc countries sought to regulate investments and trade relationships, among other areas, in the field of energy. The result of this process was the Energy Charter Treaty concluded in 1991. Numerous debates have arisen in recent times regarding the Energy Charter Treaty. Several member states, particularly following the European Court of Justice decision in the *Achmea* case (C-284/16, *Slovakia v. Achmea BV*), have indicated their intention to withdraw from the treaty.

⁷ For the fundamental principles of organising the EU energy market see JOHNSTON–BLOCK 2012.

Interestingly, the subsequent Maastricht Treaty amendments did not bring significant progress in the jurisdictional and legislative process. The 1993 amendment changed the Treaty to explicitly include the goal of achieving a single internal energy market, but did not stipulate any further rules. Nevertheless, it appears that this was not insignificant: in 1995, the Commission already presented a comprehensive Green Paper⁸ outlining its ideas for further shaping of the European energy policy.⁹

Subsequently, EU energy policy accelerated. Soon after, a White Paper, often referred to as the “first European-level energy policy document” by experts, was published.¹⁰ This document outlined fundamental pan-European goals in the energy sector, namely 1. maintaining competitiveness; 2. ensuring security of supply; and 3. protecting the environment. Almost simultaneously, another Green Paper was released, advocating for the achievement of goals related to energy produced from renewable sources. To achieve the goals outlined in the White Paper, the Council adopted a multi-annual program at the end of 1998.

The conceptual documents were turned into concrete and detailed regulations by the EU legislator. Recognising the diversity of energy capabilities and systems in member states, the Commission primarily advocated directive legislation supplemented by regulatory rules in certain areas. Directives oblige member states to achieve specific goals while granting them significant freedom in choosing the path to those goals.¹¹ The “first energy package” emerged in the mid-1990s, aiming to organise the European (then only fifteen-member) energy market along unified principles. The package included Directive 96/92/EC¹² establishing rules for the electricity sector and Directive 98/30/EC¹³ establishing similar rules for the gas sector. These directives aimed a gradual market-opening. The package mandated a regulatory environment based on competition, consumer-focus, non-discrimination and market-based pricing. However, it also considered the special nature of the sector, from where the state cannot withdraw completely as it involves the ensuring of basic societal needs and addressing important strategic issues for every sovereign.¹⁴

By the early 2000s, it became clear that further steps were necessary. Before the “big boom” enlargement, member states adopted another energy package, which set more ambitious goals than the first one in several aspects.¹⁵ The directives aimed to stimulate

⁸ Commission of the European Communities 1995.

⁹ The acceleration of EU energy policy in the 1990s was contributed to by international climate conferences, within the framework of which the UN Framework Convention on Climate Change also addresses the energy industry responsible for a lion's share of CO₂ emissions (Rio de Janeiro 1992, Kyoto 1997).

¹⁰ LEHOTAY 2020: 266.

¹¹ GOMBOS 2021: 122.

¹² Directive 96/92/EC of the European Parliament and of the Council.

¹³ Directive 98/30/EC of the European Parliament and of the Council.

¹⁴ This characteristic partly explains why liberalisation unfolded differently, for instance, in the telecommunications sector.

¹⁵ The directives 2003/54/EC and 2003/55/EC. Interestingly, in this case, there were not years between the regulations of the electricity and gas sectors.

energy competition and stipulated that everyone in the EU should be free to choose both their electricity and gas suppliers. The concept of “protected consumers” was also introduced into EU law.¹⁶

The next step in the development of European energy policy was driven by setting energy efficiency goals and newly incorporated provisions into primary law by the Lisbon Treaty. The Lisbon Treaty promoted the energy policy to a specifically regulated EU policy under a separate subtitle. Article 194 of the Treaty contains provisions defining the EU’s energy policy goals and stipulates that legislation in the field of energy must be enacted by means of “ordinary legislative procedure”.¹⁷ Additionally, and this has become a focus of current debates, the Lisbon Treaty explicitly preserved the right of member states to determine their own energy mix. According to the treaty, this right includes determining the conditions for exploiting their energy sources and the freedom of choice between different energy sources, as well as the general structure of their energy supply.¹⁸

It should be noted however that Article 194 is not the only legal basis on which the Union can legislate in the field of energy. Article 122 of the Treaty addresses security of supply,¹⁹ while Articles 170 and 172²⁰ (“Trans-European Networks”) provide a basis for secondary legislation regarding the development of energy networks.²¹

In the late 2000s, EU legislation appeared again, now based on the new legal foundations. This legislation aimed the intensification of competition, enhancement of energy efficiency, and the coordination of the work of national regulatory authorities. Alongside the directives forming the third energy package in 2009, a regulation on the Agency for the Cooperation of Energy Regulators (ACER) was also enacted.²²

In March 2007, at a European Council meeting attended by leaders of the enlarged Union, including Hungary, a quantified roadmap for the new triple challenge (i.e. security of supply, competitiveness and sustainability) was adopted. According to the decision, the Union committed to reduce CO₂ emissions by the EU by 20% by 2020 compared to 1990, achieving a 20% energy savings, and increasing the share of renewable energy sources to

¹⁶ STELBACZKY 2014: 454.

¹⁷ An exception to this is made for provisions of a primary taxation nature, for which a ‘special legislative procedure’ is mandated.

¹⁸ The policy objectives to be achieved as specified by Article 194 include: 1. ensuring the functioning of the energy market; 2. guaranteeing energy supply security within the Union; 3. promoting energy efficiency and savings, as well as the development of new and renewable energy sources; and 4. promoting the interconnection of energy networks.

¹⁹ The Council, without prejudice to other procedures prescribed in the Treaties, may, on a proposal from the Commission and in a spirit of solidarity between Member States, adopt measures appropriate to the economic situation, particularly if severe difficulties arise in the supply of certain products, including, in particular, energy.

²⁰ Article 170 (1): In order to achieve the objectives referred to in Articles 26 and 174 and to facilitate the full enjoyment by Union citizens, economic operators, and regional and local communities of the benefits of the establishment of an area without internal frontiers, the Union shall contribute to the establishment and development of trans-European networks in the areas of transport, telecommunications and energy infrastructure.

²¹ And, of course, in certain cases, it is also possible to legislate on energy matters based on environmental policy grounds.

²² Regulation (EC) No. 713/2009 of the European Parliament and of the Council.

20%.²³ Practical legislation followed the political guidance: in the fall of the same year, the Commission presented the so-called “Third Energy Package”. One of the main goals of the package was the regulation of vertically integrated companies from production, to transmission, distribution and trade. However, the ambitions of the Commission did not align with those of the member states. Instead of full ownership, unbundling and separation according to functionally related activities (i.e. transmission and distribution, as well as production and trade), the regulation introduced three models for regulation. Although the EU legislator codified the possibility of ownership unbundling, independent system operator (ISO) and independent transmission system operator models were also included in the accepted solutions during negotiations. Needless to say, the latter gained greater popularity among member states.

In the early 2010s, the Commission began to include a previously less focused area in the scope of EU regulation: the emission of greenhouse gases.²⁴ In 2011, the Commission presented a “Roadmap” outlining its ideas for energy measures until 2050. Among these plans was the commitment to reduce greenhouse gas emissions in the EU by 80–95% by 2050 compared to 1990 levels. However, recognising the importance of interconnectedness, the Commission advocated for the necessity of building new energy infrastructure elements.

Although European Union legislation in the energy sector did not stop thereafter (see the fourth and fifth energy packages), given that the next chapter of this study discusses the goals and results of the 2011 Hungarian Presidency, the historical background is introduced only up to this point.

Energy policy priorities of the 2011 Hungarian Presidency and achievements of the Presidency

Energy policy in the 2011 Hungarian Presidency Programme

The Hungarian Presidency, as part of the Spanish–Belgian–Hungarian trio, accomplished its first presidency cycle in 2011 following the outlined trajectory of policy development in the previous chapter.

The Presidency’s key concept was the “human factor”, and its ideas were grouped around four major themes: 1. Growth and employment for preserving the European social model; 2. A stronger Europe; 3. Citizen friendly Union; and 4. Enlargement and neighbourhood policy.

²³ The first two phases of the EU Emissions Trading System (ETS) took place between 2005 and 2012, encompassing the 2005 trial and related impact assessment, as well as the development and phased implementation of the system that became operational in 2008. Key players included heavy industry, electricity generation and aviation. In the energy sector, the allocation of free quotas primarily served as an incentive for the modernisation of electricity systems (see European Court of Auditors 2020).

²⁴ In light of the fact that another study within the present volume delves into the issues of climate policy, the related questions will be briefly mentioned here.

The document itself highlighted that “the first half of 2011, when Hungary held the EU Presidency, is particularly crucial for the development of the Union. The entire Union is defined by economic restructuring. The primary tasks are job creation, increasing employment, and promoting competitiveness”.²⁵

The presidency program, like any such document, formulated its (energy) objectives at a relatively high level of abstraction, and it did not specifically include a dedicated energy chapter.²⁶ During the Hungarian Presidency, the topic primarily emerged as an area of strategic planning rather than with legislative focus. It was crucial for energy considerations that the government intended to pay special attention to the implementation of the “Europe 2020” strategy. One of its pillars was maintaining European competitiveness, with the goal of improving the situation of SMEs. The “Stronger Europe” pillar was perhaps the most important from the perspective of the policy discussed in this chapter. Given the goal of strengthening European cohesion and the ongoing debate on the Union’s next financial perspective, the Hungarian Presidency aimed to engage in substantive dialogue with other EU member states to prepare for it adequately. The presidency sought to establish a “policy-driven budget”, implying that the budget planning cycle should be determined by individual sectoral policies.

It is noteworthy that the Hungarian Presidency planned to achieve results in the fields related to the “human factor”, specifically water, food and energy, elements that shape the lives of future generations. The presidency document emphasised that, in addition to “traditional community policies”, special attention would be given to energy policy. Among the Hungarian goals in the field of energy policy, the creation of energy security held a top position.²⁷ The Hungarian Presidency interpreted energy security as a complex, threefold entity, including:

1. the elimination of physical barriers that restrict the functioning of the internal market
2. diversification, encompassing the diversification of energy sources and supply routes
3. ensuring EU financing for the development of energy infrastructure facilities

Achievements of the 2011 Hungarian Presidency

During the Hungarian Presidency, both a planned and an extraordinary Energy Council (EiT) meeting took place, addressing issues related to energy policy. Throughout the

²⁵ Government of Hungary 2010.

²⁶ The initial version of the presidency program was first put on the agenda by the government in the summer of 2010, and the final program was approved in December 2010. The reason for this is that, naturally, in shaping the final program, the results achieved by the preceding member of the presidency trio must be taken into account because the incoming, new presidency needs to ‘pick up’ where the previous one left off.

²⁷ The wording of the document, i.e. the contrasting of ‘traditional community policies’ and energy policy clearly illustrates that in 2010 the latter was a new, still-evolving policy area.

semester, three ministerial-level Energy Council meetings were held, and an informal Energy Council session took place once as well. The Hungarian Presidency was active in the field of energy, with the Energy Council Working Group conducting 22 meetings during the Presidency, i.e. almost every week.

The Europe 2020 strategy, entitled *Smart, Sustainable and Inclusive Growth*,²⁸ included a chapter on energy and climate policy under the heading of “Sustainable Growth”. The implementation of the goals outlined in this chapter was served by the “Resource-Efficient Europe Flagship Initiative”.²⁹ Several policy initiatives, mostly introduced during the first half of 2011, during the Hungarian Presidency, were related to this, such as the decarbonisation roadmap for achieving a low-carbon economy by 2050, the White Paper on Transport Policy, the Energy 2020 Strategy, Energy Infrastructure Priorities by 2020 and beyond, and Commission communications on energy efficiency.

During the Hungarian Presidency, the Energy Council adopted conclusions on the latter three communications, and at the June Environment Council, Member States supported the Presidency’s conclusions regarding the decarbonisation roadmap.

One notable result of the Hungarian Presidency was that it was the first to specifically discuss a sectoral policy (energy policy) at the level of heads of state and government during an EiT. This meeting took place at the beginning of the Presidency on 4 February 2011.³⁰ The European Council affirmed that the EU needs a “fully operational, interconnected and integrated internal energy market”³¹ and provided political guidance on the following:

- Member states must implement existing EU legislation.
- By 2014, the internal market must be fully implemented in both gas and electricity trading on the EU energy market.
- Efforts should be made to modernise and interconnect European energy infrastructure with simplified construction procedures.
- No member state should remain isolated, and “energy islands”³² should be connected.
- European infrastructure projects should be primarily financed by the market, but projects of key importance for European energy security may receive public funding based on transparent criteria.
- The 20% energy efficiency target for 2020 was reaffirmed.

²⁸ The document stipulated that based on the performance of the Member States, the Commission will issue so-called ‘country reports’, upon which it will issue country-specific recommendations. Furthermore, the Europe 2020 strategy stated that countries failing to comply with such recommendations would receive political warnings.

²⁹ In the Europe 2020 strategy, the Commission proposed so-called ‘flagship initiatives’ for each priority area, including the ‘Resource-Efficient Europe’ theme, which were mandatory for both the Member States and the Union.

³⁰ The European Institute of Innovation and Technology (EIT) discussed issues related to both energy policy and innovation policy.

³¹ See the conclusions of 4 February.

³² Energy island means that it is not physically connected to the energy system or network of any other Member State (see STELBACZKY 2014: 454).

- Incentives should be provided at both the EU and member state levels for renewable energy sources and low-carbon technologies. The Commission was tasked with developing proposals on smart grids, energy storage and sustainable biofuels.
- The European Council mandated member states to inform the Commission about any existing or new intergovernmental energy agreements with third countries from 1 January 2012 onward, with this information being made available to member states.
- In the field of international relations, neighbouring countries were encouraged to apply internal energy market rules.
- The Commission was urged to continue its efforts in creating gas corridors capable of transporting large quantities of natural gas.
- It was stated that the EU should establish a “reliable, transparent and rule-based partnership” with Russia in the field of energy policy.
- Finally, the Commission was called upon to develop a long-term energy strategy for 2050 with a focus on low CO₂ emissions.

Based on these political guidelines, detailed conclusions were adopted by the Energy Council on 28 February 2011, regarding the energy strategy to be followed until 2020 and infrastructure priorities – these will be discussed below.

During the Hungarian presidency semester, significant progress was made in the following areas by the Hungarian administration:

1. Energy 2020 Strategy
2. Energy Policy Roadmap until 2050
3. Energy Infrastructure Priorities by 2020 and Beyond
4. 2011 Energy Efficiency Plan
5. Proposal – Regulation of the European Parliament and of the Council on the Integrity and Transparency of the Energy Markets (REMIT)
6. The content and achievements of each dossier are outlined below.

Energy 2020 Strategy – A strategic document outlining mid-term perspectives³³

One of the main objectives of the Hungarian Presidency was to adopt Council conclusions regarding the strategic directions defining the energy developments of the 2010s. This document established the outlines of mid-term development of the EU energy policy. In November 2010, the European Commission published a communication entitled *Energy 2020: A Strategy for Competitive, Sustainable and Secure Energy*. The communication reviewed the challenges the Union had to face during that period and proposed responses. The document was discussed in the Energy Council on 4 February 2011, and the Energy

³³ The Energy 2020 Strategy focused on the following key areas: the EU energy market and relations with third countries, energy efficiency, consumer protection, technology and innovation, and security in the field of energy.

Council on 28 February 2011 adopted conclusions on it. The conclusions stated that it was the Commission's task to develop and submit legislative proposals to the EU decision-making institutions by 2013 in the most important areas of energy.³⁴

Energy Policy Roadmap until 2050 – The concept of a long-term strategy

The Roadmap aimed to define the most important steps to be taken by the European Union from 2011 to 2050, ensuring that the community becomes a low-carbon, largely carbon-neutral and competitive economy by 2050. The significance of the document was unquestionable in terms of policy, and it was of significant interest to Hungary. The Roadmap was released during the Polish Presidency following the Hungarian Presidency in the fall of 2011. The Hungarian diplomacy's achievement was to include the topic in the agenda of the informal Energy Council on 3 May 2011, providing an opportunity for member states to discuss measures necessary for transitioning to a low-carbon economy. Agreement was reached that the fundamental principles of EU energy policy, such as security of supply, sustainability and competitiveness, should be maintained, taking into account national specificities.

Infrastructure Priorities for Energy by 2020 and Beyond

The Presidency included in the agenda of the Energy Council on 4 February the Commission's communication entitled "Energy Infrastructure Priorities by 2020 and Beyond". The communication, as its name suggests, defined priorities that the EU energy policy deemed important for strengthening supply security through infrastructure development.³⁵

The Hungarian Presidency made significant progress on this dossier. The February Energy Council adopted conclusions, followed by the Energy Council in February, which accepted conclusions on the matter. It is worth mentioning the significant differences in opinions among various EU member states, specifically between the "old" and the "new" member states. The "old" member states, having adequate energy infrastructure, were more interested in "greening", while the new ones were focused on developing missing cross-border and other capacities.

³⁴ The energy strategy considered energy efficiency, the pan-European integrated energy market, strengthening consumer rights, research and development, and finally, strengthening the external dimensions of the EU energy market as key objectives.

³⁵ 1. Offshore wind energy-integrating electricity grid in the North Sea; 2. North–South gas and electricity interconnections in Southwest Europe (mainly between France and the Iberian Peninsula); 3. North–South gas, oil and electricity interconnections in Central Eastern and Southeastern Europe (connection between the Baltic, Adriatic and Black Seas); 4. Baltic Energy Market Interconnection Plan (BEMIP) for gas and electricity (involving the currently isolated Baltic states in the European energy market); 5. Southern Gas Corridor (including Nabucco, sourcing from the Caspian region and the Middle East).

Energy Efficiency Action Plan Review

Energy efficiency requirements were already an important part of EU climate policy goals before the Hungarian Presidency. In 2006, the Energy Efficiency Action Plan underwent a review, which the Hungarian Presidency planned to re-examine. In March 2011, the Commission presented its relevant communication, containing EU-level requirements and proposals for action to promote energy efficiency since member states had previously rejected national mandatory energy efficiency targets.

The Hungarian Presidency succeeded in having the Council conclusions on 10 June, which provided political guidance for detailed legislative proposals on the matter. Hungary was prepared to start negotiations on related legislative drafts, but the Commission only published them after the Hungarian Presidency.

Proposal – Regulation of the European Parliament and of the Council on the Integrity and Transparency of the Energy Markets (REMIT)³⁶

The negotiation of the REMIT regulation was of particular importance from the perspective of the Hungarian Presidency Programme, as it was the only legislative proposal Hungary handled in the field of energy.

The regulation aimed to regulate the transparency of wholesale energy markets. The underlying assumption was to regulate wholesale energy markets similarly to financial markets following the financial and capital market crisis. The Presidency successfully urged the Energy Council conclusions on 4 February to expressly prompt the legislative bodies to adopt the regulation as soon as possible. Following several trilateral negotiations, an agreement was reached between the European Parliament and the Council.

Other significant achievements of the Hungarian Presidency

Given their nature, nuclear energy-related dossiers deserve separate discussion. During the Hungarian Presidency an earthquake and subsequent tsunami occurred in Japan in March 2011, which were followed by the Fukushima nuclear power plant disaster.

Following the tragedy, the Hungarian Presidency promptly took action and convened an extraordinary Energy Council meeting.³⁷ Ministers discussed the consequences of the disaster and EU-level measures. Subsequently, the Presidency called an extraordinary Energy Council, which made politically crucial decisions to guarantee EU nuclear safety. According to the Energy Council's conclusions, all nuclear power plants in the EU needed to undergo a so-called "stress test". The tests rely on three pillars: self-assessment

³⁶ Regulation (EU) No 1227/2011 of the European Parliament and of the Council.

³⁷ The Japanese situation was also on the agenda of the extraordinary meeting of the Ministers of the Interior.

by nuclear facility operators, verification by national authorities in a second round, and independent expert examinations. It is noteworthy that the conducted examination deemed the Paks Nuclear Power Plant appropriate.³⁸

Moreover, the Hungarian Presidency achieved significant legislative results in the field of nuclear safety, successfully concluding the directive on the safe management of radioactive waste and spent fuel. The directive was particularly innovative, being the first EU legal act to establish a Union-wide regulatory framework in this area. The Council working group handling the dossier concluded the outstanding open issues on the last day of the Hungarian Presidency, 27 June, with only Luxembourg and Sweden expressing reservations. The agreement was approved without debate at the Coreper meeting on 14 July and the Agriculture and Fisheries Council meeting on 18 July.

It is worth mentioning that during the Hungarian Presidency, the fifth review report of the “Convention on Nuclear Safety (CNS)” took place, and the report was submitted to the International Atomic Energy Agency in April. Finally, but not least, despite Austria’s opposition, the Hungarian diplomacy successfully achieved a common approach in late June for the two-year extension of the “Seventh Euratom Research Framework Programme”. This program finances research and related training in the nuclear field. It was a diplomatic success for the Hungarian Presidency, although it was not a legislative or policy planning task. Also noteworthy from a diplomatic perspective was the election of the new European Director of the International Energy Agency. Thanks to the Hungarian Presidency’s involvement and intensive coordination among member states, a common EU candidate, Maria Van der Hoeven from the Netherlands, was successfully nominated.

Current status, challenges and opportunities

In this study, given the limitations of its scope, a comprehensive discussion of the challenges affecting energy policy today and those arising in connection with energy policy can only be provided in a brief overview.

To understand the current events in energy policy, it is necessary to recognise that the world’s energy needs, energy production possibilities, and subsequently, the way we think about energy, have reached a turning point in recent years due to economic, technological and political determinants.

The economic challenges are at least twofold: firstly, looking at the issue from the perspective of natural resources, it is a fact that the world’s energy consumption is increasing,³⁹ which means that the demand for energy is growing. The question becomes even more complex when examining the composition of the required energy. In Hungary, total final energy consumption has increased by almost 20% since 1995, but the growth

³⁸ MITTLER 2012.

³⁹ Compared to the annual consumption of 126,000 TWh in 2002, the data for 2022 was 179,000 TWh (RITCHIE et al. 2022).

in final electricity demand for energy purposes has exceeded 50%.⁴⁰ In the EU during the same period, the growth in total final energy consumption was just over 5%, with electricity consumption increasing by nearly 27%.⁴¹ Regardless of whether we look at the entire EU average or just Hungary, the dominance of electricity within the energy mix is significant. It is also evident from the numbers that although the transition to energy-efficient technologies can mitigate energy hunger, it cannot eliminate it.

Simultaneously, the production of energy – whether it is the generation of electricity or the extraction, transportation, purification and storage of oil or gas – requires significant investments from both the public and private sectors. At the same time, the era of cheap energy seems to be coming to an end – when considering the costs of individual investments, energy costs have become one of the most decisive financial factors.

Technological challenges are again at least twofold and are, in fact, conflicting with each other. On the one hand, we are increasingly able to use energy more efficiently through technological advancements (energy efficiency aspect). On the other hand, however, our modern world is becoming more “technologised”, meaning more and more devices around us require energy. It is worth to think that 40 years ago, television was a rarity, 30 years ago, mobile phones, 20 years ago, mobile internet and 10 years ago, electric cars were new phenomena. Today, we can hardly imagine our lives without any of them. The same is true for industrial technologies that require energy. However, it seems that the increasing demand for energy-consuming devices, both in quantity and variety, cannot be offset globally by the technological shift toward energy efficiency alone, as mentioned above.

Thus, there is a commodity, or group of commodities for which demand is increasing, a demand that technological development cannot suppress and is increasingly integrating into our daily lives through the development of various tools, both for industry and the population. Even if there were no geopolitical rearrangements (as there are), there would still be a *political problem* in such circumstances – namely, a globally unevenly distributed, scarce resource that everyone demands in the global (economic) competition.

Approaching the question from this point of view, it becomes apparent that energy is increasingly becoming a political-strategic factor and, consequently, a political risk and potentially a political weapon. The availability of secure and increasingly inexpensive energy is no longer a given but has become a fundamental issue determining the functioning of a country. It is now not only the price but also the security, i.e. the secure availability of energy, that means a fundamental question for the functioning of a modern society. The current situation is, therefore, that for a state in order to ensure its functions, it is vital to have access to energy in the appropriate quality and quantity for state bodies, industry and the population. Consequently, at least temporarily, in the three-ply criterion set against the energy (securely available, affordable and sustainable), the environmental

⁴⁰ Hungarian Central Statistical Office s. a.a.

⁴¹ Eurostat s. a.

sustainability of European energy policy, which is otherwise crucial and unquestionably important, might be overshadowed.⁴²

The question therefore arises: How can energy be provided for? Recent events have shown that the world is only partially prepared for this challenge. Regarding Europe, we see that some Western European countries, primarily those with coastlines, are more easily coping with this problem due to their given natural conditions. Thanks to their economic prosperity and geographical location, they were able to replace the physically necessary amount of the missing (Russian) natural gas more easily, primarily with LNG (from the United States).

It should be noted that as a side effect of this transition, a significant amount of additional CO₂ emissions occurs because, instead of the lower CO₂ emissions of pipeline transport, natural gas (in the form of LNG) arrives on tanker ships now. The respective pollution level can significantly exceed the level of pollutant emissions associated with pipeline transport.⁴³

In the context of the requirement for “environmental sustainability”, the use of nuclear energy should also be discussed here. There is an ongoing debate in the Union regarding the safety of nuclear energy. Some countries, such as Germany, have decided to shut down all their nuclear power plants, while others, including Hungary, continue to use and consider these power plants essential for ensuring their security of supply. Recently, in two judgments (Hinkley Point C and Paks 2), the EU Court of Justice dealt with the issue. In both cases, the ECJ stated that the construction of new reactor blocks remains compatible with the internal market, taking into account the free determination of the energy mix by member states. The court emphasised energy security in both judgments and did not address the environmental dimension of sustainability. However, with the expected adoption of several EU regulations in the coming years under the fifth energy package, attention will likely be paid to this issue as well. In the relevant debate, Hungary takes the position that nuclear energy is safe and provides clean energy when appropriate technical standards are observed.

Looking at the challenges concerning Hungary, it is evident that the issue is not merely financial, but also a matter of physical security of supply, although our flexibility varies with respect to different energy carriers. Hungary’s exposure to energy imports exceeds the EU average.⁴⁴ Due to natural conditions, the self-sufficiency from domestic exploitation is not on the horizon in the near future: what Hungary can nevertheless achieve in the short term is the mitigation of its exposure by acquiring the necessary imports from more sources (including the country of origin and the energy carrier as well) and through multiple routes. This can help to ensure uninterrupted functioning in

⁴² It raises further the question how the European legislator, recognising this situation, will react to that. Will it deprioritise the green policy aims? At the time of writing these lines, it seems that if this does not happen, it could further intensify the existing competitive disadvantage of the EU against the United States and China, thereby worsening the economic situation of the Union.

⁴³ See more on this topic in ULVESTAD–OVERLAND 2012: 407–426.

⁴⁴ Hungary imports 76% of its consumed energy, while the EU average is 71%. Our energy dependency was 64.2% in 2022 (see Hungarian Central Statistical Office s. a.b).

case of the loss of a partner, intentional or unintentional non-compliance, or significant price increases in imported energy. It is worth briefly reviewing the situation regarding different energy sources (natural gas, oil and electricity).⁴⁵

One of the essential pillars of the Hungarian energy mix is *natural gas*. It is extensively used for residential heating and electricity generation in Hungary, but domestic natural gas production is relatively low. Based on 2020 data, while domestic natural gas consumption was 10.44 billion cubic meters annually, only a fraction of this amount, 1.57 billion cubic meters, can be produced domestically. Hungary used to import 75% of its natural gas from Russia,⁴⁶ and this quantity of natural gas does not seem to be available from other sources under the same conditions. The proportion of apartments connected to the gas network is also a particularly important factor regarding the degree of exposure. In Hungary, over 90% of the houses built between 2003 and 2011 were equipped with gas connections. Since then, the trend has been decreasing, and currently, this ratio is around 60%. However, the heating of the housing stock still largely depends on natural gas. Therefore, it is obvious that significant and widespread natural gas consumption – at a great many number of take-out points – will continue to be an issue in Hungary for a long time.

To reduce dependency, significant cross-border pipeline, so-called interconnector, developments have taken place in recent years: Hungary is now connected to all its neighbours except Slovenia in the natural gas market.⁴⁷ This allows for (partial) substitution along supply routes, but it does not solve the issue of the origin of the natural gas and the problem of feed-in points. In order to address this, Hungary is striving to purchase natural gas from sources other than Russian gas, including Qatar, Azerbaijan and Turkey.

The situation is better in the *electricity* market: our annual consumption in 2022 was around 57,000 GWh, while the respective production was 35,700 GWh.⁴⁸ Although the operation of weather-dependent electricity-generating facilities and exports further complicates this, on average, this means that more than 37% of Hungary's electricity needs must be covered by imports. The situation is further complicated by the industrial strategy, as electricity-intensive activities and facilities increase both the production and the import needs. Meeting this significant energy demand necessitates the expansion of Hungary's electricity generation capacities, including nuclear capacities, as soon as possible. As mentioned above, optimising energy sources and increasing energy efficiency can to some extent reduce this energy demand. Energy efficiency investments can be favourable for several other reasons, as they can contribute to economic recovery and help avoid environmental burdens associated with the construction of power plants. The question of conditions of the energy infrastructure is of particular importance.

⁴⁵ Energy efficiency can significantly help to reduce the degree of exposure. Technological development opportunities, general consumption optimisation (such as the widespread use of smart meters), appropriate application of flexibility services, etc., can all be tools in this fight.

⁴⁶ KOVALSZKY et al. 2022: 989–990.

⁴⁷ However, an agreement has already been reached with Slovenia. On 29 August 2023, Mr Péter Szijjártó, Minister of Foreign Affairs and Trade, announced the construction of a gas pipeline with a capacity of 440 million cubic meters per year. The signing of the agreement took place in October 2023.

⁴⁸ Hungarian Central Statistical Office s. a.c.

Beyond the production-consumption imbalance, delivering electricity to consumption end-points poses a significant challenge as well. The ageing network requires substantial investments in itself, and this demand is further increased by the growing renewable production (primarily electricity generated by solar panels and solar parks) and the growing electricity consumption (such as the widespread adoption of electric vehicles).

The issue of *oil* and, consequently, *fuel* supply is complex. We cover 90% of the oil consumption for fuel production through imports, with only 10% coming from domestic sources. The majority of imports, approximately two-thirds, comes from Russia, while the remaining one-third is transported to Hungary via the Adria pipeline.

The above-mentioned natural conditions fundamentally determine Hungary's situation. To improve this, it is crucial to achieve as much flexibility as possible, meaning ensuring greater autonomy in the field of energy. This flexibility can be developed primarily in the production and storage of electricity: Hungary needs new gas-fired power plants – partly to address imbalances arising from the use of renewable energy sources and an important development area could be the construction of Paks 2 in the future, the industrial application of energy storage technology (such as the establishment of a pump storage power plant), and the exploration of new technologies, such as the hydrogen industry. In addition, due to both ageing and increasing capacity requirements, the development of the domestic network is of fundamental importance. All of this requires several thousand billion forints funding, in addition to the construction of the new nuclear power plant.

The impact of energy policy on economic and social development

The development of energy has been a significant factor in humanity's transition to the modern era. Inventions of the industrial revolution fundamentally changed the organisation of social and economic life. The transformation of transportation technology, construction, public lighting, and, in general, the industrial sector have gone through radical changes. Today, we are standing at the doorstep of another industrial revolution. We have already mentioned above that the *global demand for energy is continuously growing*, and this is no different in Hungary. Almost every technology that surrounds us, from heating to transportation, operates on electricity or there exists at least an electricity-powered version. In addition to this, there is also the fundamentally electrical operation of telecommunications, the internet and other forms of data communication. The use of energy in robotics, artificial intelligence and the cyber world represents new, distinct areas.

Simultaneously, the other direction of change is *scarcity*: the era of long-thought inexhaustible and relatively cheap energy has disappeared. The big question is how humanity should and can move forward from here. It seems certain that technological development cannot stop, and consequently, it is unlikely that humanity will use less

energy by applying less technological devices. A more likely and feasible path appears to be ensuring the energy transition through energy efficiency on the one hand, and the use of renewable energy sources or new methods of production on the other hand. Considering that this represents a double technological shift, the ongoing process obviously cannot continue according to the “business as usual” model. One of the significant questions of our time is who or what entities will bear the cost of this inevitable transition and how exactly the transition will manifest.⁴⁹

The Russo–Ukrainian war highlighted that Europe cannot depend on a single energy source, namely natural gas, and a single supplier model. Instead, *it needs to diversify its import needs from various sources*. Interestingly, replacing dependence on Russian gas – using alternative sources for meeting energy needs, particularly renewable energy sources – may result in a different form of dependence, the extent and direction of which are uncertain. The question arises prominently because the use of renewable energy sources, such as the production of solar panels and batteries, requires the production and consumption of numerous critical raw materials, including lithium, in much larger quantities than before – resources that are also scarce. The significant change to LNG could also create dependences on third countries.

The future use of *nuclear energy* is another significant question. The world has seemingly not given up on nuclear energy; both the United States and China, as well as several European countries (such as France, the United Kingdom, etc.), widely employ the technology and plan to expand it in the future. One major question for the future is how and when the so-called Small Modular Reactors (SMRs) can be put into operation. A similar question arises regarding the production and use of *hydrogen*. It is uncertain whether and when these technologies can be applied in household conditions and in an economical and safe manner.

It seems certain that humanity will not be able to reduce its energy needs during social development. The classic energy “trilemma”, namely how to reconcile the aspects of secure, affordable and clean energy, will stay with us for a long time.

Hungary’s interests regarding the development of energy policy

A modern society cannot function without energy. In the above, it has been introduced how the thinking about energy has changed in recent decades and how it has evolved from an unlimited and relatively cheap, predictable commodity, broadly defined as energy, into the most important factor of production. For individual states, the security of their energy supply has become not only a budgetary and industrial strategic issue, but a matter of sovereignty.

⁴⁹ It is sufficient to point out that the Fit for 55% package maintains free CO₂ emission allowances for industry and finances fossil fuels in Europe with public funds, shifting the costs of pollution from the actual polluters to the ultimate consumers (see European Court of Auditors 2022).

At the European level, it is evident that the energy sector first drew European political attention as one of the elements of the single internal market and gradually became subject to EU legislation. In the late 1990s and the 2000s, energy packages were introduced, and after Lisbon, primary law also provided a legal basis for the Union in the field of energy. Community legislation directed energy regulation towards market liberalisation and increased competition. The EU's policy goals included the possible breakdown of natural monopolies, for example through ownership unbundling, the intensification of competition through third-party access regulations, and the strengthening of competition infrastructure through the construction of interconnectors, including gas pipelines capable of bidirectional transport.

The Russo–Ukrainian war highlighted that these steps can facilitate competition, provided that market conditions exist – i.e. provided that there is something to transport and to trade with through the pipelines. However, at times of geopolitical conflicts, it became uncertain whether there was a supply at the end of the pipeline, be it either oil or natural gas. European countries realised that thinking about energy needed to be rebuilt from the ground up: the first step in ensuring security of supply is the (domestic, national, sovereign) ability to produce energy, along with reducing energy consumption to a level that does not hinder economic development, primarily through energy efficiency and conservation. For the EU, the most important issue in the field of energy is a strategic autonomy-based energy policy and the reduction and diversification of energy dependence.

In the midst of these processes and phenomena, Hungary's interest shapes accordingly, but it starts from a more challenging position compared to competitors. There is a limited availability of energy carriers, and natural gas exposure is particularly high, partly on the industrial side and partly on the side of the population. All of this poses significant challenges to the country. The recent steps taken by the government, encompassing not only recent decisions, but also those of the past decade, have consciously aimed at mitigating this energy exposure. On the one hand, there has been diversification of energy supply routes, and work on Paks 2 nuclear power plant has begun. In recent times, the installation and commissioning of renewables (especially solar energy) have significantly increased, and there are plans in place for the installation of additional large-capacity combined cycle gas turbine (CCGT) power plants.⁵⁰ These power plants are necessary for ensuring the growing demand for electricity and balancing the increased variability of renewable energy in the system. Concurrently – for the reasons mentioned above – it would be crucial to develop the energy infrastructure, including possible solutions for storing electric power generated from renewable sources (such as the establishment of pumped storage power plants).

It is of utmost importance to assemble an energy mix designed for the needs and expected needs of Hungary. This can ensure the proper functioning of the state and its institutions and the well-being of the population even in the face of potential uncertainties and challenges in the international environment. When compiling this energy mix, it

⁵⁰ In the coming years, two new 500 MW gas-fired power plants will be built, along with an additional 650 MW capacity power plant in the Mátra mountains.

is essential to consider the natural characteristics of each energy carrier, such as their controllability, and, before starting individual investments, conduct a full life-cycle analysis, including the establishment of the associated CO₂ balance. Pollution generated during energy production, distribution and storage must be taken into account, along with environmental impact during construction, discharging and waste management.

From Hungary's perspective, the supportive or at least neutral EU attitude towards nuclear energy is crucial. The Paks Nuclear Power Plant and the upcoming Paks 2 will be fundamental pillars for Hungary's energy supply. It is imperative that EU regulations do not hinder the use of this technology, either directly through bans or by not recognising it as a "clean technology".

Equally important is how European politics will handle the issue of green transition. While it would be difficult to have any objections against the green concept on the level of principles, it is also true that it also increases the operating costs of the economy. This is prominently displayed as a competitive disadvantage at a time when restarting the economy and maintaining its operability are of fundamental importance. If other major powers in the world, primarily the United States and China, are partners in creating a "level playing field" for continuing the green transition under rational conditions, the greening within the EU might be continued. If this is not the case, however, the EU's unilaterally assumed restrictions could put the EU at a comparative disadvantage. It is crucial to consider this aspect when shaping the energy policy of the EU.

Affordable energy supply for the population, i.e. maintaining *the reduction of utility costs*, is of paramount importance for Hungary. Since 2010, this issue has been at the top of the energy policy priority list at home, and considering the exposures indicated in this study, it is expected to remain there for a long time. It is also in our fundamental interest to determine whether the green wave, including the installation of solar panels, their integration into the electricity system, and the political and financial support required for their full utilisation, will receive the necessary support for meaningful strengthening of supply security. Furthermore, it would be essential to extend the operational period of the Paks Nuclear Power Plant provided of course that its safety is ensured. The potential deployment and integration of Small Modular Reactors (SMRs) could also ease Hungary's position in the field of nuclear energy.

The second Hungarian presidency comes at a time when energy will be one of the most critical areas determining the future, security and competitiveness of the EU. The Hungarian Presidency Programme is not yet public. What can serve, however, as a guide at the time of writing of this study is the common 18-months work plan of the Spanish–Belgian–Hungarian trio. The work plan addresses energy in a mixed thematic chapter, along with waste management, climate issues, agricultural policy and the European Pillar of Social Rights. From this work plan, it can be read that the trio intends to pay special attention to the implementation of the "Fit for 55" package and, in general, achieving green goals. The document emphasises that the trio will "continue efforts towards the transition to clean energy, with particular attention to the promotion and development of cross-border energy infrastructure to address bottlenecks. The presidency trio will strive to provide safe, sustainable, and affordable energy supply for citizens and businesses, and

will work on reviewing the structure of the EU electricity market. Greening transport and promoting the development of sustainable means of transport will be one of the priorities of the presidency trio”.⁵¹

Consequently, the wording gives considerable flexibility to the presidencies both in selecting specific topics and also with regards to the legislative and strategic tools chosen for reaching the respective aims. As commonly said, the devil hides in the details: what aims the Spanish and the Belgian presidencies have regarding each specific topic and how they plan to achieve them remains to be seen. What do they think about nuclear energy, for example? Will they strive to have it recognised on an equal footing with renewable energy when considering climate and energy targets? What efforts will they make for the development of energy infrastructure? Are they going to take into account the fundamental interests of Member States lacking a coastline, such as Hungary? All these questions will only become clear as the process unfolds.

References

- Commission of the European Communities (1988): *The Internal Energy Market. Commission Working Document*. COM(88)238 final. Online: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:51988DC0238>
- Commission of the European Communities (1995): *For a European Union Energy Policy. Green Paper*. COM(94)659 final. Online: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:51994DC0659>
- Convention on Biological Diversity. OJ L 309, 13.12.1993, 3–20.
- Council Directive 68/414/EEC of 20 December 1968 imposing an obligation on Member States of the EEC to maintain minimum stocks of crude oil and/or petroleum products. OJ L 308, 23.12.1968, 14–16.
- Council Directive 72/425/EEC of 19 December 1972 amending the Council Directive of 20 December 1968 imposing an obligation on Member States of the EEC to maintain minimum stocks of crude oil and/or petroleum products. OJ L 16, 20.1.1978.
- Council Directive 73/238/EEC of 24 July 1973 on measures to mitigate the effects of difficulties in the supply of crude oil and petroleum products. OJ L 228, 16.8.1973, 1–2.
- Council Directive 75/339/EEC of 20 May 1975 obliging the Member States to maintain minimum stocks of fossil fuel at thermal power stations. OJ L 153, 13.6.1975, 35–37.
- Council of the European Union (2023): *Taking forward the Strategic Agenda. 18-month Programme of the Council (1 July 2023 – 31 December 2024)*. Online: <https://data.consilium.europa.eu/doc/document/ST-10597-2023-INIT/en/pdf>
- Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC – Statements made with regard to decommissioning and waste management activities. OJ L 176, 15.7.2003, 37–56.

⁵¹ Council of the European Union 2023.

- Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC. OJ L 176, 15.7.2003, 57–78.
- Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity. OJ L 27, 30.1.1997, 20–29.
- Directive 98/30/EC of the European Parliament and of the Council of 22 June 1998 concerning common rules for the internal market in natural gas. OJ L 204, 21.7.1998, 1–12.
- Elemzéseközpont (2023): EU Energiaválság 2022: Összegzés a válság okairól, megoldásairól. *Elemzéseközpont*, 02 June 2023. Online: <https://elemzeskozpont.hu/eu-energia-valsag-2022-osszegzes-valsag-okairol-megoldasairol>
- European Commission (2010): *A strategy for competitive, sustainable and secure energy supply and use*. COM/2010/0639 final. Online: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0639:FIN:En:PDF>
- European Commission (2011): *Energy Roadmap 2050*. COM/2011/0885 final. Online: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52011DC0885>
- European Commission (2020): *Europe 2020: A Strategy for Smart, Sustainable and Inclusive Growth*. COM/2010/2020 final. Online: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52010DC0200>
- European Commission (2022): *EU ‘Save Energy’*. COM(2022) 240 final. Online: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52022DC0240>
- European Court of Auditors (2020): *The EU’s Emissions Trading System: Free Allocation of Allowances Needed Better Targeting*. Online: https://www.eca.europa.eu/Lists/ECADocuments/SR20_18/SR_EU-ETS_EN.pdf
- European Court of Auditors (2022): *EU’s Energy Taxation Policies Don’t Square with Its Climate Goals*. *Press Release*, 31 January 2022. Online: www.eca.europa.eu/lists/ecadocuments/inrw22_01/inrw_energy_taxation_en.pdf
- Eurostat (s. a.): *Complete Energy Balances*. Online: https://ec.europa.eu/eurostat/databrowser/view/NRG_BAL_C__custom_7226788/default/table?lang=en
- GOMBOS, Katalin (2021): *Az Európai Unió joga*. Budapest: Patrocinium Kiadó.
- Government of Hungary (2010): *A magyar EU-elnökség prioritásai* [Priorities of the Hungarian EU Presidency]. Online: <https://2010-2014.kormany.hu/download/a/d1/10000/A%20magyar%20EU-eln%C3%B6ks%C3%A9g%20priorit%C3%A1sai.pdf>
- HOERBER, Thomas – WEBER, Gabriel – CABRAS, Ignazio eds. (2021): *The Routledge Handbook of European Integrations*. London: Routledge. Online: <https://doi.org/10.4324/9780429262081>
- Hungarian Central Statistical Office (s. a.a): *Energiagazdálkodás*. Online: www.ksh.hu/stadat?lang=hu&theme=ene
- Hungarian Central Statistical Office (s. a.b): *Az energiagazdálkodás főbb adatai*. Online: www.ksh.hu/stadat_files/ene/hu/ene0001.html
- Hungarian Central Statistical Office (s. a.c): *Villamosenergia-mérleg [gigawattóra]*. Online: www.ksh.hu/stadat_files/ene/hu/ene0008.html
- IV. Nemzeti Energiahatékonysági Cselekvési Terv. Az Európai Bizottság részére, az energiahatékonyságról szóló 2015. évi LVII. törvény 3. és 4. §-a szerint, valamint az energiahatékonyságról szóló 2012/27/EU irányelv 24. cikk (2) bekezdése alapján. November 2017. Online: https://energy.ec.europa.eu/system/files/2017-12/hu_annual_report_2017_hu_0.pdf
- JOHNSTON, Angus – BLOCK, Guy (2012): *EU Energy Law*. Oxford: Oxford University Press.

- Judgment of the Court (Grand Chamber) of 6 March 2018 in Case C-284/16 Slovak Republic v. Achmea BV. Online: <https://curia.europa.eu/juris/document/document.jsf?text=&docid=199968&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=8252123>
- KOVALSZKY, Zsolt – MORVA, Attila – ILYÉSNÉ MOLNÁR, Emese (2022): Az importföldgáz-árakról tényszerűen [Facts about Imported Natural Gas Prices]. *Statisztikai Szemle*, 100(10), 989–990. Online: <https://doi.org/10.20311/stat2022.10.hu0983>
- LEHOTAY, Veronika (2020): Road to the European Energy Union: Energy, Energy Policy, Energy Law in the European Union. *Journal of Agricultural and Environmental Law*, 15(28), 260–273. Online: <https://doi.org/10.21029/JAEL.2020.28.260>
- MITTLER, István (2012): Befejeződött az EU Célzott Biztonsági Felülvizsgálata. *MVM Paksi Atomerőmű*, 26 April 2012. Online: https://atomeromu.mvm.hu/hu-HU/Sajtoszoba/ArchivSajtokozlemenyek/ArchivHirekListPage/20120426_BefejezodottAzEuCezott
- Regulation (EC) No 713/2009 of the European Parliament and of the Council of 13 July 2009 establishing the Agency for the Cooperation of Energy Regulators. OJ L 211, 14.8.2009, 1–14.
- Regulation (EU) No 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency. Text with EEA relevance OJ L 326, 8.12.2011, 1–16.
- RITCHIE, Hannah – ROSER, Max – ROSADO, Pablo (2022): Energy Production and Consumption. *Our World in Data*, 10 July 2022. Online: <https://ourworldindata.org/energy-production-consumption>
- SHATON, Katerina – HERVIK, Arild – HJELLE, Harald M. (2019): *The Environmental Footprint of Gas Transportation: LNG vs. Pipeline*. Online: www.iaee.org/ceep/ceepexec/ceep82_shaton_ExecSum.pdf
- STELBACZKY, Tibor (2014): Energiapolitika. In MARJÁN, Attila (ed.): *Magyarország első évtizede az Európai Unióban 2004–2014*. Budapest: Nemzeti Közszerológati Egyetem.
- Trading Economics (s. a.): *EU Natural Gas*. Online: <https://tradingeconomics.com/commodity/eu-natural-gas>
- ULVESTAD, Marte – OVERLAND, Indra (2012): Natural Gas and CO₂ Price Variation: Impact on the Relative Cost-Efficiency of LNG and Pipelines. *International Journal of Environmental Studies*, 69(3), 407–426. Online: <https://doi.org/10.1080/00207233.2012.677581>
- United Nations (1992): Kyoto Protocol.