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Coal Is a Priority for Energy Security, until It Is Not: Coal Phase-Out in the EU and Its Persistence in the Face of the Energy Crisis

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Abstract: In the wake of the COVID-19 pandemic and the Russian invasion of Ukraine, many countries see coal as the easiest solution to their energy sector challenges, despite the consequences for climate goals. Several countries of the European Union started to re-evaluate their coal policies vis-à-vis the current energy crisis and, although such a change is expected to be short-term in nature, it nevertheless has negative consequences for the Union's 2050 climate goal. However, most of the EU countries did not revise their phase-out goals. This paper examines Slovakia as a country that embarked on a coal phase-out trajectory only a few years before the pandemic broke out and stayed firmly on this path despite benefits stemming from the continued use of domestic coal. Domestic coal used to be considered a safeguard of energy security in Slovakia, especially after the 2009 gas crisis. However, a decision was made in 2018 to phase out coal by 2023, and this has not changed despite increased focus on domestic energy sources as energy security guarantors during the current energy crisis. This paper explains the decision in favour of a coal phase-out and its support vis-à-vis the energy crisis using the concept of 'financial Europeanisation', which stresses the importance of EU funds for the development of the domestic policies of EU member states. While the expected funds serve as a catalyst for the coal phase-out needed to reach climate goals, short-term advantages of revising a coal phase-out were outweighed by long-term benefits provided by EU funds.

Keywords: coal; energy crisis; energy security; energy transition; phase-out; Slovakia



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1. Introduction

When the COVID-19 pandemic broke out at the beginning of 2020, some argued that the world would need cheap fossil energy to support a financial recovery [1]. Looking at the latest energy and emission data, coal was used globally to fulfil this goal. While 2020 was a year of economic downturn which caused a decrease in emissions [2], 2021 saw a sharp increase in energy demand, with emissions reaching new records as most of the new energy demand was filled by coal [3]. Indeed, in 2021, 14% more coal was used than during the previous year [4], bringing the total amount of coal-generated electricity to above pre-pandemic levels. This trend also continued in 2022, when many countries started to focus on energy security following the Russian invasion of Ukraine [5,6]. Several European Union (EU) countries, including Austria, the Czech Republic, and the Netherlands, began reconsidering the position of coal within their energy mixes in the short term [7]. Germany reignited a significant coal-fired capacity (10 GW) that was supposed to be decommissioned or shut down very soon [4]. This led not only to increased demands for domestic coal, which met with environmental protests [8], but also increased imports of hard coal into the country [9].

The European Commission presented a different approach to overcoming energy policy challenges, one that stemmed from both the COVID-19 pandemic and the Russian invasion of Ukraine. It focused on renewable sources of energy, energy savings, and energy efficiency in both the short [10] and long term [11–13]. Similarly, many EU member states

did not see coal as a solution to the energy crisis that stemmed from events that started in 2020 and did not change their national energy policies aimed at a coal phase-out. One of these countries is Slovakia, whose government has long supported electricity generation from domestically produced coal. This cemented the position of coal in the Slovak energy mix despite its declining importance for the country's economy. However, in 2017, priorities shifted towards a just transition of the mining region (the Upper Nitra region), emphasising its sustainable development. Moreover, the decision to phase out coal from the electricity mix by 2023 was adopted in 2018. When the energy crisis started only a couple of years later (in mid-2021), the Slovak government did not change this decision, although energy security was used in the past as the main argument (along with social issues connected to the mining industry) for coal support. Such persistence of coal phase-out vis-à-vis the energy security crisis can be therefore considered puzzling as energy security was used in the past to provide subsidies for domestic coal utilised for electricity generation purposes.

In this paper, we argue that this development was caused by an incentive in the form of EU funds supporting changes in domestic energy policies. While the expected funds serve as a catalyst for the coal phase-out necessary to reach climate goals, the short-term advantages of revising the phase-out were outweighed by long-term benefits provided by EU funds. Financial support proved to have an impact on the energy policies of EU members, especially those from Central and Eastern Europe (CEE). EU funds have clearly affected the post-2009 diversification efforts [14,15] and the shutdown of nuclear reactors built during the communist era [16]. An analysis of the Slovak coal phase-out and its persistence during a period of crisis can therefore provide further evidence of the impact of EU funds on energy policies of member states. This can lead to further investigation in other policy areas as well in which the EU funds can also serve as catalysts for policy change (or persistence). Arguments presented in this paper can therefore contribute to the discussion about policy persistence, change, or even dismantling.

The paper proceeds as follows: Following this introduction, the second part provides a background for the EU's climate goals and the position of coal in its energy mix, which directly impacts these goals. The third part of the paper explains how financial support from the EU can influence a country's willingness to change its policies. The fourth part presents an analysis of the Slovak coal industry and its importance for different economic sectors, with a focus on electricity generation—the main consumer of domestically produced coal. The fifth part analyses the decision of the Slovak government to stop supporting the production of electricity from coal at the Nováky thermal power plant by 2023, which will effectively also mean closing the nearby deep coal mine. The sixth part examines the persistence of the coal phase-out decision vis-à-vis the current energy crisis, which saw many countries re-evaluate their position towards coal. The conclusion summarises the main findings of the paper, presents limits of our analysis, and outlines avenues for further research.

2. EU's Climate Goals and the Coal Industry

The ongoing energy transition aimed at lowering greenhouse gas (GHG) emissions—the main culprit for climate change—requires a transformation of the way in which energy is produced, transmitted, and consumed [17]. Analyses have shown that although huge costs will be connected to limiting the growth of global temperatures to under 1.5 °C compared to the pre-industrial era, they will be outweighed by the benefits [18]. The EU holds an important place in this process as the world's third largest emitter of GHG, after China and the United States [19]. When it comes to (not only, but especially) electricity, there is a clear trend within the EU to support renewable sources [20] to fulfil its domestic (most importantly, the 2050 decarbonisation; [21]) or international (Paris Agreement; [22]) goals. Renewables are seen as an appropriate response to climate issues as they do not directly produce GHG (see for example [23] on life-cycle emissions) and can thus contribute to the development of a carbon-neutral economy [24]. Thanks to these goals and generous

support (predominantly feed-in tariffs, but recently also green certificates; [25]), many EU member states produce significant amounts of electricity from renewables [26].

2.1. Climate Commitments

As a signatory to the landmark Paris Agreement, the EU is committed to a 40% cut in GHG emissions (compared to 1990 levels) by 2030. Moreover, its own European Climate Law sets the 2030 GHG reduction goal at 55% [27]. Besides a higher employment of renewable energy sources, the phasing out of coal is considered necessary for achieving lower carbon emissions since coal produces the most emissions out of all fossil fuels [28]. However, until recently, coal played a crucial role in the EU's economy. According to the European Commission [29], coal provided almost 41% of European energy consumption and 39% of electricity generation until the early 1990s. This dropped to 16% and 24%, respectively, in 2015. In 2018, there was still a total of 90 coal mines operating in 11 member countries and coal was responsible for 20% of EU electricity generated in 19 EU countries by 179 coal-fired power plants with a total capacity of 130 GW [30]. The International Energy Agency (IEA) predicts a further sharp decrease in coal demand within the EU, with Poland as the only country with a stable demand also after 2022 [31]. Even Germany, which needs to replace its nuclear capacities, will do so with sources other than coal in the long term. In general, many EU mines which benefited from state aid are closing due to their poor competitive position, resulting in the loss of 27,000 jobs between 2015 and 2020 [30]. Using several tools, including the Coal Regions in Transition Initiative, the European Commission assists the planning and execution of such energy transitions [32].

However, coal still plays an important role in several member states. In 2020, Poland produced 77% of its electricity in coal-fired power plants, the Czech Republic 47%, Bulgaria 40%, and Germany 36%. In the same year, Slovakia produced 11% of its electricity in its two coal-fired power plants [30]. All these countries continue to use coal for electricity production and support domestic coal production in various ways. Poland even opened a new coal mine in 2019, the first in 25 years [33], while another planned coal mine will start production in 2029 [34]. This was criticised domestically and internationally by environmentalist groups as it goes directly against the EU's climate goals. Poland's strong opposition to these goals earned it the moniker 'the least climate ambitious' EU member state [35]. It was one of four CEE countries (along with the Czech Republic, Estonia, and Hungary) that voted against setting 2050 as the deadline for carbon-neutrality in the EU at the June 2019 European Council [36] and the only one to retain this position at the December 2019 Summit [21,37]. More than 80% of electricity in Poland is generated in thermal power plants using coal, which prompted the former Prime Minister Beata Szydło to argue that "there will be no strong Polish economy without a strong mining industry" [38].

2.2. Energy Security and Coal in Central and Eastern Europe

In CEE, coal was often viewed in energy security terms [39], long before the current crisis made several EU members (most visibly Germany) re-evaluate the position of coal within their electricity mixes. The security dimension of coal has been an important part of the overall energy policy discourse not only for those countries that produce a substantial share of electricity from coal, such Poland [40] or the Czech Republic [41,42], but also those that produce only a very small share of electricity by burning coal—for example, Slovakia. However, the Slovak position towards coal changed dramatically in 2017/2018 and the government set a binding deadline for ending the support for using coal in electricity generation, thus effectively phasing out coal from Slovakia's electricity mix. This decision remained unchanged even after the current energy crisis started in 2021 and deepened in 2022, although energy security, which is at its heart, was cited as one of the main reasons for domestic coal subsidies in Slovakia prior to 2017. We explain this development by using the concept of 'financial Europeanisation', presented in the following section, which incentivises certain policy changes but also supports persistence under special conditions (see below).

3. Financial Europeanisation as a Positive Incentive

We understand Europeanisation as an EU-driven or EU-oriented change in political, economic, and administrative systems in (but not exclusively, see for example [43]) the member states. It is a process as well as an outcome [44]. As a process, Europeanisation may lead to various degrees of policy adoption and convergence, which, however, may also be the result of various other factors [45]. The most important question is whether a member state is behaving in line with EU preferences—this is Europeanisation as an outcome. Europeanisation can thus be considered an impact of the EU and its ideas, norms, rules, organisational structures and procedures, or behavioural patterns, spread intentionally or unintentionally among the members states and on the member states themselves.

The Commission has a lot of experience with both positive and negative types of incentives aimed at influencing member states' positions and behaviours. The most complex system of incentives was developed during the 1990s and early 2000s accession negotiations with CEE countries. Employing the so-called 'carrot and stick' system meant that the candidate countries were rewarded for their progress in adopting the *acquis communautaire*, with EU membership as the ultimate reward, and punished when their progress was insufficient or non-existent [46]. This strategy proved effective only when the date of accession was unknown; if the date of accession was known, conditionality had only a minimal effect on the candidate country's willingness to fulfil the criteria [47]. Thus, the positive incentive (membership) was able to change the behaviour of member states very effectively [48], but the ability of conditionality to influence countries once they became full members was very limited [49].

3.1. Democratic Backsliding and Negative Incentives

Recently, democratic backsliding in several member states forced the Commission, as well as other EU institutions, to utilise its negative incentives to exert pressure on these countries. These actors have two main types of tools at their disposal to influence the behaviour of member states' governments and thus prevent 'democratic backsliding': material sanctions and social influence [50]. Both are based on exerting pressure on member states rather than motivating them with rewards. The former is based on Article 7 of the Treaty on the European Union, which allows the European Council to suspend 'certain rights' of the members, including voting rights in the Council, or use other sanctions such as withholding funds. The latter is based on social pressure and persuasion; Sedelmeier [51] argues that it can reverse illiberal tendencies if applied effectively. On the other hand, material sanctions are difficult to use since illiberal governments are unlikely to change their practices even based on a credible threat because they rely on these practices to remain in office.

Another example of negative incentives for member states is the case of the Cooperation and Verification Mechanism, introduced to follow in detail Bulgarian and Romanian progress in the fields of judicial reform, corruption, and fight against organised crime after their accession to the EU [52]. The monitoring process was linked to funding opportunities under the European Structural and Investment Funds [53]. Most importantly, the Commission repeatedly proposed a withdrawal of funds when some insufficiencies occurred on the Bulgarian or Romanian side. The Commission also has limited access to funds for other member states due to their shortcomings in democracy or the rule of law (for example, Hungary or Poland; [54,55]).

3.2. Positive Incentives

Contrary to these tools, this paper examines the positive ways in which the Commission is trying to influence member states' behaviour. Since the concept of conditionality is connected to the enlargement [56], this paper utilises and revises the concept of Europeanisation, used to examine the relationship between the EU and member states. The paper develops the concept of 'financial Europeanisation', which has two main parts: the EU's influence over its member states (Europeanisation) and financial transfers from the EU level

to member states (EU funds). The EU influences its member states in a top-down process known as Europeanisation (see above), during which the domestic processes and policies are affected by tools connected to European integration. This paper argues that the most important of these are the various funds developed to help decrease the differences between parts of the Union and improve its overall cohesion. EU funds are very important sources of public investment, especially in CEE countries [57], and this paper argues that they present an effective means of supporting the compliance of EU member states' governments with common goals (see Table 1).

Table 1. Negative and positive incentives as tools to impact EU member states.

Type of Incentive	Who Applies it?	How does it Incentivise Member States?	Example
Negative incentive	The Commission	To stop behaviour that is considered negative (corruption, “democratic backsliding”)	Material sanctions (limit access to EU funds) Social influence (naming and shaming)
Positive incentive	The Commission	To foster behaviour that is considered suitable (decarbonize the economy)	Providing EU funds for member states (to build infrastructure)

Source: Authors.

This paper thus contributes to a broader discussion about the Commission's powers and its ability to utilise windows of opportunity [58] and other tools, even those outside its competences [59]. These tools enable the Commission to push through its preferences that are independent from member states, not only on a day-to-day agenda [60] but also when it comes to major policy initiatives. This discussion is being developed thanks to access to new data that enable differentiating between the various types of influence the Commission exerts over policies and agenda-setting [61]. The paper contributes to this discussion by explaining how the Commission incentivises member states to follow its policies and initiatives. By offering financial support, the argument goes, the Commission provides incentives for reluctant members to change their policies. Such a trade-off is very interesting for those member states that are, in principle, supportive of EU policies in each area but reject them for domestic reasons. The availability of funds that support changes in domestic policies can ease domestic pressure as they respond to social challenges stemming from such policy changes. This paper explores these ideas by examining the case of the energy transition, which almost all member states support (although one can argue that Poland is an exception); however, some reject the EU's ambitious climate and energy targets due to domestic pressure stemming from the perceived negative social impact of those targets or worsened competitiveness.

We focus on Slovakia for several reasons. First, domestic coal use in this country enjoyed strong political support, but this position changed unexpectedly, and the country launched a process of coal industry transformation with the ultimate goal of phasing out coal from its energy mix by 2023. This change cannot be ascribed to the change in government (the decision was made during the 2016–2020 government term) or diminishing social pressure to maintain employment in the coal industry (no visible difference; see also the Conclusion section). Second, there is a clear consensus on the coal phase-out in both the country's mining and power sectors. Third, from the point of view of emissions, this is a high-pressure matter both in Slovakia and at the EU level. The Nováky power plant, which consumes all domestically mined brown coal, is the country's second biggest GHG emitter. In 2015, it was the second most polluting power plant in the EU when it comes to SO_x emissions and the most polluting in SO_x emissions per installed capacity [62]. Fourth, despite energy security being used as one of the main arguments for long-term support of electricity generation from domestic coal, the decision to phase out coal was not challenged following the start of the current energy crisis in 2021. The Slovak case can therefore provide us with a glimpse into the arguments behind many other EU member states' decisions which similarly did not reverse their coal phase-out policies in the face of the current energy crisis.

4. Slovak Coal Industry and Use of Coal in Electricity Production

Although Slovakia has a long history of coal mining, the industry has undergone an important shift during the last three decades, following the fall of communism in 1989. The industry has significantly shrunk, with the Upper Nitra region—approximately 130 km north of Bratislava, the country's capital—remaining its main centre. While at the beginning of the 1990s Slovakia produced 1397 ktoe of brown coal, this number was reduced to 267 ktoe in 2021 (see Figure 1) [63]. However, coal still presents an important portion of the total primary energy supply (15.4% of 17.7 Mtoe in 2017) as most of it is imported from abroad (2511 ktoe in 2021). This presents a huge decrease in total coal utilisation since, at the end of 1980, more than 8 Mtoe of coal was used in the Slovak economy [63].

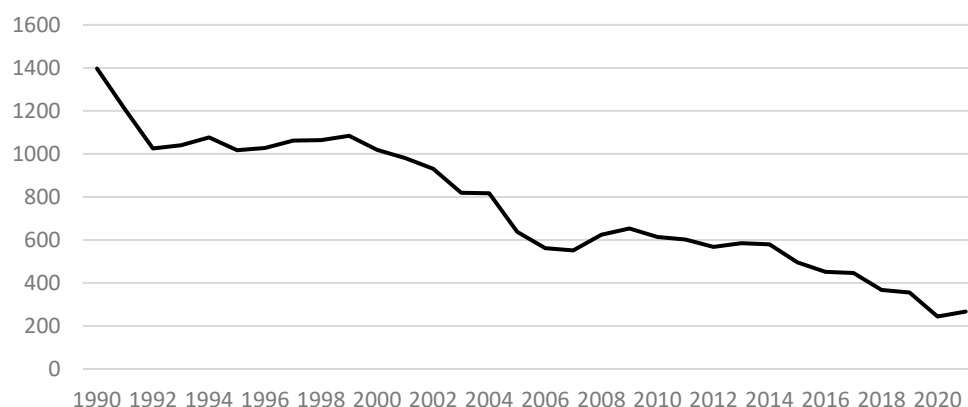


Figure 1. Coal production in the Slovak Republic, 1990–2021, in ktoe; source: [63].

As domestic production does not cover all needs, most of the coal is imported. Moreover, most of the imported coal is hard coal, needed in industries (especially the steel industry) where domestic brown coal, with its low carbon content, cannot be used [64]. More than two thirds of coal used in Slovakia are imported, with the Russian Federation, the Czech Republic, Poland, and the US being the four main suppliers. In 2016, after mergers and a series of mine closures, Hornonitrianske bane Prievidza, a.s. (HBP) became the only functioning mine in Slovakia and the sole producer of brown coal. Another mine, Baňa Dolina, a.s., Veľký Krtíš, stopped functioning in 2015 and the last functioning company Baňa Čáry, a.s. was bought by HBP in 2016.

Even though coal has been popular in households for heating purposes, strengthening emission limits in connection with increased environmental awareness, widespread introduction of natural gas at the beginning of the 1990s (Slovakia has one of the densest natural gas distribution networks in Europe), and its low prices during this period caused a radical shift from coal to natural gas. IEA statistics [63] show that Slovak households consumed approximately 53 ktoe of coal in 2020 (without differentiating between domestically produced and imported coal). This is in stark contrast to 1990, when households consumed 436 ktoe of coal. Most of the coal consumed in Slovakia (around 60%) is used for non-electricity purposes (production of coke, iron, and steel) and only about 30% is used in electricity generation.

The overall consumption of coal in electricity production also decreased significantly, though much less dramatically: while 8123 GWh of electricity was produced from coal in 1990, this number decreased to 2218 GWh in 2021 [63]. Electricity production in Slovakia is dominated by nuclear energy (about 55%) and renewables (approximately 25%), predominantly hydro (about 17%). Natural gas plays also more important role in the electricity mix than coal (both brown and hard). The dominant position of nuclear in Slovak electricity production was maintained even after two reactors in Jaslovské Bohunice were closed at the end of 2006 and 2008 [48]. Two thermal power plants in Slovakia use coal: Elektrárne Nováky (ENO), with 266 MW, and Elektrárne Vojany (EVO), with 220 MW of installed

capacity. ENO almost exclusively uses domestic, low-grade brown coal (plus a very small amount is sold to households), while EVO relies on hard coal imported from Ukraine and biomass. Slovenské elektrárne, a.s. (SE), the current operator of both plants, is partially owned (34%) by the Slovak government and partially (66%) by Enel and EHP, with the latter finalising the purchase of the former's shares (after units 3 and 4 of the Mochovce nuclear power plant are put into operation [65]).

4.1. Coal as a Guarantor of Energy Security

The *Slovak Energy Policy*, the government's strategic document in the energy policy area, claims that domestic coal "increases the security of electricity supply and lowers Slovakia's energy dependence" [66]. However, the operator of the ENO power plant was not willing to maintain it without support as the aging power station required steady investments and some of its parts were running only on emissions exempt from EU rules due to the use of low-grade brown coal. Even more importantly, Slovak brown coal cannot compete with imported hard coal due to its low caloric value and high levels of impurities (causing the previously mentioned high levels of emissions of various harmful substances). Electricity production from this energy source is therefore not competitive as argued in the 2011 study by the Slovak government, which states that electricity production from domestic coal is viable only thanks to support schemes [67]. Developed in 2004, the original support scheme subsidised electricity generated from domestic coal, thus indirectly subsidising the domestic coal industry as well.

Act No. 656/2004 Coll. on the Energy Sector introduced a support scheme for domestic coal within the so-called 'general economic interest' in the energy sector. This was in line with the then valid directives 2003/54/ES and 2003/55/ES which enabled exemptions from energy market liberalisation rules of up to 15% of the total primary energy supply in specific cases. The third liberalisation package (electricity Directive 2009/72/EU) did not change these rules and enabled domestic support (subsidies) for security of supply reasons. According to Act No. 656/2004, the Ministry of Economy of the Slovak Republic was allowed to ask electricity producers to use domestic coal and distribution system operators to enable preferential access and distribution of electricity generated from this source. Moreover, the Ministry of Economy could also ask electricity suppliers to preferentially supply electricity generated from domestic coal. The support schemes were further developed within the Government Resolutions No. 356/2005, No. 639/2006, and No. 47/2010, with the latest resolution reaffirming interest in domestic coal production and outlining the scheme for the 2011–2020 period, with an outlook until 2035. The newest Act on the Energy Sector (No. 251/2012) did not change the support scheme, requesting instead that the Ministry of Economy compile an analysis of the impact of the support scheme on the economy and end customers. The Government's Decision No. 381/2013 [68], which revisited the amount of coal produced in HBP and burned in ENO for electricity generation purposes, reacted only to technical changes in the coal mines and the power plant without changing existing policies. The Decision of the Ministry of Economy No. 23/2015 sets the levels of electricity that needs to be produced from domestic coal to 1,350 GWh of the annual electricity supply [69].

4.2. Domestic Coal Mining Subsidies

In practice, this support scheme introduces preferential dispatch for ENO and a guaranteed price for electricity generated from coal. The government set the amounts of supported production for each year, with the 1755 GWh of electricity supplied by ENO in 2011 being the peak of production. Although the amount of supplied electricity decreased since then, paradoxically, the financial support increased: in 2007 it was EUR 34 million, almost EUR 93 million in 2014, and EUR 100 million in the following years. The latter price tag is often also used by other ministries to describe the total costs of the support scheme [70]. According to IEA, this support amounts to around EUR 14,000 per employee in coal mining and supporting services [64]. The difference between the wholesale price of

electricity and the guaranteed price at which ENO produces electricity from coal is paid by the Regulatory Office for Network Industries, which adds it to the end customers' final bill in the form of surcharge, which is approximately EUR 4.5/MWh of retail electricity [64]. Without this support scheme, low-grade brown coal would not be competitive and therefore would not be used for generating electricity. Consequently, HBP would not have its strategic partner which purchases most of its production. For example, in 2021, out of a total of 1,074,100 tons of coal produced in HBP, 1,111,600 tons (more than 100%) were delivered to ENO, while only around 600 tons were delivered to households and companies [71]. Long-term plans assumed that after 2016 all coal produced in Slovakia would be used for electricity production in ENO [68].

The main reason behind the support scheme was the government's effort to improve energy security: domestic coal was believed to be able to safeguard and improve energy security. This was an important issue especially after the 2009 natural gas crisis which seriously shook the country and its energy policy [39]. Another frequently used argument is the need to maintain employment in the Upper Nitra region. HBP claims that 11,000 jobs in the region are dependent on coal mining. Moreover, the coal industry has traditionally been perceived as a backbone of the region. The third argument supporting the coal industry in the region is ENO's strategic position for electricity grid stability [69]. The 2005 Act on Energy Policy already suggested support to improve the region's security of supply [72]; a similar situation also occurred in 2012, when this law was amended. Energy security and 'general economic interest' are also cited as reasons for state intervention in the form of subsidies in the latest Decision of the Ministry of Economy from 2015, which requires electricity supply from coal for the 2017–2030 period [69].

5. Phasing out Coal from Slovakia's Electricity Mix

With the Slovak government's 2015 decisions that support generating electricity from domestic coal up to 2030 and the long-lasting support of the mining industry from top governmental figures, there was no indication of a sharp policy change in this area. Indeed, when visiting the Nováky coal mine in September 2016, then Prime Minister Robert Fico stated that "As long as I am the Prime Minister, my government will never turn its back on the miners", and "I want to guarantee that until we have things under control we will do the utmost for coal extraction to continue" [73]. The position of the government prevailed despite fairly strong opposition from domestic and international environmental groups against coal mining in Slovakia. Moreover, the Ministry of Environment recommended that the mines gradually close. However, at the One Planet Summit in Paris in December 2017, the Minister of Environment announced that Slovakia would phase out coal from electricity generation by 2023 [74], which would also mean closing its coal mines. The following year, the Minister of Economy reaffirmed this position [75]. The commitment to phasing out coal was reinforced by both Prime Minister Peter Pellegrini and President Zuzana Čaputová, who confirmed this position in a joint statement in June 2019 [76]. Thus, the process of transforming the Upper Nitra region was under way [77,78].

The main issue this paper is trying to shed light on is why the government changed its highly supportive position towards using domestic coal in electricity production and embarked on a path towards phasing out coal from the Slovak electricity mix. No significant change in Slovak energy policy occurred between 2015, when support for domestic coal production was reaffirmed until 2030, and 2017/2018, when it was announced and confirmed that the subsidies for electricity production from coal would be terminated. This paper claims that this change in position was caused by availability of financial support from the EU funds to help regions dependent on industries with significant carbon footprint to undergo energy transition. The Slovak coal region was included among the pilot projects of coal region transformation, prompting the government to expect EU support in the form of funds that will aid the transformation of the Upper Nitra region. This paper thus argues that the expected availability of EU funds can explain this shift in the position of the Slovak government towards the role of coal in the domestic electricity mix.

5.1. EU Support for Coal Regions Including Slovak Upper Nitra

The Commission proposed the Clean Energy for All Europeans package in 2016 as part of developing the Energy Union [79], with the accompanying Action to boost the clean energy transition also aimed at a socially just and fair transition of carbon-intensive regions [80]. Based on these initiatives, it also launched the Platform for Coal Regions in Transition to aid regions impacted by the transition towards a carbon-neutral economy. Eighteen coal regions are participating in the initiative, including Slovakia's Trenčín region, of which Upper Nitra is a part [29]. This decision was based on Slovakia's interest in this initiative and a meeting with representatives of the Commission in June 2017 [77]. In its 2017 report, the Ministry of Environment [70] recommended gradually shutting down coal mining in Slovakia to improve both the living conditions of the miners and the environment in Upper Nitra and the country as such. The Ministry estimated that shutting down ENO would bring EUR 500 million in health benefits as the power plant produces up to 72% of all sulphur dioxide and 8% of all particle matter emitted in Slovakia [81]. In its last two economic surveys on Slovakia (2014 and 2017), the Organisation for Economic Cooperation and Development (OECD) also recommended the gradual phasing out of coal subsidies [82].

The first financial support for Upper Nitra came from the Structural Reform Support Programme 2017–2020, for which the Ministry of Economy applied in October 2017. Based on this, the Commission provided support in the amount of EUR 350,000 [77]. The main aim of this technical assistance (Greece received similar support) was to aid EU member countries in developing a long-term transition strategy. The main outcome of this project was The Action Plan for Transformation of Upper Nitra Region, published in June 2019. March 2018 saw the institutionalisation of the Upper Nitra transformation process when the Working Group for the Preparation and Implementation of the Transformation Action Plan for the Upper Nitra Region was set up within the Slovak Government [77]. Moreover, in 2019, the Platform for coal regions in transition Secretariat was established at the EU level to aid these coal regions in their transformation.

Other regions (Czech, Polish, and German) have so far benefited from the Commission's guidance in developing and financing coal transition projects with the use of existing EU funds [83]. Although no new funds were available for the 2014–2020 budgetary period, there was a debate regarding the creation of a special Energy Transition Fund that would distribute almost EUR 5 billion among the coal regions undergoing transformation [84]. This idea was also supported by the European Committee of the Region in July 2019. This paper argues that the Slovak government wanted to embark on the transformation process in its initial stage, when there was a higher chance that it would be included (the region itself is not problematic when compared to other coal regions in the EU—see [29,30] for a detailed analysis) and get access to EU funds that would be created specifically for this purpose or redirected from other EU funds.

5.2. Coal Phase-Out as a Result of Financial Europeanisation

The Action Plan for Transformation of Upper Nitra Region presents an introductory analysis of the region's transition which not only proposes the necessary tools and projects but also provides clear ideas about the possible sources of the funds needed to realise this process [85]. The main sources of the funds supporting the transformation are existing EU funds (regional, cohesion, etc.), starting with the 2014–2020 framework budget. The Action Plan also served as possible supporting material for developing new operational programmes within the 2021–2027 framework budget for Slovakia. Furthermore, it included a draft list of possible concrete projects aimed at transforming Upper Nitra, with the EU budget serving as the source of primary funding. The Action Plan states that the Slovak state budget is assumed to be involved only as a co-financing source of funds, meaning that it will only be included in the transformation of the region to a limited degree [85].

This paper argues that the shift from strong support for domestic coal in Slovakia, reinforced by claims connected to energy security, to the phasing out of coal from electricity

production (and thus effectively also the termination of the coal mining industry) can be explained using the concept of ‘financial Europeanisation’. The Slovak government is interested in receiving EU funds, and the timing of the decision to phase out coal from the electricity mix coincides with the development of EU projects aimed at supporting coal regions in EU member states undergoing transition. The availability of EU funds allows the Slovak government to develop and finance policies supporting the energy transition of the region that it would otherwise not be able to do and therefore is very keen to follow the requirements connected to these policies (for example, coal phase-out). Moreover, the national budget should be included in the process only to a very limited level and therefore the transition away from coal does not need to be incorporated into budgetary priorities of the country.

Funds are of course needed to minimise the impact of the transition on the Upper Nitra region whose economy partially depends on the mining industry and on its connected electricity generation capacity. Moreover, such a transition and the coal phase-out connected to it, are necessary in the mid- to long-term perspectives as meeting Slovakia’s climate goals is not possible without the removal of a major pollutant (i.e., the coal-fired power plant ENO). Therefore, when the EU announced that there will be funds specifically designated to minimise the impact of transition of regions with a high carbon footprint, the Slovak government decided to change its policies in order to qualify for such support and utilise the opportunity these funds present to both start the inevitable energy transition of the challenging region and gain access to funds necessary for this transition from sources outside its own budget.

We have seen a similar development in other energy sectors as well: only strong incentives in the form of available funds have persuaded CEE countries to comply with EU requirements or develop their internal policies in a particular way. Van Oudenaren noted already in 2001 that the international community was not able to provide strong enough incentives for CEE countries with nuclear reactors that were considered unsafe to close down [16]. Only the EU, with its pre-accession compliance incentives and decommissioning funds, found a way to reach an agreement with these countries on this issue. Even more interestingly, the CEE countries directly and indirectly affected by the 2009 gas crisis very rarely upgraded their natural gas network without EU support, although this was supposed to be their primary national interest. Only the Lithuanian LNG terminal [86] was built without the assistance of EU funds. The rest of the infrastructure in the region (individual sections of the north–south CEE corridor) received support from the Projects of Common Interest (PCI) initiative or, before that, the European Energy Programme for Recovery [87].

6. Persistence of Coal Phase-Out Vis-à-Vis the Energy Crisis

Several EU member states (including Germany [4]) are nowadays reassessing their proposed coal phase-outs due to energy security challenges stemming from the current energy crisis (see above). However, in the case of Slovakia, energy security developments since mid-2021 have not led to changes in the government’s position on the coal phase-out. The incumbent government created after the 2020 general elections supported the previous government’s commitment to phasing out coal and reaffirmed this goal also in 2021, after a change in the position of the prime minister. The revised manifesto, adopted in the wake of this change, claimed that its priority was “to end subsidizing electricity from domestic coal within the deadline agreed upon with the European Commission, i.e., no later than 31 December 2023, and the model transformation of Upper Nitra region into a modern region focused on prospective areas of industry and low-carbon technologies” [88]. This happened prior to the increase in energy prices and concerns about energy security that were raised in the autumn of 2021 [89].

6.1. Unchanged Position of the Slovak Government

However, even after the current energy crisis set in in late 2021 and was exacerbated following the Russian invasion of Ukraine in February 2022 [6], the government’s position

remained unchanged. According to the Minister of Environment, keeping the coal-fired power plant temporarily in operation “makes no sense in Slovakia. Our coal is of very poor quality, nobody is planning to re-enter coal [into the energy mix]” [90]. The State Secretary at the Ministry of Economy claimed that the volume of electricity produced from coal can easily be replaced by other sources, while the money used to subsidise electricity production from domestic coal can be put to better use [90]. Even a representative of HBP (the mining company) stated that since there was no change in the government’s position regarding the coal phase-out, they were unable to plan beyond 2023, which would be necessary for coal production growth to support increased demand for domestic energy. Production in HBP mines, he argued, was possible only with indirect subsidies and the government did not revise its position [91] despite the energy security crisis. On the contrary, domestic coal mining was among the energy industries that fell under the new windfall tax. On 30 November 2022, the Government of the Slovak Republic approved a bill on solidarity contribution, according to which mining companies and oil refineries that generate at least 75% of their turnover from economic activity in the oil, natural gas, coal, and refinery industries should pay a solidarity contribution from higher profits [92]. This bill was a reaction to the agreement among member states at the EU level to address high energy prices, as stated in the Council Regulation (EU) 2022/1854 of 6 October 2022 [93]. Slovak Law no. 519/2022 Coll. on the solidarity contribution from activities in the oil, natural gas, coal, and refinery sectors is effective from 31 December 2022.

The Slovak government decided to improve Slovak energy security not using domestic coal, but in a way that lines up with the Commission’s preferences [11]. The National Reform Programme [94] lists several structural challenges faced by Slovakia following the Russian invasion of Ukraine. According to this document, the conflict highlighted the need for an accelerated implementation of measures pertaining to the green transformation, which has the potential to play an important role in addressing the country’s energy dependence on Russia. The document does not mention coal in connection to the ongoing energy security crisis, but highlights risks connected to persistent dependency on Russian natural gas and renewable sources of energy as a solution to energy security challenges (although the document suggests only 120 MW of new renewable capacity until 2026).

Such a position regarding coal is rather surprising as energy security was used in the past to legitimise subsidies for domestic coal in electricity generation (see the previous section). Moreover, energy security in general has been a very important issue for the country, both domestically and at the EU level [39], and there are still active coal mines in Slovakia that can, in collaboration with (at least one) existing coal-fired power plants, replace a significant amount of imported natural gas in the electricity mix. When it comes to climate policy, Slovakia does not belong among the very ambitious EU member countries [95] and has been burning coal to generate electricity despite domestic and international criticism. So why has the Slovak phase-out policy not been changed vis-à-vis energy security challenges presented by the current energy crisis?

6.2. Financial Europeanisation

We argue that this insistence on a coal phase-out vis-à-vis the energy crisis—such as the decision to phase out coal in the first place—can be explained using the concept of ‘financial Europeanisation’. The EU has upgraded previously developed tools supporting the transformation of regions most affected by the energy transition, offering more support to regions that will give up coal mining. Already several months after the COVID-19 pandemic broke out the question of restarting economies severely impacted by the pandemic was raised. Two positions soon emerged within the EU: one argued that cheap energy (i.e., fossil fuels, including coal) is the only way to restart devastated economies suffering from supply chain challenges caused by the pandemic, while the other claimed that the EU should use the opportunity and utilise post-pandemic recovery funds to speed up its energy transition [1]. The latter approach was internalised by the Commission, which proposed the Next Generation EU programme that, together with the multiannual finan-

cial framework for 2021–2027 (i.e., the long-term EU budget), supports member states by providing funds for implementing reforms and investments that are in line with the EU's priorities [96]. Member states had to include two main priorities into their National Recovery and Resilience Plans that present blueprints for how they plan to spend their share of post-pandemic recovery funds: green and digital transitions [13]. There is, however, also financial support dedicated to the coal industry within the post-pandemic funds in the form of the Just Transition Fund, to which a total of EUR 17.5 billion were allocated. As part of the bigger Trenčín region, Upper Nitra was included among the eligible territories for this financial mechanism [11].

Frans Timmermans, the Vice-President of the European Commission responsible for the European Green Deal, argued that Slovakia has the potential to become a pacesetter when it comes to the coal phase-out. He claimed that the country “can take a leading role [in ending coal mining] and even surprise parts of Europe where no one would expect it [such as Bulgaria or Romania]. I think it's a political opportunity that President Zuzana Čaputová and Prime Minister Eduard Heger are also aware of” [97]. Indeed, the Slovak President has argued that EU funds (especially the Just Transition Fund) present an opportunity for Upper Nitra to transform in a fair and just way [98]. Similarly, according to the Prime Minister, EU funds present an opportunity for creating good conditions for new investments that will help solve social issues (such as unemployment) connected to the transition of the Upper Nitra region away from coal mining [99].

The expectation that the continuation of the coal phase-out process will be further financed by the EU funds supported the government's decision not to interrupt this process even in a situation when domestic brown coal could improve energy security and decrease the country's dependency on natural gas imported from Russia. As argued in the theoretical section, EU funds can help to overcome domestic restraints that prevent member states' governments from developing policies in a particular way. Energy transition is a challenging process and some of these challenges were very visible especially during 2021–2022 when energy security became a major concern. However, a ‘shortcut’ in the form of re-evaluation of the role of domestic brown coal in the electricity mix was not taken by the Slovak government, as the short-term advantages of such a step were much smaller than the mid- and long-term advantages of financial support provided by the EU for transforming the Upper Nitra coal region. Therefore, the government did not change its coal phase-out policy and tried to find more long-term solutions to energy security issues, including renewables (although its approach towards these energy sources stayed rather lukewarm).

7. Conclusions

This paper examined a puzzle that emerged within the Slovak energy sector. Brown coal was considered to have a specific place in the country's electricity mix as it was the only domestic fossil fuel used for electricity generation. Therefore, it was claimed that domestic coal had an important security dimension, which is why its production had to be sustained. Although mining has not been directly subsidised, electricity generated from coal was supported via a surcharge to the bill for the end consumer since 2005. While the Slovak government reaffirmed these subsidies due to energy security issues in 2015, its position changed in 2017, when the year 2023 was set as the deadline for phasing out coal from the country's electricity production. This will effectively also mean closing all coal mines in Slovakia as almost all their production is sold to a nearby coal-fired power plant. The decision to phase out coal from the electricity mix was not changed during the ongoing energy crisis that put energy security on a pedestal and forced several EU member states to re-evaluate their coal policies.

This paper explained the Slovak decision to phase out coal and the persistence of this decision vis-à-vis the energy crisis using the concept of ‘financial Europeanisation’, according to which the government followed the EU ‘money trail’ when adopting this decision. The Slovak government used the opportunity which arose when the EU announced

plans to establish funds to support regions with the heaviest carbon footprint, including coal mining regions. Although the Slovak mining region (Upper Nitra) is not among the most challenging ones, EU support for its transformation away from the mining industry has been available. Understanding that, due to the EU's climate ambitions, the utilisation of coal for electricity generation does not have a long-term perspective, the Slovak government set a deadline for existing subsidies in this area in exchange for the inclusion of Upper Nitra among the regions qualifying for support from EU funds. The government did not revise this decision vis-à-vis the current energy crisis as the short-term benefits of such a step were outweighed by the long-term benefits of an EU-funded transformation of the region.

We therefore argue that the expectations of the availability of EU funds to support the transition of regions with a high carbon footprint (including coal mining regions) prevented the reversal of the coal phase-out decision. The expectation is that the transition must happen eventually, and the government did not want to lose the opportunity that the EU funds present for such transition. This conclusion points to the ability of the Commission to steer member states' policies with the help of financial assistance that support the development of national policies in a particular way—the Commission supported the coal phase-out in the second half of 2010s to strengthen the GHG reduction goals of the Union, its preferred low-carbon solution to energy security challenges following the Russian invasion of Ukraine. Therefore, it doubled down on its support for energy transition of regions with heavy carbon footprint.

However, this does not mean that coal will no longer be a part of the Slovak energy mix after 2023. Given the importance of hard coal in the Slovak heavy industry (especially iron and steel), its import will continue even after the closure of mines in Upper Nitra, where only brown coal is mined. Notwithstanding this, the positive effects of a coal phase-out on Slovak GHG emissions will be very important and this step will significantly help Slovakia to contribute to the EU's 2030 energy and climate targets.

Limitations and Future Research

Our analysis has several limitations. First, we acknowledge that various EU member countries have chosen different paths when it comes to dealing with the ongoing energy crisis and the Slovak case is not representative of all of them—it can shed light only on those countries that have decided not to re-evaluate their coal phase-out policies during the ongoing energy crisis. Second, our analysis presents only one of the possible explanations of why member states have not chosen to postpone their coal phase-outs due to energy security reasons. Despite this, we believe that our arguments can help to explain the width of options chosen by member states when it comes to reacting to the ongoing energy crisis. Third, our analysis is limited by the fact that the processes we are examining are ongoing (for example, the Slovak coal phase-out deadline is at the end of 2023) and therefore we are unable to include all parts of the puzzle that are still being formed.

Future research should therefore focus on applying assumptions connected to the 'financial Europeanisation' presented in this paper to other countries. We expect that especially when it comes to countries of Central and Eastern Europe this explanation can provide interesting insights. Future research should also examine cases where a coal phase-out was successfully finalised; this includes the Slovak case after the 2023 coal phase-out deadline. In connection to this, future research should also investigate the consequences of coal phase-out on social policy that are already partially included in our analysis, but will be fully visible only after the coal phase-out deadline.

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