Journal of Strategic and Global Studies

Volume 5
Number 2 *July*

Article 2

7-31-2022

Czech Republic as A Deferring Factor for European Union to Achieve Climate Change Measures

Kris Razianto Mada
European Studies, School of Strategic and Global Studies, University of Indonesia, kris.razianto@ui.ac.id

Henny Saptatia Drajati Nugrahani
University of Indonesia, henny.saptatia@ui.ac.id

Recommended Citation

Mada, Kris Razianto and Nugrahani, Henny Saptatia Drajati (2022) "Czech Republic as A Deferring Factor for European Union to Achieve Climate Change Measures," *Journal of Strategic and Global Studies*: Vol. 5: No. 2, Article 2.
DOI: 10.7454/jsgs.v5i2.1099
Available at: https://scholarhub.ui.ac.id/jsgs/vol5/iss2/2

Czech Republic as A Deferring Factor for European Union to Achieve Climate Change Measures

Kris Razianto Mada[1], Henny Saptatia Drajati Nugrahani[2*]

[1] European Studies, School of Strategic and Global Studies, University of Indonesia, 10440, Jakarta, Indonesia
[2] European Studies, School of Strategic and Global Studies, University of Indonesia, 10440, Jakarta, Indonesia

ABSTRACT

This study aims to finds out causal factors for Czech Republic yet to decide on phasing out coal-fired power plant and the impact of delaying the preparation of the coal-fired power plant phase-out plan by Czech on the EU's goal of reducing greenhouse gas emissions. The researcher conducts an analysis based on two research questions: what are causal factors for Czech Republic yet to decide on phasing out coal-fired power plant and what impact will it have on the EU's efforts to reduce greenhouse gas emissions by 2030 and become fully carbon neutral by 2050. The method used in this study is descriptive qualitative approach and literature review. The findings of this study are as follows: first, environmental and health reasons are the main reasons for the EU's decision to phasing out coal and other forms of fossil energy. The EU targets to cut emissions by 2030 and become fully carbon neutral by 2050. Second, Yet, Prague continues to mine coal since it is the only domestic-energy-source and made Czech become energy exporter. Czech has to import crude oil, natural gas and uranium for nuclear reactors. Third, Coal survives in Czech as politician and former politician support it. Czech coal industry also indirectly received support from the local mass media. Czech mass media almost never associate coal issues with climate change and other environmental and health issues. Concern on coal in Czech Coal often raised from the perspective of job opportunities, regional economic resilience, and energy security.

Keywords: coal; climate change; environment; Czech; energy; EU

1. Introduction

European Union is coal. Industrial revolution in the 18th century, the history of the founding of the European Union (EU), to the energy consumption of the EU today and for the next few years show that the European bloc is very close to coal (European Coal and Steel Community, 1951; Hendrychová & Kabrna, 2016; Ocelík et al., 2019; Puljic et al., 2019). EU originated from the European Coal and Steel Community (ECSC) (Bonnet, 1951; Schuman, 1950). For six decades after ECSC was founded, coal has been and remain one of the backbones of the EU's economy because it also produces energy for power generation and heating engines (Esposito & Abramson, 2021; Kanellopoulos, 2018).

* Corresponding author:
E-mail: henny.saptatia@ui.ac.id
Affiliation: School of Strategic and Global Studies, University of Indonesia

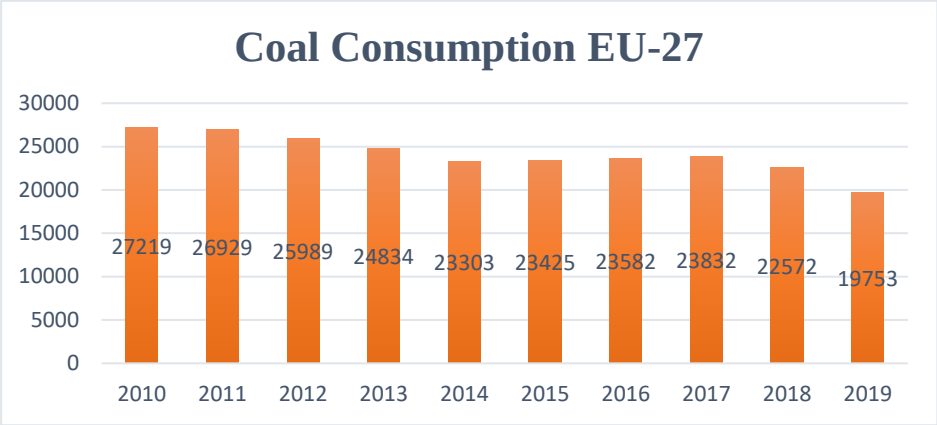

Figure 1. EU Coal Consumption

Source: BP Energy Review 2020

Despite remain major consumer for coal, EU positioned itself as leader for preserving environment by encouraging coal phase-out. They called for a worldwide phase out of "unabated" coal-fired electricity generation and demanded an end to all government support for fossil fuels (Mathiesen, 2021). EU encourage accelerating decarbonisation with the EU Emission Trading System (ETS) (EUROPEAN COMMISSION, 2021). In global context, EU become main actors in environmental diplomacy since 1990 (Brande, 2012; Corthaut & Eeckhoutte, 2012; Kelemen & Vogel, 2010; Schunz, 2012). The latest proof for EU concerns on environmental, particularly climate change, is Europe Green Deal (EGD) which was launched in December 2019. The policy aims to reduce greenhouse gas emissions to zero by 2050 and cut greenhouse gas emissions by at most 55 percent compared to 1990 levels (Council of the EU, 2021; European Commission, 2020; Haines & Scheelbeek, 2020; Muinzer, 2019; Pietzcker et al., 2021; Varrenti, 2020). Reducing emissions means reducing the use of fossil fuels (oil, natural gas, and coal).

Yet, some EU member states namely Germany, Poland, and Czech remain consume high volume of coal. Berlin been planned to phase-out coal before 2040 2038 (Rüger & Buchheim, 2021). Germany plan in line with EU plan to phase-out most of coal-powered power plants by 2030. While Prague and Warsaw yet having clear stance on phasing-out coal. Czech and Poland clearly will become major obstacle for EU plan to cut greenhouse gas emissions.

This study will focus on finds causal factors for Czech Republic yet to decide on phasing out coal-fired power plant. This study aims to find the impact of delaying the phase-out of coal Czech on the EU's efforts to cut greenhouse gas emissions as well.

2. Literature Review

As summarized in the annual report from British Petroleum Statistical Review of World Energy, which is one of the international benchmarks for global energy production and consumption, Czech Republic is one a major consumer of coal in the EU. In 2019, Czech still consumed 57 million tons of brown coal (lignite) or 0.6 exajoules. Each exajoule is equivalent to 34.12 million tonnes of hard coal, 95 million tonnes of brown coal, or 163 million barrels of oil (British Petroleum, 2020). With Germany and Poland, Czech consume 57 percent of coal in EU (Osička et al., 2020). Without commitment Czech, Germany, and Poland, it will be very difficult for the EU to achieve its emission cut targets.

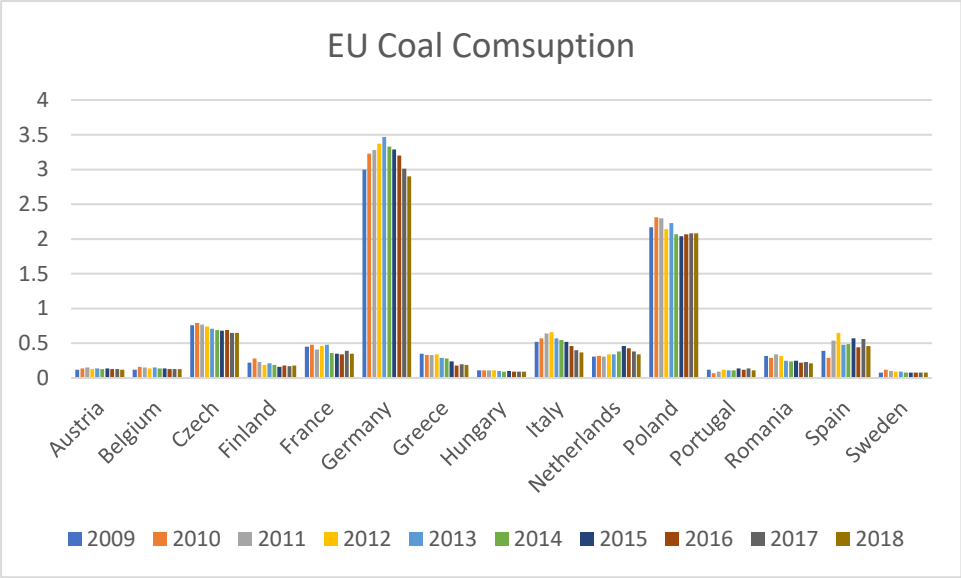

Figure 2. EU Member states coal consumption

Source: BP Energy Review 2020

Efforts to encourage Czech to reduce coal consumption have taken years (Nielsen, 2017; Ocelík et al., 2019; Osička et al., 2020; Vlček & Černoch, 2013). Since early 1990s, Prague been developed phase-out policy to address environmental issue (Lehotský & Černík, 2019). Phasing-out coal is more about political decision (Sivek et al., 2020). There is political uncertainty around lignite mining in the northwest part of the country (Osička et al., 2020). There are at least to grand coalition in Czech about phasing-out coal: the Industry Coalition and Environmental Coalition. These groups have distant and competing ideology (Ocelík et al., 2019). Among opposant to coal mining and consumptions, there are several different group with various tactic and interest (Černoch et al., 2019). Some parties utilize health cost as well. Cost for coal consumption to environment and human health will up to €306 million (Rečka &

Ščasný, 2018). There is political uncertainty around lignite mining in the northwest part of the country (Osička et al., 2020).

3. Research Methodology

This study aims to answer what are the causal factors for Czech Republic yet to decide on phasing out coal-fired power plant and what impact will it have on the EU's efforts to achieve the target of reducing greenhouse gas emissions.

To answers the question, this study employs descriptive qualitative approach and literature review. The paper will review previous research, relevant documents, bills and enacted regulations on coal in Czech Republic. The paper will describe Czech energy policy and socio-political conditions related to coal. This paper will also describe the energy and environmental policies of the EU. The impact of coal on the environment would be discussed as well.

Data for this research are based on reports, related-previous research, statements, and Czech coal-related-monograph. To process data, this research use security and energy security concept. As defined by Buzzan (1998), security is about survival. This paper particularly employs oppositional concept of security which connected to risk concept (Buzan & Hansen, 2009). While energy security is defined as sufficient availability at affordable prices (Cherp, 2012; Cherp & Jewell, 2014).

4. Results

As EU member state, Czech Republic follows various EU policies, including environmental issues. After using coal for centuries, EU is phasing out coal. The EU will discourage all investment in fossil fuel project, unless it is clear that the project can reduce emissions and is in line with the 2015 Paris Agreement. Brussels calls for the elimination of subsidies for fossil energy, including coal, and encourages subsidies for innovation and renewable energy development. (Council of the EU, 2021). Environmental and health reasons are the main reasons for the EU's decision to phasing out coal and other forms of fossil energy.

4.1 Coal and Environment

In terms of health, the expansion of the mine in Bilina, one of the mines in the Czech Republic, incurs health costs of at least 3 billion euros annually. Meanwhile, if combined with the CSA mine, the health impact could jump to 7 billion euros. These costs are caused by losses related to the death of residents, loss of income due to being unable to work while sick due to coal-

related causes, or restrictions on residents' activities due to coal mining activities. The impact was not only borne by Czech. Neighbouring Czech Republic, notably Germany and Poland, also share in the health impacts of coal mining and use. Moreover, the two countries are indeed the largest coal miners and users in the EU (Máca & Melichar, 2016). In the Usti nad Labem area, the life expectancy of its citizens is lower than the average Czech citizen in general. In the coal mining area, the life expectancy for men is only 73 years and for women 79 years. Meanwhile in the Czech Republic, the life expectancy of men is 75.2 years and women's is 81.1 years (Vrablik et al., 2017).

Tabel 1. Monetized impacts from future mining variants at the Bilina and CSA mines in 2015–2050 period (thousands of euros)

	Bilina Mine		CSA Mine		
	Within Limits	Limit Abolished	Within Limits	Partial Abolitions	Full Abolitions
Infant mortality	9.2	25.1	0.8	2.0	7.0
Chronic bronchitis in adults	291.6	842.6	26.9	64.3	228.6
Children asthma symptoms	6.2	16.9	0.6	1.3	4.7
Bronchitis in children	10.1	26.9	0.9	2.2	7.6
Adult	1972	5687	185	439	1552
Cardiovascular hospital admissions	3.0	8.6	0.3	0.7	2.4
Respiratory hospital admissions	0.3	0.8	0.0	0.1	0.2
Work days lost	165.8	452.4	15.4	36.3	126.3
Restricted activity days	273.9	778.5	25.6	60.7	213.7
Total (limited set of impacts)	1976	5696	185	440	1555
Total (extended set of impacts)	2732	7839	255	607	2143

Source: Máca & Melichar, 2016

There is environment issue as well. Coal generates air pollution. Dust and ash from mining and coal use become particulate matter that pollutes the air (Máca & Melichar, 2016). Coal-powered power plants and heating machines mainly produce carbon dioxide (Co2), nitrogen dioxide, Sulphur dioxide (So2), PM2.5, and PM10. PM 2.5 and PM10 are designations for particles measuring below 2.5 micrometres and 10 micrometres so that they can easily enter the respiratory tract. If the concentration is high, the particles can trigger various respiratory tract diseases. There is also pollution in the form of odours produced from mining and the use

of coal. The smell from mining mainly causes discomfort as well as an indication of air pollution (Dvořák et al., 2018).

Coal mining and using, for both heating and power generation, produces greenhouse gases. Over the years, studies have shown that greenhouse gas emissions contribute to the Earth's surface temperature and contribute to climate change. The impacts of climate change are very diverse, ranging from an increase in the incidence of heat waves, droughts in various countries, to floods and storms. In Oxford Economic research, it was revealed that the world bears an average loss of US$300 billion per year due to various disasters triggered by climate change (Nixon, 2019). An Oxford Economics study also estimates that up to 7.5 percent of global gross domestic product (GDP), which was valued at US$87.5 trillion in 2019, will be lost if the earth's surface temperature rises to 2 degrees Celsius. Mitigating increase in Earth's surface temperature can reduce catastrophic events related to climate change. One way to control the good temperature of the Earth's surface is to reduce greenhouse gas emissions. Reducing greenhouse gas emissions, among others, is through controlling pollution generated by mining and the use of coal.

Unfortunately, the world, including Europe, has not really taken seriously the impacts of climate change. European financial institutions disbursed a total of 1.1 trillion US dollars for various fossil energy projects in the 2016-2020 period or after the Paris Agreement on climate change was signed. The funds came from Barclays, BNP Paribas, HSBC, ING, Credit Suisse, Deutsche Bank, UBS, Santander, BBVA, to Rabobank. Together with financial institutions from North America and a number of Asian countries, Europe has disbursed a total of US$3.8 trillion for various fossil energy projects in 2016-2020 (RAN, 2021).

Ironically, it was found that a total subsidy of 233 billion US dollars for various fossil energy projects in 2014 or almost 400 percent higher than for energy. renewable. Even more ironically, up to 25 percent of subsidies for coal are disbursed by Europe through export credits, financial guarantees, and various other mechanisms (González-Eguino et al., 2017). Subsidies for coal were disbursed among others in the Czech Republic, one of the largest coal users in Europe.

4.2 Czech and Coal

Czechoslovak was founded in 1918 and officially disbanded in 1993 when Czechoslovakia and Slovakia became separate countries. While coal mining was already taking place in the Czech region. Since the 15th century, there has been coal mining in the Bohemia area. While. Today, bituminous coal mining in the Czech Republic is mainly concentrated in the upper Silesian basin with a total area of 6,500 square kilometres, one of the largest coal basins in Europe. Czech Republic shares the basin with Poland, of which less than 1,500 sq. km is in Czech's territory and the remainder in Poland. Czech also has bituminous coal reserves in the Intra-Sudetic basin, the Krkonoše Mts basin. Piedmont, Central Bohemia Basin, Mšeno-Roudnice basin, Plzeň and Radnice basins, Boskovice Graben basin, and Mnichovo Hradiště basin (Cablik et al., 2019). In Bohemia, Czech has brown or lignite coal reserves as well.

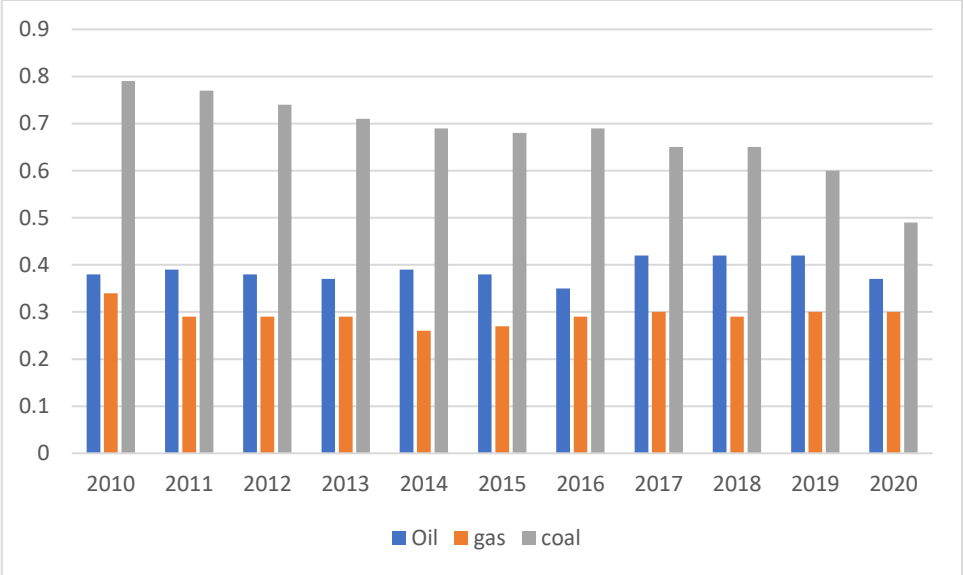

Figure 3. Czech Energy Consumption (in exajoule)

Source : BP Energy Review 2021

Prague continues to mine coal since it is the only domestic-energy-source. Czech has to import crude oil, natural gas and uranium for nuclear reactors. Most oil and natural gas are imported from Russia. Despite it was close during Soviet Union, today Moscow-Prague relations on rough road. Back and forth, Czech-Russian expels diplomats for various reasons. Czech status as a member of the EU indirectly contributed to the Moscow-Prague tension. Despite dependent on oil and gas supplies from Russia, EU considers Russia as a strategic competitor and has the opportunity to poses various challenges for various aspects of EU's security. EU-Russo relations remain on cold war pattern on some part. With this uneasy relationship, it is

difficult for Czech Republic to rely on imported gas and oil supplies from Russia as an energy source. This is in line with energy security concept as defined by Cherp (2012; 2014)

On the other hand, there is abundance coal reserve in Czech and make Prague become energy exporter. Some Czech-generated power is sold to Slovakia and Germany. Coal as the energy backbone is reflected in the Czech national energy policy. By 2030, electricity from coal is targeted to contribute at least 30.5 percent of the national energy mix and 21 percent by 2040 (Cablik et al., 2019) . Currently, the share of coal in the Czech national energy mix is still above 40 percent and previously it was close to 60 percent (Sivek et al., 2017, 2019, 2020). In 2018, almost 50 percent of Czech energy supply came from coal.

Prague energy mix plan reflects Czech is unlikely to follow the EU plan on the importance of phasing-out coal-fired power plants and replacing them with more environmentally friendly and low-pollution energy. To achieve the target of cutting greenhouse gas emissions as stipulated in the Paris Agreement and the Europe Green Deal, EU member states need to phasing-out most of coal-fired power plants by 2030. EU provides € 17.5 bn subsidies, up to €1.4 million will be received by Czech, through the Just Transition Fund (JTF) to encourage the shift of energy from unfriendly sources to more environmentally friendly energy sources. The European Council and parliament have been approved grants of up to €1.5 Bn and loans of up to €10Bn from the European Investment Bank to encourage the energy transition. The European Council and parliament hope that a total of €30 Bn will be available to assist the energy transition in its members that rely heavily on fossil energy such as the Czech, Germany, Poland or Hungary.

Some EU member states been announced plan to phase-out coal-fired power plants. Czech is still considering the plan. The fact that coal is the backbone of energy supply and makes Czech energy security a healthy category is the main reason for Prague still maintaining coal as an energy source for the next few years.

4.3. Political Lobby and Media

In Czech, coal never sole problem for energy sector. Coal survives as politician and former politician support it. They involved in coal miner and user company. It is common for retired Czech politicians to join coal companies. Their main task is to lobby the government to make policies that are friendly to the coal industry (Hendrychová & Kabrna, 2016; McGlade & Ekins, 2015; Nielsen, 2017; Pokorná et al., 2018; Rečka & Ščasný, 2018; Šídlová et al., 2019). Both

opposition and government parties in Czech connected to coal. Coal lobby reach ministries, relevant institutions, national and local parliaments. Coal lobbyist united when it comes survival of mining and the use of national coal. They are divided when it comes to selling price. Miners wants higher price, user prefer lower. Both miners and users appointed former politician in their board.

The then-Czech prime minister, Mirek Topolanek, appointed as heating company association. He approach many parties to support price deferring policy (Vlček, 2013). Heating grid service is especially needed in winter. Industrial users are aware that the shortage of coal supply will have a negative impact on them and their customers. The shortage of coal supply makes generators and heating engines unable to operate optimally. Equally important, a supply shortage can trigger an increase in coal prices so that electricity prices and heating service prices can also rise (Vlček, 2013).

Apart from lobbying politicians, the Czech coal industry also indirectly received support from the local mass media. Czech mass media almost never associate coal issues with climate change and other environmental and health issues. Concern on coal in Czech Coal often raised from the perspective of job opportunities, regional economic resilience, and energy security. Czech's media often highlight the country's dependence on coal as the main energy source. Meanwhile, environmental issues often focus on the expansion of mine sites and the management of ex-mining sites. Other issues related to the environment are not the main concern of the Czech media. Czech's media did not make the issue of the complete termination of all coal-fired power plants as the main narrative as well. An opposite to Germany and Poland's media, which both countries depend on coal, which concern to climate change and phasing out coal. Czech's media reports reveal very little tendency for the Czech elite to choose renewable energy as a substitute for coal as well (Osička et al., 2020). In fact, Czech received billions of euros to encourage increased use of renewable energy as the main energy source to replace fossil energy sources which are now the mainstay of Prague. Czech media reported the facts as they were, not with a critical attitude as found in the German mass media. German mass media tend to encourage the increased use of renewable energy as a substitute for fossil energy. The Czech mass media reporting model which tends to be uncritical of the coal industry contributes to the sustainability of the coal industry in the country.

The results of the coal group lobbying and public support for the industry include a total subsidy of up to €114 million annually for the Czech coal industry. Prague gave tax exemptions, land recovery costs after mining, to research costs for coal development (Patel et al., 2017). Across

the EU, annual subsidies to the coal industry can be as high as € 10 bn. The European Commission did note that the value of subsidies for coal continued to decline and members of the coal subsidy provider were decreasing. However, the aggregate amount still reaches billions of euros per year. In fact, the EU continues to campaign for the total closure of coal mines and coal-fired power plants in various countries and regions due to environmental reasons. The campaign was further enhanced after the Europe Green Deal was launched.

The efforts of the EU and a number of parties against the coal industry are not easy, partly because subsidies are disbursed in various ways. The OECD says there are 800 types of subsidy channels to the global coal industry. The forms range from tax exemptions, medical assistance for workers and families of coal industry workers, to assistance for recovering environmental impacts due to coal mining. In fact, a number of parties have found evidence of Czech using some of the energy transition funds to subsidize the coal industry. In fact, the fund aims to accelerate the transition from fossil energy, including coal, to energy that is more environmentally friendly. Subsidies are one of the reasons the coal industry continues to grow and survive.

The combination of the fact that coal is the backbone of energy, the lobby of politicians and the coal industry, and the media that is more focused on the benefits of coal to the economy will make coal stay in Czech. In fact, the EU targets to cut emissions by 2030 and become fully carbon neutral by 2050. This target requires a large-scale shutdown of coal-fired power plants. The use of coal in the Czech Republic makes it difficult to achieve this target.

5. Conclusion

The coal industry was once a major part of the EU economy. As environmental awareness increases, the EU is pushing for a complete phase-out the coal industry. This is in line with the greenhouse gas emission reduction target set out in the 2015 Paris Agreement and the 2019 Europe Green Deal. The EU also targets to cut emissions by 2030 and become completely carbon neutral by 2050. This target requires the massive shutdown of coal-fired power plants. The use of coal in the Czech Republic and several EU member states makes it difficult to achieve this target. In this study, we aim to find causal factors for Czech Republic yet to decide on phasing out coal-fired power plant and the impact of delaying the phase-out of coal Czech on the EU's efforts to cut greenhouse gas emissions as well.

We find several reasons for delaying. First, coal is the backbone of Czech energy supply. Until 2019, almost 50 percent of Czech electricity was supplied from coal-fired power plants. Some of Czech-generated power is export to Germany and Slovak. The issue of energy security is a major concern compared to other issues. Coal, especially brown coal, is the only source of energy that is abundantly available in Czech Republic. Other energy sources have to be imported and the main source of imports is from Russia. Although both were subordinate to the Soviet Union, Moscow-Prague relations are now more often in a tense situation. In such a situation, it is difficult for Czech Republic to rely on energy supplies from Moscow.

Second, politician-supported lobby plays important role to surviving Czech coal industry as well. The interests of politicians are mainly to ensure that their constituencies are safe in terms of energy supply, job creation, and economic stability. The Czech coal industry was also able to survive because it was relatively not criticized by the mass media. In other countries, media criticize coal industry and urged to phase-out coal-powered plants Czech media often associate coal industry with the issue of job availability and energy security.

These factors make the coal industry survive and receive subsidies of millions of euros annually Subsidies from Brussels to Prague to encourage the shift of energy from fossil sources, including coal, to renewable energy sources have not succeeded in making Czech consider closing the coal-fired power plant.

References

Journal Article

Bonnet, H. (1951). The Schuman Plan. *World Affairs*, *114*(4), 99–102. http://www.jstor.org/stable/20668537

Brande, K. Van den. (2012). The European Union in the Commission on Sustainable Development. In J. Wouters (Ed.), *The European Union and multilateral governance : assessing EU participation in United Nations human rights and environmental fora* (pp. 171–190). Palgrave Macmillan.

British Petroleum. (2020). *Approximate conversion factors*. Statistical Review of World Energy. https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2020-approximate-conversion-factors.pdf

Buzan, B., & Hansen, L. (2009). The evolution of international security studies. In *The Evolution of International Security Studies*. https://doi.org/10.1017/CBO9780511817762

Buzzan, B., Waever, O., & de Wilde, J. (1998). *Security : A New Framework for Analysis*. Lynne Rienner.

Cablik, V., Hlavata, M., Janakova, I., & Tora, B. (2019). Coal industry in czech republic. *IOP Conference Series: Materials Science and Engineering*, *545*(1). https://doi.org/10.1088/1757-899X/545/1/012001

Černoch, F., Lehotský, L., Ocelík, P., Osička, J., & Vencourová, Ž. (2019). Anti-fossil frames:

Examining narratives of the opposition to brown coal mining in the Czech Republic. *Energy Research and Social Science*, *54*. https://doi.org/10.1016/j.erss.2019.04.011

Cherp, A. (2012). Defining energy security takes more than asking around. In *Energy Policy* (Vol. 48). https://doi.org/10.1016/j.enpol.2012.02.016

Cherp, A., & Jewell, J. (2014). The concept of energy security: Beyond the four as. *Energy Policy*, *75*. https://doi.org/10.1016/j.enpol.2014.09.005

Corthaut, T., & Eeckhoutte, D. Van. (2012). Legal Aspects of EU Participation in Global Environmental Governance under the UN Umbrella. In J. Wouters (Ed.), *The European Union and multilateral governance : assessing EU participation in United Nations human rights and environmental fora* (pp. 145–170). Palgrave Macmillan.

Council of the European Union. (2021). *Public sector loan facility to support just climate transition – provisional agreement reached*. https://www.consilium.europa.eu/en/press/press-releases/2021/04/26/public-sector-loan-facility-to-support-just-climate-transition-provisional-agreement-reached/

Dvořák, J., Wittlingerová, Z., Vochozka, M., Stehel, V., & Maroušková, A. (2018). Updated energy policy of the Czech Republic may result in instability of the electricity grid in Central Europe. *Clean Technologies and Environmental Policy*, *20*(1), 41–52. https://doi.org/10.1007/s10098-017-1451-9

Esposito, E., & Abramson, S. F. (2021). The European coal curse. *Journal of Economic Growth*, *26*(1), 77–112. https://doi.org/10.1007/s10887-021-09187-w

European Coal and Steel Community. (1951). *Treaty establishing the European Coal and Steel Community, ECSC Treaty*. European Union. https://eur-lex.europa.eu/legal-content/FR/TXT/PDF/?uri=CELEX:11951K/TXT&from=EN

European Commission. (2020). *Driving forward the green transition and promoting economic recovery through integrated energy and climate planning*. European Commission. https://ec.europa.eu/transparency/regdoc/rep/1/2020/EN/COM-2020-564-F1-EN-MAIN-PART-1.PDF

EUROPEAN COMMISSION. (2021). *State of the Energy Union 2021 – Contributing to the European Green Deal and the Union's recovery*. https://ec.europa.eu/commission/presscorner/detail/en/ip_21_5554

González-Eguino, M., Olabe, A., & Ribera, T. (2017). New coal-fired plants jeopardise paris agreement. *Sustainability (Switzerland)*, *9*(2). https://doi.org/10.3390/su9020168

Haines, A., & Scheelbeek, P. (2020). European Green Deal: a major opportunity for health improvement. *Lancet (London, England)*, *395*(10233), 1327–1329. https://doi.org/10.1016/S0140-6736(20)30109-4

Hendrychová, M., & Kabrna, M. (2016). An analysis of 200-year-long changes in a landscape affected by large-scale surface coal mining: History, present and future. *Applied Geography*, *74*. https://doi.org/10.1016/j.apgeog.2016.07.009

Kanellopoulos, K. (2018). *Scenario analysis of accelerated coalphase-outby 2030*. https://doi.org/10.2760/751272

Kelemen, R., & Vogel, D. (2010). Trading Places: The Role of the United States and the European Union in International Environmental Politics. *Comparative Political Studies - COMP POLIT STUD*, *43*, 427–456. https://doi.org/10.1177/0010414009355265

Lehotský, L., & Černík, M. (2019). Brown coal mining in the Czech Republic - lessons on the coal phase-out. *International Issues & Slovak Foreign Policy Affairs*, *28*(3–4).

Máca, V., & Melichar, J. (2016). The Health Costs of Revised Coal Mining Limits in Northern Bohemia. In *Energies* (Vol. 9, Issue 2). https://doi.org/10.3390/en9020081

Mathiesen, K. (2021). *EU calls for global coal power phase out*. Politico.

https://www.politico.eu/article/eu-calls-for-global-coal-power-phase-out/

McGlade, C., & Ekins, P. (2015). The geographical distribution of fossil fuels unused when limiting global warming to 2°C. *Nature*, *517*(7533). https://doi.org/10.1038/nature14016

Muinzer, T. (2019). *'Green Deal' seeks to make Europe the first climate-neutral continent by 2050*. The Conversation. https://theconversation.com/green-deal-seeks-to-make-europe-the-first-climate-neutral-continent-by-2050-128887

Nielsen, H. (2017). *Coal, commerce and communism: Empirical studies on energy history in the Czech Republic* [Lund University]. https://portal.research.lu.se/portal/en/publications/coal-commerce-and-communism(9c488ad2-4bcd-4846-902b-d4ab7615f482).html#Overview

Nixon, J. (2019). *Economic Impact of Climate Change*. https://d1iydh3qrygeij.cloudfront.net/Media/Default/Research Briefing/The economic impact of global warming.pdf

Ocelík, P., Svobodová, K., Hendrychová, M., Lehotský, L., Everingham, J.-A., Ali, S., Badera, J., & Lechner, A. (2019). A contested transition toward a coal-free future: Advocacy coalitions and coal policy in the Czech Republic. *Energy Research & Social Science*, *58*, 101283. https://doi.org/https://doi.org/10.1016/j.erss.2019.101283

Osička, J., Kemmerzell, J., Zoll, M., Lehotský, L., Černoch, F., & Knodt, M. (2020). What's next for the European coal heartland? Exploring the future of coal as presented in German, Polish and Czech press. *Energy Research and Social Science*, *61*. https://doi.org/10.1016/j.erss.2019.101316

Patel, S., Burg, L. van der, & Worrall, L. (2017). *Cutting Europe's lifelines to coal*. https://cdn.odi.org/media/documents/11473.pdf

Pietzcker, R. C., Osorio, S., & Rodrigues, R. (2021). Tightening EU ETS targets in line with the European Green Deal: Impacts on the decarbonization of the EU power sector. *Applied Energy*, *293*, 116914. https://doi.org/https://doi.org/10.1016/j.apenergy.2021.116914

Pokorná, P., Schwarz, J., Krejci, R., Swietlicki, E., Havránek, V., & Ždímal, V. (2018). Comparison of PM 2.5 chemical composition and sources at a rural background site in Central Europe between 1993/1994/1995 and 2009/2010: Effect of legislative regulations and economic transformation on the air quality. *Environmental Pollution*, *241*. https://doi.org/10.1016/j.envpol.2018.06.015

Puljic, V. M., Jones, D., Moore, C., Myllyvirta, L., Gierens, R., Kalaba, I., Ciuta, I., Gallop, P., & Risteska, S. (2019). *Chronic coal pollution : EU action on the Western Balkans will improve health and economies across Europe*. https://www.env-health.org/wp-content/uploads/2019/02/Chronic-Coal-Pollution-report.pdf

RAN. (2021). *Banking on Climate Chaos 2021*. Banking on Climate Chaos 2021

Rečka, L., & Ščasný, M. (2018). Brown coal and nuclear energy deployment: Effects on fuel-mix, carbon targets, and external costs in the Czech Republic up to 2050. *Fuel*, *216*. https://doi.org/10.1016/j.fuel.2017.12.034

Rüger, J., & Buchheim, A. (2021). *Climate Action in Figures : Facts, Trends and Incentives for German Climate Policy 2021 edition*. https://www.bmuv.de/en/publication/climate-action-in-figures-2021-en

Schuman, R. (1950). *The Schuman Declaration*. European Union. https://europa.eu/european-union/about-eu/symbols/europe-day/schuman-declaration_en

Schunz, S. (2012). The European Union and multilateral governance : assessing EU participation in United Nations human rights and environmental fora. In J. Wouters (Ed.), *The EU in the United Nations Climate Change Regime* (pp. 191–213). Palgrave Macmillan.

Šídlová, M., Maixner, J., Škvára, F., Kohoutková, M., Cibulková, J., & Polonská, A. (2019). Characterization of Czech coal combustion ashes and their hydrated products. *Waste Forum*, *3*.

Sivek, M., Jirásek, J., Kavina, P., Vojnarová, M., Kurková, T., & Bašová, A. (2020). Divorce after hundreds of years of marriage: Prospects for coal mining in the Czech Republic with regard to the

European Union. *Energy Policy*, *142*. https://doi.org/10.1016/j.enpol.2020.111524

Sivek, M., Kavina, P., & Jirásek, J. (2019). New mineral policy of the Czech Republic of June 2017. *Resources Policy*, *60*, 246–254. https://doi.org/https://doi.org/10.1016/j.resourpol.2019.01.003

Sivek, M., Vlček, T., Kavina, P., & Jirásek, J. (2017). Lifting lignite mining limits – correction of the Czech Republic energy policy. *Energy Sources, Part B: Economics, Planning, and Policy*, *12*(6), 519–525. https://doi.org/10.1080/15567249.2016.1219789

Varrenti, M. G. (2020). *What the 'European Green Deal' Means for the EU's External Action. College of Europe Policy Brief #1.20 February 2020* (No. 1; 20). http://aei.pitt.edu/id/eprint/102481

Vlček, T. (2013). The Coal Sector. In T. Vlček & F. Černoch (Eds.), *THE ENERGY SECTOR AND ENERGY POLICY OF THE CZECH REPUBLIC* (pp. 65–88). Masaryk University. https://doi.org/10.5817/CZ.MUNI.M210-6523-2013

Vlček, T., & Černoch, F. (2013). *The Energy Sector and Energy Policy of the Czech Republic*. Masarykova univerzita. https://doi.org/10.5817/CZ.MUNI.M210-6523-2013

Vrablik, P., Wildova, E., & Vrablikova, J. (2017). The Effect of Brown Coal Mining on the Environment and Health of the Population in Northern Bohemia (Czech Republic). *International Journal of Clean Coal and Energy*, *6*(1), 1–13. https://doi.org/10.4236/ijcce.2017.61001

Book

Brande, K. Van den. (2012). The EU in the Commission on Sustainable Development. In J. Wouters (Ed.), *The EU and multilateral governance : assessing EU participation in United Nations human rights and environmental fora* (pp. 171–190). Palgrave Macmillan.

Corthaut, T., & Eeckhoutte, D. Van. (2012). Legal Aspects of EU Participation in Global Environmental Governance under the UN Umbrella. In J. Wouters (Ed.), *The EU and multilateral governance : assessing EU participation in United Nations human rights and environmental fora* (pp. 145–170). Palgrave Macmillan.

Monograph

British Petroleum. (2020). Approximate conversion factors. Statistical Review of World Energy. https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2020-approximate-conversion-factors.pdf

Council of the EU. (2021). Public sector loan facility to support just climate transition – provisional agreement reached. https://www.consilium.europa.eu/en/press/press-releases/2021/04/26/public-sector-loan-facility-to-support-just-climate-transition-provisional-agreement-reached/

Europe Beyond Coal. (2021). Europe Beyond Coal. Database. https://beyond-coal.eu/database/

European Coal and Steel Community. (1951). Treaty establishing the European Coal and Steel Community, ECSC Treaty. EU. https://eur-lex.europa.eu/legal-content/FR/TXT/PDF/?uri=CELEX:11951K/TXT&from=EN

European Commission. (2020). Driving forward the green transition and promoting economic recovery through integrated energy and climate planning. European Commission. https://ec.europa.eu/transparency/regdoc/rep/1/2020/EN/COM-2020-564-F1-EN-MAIN-PART-1.PDF

Masson-Delmotte, V., Pörtner, H.-O., Zhai, P., Roberts, D., Skea, J., & Shukla, P. R. (2019). Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of cli. https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_Full_Report_Low_Res.pdf

Nixon, J. (2019). Economic Impact of Climate Change. https://d1iydh3qrygeij.cloudfront.net/Media/Default/Research Briefing/The economic impact of global warming.pdf

RAN. (2021). Banking on Climate Chaos 2021. Banking on Climate Chaos 2021

Schuman, R. (1950). The Schuman Declaration. EU. https://europa.eu/european-union/about-eu/symbols/europe-day/schuman-declaration_en