



DECARBONIZATION AND JUST TRANSITION EXPERIENCES OF THE V4 COUNTRIES

- Visegrad Fund

Decarbonization and Just Transition in the V4: Experiences of the Visegrad countries

by Tatiana Mindeková, István Bart, Dóra Csernus, Andrzej Kassenberg, Alžbeta Gavalcová
and Veronika Oravcová

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Decarbonization and Just Transition in the V4

The European Green Deal envisions the carbon-neutrality of the continent by 2050. Therefore, although aiming for this goal separately, the member states, along with the EU neighbourhood, have a common benchmark in mind. Arriving to the transitional problems of the energy sector from various post-industrial backgrounds, these regions approach the strategies of coal phase-out similarly, but with significant path-dependant peculiarities in the Czech Republic, Hungary, Poland and Slovakia. Diverging from state to state, these scenarios must also tackle the just transition of not only the energy sector, but the unsustainable nature of entire coal-mining regions as well. Encompassed by a highly relevant social and political element, these public negotiations thus, also include governmental and non-governmental actors in every member state of the V4.

In order to give a more detailed insight into these decades-long processes, this publication is assembled of four separate case studies of the V4 countries. They focus on the decarbonisation of the energy sector, and how coal phase-out could be accomplished in energy production by 2050, with the least possible impact on the lives of the local population in the regions, which have relied on coal mining for centuries. The articles therefore, aim to shed a light on the necessary top-down approaches and strategic decisions on an EU or member-state level, but also on bottom-up initiatives on the local level stemming from municipal stakeholders or NGOs.

Arriving to the transitional problems of the energy sector from various post-industrial backgrounds, these regions approach the strategies of coal phase-out similarly, but with significant path-dependant peculiarities in the Czech Republic, Hungary, Poland and Slovakia.

Czechia

1. Introduction

The Czech Republic achieved a significant reduction of its emissions during its political and economic transformation from the Czechoslovak centrally-planned economy to a market-based economy in the 1990s, especially due to the decline in industrial activity. In the last ten years, the progress of the

The progress of the decarbonization of the Czech Republic has led to a decoupling between its economic growth and energy-related carbon emissions.

decarbonization of the Czech Republic has led to a decoupling between its economic growth and energy-related carbon emissions.¹ However, while significant improvements were made, the country's total greenhouse gas emissions have been relatively stable since 2015² and in 2020, Czechia was the 5th largest emitter per capita in the EU³. Its high placement on the emissions chart to the continuous use of fossil fuels in Czech power and heat generation, as solid fossil fuels continue to have the highest share in the country's energy sources (31.2%), followed by petroleum products (21.4%) and a small share of renewable energy sources (12.7% in 2020)⁴. Moreover, Czechia's coal consumption decreased only slightly in the last 10 years⁵.

While important steps have been made in the decarbonization process of the Czech Republic, the last decade saw many setbacks in reaching a low-carbon economy in this country. The upcoming paragraphs will cover the current situation in the Czech Republic in regards to the coal phase-out and just transition process as well as the main challenges of decarbonization in the Czech context. The last section will then analyse the involvement of the CSOs in the decarbonization process through case studies.

2. Current situation

2.1. Coal mining

In 2019, the Czech government established the Coal Commission, which was tasked with assessing the most advantageous scenario for phasing out the use of coal in the Czech Republic. The Commission analysed scenarios with the phase-out in 2033, 2038 and 2048 and provided their formal recommendation of phasing out by 2038. The new Czech government announced the plans to phase out sooner, by the year 2033⁶. The largest producer of brown coal, ČEZ, also announced a stronger commitment to reducing its use of coal by 2030, as the company plans to reduce its electricity output

¹ International Energy Agency (2021), Czech Republic - Energy Policy Review. (<https://iea.blob.core.windows.net/assets/301b7295-c0aa-4a3e-be6b-2d79aba3680e/CzechRepublic2021.pdf>)

² Eurostat (2022), Statistics - Air emissions accounts by NACE Rev. 2 activity. https://ec.europa.eu/eurostat/databrowser/view/env_ac_ainah_r2/default/table?lang=en

³ European Environment Agency (2021) EEA greenhouse gases - data viewer. <https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>

⁴ Eurostat (2022) Share of energy products in total energy available, 2020 (in %). [https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2a.html#:~:text=In%202020%2C%20the%20energy%20mix,solid%20fossil%20fuels%20\(12%20%25\).](https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2a.html#:~:text=In%202020%2C%20the%20energy%20mix,solid%20fossil%20fuels%20(12%20%25).)

⁵ EUROSTAT, Supply, transformation and consumption of solid fossil fuels, https://ec.europa.eu/eurostat/databrowser/view/nrg_cb_sff/default/table?lang=en

⁶ Government of the CZ (2022), Policy Statement of the Government. <https://www.vlada.cz/cz/jednani-vlady/programove-prohlaseni/programove-prohlaseni-vlady-193547/>

from coal to 25% by 2025 and 12.5% by 2030⁷. However, the coal phase-out date is not compatible with the UN Paris climate agreement⁸ and currently, the consumption of both black and brown coal is growing as a result of the global gas price hike.

As a result of declining coal consumption, its decreasing profitability and Covid-19 outbreaks in the mining areas⁹, the only remaining hard coal mine in the Czech Republic, Mining Plant 2 (ČSM) owned by OKD, was expected to close down already this year¹⁰. However, these plans have recently changed. The finance minister Zbyněk Stanjura stated that due to the ongoing energy crisis and high demand for black coal, the mining is set to continue till 2023, while further prolongment till 2025 is currently being analysed¹¹. The mined coal will be mostly used for electricity generation, heating plants and iron mills.

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Regarding brown coal, with an 11% share of the total mined brown coal in the EU in 2021, the Czech Republic is one of the top 3 producers and consumers of this type of coal in the EU¹². Brown coal is currently mined in North-Western Bohemia by four brown coal mining companies: Severočeské doly a.s., owned by ČEZ, the largest producer of brown coal (mines Bílina and Nástup-Tušimice), Vršanská uhelná (mine Vršany), with coal resources until 2055, Severní energetická a.s. with the largest brown coal reserves in the Czech Republic (mine ČSA) and Sokolovská uhelná (mines Jiří and Družba). While the brown coal consumption has slowly been declining since 2017, the recent data show that mining of brown coal in the Czech Republic is again growing, as the first half of 2022 saw a 20.6% increase in mining compared to the last year¹³. This increase is explained by the growing interest in brown coal from the energy companies, which are currently buying more coal and less natural gas as a result of the current natural gas price crunch.

2.2. Just Transition

While the decarbonization of Czechia is still ongoing, the progress made so far has already affected the parts of the country that were built on coal-mining industry, located mostly in Ústecký, Karlovarský and Moravskoslezský regions. These regions have long suffered from structural problems: higher unemployment rates and lower levels of GDP than the national average, as well as higher rates of respiratory diseases and higher risks of premature deaths¹⁴. In an effort to remedy the negative effects

⁷ Europe beyond coal (2021), CEZ ANNOUNCES PLAN TO SLASH COAL BY 2030. <https://beyond-coal.eu/2021/05/20/cez-announces-plan-to-slash-coal-by-2030-ahead-of-czech-government-coal-exit-vote/>

⁸ Europe Beyond Coal (2022) Czech Republic commits to 2033 coal exit which will need to be sped up. <https://www.greenpeace.org/czech/tiskova-zprava/15939/czech-republic-commits-to-2033-coal-exit-which-will-need-to-be-spiced-up/>

⁹ Muller, R., Lopatka, J. (2020) Czech coronavirus cases jump again, centred on mine outbreak, *Reuters*. <https://www.reuters.com/article/us-health-coronavirus-czech-idUSKBN2400IU>

¹⁰ New Europe (2020) Czech OKD looks to close all coal mines as early as 2021 or 2022. <https://www.neweurope.eu/article/czech-okd-looks-to-close-all-coal-mines-as-early-as-2021-or-2022/>

¹¹ Reuters (2022) Czech coal miner OKD extends production until at least end-2023. <https://www.reuters.com/article/czech-coal-idUSL8N2YH2TR>

¹² Eurostat (2022) Coal production and consumption see rebound in 2021. [https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20220502-2#:~:text=9%25%20of%20the%20total%20brown,%25%20and%20Greece%20\(5%25\)](https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20220502-2#:~:text=9%25%20of%20the%20total%20brown,%25%20and%20Greece%20(5%25))

¹³ Tramba (2022) Economic news: Brown coal trendy again (in Czech). <https://ekonomickydenik.cz/hnede-uhli-je-opet-v-kurzu-jeho-produkce-v-cesku-mezirocne-vzrostla-o-20-procent/>

¹⁴ World Resources Institute (2021) Czech Republic: The RE:START Strategy To Coordinate Three Regions' Energy and Economic Transitions. <https://www.wri.org/update/czech-republic-restart-strategy-coordinate-three-regions-energy-and-economic-transitions>

of historic as well as future transition to a low-carbon economy, these regions asked the Czech government for assistance. The Czech government, therefore, developed the Strategic Framework for Economic and Social Restructuring – RE:START, already in 2015¹⁵. The strategy is implemented through annually updated Action Plans, for which development is responsible National Executive Team under

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the Ministry of Regional Development. In addition, regions are also contributing to the development and evaluation of the Action Plans, via a body of Regional Permanent Conference, that includes representatives from the Union of Towns and Municipalities, academia, businesses, NGOs etc. Since its inception, however, the RE:START strategy has proven to be problematic due to the lack of concrete steps and transparency in the process of preparing the documents (more information to follow in the next section).

As a member state of the EU, the Czech Republic was also required to produce a Territorial Just Transition Plans (TJTP), as a precondition to access the Just

Transition Fund. The regions that were identified as the most affected are the same as in the RE:START strategy and the available funding from Operational Programme Just Transition (OPJT) 2021-2027 was divided as follows: Karlovy Vary Region - 15.3% (€242 million), Moravian-Silesian Region - 46.1% (€726 million) and Ústí Region - 38.6% (€607 million)¹⁶. In order to ensure public participation and engagement of the regions in the process, the Ministry for Regional Development set up a Transformation Platform that consists of approximately 40 stakeholders and has regular meetings with publicly available reports/minutes¹⁷. The main critiques of the current version of the Czech TJTP focus on its inadequate contribution to the EU climate commitments¹⁸, lack of attention to the issues of energy poverty and lack of transparency during preparation of the document¹⁹.

3. Challenges and opportunities of decarbonization process in Czechia

3.1. Political factors – changes

The decarbonization process in Czechia cannot be considered straightforward, as there were instances of decisions that posed setbacks to the overall goals. In an effort to prevent the expansion of existing coal mines, the Czech government introduced territorial mining limits on brown coal mines in 1991. However, in 2015, the government amended these limits and thus, allowed for more mining. Another internationally known case of a country's wrongdoing is connected to the Chvaletice coal-powered plant, which was granted regional permission to exceed EU's limits on nitrous oxide and mercury emissions from its generation²⁰.

¹⁵ RE:START. <https://www.mmr.cz/cs/microsites/restart-regionu/uvod>

¹⁶ Ministry of Environment (2022) OP Just Transition Fund (in czech). https://www.mzp.cz/cz/opst_2021_2027

¹⁷ DotaceEU (2022) Transformation platform (in czech). <https://www.dotaceeu.cz/cs/evropske-fondy-v-cr/kohezni-politika-po-roce-2020/uhelne-regiony/transformacni-platforma>

¹⁸ WWF (2021) Assessment for Czechia. <https://just-transitions-plan.wwf.eu/assessment/IESRuaVbTMelYeU2el8O>

¹⁹ Rektor-Polánek, A. (2022) DR Findings: Czech Just Transition is funds' fiasco (in Czech), Denník Referendum. <https://denikreferendum.cz/clanek/34130-zjisteni-dr-ceska-spravedliva-transformace-je-dotacni-fiasco-eu-zada-zmeny>

²⁰ Greenpeace (2021) Ministry cancelled the exception of Chvaletice (in Czech). <https://www.greenpeace.org/czech/tiskova-zprava/13082/ministerstvo-i-napodruhe-zrusilo-elektrarne-chvaletice-vyjimku-z-limitu-na-znecistovani-bez-ni-bude-muset-v-srpnu-omezit-provoz/>

Although this regional permission was cancelled by the Ministry of Environment, Czech governments were in the past repeatedly criticized for the lack of commitment to phasing out coal by different

Recent surveys of the public perception in Czechia show that citizens are in favour of closing down mines and investing in renewable sources of energy.

national and international stakeholders. While even the current Czech government continues to be criticized for its ‘collisions with Brussels’ in relation to the EU’s Taxonomy or to the changes in the automotive industry²¹, its overall stance towards phasing out coal seems to be more favourable. This can be seen in its governmental programme from January 2022 which officially set the date for a coal phase-out by 2033²². Moreover, recent surveys of the public perception in Czechia show that citizens are in favour of closing down mines and investing in renewable sources of energy²³.

It, however, remains to be seen how the Czech government approaches the current dilemma of decarbonization after Covid-19’s economic downturn and during an ongoing energy crisis. Due to the lack of a national climate law or a strong decarbonization strategy, Czech climate policy is heavily dependent on each government’s approach and can change considerably with the changing political representation.

3.2. Socio-economic factors – jobs

Coal phase-out historically caused lost jobs across Czechia and it is expected to have an impact on more. According to the Ministry of Industry and Trade, in 2018 there were around 14 000 workers employed by the coal-mining industry²⁴. Other studies conclude that the coal phase-out could still negatively influence more than 25,000 workers²⁵. While preventing rising unemployment in the coal regions is a challenge, a proactive approach from the government can ensure the creation of new, sustainable and long-term positions, thus avoiding rising unemployment while reaching Czech climate commitments.

One of the ways to avoid further loss of jobs is to invest more in renewables and increase the share of renewable sources in the energy mix. Studies show that an increase in such share could lead to the creation of some 32,000 new jobs^(ibid.). At the same time, the Czech Republic has currently below the EU’s average of renewable energy in its mix²⁶ and future development of solar, wind and energy accumulation projects is necessary for not only employment reasons but also to reach the country’s fair contribution to the European Green Deal. The decisions of the current government suggest that Czechia will see more

The decisions of the current government suggest that Czechia will see more governmental support for renewables, especially rooftop solar.

²¹ Gosling, T. (2022) NEW CZECH GOVERNMENT’S CLIMATE POLICY. <https://balkaninsight.com/2022/01/24/new-czech-governments-climate-policy-cloudy-with-a-chance-of-curveballs/>

²² Government of the CZ (2022)

²³ Hnutí Duha (2021) Public perception of renewable energy (in Czech). <https://hnutiduha.cz/publikace/verejne-mineni-o-oze2020>

²⁴ MPO (2019) Employment in coal industry. <https://www.mpo.cz/assets/cz/stavebnictvi-a-suroviny/surovinova-politika/statni-surovinova-politika-nerostne-suroviny-v-cr/2019/9/Zamestnanost-v-tezbnim-sektoru-v-roce-2018.doc>

²⁵ Zichová, K. (2021) Closing the Czech coal industry could cost 25,000 jobs. <https://www.euractiv.com/section/energy/news/closing-the-czech-coal-industry-could-cost-25000-jobs/>

²⁶ Eurostat (2022) Share of energy from renewable sources. https://ec.europa.eu/eurostat/databrowser/view/nrg_ind_ren/default/table?lang=en

governmental support for renewables, especially rooftop solar. The official policy statement from January considers solar energy ‘key renewable in our geographical conditions’²⁷ and the government has recently passed several legislative changes to boost the development of renewable energy business²⁸.

3.3. Room for improvement – transparency and public participation

When the RE:START strategy started in 2015, Czechia became the only CEE country with a governmental strategy for transforming its coal regions²⁹. Although this move was praised as a step in the right direction, the document and overall approach of the strategy did not avoid criticism. The first shortcoming of the strategy is the lack of transparency during the preparation of the document as well as during the subsequent formulation of the annual Action Plans³⁰. Combined with the lack of a deadline for phasing out coal, the plans could be used as a way of improving the economic situation in the regions, without committing to decarbonization. In addition, the process of preparing the TJTP was also criticized due to the lack of transparency, as meeting minutes and other information from the preparatory discussions were initially not available³¹. Moreover, the setting up of the Transformation Platform can also be criticized for some counterproductive practices as TJTP ‘appeared to have already been crafted’ before the platform officially started its work^(ibid.).

Another repeating critique of both, RE:START and TJTP, relates to their uneven representation of different sectors and lack of public participation during the preparatory processes. In the case of RE:START, only one NGO was actually able to participate in the drafting process and although the public had a chance to submit their ideas via an online tool, results from their submissions were not made public³². Thus, it remains unclear how or whether they were used. An online consultation with the members of the public also limits the participation of certain groups, especially low-income ones. In the case of TJTP, although the Transformation Platform consists of about 40 stakeholders, there is only one representative of an NGO sector, while the coal industry, businesses and ministries have a dominant presence³³. Consequently, putting an emphasis on transparency and providing meaningful options for public participation continue to be challenges for the Czech Republic in its transition process.

4. Involvement of the NGOs in the decarbonization process

Historically, Czech environmental non-governmental organisations are known for their strong presence in the political arena during the years that led to the Velvet Revolution in 1989. Environmental degradation, especially that of the coal regions, was one of the driving concerns of the anti-regime protests. In the years that followed, the development of the environmental NGOs (ENGOS)

²⁷ Government of the CZ (2022)

²⁸ Skoumal, T., Simcina, M. (2022) Czech Republic: Recent key legislative changes in energy transition and energy regulation. <https://www.globalcompliancenes.com/2022/02/08/czech-republic-recent-key-legislative-changes-in-energy-transition-and-energy-regulation-26012022/>

²⁹ Heuer, D. (2018) JUST TRANSITION IN CZECH REPUBLIC. http://eko-unia.org.pl/wp-content/uploads/2018/06/mini-report-2-_Czech_Republic.pdf

³⁰ Davidová, K., Urbanová, B. (2017) Lessons from the Czech Republic, *Just Transition*. <https://www.just-transition.info/lessons-from-czech-republic/>

³¹ Rösch, L.B., Epifanio, D. (2022) Just transition in 7 central and eastern European countries, CEE Bankwatch Network. https://www.just-transition.info/wp-content/uploads/2022/04/2022-04_Just-Transition-in-7-CEECs.pdf

³² Davidová, K., Urbanová, B.

³³ Stępień, M., Hunsbeth Schreuder, J. (2021) Status of the Territorial Just Transition Plans in central and eastern Europe, CEE Bankwatch Network. https://www.cde-org.cz/media/object/1864/2021-12-14-bwn-tjtp-briefing-5_1.pdf

in Czechia has been experiencing a similar trajectory as in other post-communist countries as they had to battle political isolation and weak influence, which made it difficult to achieve civic mobilization³⁴. The EU membership provided important funding stimulus as well as training and integration to the wider network of NGOs for the environmental movements in Czechia. This led to NGOs becoming 'one of the strongest elements of Czech civil society in terms of political influence'³⁵.

Nevertheless, as shown in the previous sections, NGOs in the Czech Republic are often only added to the decision-making process to ensure formal compliance with the rules, but their presence is small, with limited options to shape the outcome of the policies. Moreover, the issue of the lack of civic engagement with the NGOs in Czechia remains, as citizens' mistrust of their work remains high³⁶. Despite the uneasy conditions for the functioning of the NGOs in the Czech Republic, numerous organizations continue to prove how important their work in the environmental area is and the following sections provide examples of these efforts.

The issue of the lack of civic engagement with the NGOs in Czechia remains, as citizens' mistrust of their work remains high.

4.1 Amplifying/supporting local efforts – case of Horní Jiřetín

In the past, mining of coal in Czechia brought many negative impacts in various areas across the country, including destruction of towns and forced relocations of whole communities³⁷. In 2015, the question of amending the set territorial limits for mining of brown coal was again open and areas that contain large reservoirs of lignite were in danger of suffering the consequences of destructive mining activities. A known example of such an area is the cadastral territory of Horní Jiřetín. After the privatization of the mining company active in Jiřetín's area, new owners of the company argued that moving the mining limits is required for the energy security of Czechia and published numerous assessments to support their claim³⁸.

But the citizens of Horní Jiřetín refused to let their town become another destroyed area in the coal-mining region. Instead, they started a social and political transformation and built strong relationships with various NGOs. Observers of the process find that the environmental activists 'assisted the local community of Horní Jiřetín with organizing events and protest actions'³⁹ and helped to initiate a nationwide campaign against changing the limits for brown coal mining⁴⁰. Examples of NGOs involved in the process include Greenpeace and Hnutí Duha (the Czech branch of Friends of the Earth). The slogan used during the demonstrations "we are the limits" (Limity jsme my), transferred into a movement that continues the fight against coal across Europe till today. Following the mobilization of

³⁴ Chaisty, P., Whitefield, S. (2015) Attitudes towards the environment: are post-Communist societies (still) different?, *Environmental Politics*. DOI: 10.1080/09644016.2015.1023575

³⁵ Bušková, K., Pleines, H. (2006) Case Study: Czech Environmental NGOs and the EU, in: Pleines (ed) Participation of civil society in new modes of governance. <https://nbn-resolving.org/urn:nbn:de:0168-ssoar-436110>

³⁶ CVMV (2022) Trust in NGO (in Czech). <https://cvvmapp.soc.cas.cz/#question24>

³⁷ Biben, M. (2019) Hundred villages disappeared and more than 90 thousand people lost their homes as the result of brown coal mining (in Czech), HN. <https://archiv.hn.cz/c1-66565390-zanikla-stovka-obci-lide-dychali-jedy>

³⁸ Shriver, T., Adams, A., Longest, L. (2022) "Cursed by Coal": Climate Change and the Battle over Mining Limits in the Czech Republic, *Society & Natural Resources*. DOI: 10.1080/08941920.2021.2003494

³⁹ Ocelík, P., Lehotský, L., Černoch, F. (2021) Beyond our backyard: Social networks, differential participation, and local opposition to coal mining in Europe. *Energy Research & Social Science*. <https://doi.org/10.1016/j.erss.2020.10186>

⁴⁰ Drapalova, E. (2018) Like a dog in the manger: mobilizations in times of extractive capitalism: the cases of Romania and the Czech Republic Open J. Sociopolit. Stud. DOI: 10.1285/i20356609v11i1p175

citizens, the Czech government allowed changing of the mining limits in other areas but decided to keep the mining limits the same for the Czechoslovak Army Mine, thus prohibiting mining expansion to the area of Horní Jiřetín⁴¹. Although the mining company expressed that it is not planning to start the fight about the limits again, the governmental decision can still be changed, as there was 'no legal move to write off the deposits of coal'⁴². Thus, the town of Horní Jiřetín is now working on becoming fossil-free by 2023, to prove the point that the coal buried underneath it is not needed for its energy needs.

The current energy crisis can again resurrect the talks about the need for coal and re-open the case of mining limits. The case study of mining limits in Horní Jiřetín is, therefore, an important reminder that local and regional initiatives offer opportunities for leading and shaping the process of

The current energy crisis can again resurrect the talks about the need for coal and re-open the case of mining limits.

decarbonization. It also proves that the bottom-up approach that unites the communities and fosters relationships with the NGOs can bring real political solutions, thus highlighting the need of including NGOs and local representatives in the process of phasing out coal in a socially fair way.

4.2 Persistence – getting involved in the decision-making process

According to the EU's regulation concerning the preparation process of TJTP, 'each Member State shall organise and implement a comprehensive partnership' which should also include partners from 'relevant bodies representing civil society, such as environmental partners, non-governmental organisations, and bodies responsible for promoting social inclusion...'⁴³. However, as highlighted above, improving transparency during the just transition decision-making process remains a challenge for the Czech Republic as there is currently only one representative of civil society on the platform.

A study that looked at the preparatory process of the TJTP highlights that the only stakeholder from the Centre for Transport and Energy had to repeatedly petition for her involvement in the Platform⁴⁴. An improvement in the transparency of the process was similarly achieved by continuous pressure from a national campaigner who used media to point out that information from the meetings of the Platform is not publicly available^(ibid.).

While the lack of NGO representatives and lack of effort to share information with the public remain reasons for criticism, the efforts of the stakeholders to be included in the Transformation Platform and to change the accessibility of the information can serve as an example of how persistency of individuals and organizations can lead to improvements of the just transition processes.

5. Conclusion

The Czech Republic managed to substantially reduce its greenhouse gas emissions since its transition from a socialist regime and it is undeniable that the country delivered some important decarbonization steps during the last 10 years. These include establishing coal phase-out dates and launching re-

⁴¹ Government of CZ (2015) Government decided about the cancelation of the mining limits in Bílina (in Czech). <https://www.vlada.cz/cz/media-centrum/aktualne/vlada-rozhodla-o-zruseni-limitu-tezby-na-dole-bilina-136101/>

⁴² Vrábel, R. (2020) Good News from the Brink. The story of Horní Jiřetín, a small North Bohemian town that defied the coal industry, ENCO. <https://corpwatchers.eu/en/investigations/cities-versus-multinationals/good-news-from-the-brink-the-story-of-horni-jiretin-a-small-north-bohemian-town>

⁴³ REGULATION (EU) 2021/1060 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX%3A32021R1060>

⁴⁴ Rösch, L.B., Epifanio, D. (2022)

structuralizing plans for the most affected regions. Despite this progress, Czechia's decarbonization process is still ongoing and challenges of how to ensure a just execution of the transition remain. In addition, the latest developments of the Russian war in Ukraine and the related energy crisis can endanger the pre-agreed transition plans and slow down, the already sluggish decarbonization process.

While this paper identified substantial shortcomings of the Czech approach to coal phase-out, it also found reasons to be cautiously optimistic about the government's next steps. Its decision to support renewable energy and phase out coal even sooner than recommended by the Coal Commission can be understood as signs of stronger prioritization of green transformation by the government. Regarding the NGOs' challenges in the just transition process of the Czech Republic, lack of transparency and willingness to include civil society in the decision-making process can still be identified. Nevertheless, the examples shown in this paper indicate that supporting local efforts and remaining persistent with the demands can bring important improvements. Now, as the deceleration of transition plans and postponement of the coal phase-out can again gain support, it is even more important for the NGOs to keep utilizing these strengths.

The Czech Republic managed to substantially reduce its greenhouse gas emissions since its transition from a socialist regime and it is undeniable that the country delivered some important decarbonization steps during the last 10 years.

Hungary

1. Introduction

Hungary is an outlier in the V4 when it comes to coal phase-out. By 2021 most coal mines have closed, and coal use has declined to just 7% of total domestic primary energy production (down from 25% in 2000)⁴⁵. Thus, the bulk of coal phase-out has already happened.

Hungary is an outlier in the V4 when it comes to coal phase-out.

The only remaining use of coal in Hungary is the large 950 MW Mátra lignite power plant and the lignite strip-mining that supports it. This plant was completed in 1968 and it is by now obsolete and has reached the end of its useful life. Production is declining, mostly because high carbon prices make production uneconomical. The lignite burned in the plant has very low calorific value, and it causes a lot of air pollution. Some blocks are already closed, and the permit for the remaining blocks expires at the end of 2022⁴⁶. The plant is also in violation of EU air quality requirements and could only stay in operation if significant environmental investments were made - something which does not make economic sense in such an antiquated installation.

Coal phase-out in Hungary is a much smaller concern than in other V4 countries. There is a need for some industrial restructuring and re-employment, but the scale is not very significant. Somewhat related to coal phase-out is the issue of residential coal-use, which occurs in rural areas all over the country. Residential coal use is causing a lot of air pollution. Households burning coal primarily do so because it is cheap - in some cases it is also subsidized by the state or the local authority and therefore a phase-out has energy poverty implications.

Coal phase-out in Hungary is a much smaller concern than in other V4

2. The just transition process in Hungary

In 2020, the government has announced plans to end the burning of lignite at Mátra in 2025, and replace it with a gas-fired power station⁴⁷. Given that the permits of the lignite-firing blocks is anyway expiring in December 2025⁴⁸ this decision was not so much a sign of a strong political commitment towards decarbonisation, but rather a fair assessment of the state of the plant and the broader economic realities, influenced by the trend towards decarbonisation in the EU.

The closure is not without its challenges as the plant, the mining operations and related activities employ about 1500 people. Many of them can go into early retirement, but some of them will need to find a new job. (Given the poor quality of the lignite, mining would be uneconomical if not burnt locally and thus mining is to be discontinued when the lignite-firing blocks close.) There are also about a 1000 people who are employed in industries established adjacent to the plant, where layoffs also might occur.

There is a LIFE-IP project, called “North-Hungary in Transition” dedicated to the coal phase-out⁴⁹. It is running from 2020 to 2029 and has a budget of EUR 15 million. Its objective is to plan for and facilitate

⁴⁵ https://www.ksh.hu/stadat_files/ene/hu/ene0003.html

⁴⁶ <https://www.napi.hu/magyar-gazdasag/rezsi-csokkent-es-energia-matrai-eromu-szen-eromu-palkovics-laszlo-aram-arobbanas-energetikai-veszelyhelyzet-kormany-rendelet.756235.html>

⁴⁷ https://index.hu/gazdasag/2020/02/19/matrai_eromu_palkovics_bejelentette_foldgaz_alapu/

⁴⁸ <https://www.vg.hu/cegvilag/2020/07/tovabb-is-elhet-a-matrai-eromu-zrt-harom-blokkja>

⁴⁹ <https://igazsagszatmenet.eu/en/introduction/>

coal-phase-out at the Máttra site, including re-training for employees, recultivation of mining sites, diversification of the local economy and addressing fuel poverty.

Hungary is also expecting funds from the EU's Just Transition Fund amounting to EUR 82 million⁵⁰. This is a tiny amount compared to Poland's EUR 2 billion, but as almost all of it would be spent on the Máttra lignite phase-out, it would make a significant difference. Hungary's Territorial Just Transition Plans (TJTPs) have been submitted to the European Commission for review in 2021, but have not been approved so far.

In July 2022, the energy crisis brought about by the Ukraine war resulted in a turnaround in the government's phase-out policy. Hungary has an economy that has a very high gas dependency, and almost all of the gas imports come from Russia. Thus, Hungary found itself in a very vulnerable position when the EU started to introduce sanctions on Russia. The government, scrambling for solutions, announced a 7-point energy emergency plan which includes a ramping-up of domestic lignite production and the restart of the already shut-down blocks of the Máttra plant "*as soon as possible*".⁵¹ It was not clear if these steps mean a permanent abandonment of the phase-out plans or just an "detour", but even with these measures, the fundamentals of the Máttra plant remain unchanged: it is an obsolete plant that can only produce energy at a high cost (due to low efficiency and high carbon prices) and with illegal levels of air pollution. The plant's director has recently stated that measured in human years, the plant is "*102 years old*".⁵² He also thought that restarting the blocks already in shutdown would not be easy or quick. Thus, it is possible that the closure of Máttra will still happen on schedule in 2025.

3. Socio-economic / Political factors

3.1. Energy prices and the war in Ukraine

The Russian invasion of Ukraine was a development that radically altered the economic and political situation for Hungary. The country was already inching towards an economic downturn prior to the war, in part due to global economic developments, but mostly because of its own short-sighted policies. Hungary is now the only Member State that has not yet received funds from the Recovery and Resilience Facility, and the regular structural and cohesion policy payments are also suspended - both due to the EU's concerns with the rule of law in Hungary. The dearth of funding and the economic problems have resulted in runaway inflation and a massive depreciation of Hungary's currency (notably, the forint has lost more of its value in 2022 than the Ukrainian hryvna).

The Russian invasion of Ukraine was a development that radically altered the economic and political situation for Hungary.

Hungary is highly dependent on Russian gas imports⁵³ and has one of the most gas-intensive energy systems in Europe. Therefore, the war and the unfolding energy crisis is hitting the country very hard, especially as natural gas prices have been fixed at a low rate in the residential sector since 2012. In response to these developments, the government had to re-introduce market rates in gas and electricity consumption for the amounts consumed above the average consumption determined by the government.⁵⁴ As stated above, it also had to introduce an emergency energy plan that - among other points - calls for the relaunch of the already closed parts of Máttra power station, the ramping-up of lignite extraction and an increase in logging. (Notably, the government's messaging is weak to

⁵⁰ <https://www.portfolio.hu/en/eu-funds/20200115/hungary-to-receive-just-11-of-ecs-new-just-transition-fund-412521>

⁵¹ <https://hirado.hu/belfold/cikk/2022/07/13/bejelentest-tesz-a-kormany-kovesse-nalunk-a-rendkivuli-kormanyinfot/>

⁵² <https://www.vg.hu/energia-vgplus/2022/07/szinte-csodat-kell-tenne-az-energiatermelesben>

⁵³ <https://www.dw.com/en/warsaw-and-budapest-split-over-russian-energy-ties/a-61595947>

⁵⁴ https://mandiner.hu/cikk/20220721_rezsicsokkentess_bejelentes_nemeth_szilard_adatok_gaz_energia

nonexistent on energy saving measures, these being portrayed as a symptom of the “decline of the West”.)

Thus, the closure of Mátra was entertained as a policy because it was a low hanging fruit and an easy win on the decarbonisation front, but it was reversed as soon as energy security became the most pressing issue. This clearly shows the priorities of the government: decarbonisation is a policy that can proceed only if there are no competing priorities. The same thing stands for logging: forests as carbon sinks are important elements towards Hungary’s climate neutrality, but the picture changes when timber is needed for heating.

3.2. Public perception of coal and coal use

In Hungary, coal has no cultural significance - the number of people directly involved is so small that the general public is not concerned with the implications of the coal phase-out. Hungary does not have enough coal, oil or gas to be fully independent of energy imports, and therefore the public does not see national coal use as a bulwark of sovereignty. There is some public awareness that coal causes a lot of air pollution and it is also damaging to the climate. However, given that only a limited number of households use coal, and even those are concentrated in certain rural regions, this is not a major public concern. When people think of climate change, coal burning is not the first thing that comes to mind.

Unlike in Poland or the Czech Republic, Hungary has by now so few active miners that the social challenges related to their retraining and re-employment are limited.

3.3. Employment in the mining sector

Unlike in Poland or the Czech Republic, Hungary has by now so few active miners that the social challenges related to their retraining and re-employment are limited. Thankfully, the Mátra plant is situated close to the M3 motorway - between Budapest and Miskolc - which is one of the key economic arteries of the country. The Mátra plant also has significant other industrial operations around it, so re-employment of laid-off miners is not impossible. As indicated earlier, there are also significant government programs underway to ensure that employment issues are addressed.

3.4. Household coal use and energy poverty

In 2016, 113 thousand households (2,9% of the total number of households) used coal for heating, either exclusively, or alongside other fuels. 6% of coal-based primary energy use came from household heating.⁵⁵ The coal burnt is mostly lignite from Mátra, with imported coal making up the balance.⁵⁶ The Mátra lignite has a very low quality as a household fuel, as it is wet and smoky with a low calorific value. People use it because it is much cheaper than other types of coal or wood or gas and in some cases it is even subsidized by the state and the local authorities. (A lot of rural households have dual heating, i.e. capable of heating either with gas or with some solid fuel. The choice largely depends on the current prices.) Another problem is that most of the domestic boilers used for burning coal are obsolete and inefficient.

Many people already on the verge of energy poverty will become truly energy poor.

⁵⁵ Page 16:

https://www.habitat.hu/wpcontent/uploads/2021/05/Eloszto_Projekt_Helyzetkep_a_magyarorszagi_energiaszegenysegrol.pdf

⁵⁶ <https://blog.rekk.hu/bejegyzes/11/de-karbonizalunk>

When the Mátra plant closes, the people currently burning lignite will need to find another source of fuel. All alternative options are more expensive - an issue only exacerbated by the current energy crisis. Thus, many people already on the verge of energy poverty will become truly energy poor. Though the overall number of households involved is small, they are concentrated in the region around the Mátra plant, and therefore the local impact will be significant. This is why both the LIFE-IP programme and the TJTP contain measures related to improving household energy efficiency and heating renovation. The current inflation and energy crisis will put a great strain on most households - as the price of gas goes up, demand increases for wood and coal, which will also see price increases in turn. The environmentally highly damaging practice of burning waste instead of fuel already exists in Hungary and can be expected to expand as people get poorer. It is likely that the government will do all it can to avoid the phase-out of domestic lignite use until the current crisis is resolved.

3.5. Air pollution

An important issue related to coal use is air pollution. Lignite is a particularly polluting form of coal, especially if it is burned in obsolete inefficient boilers. In 2021, Hungary was condemned by the European Court of Justice for not meeting PM10 air pollution targets in three Hungarian regions, Budapest, the Sajó-valley and the Mecsek region⁵⁷. The latter two regions are mostly rural areas where the air is bad primarily because of the burning of lignite. Interestingly, the bulk of the lignite-related pollution comes from the households and not the Mátra plant itself, which has SO2 scrubbers installed (although the pollution levels are still higher than what is allowable under EU rules in force after 2021)⁵⁸

Also in 2021, the government published its long-term programme to fight air pollution⁵⁹. This document makes it clear that the government understands the problem and knows what should be done. Yet, no action has been taken (apart from a ban on burning dry leaves, which was eventually suspended), primarily because the government knows that the residential heating practices that cause air pollution are frequently symptom of poverty - and more restrictions would make life for the poor more difficult, which might result in a loss of popularity.

4. Involvement of the NGOs in the decarbonization process

NGOs in Hungary have great difficulties in actively engaging in most issues of public policy. Prime Minister Orbán and his party, FIDESZ, have been governing since 2010 with a comfortable majority. In general, FIDESZ is very reluctant to engage in any sort of public dialogue with CSOs, unless these CSOs are somehow controlled by them and/or represent their voting base.

Public consultations on new policy initiatives are either non-existent or are reduced to a mere afterthought, a formality.

Public consultations on new policy initiatives are either non-existent or are reduced to a mere afterthought, a formality. It is telling that in July 2022, the government had to introduce a bill to the Parliament on an improved public consultation process⁶⁰ because the European Commission demanded this in connection with the concerns

regarding the rule of law in Hungary. NGOs think that the new rules will not make much of a difference⁶¹, and they point to the fact that the new bill itself was introduced without any public consultation, even though this would have been mandatory under the current rules.

⁵⁷ <https://www.szabadeuropa.hu/a/legszenyvezes-magyarorszag-kotelezettsegszeges-europai-unio/31084014.html>

⁵⁸ <https://blog.rekk.hu/bejegyzes/11/de-karbonizalunk>

⁵⁹ <http://www.hungairy.hu/node/69>

⁶⁰ <https://www.parlament.hu/irom42/00705/00705.pdf>

⁶¹ <https://444.hu/2022/07/28/a-civil-szervezetek-szerint-a-kormany-tarsadalmi-egyeztetesrol-szolo-torvenye-csak-latszatzatmegoldas>

This situation is exacerbated by the strong government and FIDESZ control on the media. While there is some free press - both on paper and online - a large portion of the media is controlled by the KESMA media conglomerate, a foundation that is very close to the government in outlook. In rural areas it is often the case that only KESMA-owned media can reach the locals, especially in printed form. National television stations are nominally independent, but in practice they are primarily outlets for the government's propaganda. There is a strong control on the topics to be discussed and on the way these are presented. Thus, it is very difficult for CSOs to direct the attention of this part of the media to a certain subject or appear there with their views. As a result, CSOs can mostly make themselves heard in the free part of the media, that is mostly followed by the part of the public critical of FIDESZ. Thus, it becomes very hard to influence the voters and sympathizers of FIDESZ.

Green CSOs have long insisted on the need to close Mátra: In 2019, Greenpeace protested with banners and huge signs for the closure of Mátra⁶². WWF called for Mátra's closure in 2017⁶³, and Friends of the Earth Hungary has also campaigned for coal phase-out⁶⁴. These calls found a limited reception in the mind of the Hungarian public. The phase-out was not decided due to public pressure, but because the plant is old, uneconomical and in violation of EU air quality requirements. In other words, this closure is an easy win for the government, - and as we have seen it, it was reversed in a heartbeat when it became inconvenient.

Thus, we can say that the efforts of CSOs in achieving the closure of Mátra have probably amounted to very little. The need to conform with EU air pollution rules and the price signal from the EU Emissions Trading System was probably much more important. When it comes to implementation of the phase-out programmes, CSOs play only a supporting role. In the North-IP programme, a Coal Commission has been set up with over 50 members⁶⁵, of which there are only three green NGOs, all very local ones. None of the national NGOs (Greenpeace, WWF, MTVSZ, Levegő Munkacsoport, etc.) were invited. The TJTP will be overseen by the Monitoring Committee of Hungary's Environmental Operational Programme, where a single green NGO representative is supposed to represent the positions of all green NGOs.

5. Conclusion

There is very little that is instructive in Hungary's example. A coal phase-out was decided because it was economically rational to do so, only to be reversed when national energy security considerations became more important. (Thankfully, the plant cannot last much longer, so it will phase itself out eventually.) CSOs were not really able to have much impact on the process.

CSOs were not really able to have much impact on the process.

The primary drivers of decarbonisation in Hungary are twofold. Firstly, the political and technological reality that high-carbon energy production becomes less and less attractive by the day (renewables are relatively cheap, energy has become expensive, gas import is risky).

Secondly, the concerted policy push from the EU in the form of economic incentives (funding, and carbon pricing) and regulatory requirements. Thus, decarbonisation of the energy sector is progressing at a slow but steady pace. Conversely, the introduction of energy intensive industries and the growth in the number of vehicles counterbalances this downward trend.

⁶² <https://www.greenpeace.org/hungary/sajtokozlemeny/4828/eleg-volt-50-ev-szennyez-es-a-klimagyilkos-matrai-szeneromubol/>

⁶³ <https://wwf.hu/hireink/klima-es-energia/a-matrai-eromu-lignittervei/>

⁶⁴ https://mtvsz.hu/dynamic/energia_klima/szenkivezetes_mtvsvsz_szorolap_2020feb.pdf

⁶⁵ <https://igazsagosatmenet.eu/en/coal-commission/>

The impact of EU regulation and the general atmosphere of our current climate-anxious times are significant factors. Although generally combative towards the EU, the Hungarian government shares

The situation in Hungary presents the picture of a development process that is primarily driven by the political preferences of the EU's central nations trickling down to peripheric countries.

the EU principles of decarbonisation and produces long-term strategies that envisage a glorious carbon-free future. This is generally in line with the expectations of the electorate. That said, decarbonisation is not an overarching goal for the government, it is rather a sectoral objective that takes the backseat whenever there are more important political or policy considerations (e.g. economic growth or the availability of affordable energy.)

Similarly, to the rest of the CEE region, the situation in Hungary presents the picture of a development process that is primarily driven by the political preferences of the EU's central nations trickling down to peripheric countries. This is good on one hand, because it means that progress in decarbonisation is bound to happen as long as these countries are EU members. On the other hand, it is bad because this decarbonisation does not really happen because politicians have a strong mandate for it from the domestic electorate. There is undoubtedly some popular demand for decarbonisation but more immediate concerns such as affordability of energy remain much more important for most people. CSOs may be able to increase somewhat the popular demand for decarbonisation among parts of the population who are better off and have a more European outlook, but such demand is unlikely to ever eclipse the impact of the EU's demands for reform. Thus, CSOs in effect become the ambassadors of modern ideas "imported from the West" – a position which sits uneasy with large parts of the public.

As a result, CEE governments can be expected to remain reluctant or foot-dragging decarbonisers for most of the time – possibly except for periods of great economic prosperity when the public (and thus governments) can afford to spend resources on long-term objectives such as decarbonisation. This is true even if economic rationalities would support a stronger push toward decarbonisation – given that there is almost always some policy objective that is more urgent or has a greater electoral payoff.

Poland

1. Introduction

Poland is a country with one of the largest shares of coal and natural gas in electricity and heat production. In 2021, according to the Energy Forum, electricity came from 46.8% coal, 25.6% lignite and 8.5% gas. In total, fossil fuels accounted for almost 81%⁶⁶. This share was higher than in 2020

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where it was almost 80% but lower by 1.5 percentage points than in 2019. In heat production in 2019, according to the Energy Regulatory Office, coal accounted for 71% and total fossil fuels for more than 85%, and a year later the share was 1.2 percentage points lower and coal remained at the same level.⁶⁷

1.1. Overall goals of the just transition

According to Poland's Energy Policy to 2040, adopted by the government in February 2021 (PEP2040), the share of hard coal in electricity generation in 2030 is not to exceed 56%, while there is to be a shift away from coal combustion in urban households by 2030, in rural areas by 2040, while maintaining the possibility of using smokeless fuel⁶⁸. In 2040, the share of hard coal is to be 28%, and the volume of lignite consumption get 35% of 2020 states. At the same time, PEP2040 assumed that the transformation of mining regions is a strategic project and is to concern economic and social changes of the entire coal regions, i.e. Silesian, Lower Silesia, Eastern Greater Poland, Western Lesser Poland, and Belchatow Region (near Lodz) and Lublin Region. It was agreed that it was to be fair i.e. the regions at risk would receive support to carry out the transformation. It was agreed that a mining restructuring plan and a National Plan for Just Transition would be developed. In order to best respond to the needs of local communities and economies, PEP2040 stipulates that representatives of the social side, local government and mining and energy companies will be involved in the preparation of the aforementioned documents. At the time the policy was enacted, it was already partially outdated. An example is the volume of installed capacity in solar energy (micro and large installations), which was planned at 5-7 GW in 2030. The support system, launched in 2019, has led to more than 1.1 million micro installations with a total capacity of more than 8 GW (July 2022). The reason for the divergence between politics and life is the factional struggle within the party that governs Poland, the recognition that putting on RES and energy efficiency is politically risky (a significant mining and energy electorate), and the lack and trust of use of independent experts.

1.2. Concrete goals of a just transition

In March 2022, the government adopted the "Assumptions for updating Poland's Energy Policy until 2040. - Strengthening Energy Security and Independence" and announced its update at the turn of 2022/2023. Among the most important issues included in them are:

- Aiming to ensure 50% of electricity production from RES in the 2040 perspective, along with the creation of energy clusters and energy cooperatives, also increasing electricity storage potential.

⁶⁶ Raport: Transformacja energetyczna, 2022

⁶⁷ <https://www.ure.gov.pl/pl/cieplo/energetyka-cieplna-w-l>

⁶⁸ <https://bip.mos.gov.pl/strategie-plany-programy/polityka-energetyczna-polski-do-2040-r/>

- Striving to improve energy efficiency.
- Aiming to gradually reduce the economy's dependence on natural gas and oil while considering replacing coal with natural gas in the heating sector (partial internal contradiction).
- Anticipating a periodic increase in the use of domestic coal deposits in situations where energy security is threatened, as well as the prolonged operation of existing power plants.

1.3. Socio-political dimensions

At the same time, the government announces that it is seeking to limit the EU's climate policy in order to be able to temporarily use fossil fuel-based power generation without incurring excessive costs from it. The document neither refers to setting a deadline for moving away from coal or natural gas, nor does it mention the mining regions involved in the transition. The existing situation with the energy crisis and the war in Ukraine has revealed significant groups interested in increasing the importance of coal in the energy sector. An example of this is the signed document called "Lublin Energy Resolution 2022". Its signatories include local governments, government representatives and state-owned energy companies. The document emphasizes the need for an energy transition but with an indication that it will not succeed without coal in the energy mix. In addition, a return to the strong position of coal as a solution for future energy security is declared by leaders of mining trade unions and experts with political ties to the ruling parties. But another view is also revealing itself, saying that the crisis and war represent a difficult but unique opportunity to significantly accelerate the energy transition with a key role for renewable energy and energy efficiency. This view is represented by many independent think-tanks and networks of environmental organizations such as the Polish Green Network and the Climate Coalition. The latter emphasize the significant role that civic local energy communities can play.

But another view is also revealing itself, saying that the crisis and war represent a difficult but unique opportunity to significantly accelerate the energy transition with a key role for renewable energy and energy efficiency.

1.4. Financial gains

According to the Institute for Energy Economics and Financial Analysis, a move away from coal in Poland by 2030 would result in savings of more than €140 billion, which would enable the construction of twice as much RES capacity as assumed in Poland's Energy Policy until 2040⁶⁹. Experts at the InStrat think-tank have assessed the possibility of Poland achieving a 33% share of RES in final energy consumption in 2030, with 16.3% in 2020. The electricity sector alone could see an increase to 61%, while transport could reach 15% and heating and cooling 32.5%.⁷⁰

2. Regions for a just transition and involvement of NGOs

The EU has made a commitment to achieve climate neutrality in 2050, as enshrined in the Climate Law, which came into force in July 2021. This is to be achieved through the implementation of the European Green Deal, which provides support primarily for coal regions in their transition. This is served by the Just Transition Mechanism (MST), through which the most affected regions in Europe are to receive at

⁶⁹ <https://bip.mos.gov.pl/strategie-plany-programy/polityka-energetyczna-polski-do-2040-r/>

⁷⁰ InStrat. Co po węglu? Potencjał OZE w Polsce, czerwiec 2021.

least €65-75 billion between 2021 and 2027. At the same time, the MST is an important tool for making a just transition away from coal to a climate-neutral economy. It comes within the framework of the Cohesion Policy with €17.5 billion in funds, including €10 billion from the Reconstruction and Resilience Facility, and is designed to mitigate the costs of the transition and support development projects.

The EU has made a commitment to achieve climate neutrality in 2050, as enshrined in the Climate Law, which came into force in July 2021.

2.1. Territorial Just Transition Plans

In order to take advantage of the funds earmarked for this transformation, it is necessary to prepare territorial just transition plans (TJTP). As written in the study by the Polish Green Network, they are to include⁷¹:

- a description of the expected transition process towards a climate-neutral economy, in line with the goals of national energy and climate plans and other existing documents;
- a timetable for the cessation or reduction of coal and lignite mining or coal-fired electricity generation;
- a description of the territories that are expected to be most negatively affected by the transition;
- an assessment of the economic, social and territorial impacts of the transition to a climate-neutral economy;
- needs and goals for development by 2030 to achieve climate neutrality;
- types of planned activities and operations;
- description of the process of public participation, monitoring and evaluation.

In Poland, work on the preparation of the just transition plans proceeded in two tracks, i.e. the government decided to prepare the document at the national level and seven territorial just transition plans (TJTP) were prepared at the level of the regions: Eastern Great Poland, Belchatow Region (near Lodz), Lower Silesia, , Lublin Region, Silesian and Western Lesser Poland, which were submitted to the European Commission. In the end, the TJTP of Silesian and Western Lesser Poland were combined at its suggestion. Work on the TJTP is coordinated by the Marshal Offices.

2.2. National Plan for Just Transition

In September 2021, a draft of the National Plan for Just Transition was presented as written in the introduction to it, "The National Plan for Just Transition (NPJT) is the government's strategic document defining the goals of intervention and directions of action in the context of the problems and challenges facing coal regions in the transition to a zero-carbon economy. The document also defines the necessary actions to be taken and types of operations to mitigate the negative effects of reaching climate neutrality. Its preparation is linked to the possibility of Poland benefiting from the Fair Transition Mechanism - an EU financial mechanism aimed at coal and high-emission regions exposed to the negative effects of the transition in connection with the implementation of the European Green Deal goals." The plan includes the following three intervention objectives:

⁷¹ Terytorialne plany sprawiedliwej transformacji polskich regionów węglowych. Stowarzyszenie Polska Zielona Sieć, Bankwatch Network. Sierpień 2021

1. equitable social transformation - labour market and communities of coal regions;
2. effective economic transformation - diversification of sectors to strengthen employment potential;
3. model environmental transformation for a job-creating zero-carbon economy.

The plan includes proposals as to how to manage and monitor the transformation process at the national level, as well as an extensive list of 113 activities submitted by local governments, private companies, R&D, universities, NGOs and consortia, and state-owned companies. These organizations and institutions reported activity projects that were of interest to them but not contributions to a preconceived transformation strategy. They were a list of wishful thinking. In the opinion of many local governments, the preparation of the National Plan for Just Transition was not advisable as there is no need to centralize the process

of equitable transformation of mining regions. This is because the basis for the management of funds for this purpose are territorial plans for equitable transformation and the government's role can be

They were a list of wishful thinking.

In the opinion of many local governments, the preparation of the National Plan for Just Transition was not advisable as there is no need to centralize the process of equitable transformation of mining regions.

The regional government involved all local government officials, NGOs and experts, as well as academics, industry and employer organizations, as well as the social side and government representatives in the transition planning process.

reduced to facilitating their preparation and implementation, especially with regard to horizontal measures covering all regions. There were concerns that the government intends to fully control the distribution of funds. In the end, the NPJT was not considered by the government and some of the tasks in it went to the European Funds for Infrastructure, Climate, Environment Program (FEnIKS), and the document itself turned out to be a dud.

Seven territorial just transition plans have been developed. The condition for receiving support from EU funds is to present a timetable for either closing mines or significantly reducing coal output. Unfortunately, in the five regions of Belchatow Region (Belchatow and Szczercow mines), Lower Silesia (Turow mine), Lublin Region (Bogdanka mine), Upper Silesia and Western Lesser Poland (many mines) coal mining is scheduled to continue long after 2030, which makes it virtually impossible to apply for funds from the above-mentioned funds. For example, the Turow mine is scheduled to mine lignite until 2044, while the Szczercow mine is expected to close in 2038. For the Bogdanka mine, no closure date has been set at all. According to the government's agreement with the mining unions, the operation of coal mines in Silesian and Western Lesser Poland is to continue until 2049. At the same time, activities are being carried out in Silesian to build new coal mines. If this continues then obtaining European funds will be suspended unless the municipalities where these mines could be built are excluded from the TJTP. Another solution being considered in the region is a balance approach, i.e. newly opened mines will produce less than those scheduled for closure.

2.3. Wider public participation

A plan that has been highly praised is the TJTP Eastern Greater Poland where it is envisioned to move away from coal by 2030 and a very broad and open participation process has been conducted. The regional government involved all local government officials, NGOs and experts, as well as academics, industry and employer organizations, as well as the social side and government representatives in the transition planning process. Together, the aforementioned groups spent two years preparing an alternative to lignite mining and burning, as well as new, decent jobs for employees of mines and power plants, and planning measures for the development of entrepreneurship in the sub-region. The Konin Regional Development Agency (Eastern Greater Poland) became the leader of this process. This is because it was recognized that the success of a just transition is based on the assumption of responsibility for it by all parties involved in the process, and therefore a wide range of partners was included already at the stage of developing the plan. The inclusion of the principle of partnership at the implementation stage of the plan ensures that the partnership is made a dynamic process and facilitates dialogue in decision-making⁷². The plan formulates three key objectives namely⁷³:

1. Building a zero-carbon, dynamic, circular economy - to secure the future of the region, shaping its competitiveness and innovation, and allowing future development to become independent of the mining sector and coal-based energy.
2. Ensuring integrated high-quality space whose resources will also be used by future generations - aimed at improving the quality of space. This is to allow residents to ensure the quality of the environment in which they live and to create new development opportunities for the economy. Regeneration of areas transformed by industrial activity is key.
3. Strengthening and developing an active society as the main driving force behind the transformation, including countering negative demographic changes, as well as the existing social inequalities. The measures taken will counteract the social exclusion of families and raise awareness among residents of the green transition and improve access to good quality, sustainable and affordable social services.

An interesting example of participating in the process of transformation of the region is the Young Locals Association, which was formed as a consequence of depopulation and lack of opportunities for young people. According to them, hardly anyone listens to young people, their requests, ideas and needs. The association brings together young people from the region who want to engage socially and change their surroundings. The main goal is to make the region a place with prospects for young people

An interesting example of participating in the process of transformation of the region is the Young Locals Association, which was formed as a consequence of depopulation and lack of opportunities for young people.

based also on innovative solutions. Such as career counselling in schools, additional soft skills classes, social consultation in schools and many other projects.⁷⁴

⁷²<https://www.wwf.pl/aktualnosci/sprawiedliwa-transformacja-dzieje-sie-juz-we-wschodniej-wielkopolsce;https://instrat.pl/wielkopolska-wschodnia-tpst/>

⁷³ Microsoft Word - 2021.04.23 - TPSTWW - czysty (umww.pl)

⁷⁴ https://www.facebook.com/mlodzilocalsi/about_details

2.4. Obstacles

In formulating the other TJTPs, insufficient public participation was a key problem. Mostly, teams were engaged to work on the plan and its draft was subject to consultation, which is a half-hearted solution. In the case of one, a strong response from NGOs led to the start of a broader process of involving the public in the creation of the document. Indeed, it is essential to include all interested groups in the process, as well as stakeholders who are still unaware that the transformation affects them as well. It carries with it a large-scale transformation of the economy and society. Therefore, a broad information and education campaign about the goals and challenges of this process is needed. This will give the process a chance to gain widespread public support, especially from miners their families, and not just passive approval.

In addition, in many cases the proposed directions of the transformation are too general and do not fully define what would actually have to happen for it to be carried out successfully.

In addition, in many cases the proposed directions of the transformation are too general and do not fully define what would actually have to happen for it to be carried out successfully. Another issue that leaves much to be desired is the failure to fully apply the polluter-pays principle. This means a lack of full attention to the issue of repairing damage caused by mining activities.

An example of this is the TJTP for the Lublin Region where the document pays little attention to the issue of supporting miners who leave their mining jobs. It has no idea how to provide new jobs for miners and those in the mining industry. There is no provision for incentives for investors to create new jobs and employ those leaving the mine. It is also unclear what skills miners have and what a program to retrain them should look like. The plan does not specify the responsibility of the Bogdanka mine for environmental damage generated by mining activities (deterioration of water resources and degradation of valuable peatlands). According to the EU's "polluter pays" principle, it is up to the mine to demonstrate how it will finance the restoration of the correct situation, rather than applying for EU funds for this purpose.⁷⁵

Another example is the TJTP for the Belchatow Region (near Lodz) where residents were not included in the process of planning the transformation in the region, even though they are the ones who will be most affected by the coming change. There was a lack of open public debates and a campaign to encourage activism in this field. The Polish Energy Group (PGE), while planning to hand over the mines and power plants to a new state-owned company, the National Energy Security Agency (NABE), is running away from its responsibility for the future of its employees and from carrying out the rehabilitation of degraded land and restoring proper water resources. TJTP paid little attention to detailed solutions for creating new jobs, boosting entrepreneurship, attracting investors and supporting local employers. In the Belchatow Region's plan, the transformation is presented as a sad necessity rather than an opportunity for development. The success of transformation in the Belchatow Region is only possible if there is finally active involvement of local government leaders, entrepreneurs and NGOs in the development of detailed projects and initiatives that create an atmosphere for the necessary green innovation. An opportunity for the region should be a bold vision of transformation

⁷⁵<https://www.greenpeace.org/poland/aktualnosci/30145/lubelskie-ze-slabym-planem-sprawiedliwej-transformacji/>

going with the times, i.e.: virtual power plants based on RES and energy storage, hydrogen technologies or, finally, energy conservation and circular economy programs. A huge challenge is also the reclamation of post-mining areas so that they generate alternative jobs in the future and are the flywheel of a new economy in the region.⁷⁶

An important issue related to the regions in transition is the existence of a strong civil society and traditions in local, neighbourhood cooperation. In such regions, not only is it easier to carry out broad public participation in the formulation of the transformation plan, but the social organizations that exist there themselves demand participation in preparing the regions for changes. Examples of such regions in Poland are Eastern Greater Poland and Silesian. On the other hand, where there is no such tradition and the mining regions were established decades ago and largely based on outsiders/adventurers whose local roots are not strong, the strength of civil society is weak. Examples of such regions are Belchatow and Lublin. That is why it is so important not only to transform the economy, but also to fundamentally strengthen civil society, to strengthen ties and commitment, because this gives not only a chance to develop the right directions for transformation but also to implement them favourably.

An important issue related to the regions in transition is the existence of a strong civil society and traditions in local, neighbourhood cooperation.

3. Conclusion

Clearly decarbonization in Poland stands at a crossroads. On the one hand, it is declared to participate in the implementation of the EU climate policy with the goal of neutrality in 2050, while on the other hand it maintains the coal structure of the economy. There is no clearly defined deadline for moving away from coal as well as from natural gas. Poland is expected to "move away" from the latter with the simultaneous expansion of gas infrastructure and construction of gas-fired power plants, and intends to switch from coal to natural gas in heating. A reactive energy and climate policy rather than a proactive one is being pursued. Poland is reacting to the situation and often late, and a strategic document such as the Energy Policy of Poland 2040 was already partially outdated when it was passed. The energy crisis as well as the war in Ukraine, instead of prompting a deep energy transition, voices are being raised from many quarters about the need to preserve coal's prominent position in the energy sector.

A reactive energy and climate policy rather than a proactive one is being pursued.

There are plans for RES and energy efficiency development but to a degree that is far from sufficient. The main reason is the fear of losing the mining and energy electorate, as well as disputes within the coalition of parties ruling Poland. In fact, the only option politically considered in PEP 2040 is the construction of large nuclear power plants of 6-9 GW before 2050. This is impossible for a number of reasons, especially cost, lack of experience and the inability to achieve climate neutrality in the required time. Many experts consider this to be the wrong direction, while others realistically estimate that a power plant of 1-1.6 GW could possibly be built before 2050. It is worth noting that in order to

⁷⁶ <https://infowire.pl/generic/release/677466/belchatow-ze-slabym-planem-sprawiedliwej-transformacji>

achieve climate neutrality it is necessary to replace fossil fuel power plants, whose current capacity is 37.4 GW.⁷⁷

The potential for renewable energy and energy efficiency improvements is so significant that betting on building energy security from the bottom up, based on civic energy cooperatives or industry self-supply, creates a unique opportunity. It becomes necessary to develop, through broad public participation, a document of the energy policy of Poland until 2050, so as to show how it intends to achieve climate neutrality on the one hand, and, on the other, to write itself into the global trends of energy transition.

The lack of a strong decarbonization policy causes a gap between sectoral policies and territorial plans for just transition.

The lack of a strong decarbonization policy causes a gap between sectoral policies and territorial plans for just transition. On the one hand, we have the TJTP of Eastern Greater Poland fully subscribing to the decarbonization policy, and on the other hand, transformation plans for the Lublin and Belchatow regions, for example, where they either want to maintain the *status quo* or treat the transformation as God's good luck or not an opportunity. Since TJTPs are part of regional programs under EU funds, it is important that in those that do not fully fit into the idea of transformation, changes should be made to take full advantage of the funds available for this purpose.

⁷⁷ <https://wysokienapiecie.pl/35674-moc-elektrowni-w-polsce-przekroczyła-50-gw/>

Slovakia

1. Introduction

In Slovakia, the emissions have been significantly reduced in the 1990's through several relatively simple and inexpensive measures, such as switching from coal to gas (indeed, Slovakia has the second dense gas infrastructure in Europe right after Netherlands) or closing inefficient and polluting operations within the restructuring of enterprises (basically closure of heavy industry). Many of these changes were also related to Slovakia's membership in the EU.⁷⁸ However, since 2015 there has been rather stagnation in emissions decrease and more decarbonisation measures are needed, with phase-out of coal being one of them.

It is estimated that air pollution causes more than 5,000 premature deaths per year, while these problems have also an increasing impact on the economy, employment and health and overall well-being of the population

1.1. Coal

The usage of coal in Slovakia is associated especially with air quality problems in the country. Slovakia has three main environmental problems: besides poor air quality another two are low levels of waste recycling, and insufficient protection of ecosystems. It is estimated that air pollution causes more than 5,000 premature deaths per year, while these problems have also an increasing impact on the economy, employment and health and overall well-being of the population.⁷⁹

Brown coal belongs to the domestic energy sources, alongside with the renewables (especially hydro, solar and biomass), but it is no longer considered a matter of energy security. However, it was considered as one of the key pillars of energy security couple years ago and of a 'general economic interest' to a country. Following the 2019 governmental Resolution No 336/2019, electricity production based on domestic coal would no longer be supported after 2023. The resolution also puts the task of preparing each year the Action Plan for a fair social transformation of the Upper Nitra region after the phase-out. Even before this decision electricity generation from coal has been gradually falling over with 1,210 MW of output decommissioned so far while 2 blocks of the coal-fired thermal plant Nováky and 2 blocks of the Vojany power plant (located in Michalovce district) are currently in operation. Both are owned and operated by Slovenské elektrárne, a.s. company also operating the nuclear power plants in the country. Blocks in the coal power plants also have limited life cycle, which would end until 2023 without further modernizations.

1.2. The Nováky power plant

The Resolution has been a remarkable step towards coal phase-out, because almost all domestically produced coal is being utilised in Nováky power plant (located in Prievidza district). Its usage is not profitable without governmental subsidies. These reached 98 million euros in 2018 allocated towards

⁷⁸ "Low-carbon development strategy of the Slovak Republic until 2030, with a view to 2050", (2020). Ministry of Environment of the SR. Available online: <https://www.enviroportal.sk/sk/eia/detail/nizkouglikova-strategia-rozvoja-sr-do-roku-2030-s-vyhľadom-do-roku-205> (accessed on September 15, 2022).

⁷⁹ "Greener Slovakia", (2019). Ministry of Environment of the SR. Available online: https://www.minzp.sk/files/iep/greener_slovakia-strategy_of_the_environmental_policy_of_the_slovak_republic_until_2030.pdf (accessed on September 15, 2022).

coal company Hornonitrianske Bane Prievidza, the last year before the decision to decommission, and annually reached up to approximately 120 million euros.

The Nováky power plant (using brown coal) with its annual gross electricity generation of approximately 870 to 1,100 GWh consists of Block A with an output of 46 MWe, which supplies heat to the Upper Nitra region, and Block B with an output of 2x110 MWe. The Vojany EVO 1 power plant with its output of 2x110 MW and annual gross electricity generation of approximately 460 GWh is deployed operatively based on electricity demand and market prices. Even after the conversion these power plants can remain the primary heat source for the regions.⁸⁰ Mining activities are carried under Hornonitrianske bane Prievidza a. s. company providing coal to Nováky power plant 1,111,681 tonnes of brown coal in 2021. This mining output of lignite and brown coal has been falling gradually, except for year 2008/2009.⁸¹ In comparison to 2013 the amount of coal provided was halved (approximately 2,2 million tonnes).⁸² Nováky power plant is an almost exclusive partner buying almost all of its production. The costs of mining for lignite are twice as high as it is deep mined in Upper Nitra.⁸³ The price of coal is regulated by Regulatory Office for Network Industries, which is given by Slovenské elektrárne, however the specific structure of price is not public.

1.3. Future prospects

After 2023 Slovakia's energy mix will improve significantly, the share of fossil fuels in the energy mix will drop by more 5%. Currently the country has a relatively low-carbon electricity mix based predominantly on nuclear energy. With the decommissioning of Nováky and Vojany coal power plants, and the opening of nuclear power plants Mochovce 3 and 4 (with the bloc 3 being in operation by the end of 2022), Slovakia will decarbonize its electricity generation even further and will secure sufficient electricity supply to fulfil an increased demand from other decarbonization measures, such as the introduction of electric arc furnaces in the industry (mainly steel production).⁸⁴

There are three main challenges connected to the current state of the coal power plants:⁸⁵

- Electricity consumers contribute to the unprofitable mining of brown coal and the production of electricity through TPS (tariff for operating the system) with an overall contribution of over 100 mil. euros per year
- Nováky power plant is the third largest producer of CO₂ within Slovak operations in the EU ETS system
- The future of the heating of the cities of Prievidza, Nováky and Zemianske Kostolány, as it is linked to the production of electricity from brown coal and it needs to be replaced by 2023 at the latest. The heating of these cities would be based on renewable energy in the future

⁸⁰ “Integrated National Energy and Climate Plan for 2021 to 2030”, (2019). Ministry of Economy of the SR. Available online: https://energy.ec.europa.eu/system/files/2020-03/sk_final_necp_main_en_0.pdf (accessed on September 15, 2022).

⁸¹ “Brown coal”, (2022). Hornonitrianske bane Prievidza, a.s. Available online: <https://www.hbp.sk/index.php/uhlie> (accessed on September 15, 2022).

⁸² “Almost 1,2 million tons burned in Nováky“, (2022). Available online: <https://energoklub.sk/sk/clanky/v-novakoch-vlani-spalili-takmer-1-1-miliona-ton-uhlia/> (accessed October 24, 2022).

⁸³ “Coal mining in Nováky is expensive, allegedly still worth“ (2022). Available online:

<https://www.energia.sk/uhlie-spalovane-v-novakoch-je-drahe-vraj-stale-vyhodne/> (accessed October 24, 2022).

⁸⁴ “Decarbonization of the Slovak economy by 2030”, (2022). Value for Money Department. Available online: https://www.minzp.sk/files/iep/decarbonization_of_the_slovak_economy_by_2030_study_062022.pdf (accessed on September 15, 2022).

⁸⁵ “Recovery Plan”, (2021). Government Office of the SR. Available online: <https://www.planobnovy.sk/site/assets/files/1019/kompletny-plan-obnovy.pdf> (accessed on September 15, 2022).

provided by Prievidzské tepelné hospodárstvo (PTH) and Hornonitrianske bane Prievidza (HBP).

2. Upper Nitra Region in transition

Upper Nitra region is a mining region that has been included among the 14 pilot regions across the EU to undergo transition towards a post-coal economy and has also become part of the Just Transformation Mechanism. Already in 2017 Ministry of Environment of SR published a document recommending to gradually replace coal in electricity production due to health and air quality problems⁸⁶ and two years later an Action Plan for the Transformation of the Upper Nitra Coal Region (hereinafter the Action Plan) was introduced.

Upper Nitra region is a mining region that has been included among the 14 pilot regions across the EU to undergo transition towards a post-coal economy and has also become part of the Just Transformation Mechanism.

Support for electricity generation from coal and lignite will be abolished in accordance with the Action Plan approved by the Slovak Government on 3 July 2019 by the adoption of the Resolution No 336/2019. The Resolution introduced the strategic document for the adaptation of the mining region, in which mining and burning of brown coal will end by 2023. The Resolution imposes the annual update of the Action Plan, while several ministries have been involved in the process. The crucial are the ministries of the following portfolios: environment, transport and construction, economy, education, labour and social affairs and agriculture, regional development, interior

and finance.⁸⁷ Slovakia's energy mix is based on nuclear energy, while lignite coal accounted in 2021 for 4%. Horná Nitra region, is not the only coal region in Slovakia, significant coal reserves are located also on the West, mining around 170 thousand tonnes of lignite annually). Upper Nitra region mined approximately 1,8 Mt in 2016.⁸⁸

2.1. Regional Actors

Within the process also regional actors have been involved. The Action Plan was prepared by the former Office of the Deputy Prime Minister of the Slovak Republic for Investment and Informatisation (transformed into the Ministry of Investments, Regional Development and Informatization of the Slovak Republic; MIRRI SR in July 2020) in cooperation with the Trenčín self-governing region, the Association of Towns and Municipalities of Upper Nitra and interested parties from the region. Currently most of the activities within the transformation of the region are coordinated by the MIRRI SR as a cross-cutting activity across departments. In November 2020, MIRRI also created a detached workplace directly in the region. The MIRRI SR's vision is to approach the transformation not only from the point of view of creating new

Within the process also regional actors have been involved.

⁸⁶ "Greener Slovakia", (2019). Ministry of Environment of the SR. Available online: https://www.minzp.sk/files/iep/greener_slovakia-strategy_of_the_environmental_policy_of_the_slovak_republic_until_2030.pdf (accessed on September 15, 2022).

⁸⁷ "Government Resolution No 336/2019", (2019). Government of the SR. Available online: https://prievidza.sk/upload/wsw/files/file/news/akcnyplan/336_2019%20.pdf (accessed on September 15, 2022).

⁸⁸ "Slovakia", (2022). Euracoal. Available online: <https://euracoal.eu/info/country-profiles/slovakia/> (Accessed on October 24, 2022).

opportunities for miners and employees from the transforming sectors of the economy, but to make the regions more attractive for the young generation so that they want to stay and contribute their skills to the development of the region.⁸⁹

The Action Plan offers solutions not only to the fall in coal mining due to the planned reduction in mining activity, as it is no longer in a 'general economic interest' of the country and the impact on employment in the Upper Nitra region, but it especially offers the framework to the further development of the region. It is a conceptual approach to structural change in the function of the economy and its associated impacts, while minimizing the impact on the environment, price competitiveness, and focusing on the long-term sustainable growth in the region.⁹⁰ According to the Action Plan the region's long term vision should be: "Upper Nitra as an attractive and self-sufficient region with the development of economic activities in symbiosis with clean environment, which is connected with other economic centres within Slovakia and of the EU."⁹¹

2.2. Four pillars of the Action Plan

The Action Plan identified several problems of the region (labour migration, population aging, underdeveloped transport infrastructure, air quality problems, social services, and heat supply), while the proposed solutions consist upon four main pillars: Mobility and Interconnectivity of the region; Economy, business and innovation, Sustainable environment and Quality of life and social infrastructure.

The first pillar is focused on the development of sustainable and alternative forms of mobility (low-emission, zero-emission) and public transport, increase quality of railway and road infrastructure, increasing accessibility to the highway network and increase high-speed telecommunications infrastructure in the region. The second pillar aims at supporting innovation, research and development, new jobs, development of small and medium-sized businesses, sustainable agriculture and circular economy and tourism. The third pillar is focused on removal of environmental burdens caused by mining activities and the activities of others polluting industries in the region, development of renewable and sustainable energy. The fourth pillar focuses at improvement of health and social services, but also education and requalification of workforce.⁹²

During the process of updating the Action Plan, indicative project plans were also collected starting in March 2021 aimed to identify the potential of investments in the region from the companies, non-governmental organizations, state institutions and local and regional actors, including municipalities. Currently, part of the last update of the Action Plan is also set of 281 projects including their proposer, number of potential employees and estimated investment. One of the discussed projects is the introduction of trains fuelled by hydrogen, as the region is lacking electrification. This vision is pursued

⁸⁹ "Peter Balík on upper Nitra: The transformation lacked money, with the new fund it will start at full speed", (2022). Euractiv. Available online: <https://euractiv.sk/section/ekonomika-a-euro/interview/peter-balik-o-hornej-nitre-transformacii-chybal-peniaze-s-novym-fondom-sa-rozbehne-naplno/> (accessed on September 15, 2022).

⁹⁰ "Integrated National Energy and Climate Plan for 2021 to 2030", (2019). Ministry of Economy of the SR. Available online: https://energy.ec.europa.eu/system/files/2020-03/sk_final_necp_main_en_0.pdf (accessed on September 15, 2022).

⁹¹ "Update of the Action Plan for the Transformation of the Upper Nitra Coal Region", (2021). Government of the SR. Available online: <https://rokovania.gov.sk/RVL/Material/26777/1> (accessed on September 15, 2022).

⁹² "Update of the Action Plan for the Transformation of the Upper Nitra Coal Region", (2021). Government of the SR. Available online: <https://rokovania.gov.sk/RVL/Material/26777/1> (accessed on September 15, 2022).

by the Ministry of Economy. There have been also several on-going smaller projects in the mines, such as tomatoes growing since 2010 or breeding of African catfish since 2015.⁹³

3. Crucial role of the EU funds and financial benefits

EU funds and state subsidies are crucial in the process of transformation of the region. The Just Transition Mechanism focuses on those regions and sectors that are most affected by the transformation due to their dependence on fossil fuels, including coal, peat and oil shale or from industrial processes associated with high GHG emissions. These measures will concern four selected Slovak regions (Trenčín, Košice, Banskobystrický and Bratislava self-governing regions), which are the most affected by the decarbonization process and have to face many structural and economic problems.

There have been also several on-going smaller projects in the mines, such as tomatoes growing since 2010 or breeding of African catfish since 2015.

The significant part of the newest update of the Action Plan is the official approval of the Just Transition Fund (JTF) by the European Commission. 459 million euros are allocated in the fund for Slovakia, half of it located to Upper Nitra, which is in Trenčín self-governing region. The Action Plan also ensures the coordination of other resources for Upper Nitra region, which will come from the Next Generation EU, EU structural and investment funds (programming period 2014-2020, 2021-2027), European agricultural fund for rural development, European Investment bank and national funding.

3.1. Recovery Plans

The Recovery Plans (a combination of planned reforms and investments) being at core of the Next Generation EU financial instruments differ across the countries; the Slovak one consists of six main areas further divided into several components. Transformation of Upper Nitra region is a part of Component 4 – Decarbonisation of Industry sector, within Green Economy area, specifically 3.1.1 Reform 1: Termination of support for lignite burning in the Nováky power plant and transformation of the region Upper Nitra. To gain the financial support it is crucial to follow ‘do no significant harm’ principle and compatibility with taxonomy of sustainable financing. The reform sets the main three objectives:⁹⁴

To gain the financial support it is crucial to follow ‘do no significant harm’ principle and compatibility with taxonomy of sustainable financing. The reform sets the main three objectives:

- Termination of support for the production of electricity from domestic coal in Nováky power plant
- Reduction of GHG emissions and emissions of pollutants

⁹³ “Products and Services”, (2022). Hornonitrianske bane Prievidza, a.s. Available online: <https://www.hbp.sk/index.php/sluzby> (accessed on September 15, 2022).

⁹⁴ “Recovery Plan”, (2021). Government Office of the SR. Available online: <https://www.planobnovy.sk/site/assets/files/1019/kompletny-plan-obnovy.pdf> (accessed on September 15, 2022).

- Complex transformation of the Upper Nitra region associated with the creation of new job opportunities for employees affected by the loss of jobs due to the cessation of coal mining and production electricity and heat

On the other side, it is important to add that the transformation will bring not only financial costs in various forms of subsidies, but also financial benefits. The analytical institute under Ministry of Finance of SR concludes that closing the Nováky power plant and the associated mining operations will not only decrease societal costs as coal mining and its energy use require public subsidies, but it is also the cheapest option to reach a 55% GHG reduction in Slovakia from 1990 levels by 2030 and the closing of the Nováky lignite mine brings a benefit of 605 EUR for each ton of CO₂e (carbon dioxide equivalent) decreased. Moreover, closing the two remaining coal power plants (Nováky and Vojany) in Slovakia would reduce 2.2 MtCO₂e (metric tons of carbon dioxide equivalent). End-consumers would pay lower electricity bills due to the termination of a subsidy for domestic coal within the TPS tariff estimated as almost 140 million euros per year.⁹⁵

The amount depends on the real and transparently published costs that are compensated to Slovenské elektrárne, a.s. based on a mechanism established by the Regulatory Office for Network Industries, that are entitled to a fixed price for each MWh of electricity supplied to the system and demonstrably generated from domestic coal. The total volume of electricity produced and delivered (870 to 1,100 GWh) represents approximately 0.5% to 0.6% of the total estimated demand for primary energy in Slovakia.⁹⁶

3.2. Participation of third sector and civil society

The crucial and significant role of the NGO sector was highlighted in the Action Plan for the Transformation of the Coal Region, in which the third sector was also involved such as CEPA-Friends of the Earth or Slovak Climate Initiative. These have prepared specific studies such as one focused on the acceleration of pace of building renovation in the region or inclusion of young people in the process, written by CEPA – Friends of the Earth.⁹⁷ It can be concluded, the participation of the third sector was not underestimated, especially thanks to the chosen bottom-up approach. An example of such a successful story is the city of Prievidza where the mayor initiated open dialogue with all stakeholders, including citizens and NGOs.

The crucial and significant role of the NGO sector was highlighted in the Action Plan for the Transformation of the Coal Region, in which the third sector was also involved such as CEPA-Friends of the Earth or Slovak Climate Initiative.

4. Change of energy base in the region

As the electricity from fossil fuels will no longer be produced at the Nováky power plant it is crucial to replace this shortfall (key is the infrastructural strengthening of the nodal area of Bystričany). Nováky power plant currently also provides heat for Prievidza, Nováky

⁹⁵ “Decarbonization of the Slovak economy by 2030”, (2022). Value for Money Department. Available online: https://www.minzp.sk/files/iep/decarbonization_of_the_slovak_economy_by_2030_study_062022.pdf (accessed on September 15, 2022).

⁹⁶ “Integrated National Energy and Climate Plan for 2021 to 2030”, (2019). Ministry of Economy of the SR. Available online: https://energy.ec.europa.eu/system/files/2020-03/sk_final_necp_main_en_0.pdf (accessed on September 15, 2022).

⁹⁷ „Practical and concrete design of financial products for accelerating the pace of building renovation in Upper Nitra”, (2022). Priatel'ia Zeme – CEPA. Available online: https://zivotpouhli.sk/images/2022/02/CEPA-studia_Podpora-obnovy_budov-Final.pdf (accessed on October 27, 2022)

and Zemianske Kostolány and replacing the heat source is one of the main themes of the transformation of the Upper Nitra region. The future solution of the heat source, which currently produces approximately 240 GWh of heat per year, should therefore also rely on an increase in energy efficiency, for example by increasing the energy efficiency of public and private buildings and heat pipes. Since the region has been traditionally focused on energy production, and one of the goals of the transformation of the region is a clean environment, this process should be inclined the replacement of energy production from coal with energy produced from renewable sources.⁹⁸

In accordance with the Action Plan, the Nováky power plant after its transformation from solid fossils fuels is to remain as the primary heat source for the region. In case of the Vojany power plant (importing coal from Ukraine and in the past from Russia), it is being considered that its transformation should be to use solid secondary fuel and to support the circular economy in the region. Since 2009 also biomass in form of wood chips has been added to the fuel.⁹⁹

As part of the latest update of the Action Plan, there has been a significant shift in the issue of central heat supply to the region. Building permits for the new heat producer have already been issued for the project, which is in an advanced stage of preparation. Most of the heat produced will come from renewable energy sources. Natural gas will only be used to cover increased consumption in the winter months, in the summer green sources will be sufficient to produce domestic hot water. It will be a combination of the use of solar thermal panels, the heat of mine waters in heat pumps and energy from biomass (wood chips) in a total capacity of 22 MW.¹⁰⁰ In the case of using biomass for heating the cities of Prievidza, Nováky and Zemianske Kostolány, it will be only sustainable biomass is used, fully in accordance with the methodology of the directive of the European Parliament and Council of the EU 2018/2001 on the promotion of the use of energy from renewable sources.¹⁰¹

In the coming years the heating sector and district heating, will be important for the transformation of the energy sector.

5. Coal in heating sector in Slovakia

In the coming years the heating sector and district heating, will be important for the transformation of the energy sector. Reducing the share of coal in heating to the benefit of renewables will improve the sustainability and security of heat supply. The high degree of

centralisation of heat supply creates good technical preconditions for the use of biomass, biomethane and geothermal energy.¹⁰²

⁹⁸ “Update of the Action Plan for the Transformation of the Upper Nitra Coal Region”, (2021). Government of the SR. Available online: <https://rokovania.gov.sk/RVL/Material/26777/1> (accessed on September 15, 2022).

⁹⁹ “Vojany power plants”, (2022). Slovenské elektrárne. Available online: <https://www.seas.sk/elektraren/elektrarne-vojany/> (accessed on September 15, 2022).

¹⁰⁰ “Update of the Action Plan of the Upper Nitra region,” (2022). Association of cities and municipalities of Slovakia. Available online: <https://www.zmos.sk/-aktualizacia-akcneho-planu-regionu-horna-nitra-oznam/mid/469741/.html> (accessed on September 15, 2022).

¹⁰¹ “Recovery Plan”, (2021). Government Office of the SR. Available online: <https://www.planobnovy.sk/site/assets/files/1019/kompletny-plan-obnovy.pdf> (accessed on September 15, 2022).

¹⁰² “Integrated National Energy and Climate Plan for 2021 to 2030”, (2019). Ministry of Economy of the SR. Available online: https://energy.ec.europa.eu/system/files/2020-03/sk_final_necp_main_en_0.pdf (accessed on September 15, 2022).

5.1. District heating

MH Teplárenský holding, a.s. was established on May 2022 and it connects and streamlines the activities of six state heating companies in Bratislava, Trnava, Zvolen, Martin, Žilina and Košice. The company provides services for approximately 320,000 households and 1,000,000 inhabitants.¹⁰³

The fuel mix in the six state heating plants has been gradually changing while putting efforts into replacing of coal. The half share of coal in the energy mix in the Košice and Žilina heating plants can be reduced to zero over the next two years by switching to natural gas and, in the case of Košice, to geothermal energy. Martin heating plant already uses only natural gas and biomass in the ratio of 65% to 35%, while last year it still burned 38% of coal. Heating plants in Bratislava and Trnava use external heat sources in addition to their own natural gas boilers. An option considered for the future is also biomethane.¹⁰⁴ As projected by the National Energy and Climate Plan (see Table 1) there is a gradual decrease of coal use in district heating.

Table 1. Real/Projected energy mix with heat from district systems (in GWh)

Primary fuels and energy	2010	2012	2014	2015	2017	2019	2021	2023	2025
natural gas	12 551	11 001	8 361	9 875	9 686	9 285	9 497	9 983	10 479
coal	5 519	3 177	3 015	3 230	3 221	3 157	3 095	3 033	2 973
wood and wood waste	1 293	2 643	3 068	3 059	3 183	3 311	3 378	3 446	3 515
nuclear	1 526	1 373	844	996	1 037	1 078	1 089	1 111	1 133
other fuel*	3 112	3 895	3 775	3 704	3 663	3 622	3 611	3 589	3 567
TOTAL	24 001	22 089	19 063	20 864	20 790	20 453	20 670	21 162	21 667

*oil and petroleum products, waste incineration, effluent, metallurgical gases, usable heat from chemical production

Source: Integrated National Energy and Climate Plan of the SR

5.2. Individual heating

In Slovakia, approximately 34,000 households still heat with coal, and it is estimated that there are

In Slovakia, approximately 34,000 households still heat with coal, and it is estimated that there are 350,000 households with solid fuel furnaces (mostly using wood, but also waste or plastic), with 120,000 of them more than 30 years old.

350,000 households with solid fuel furnaces (mostly using wood, but also waste or plastic), with 120,000 of them more than 30 years old. The Ministry of Environment announced the first round of subsidies in 2019 for replacing old furnaces with gas-fired furnaces and allocating 35 million euros. However, this program was rather not successful, as there was only one applicant, who later withdrew the application.¹⁰⁵

¹⁰³ “About us”, (2022). Teplárenský holding. Available online: <https://mhth.sk/o-nas> (accessed on September 15, 2022).

¹⁰⁴ “V. Červenka: State heating plants will stop burning coal by 2023”, (2021). Teraz. Available online: <https://www.teraz.sk/ekonomika/v-cervenka-statne-teplarne-ukonci/544008-clanok.html> (accessed on September 15, 2022).

¹⁰⁵ “Subsidies for replacement of boilers in households: Only one applicant applied for the call”, (2020). EnergiePortal. Available online: <https://www.energie-portal.sk/Dokument/dotacie-na-vymenu-kotlov-v-domacnostiach-do-vyzvy-sa-prihlasil-jediny-zaujemca-106048.aspx> (accessed on September 15, 2022).

Current program within Recovery Plan to support change of old furnaces must comply with ‘do no significant harm’ principle and the requirements must be met for the exchange of coal/oil-based heating systems and outdated gas boilers to gas condensing boilers. That is why the replacement of boilers must be part of the complex renovation of the house, including insulation and window replacements.¹⁰⁶ The renovation program should support 30,000 households and under certain conditions pay 95% of the overall renovation costs.¹⁰⁷

Current program within Recovery Plan to support change of old furnaces must comply with ‘do no significant harm’ principle and the requirements must be met for the exchange of coal/oil-based heating systems and outdated gas boilers to gas condensing boilers.

An important part of the discussion on future use of coal for heating purposes, is also the extension of ETS system to building and transport sectors as part of Fit for 55 packages presented by the Commission in July 2021. The analytical institute under the Ministry of Environment of the SR estimated that the extension of the EU ETS to the road transport and building heating sectors will lead to an increase of consumer prices of fossil fuels depending on the price of emission allowances, based on already set up emission allowances system in Germany where the individual system of transport and buildings led to an increase of prices. The German system works in a way the EU system will work in the future. For such reason, Social Climate Fund will be founded to prevent negative social impacts. According to the estimations the main scenario is 55 euros/tCO₂ (see Table 2) when the trading of road emissions should begin with transport and heating of buildings throughout the EU. The calculations were made with three possible emission allowance prices of 35, 55 and 75 EUR/tCO₂, while assuming that the price of the entire emission allowance will transfer from the distributor to the consumer.¹⁰⁸

Table 2. Projected increase in building heating prices for coal and natural gas per kg, m3 and MWh

	35 €/t CO ₂	55 €/t CO ₂	75 €/t CO ₂	carbon price
Black coal	8.47	13.31	18.15	eurocent / kg
	12.25	19.25	26.25	eur / MWh
	40.3	63.4	86.4	% (compared to 2021)
Brown coal	3.99	6.27	8.55	eurocent / kg
	12.74	20.02	27.3	eur / MWh
	23.5	36.9	50.3	% (compared to 2021)
Natural gas	0.007	0.011	0.015	eurocent / m3
	7	11	15	eur / MWh
	15.1	23.7	32.3	% (compared to 2021)

Source: Ministry of Environment of the SR

¹⁰⁶ “Recovery Plan”, (2021). Government Office of the SR. Available online: <https://www.planobnovy.sk/site/assets/files/1019/kompletny-plan-obnovy.pdf> (accessed on September 15, 2022).

¹⁰⁷ “The Ministry is changing the conditions, the grant for the restoration of the house will be up to 19,000 euros”, (2022). Available online: <https://www.energie-portal.sk/Dokument/prispevok-na-obnovu-domu-2022-107946.aspx> (accessed on September 15, 2022).

¹⁰⁸ “Analysis of the impacts of the Fit for 55 package”, (2022). Institute of Environmental Policy. Available online: https://www.minzp.sk/files/iep/iep_analyza_fit_for_55_.pdf (accessed on September 15, 2022).

At the same time, it is important to add that increase in annual heating costs of buildings (see Table 3) depends on the degree of insulation. It will be the most economically efficient for unrenovated households that currently heat with coal, insulate them and switch to wood heating or eventually natural gas. However, it will also be subject to the ETS.

Table 3. Annual increase of costs for households using coal after ETS extension

	carbon price	35 €/t CO ₂	55 €/t CO ₂	75 €/t CO ₂
Black coal	Non - insulated	288.2	453	617.7
	Partially insulated	187.4	294.4	401.5
	Fully insulated	86.5	135.9	185.3
Brown coal	Non - insulated	233.3	366.6	500
	Partially insulated	151.6	238.3	325
	Fully insulated	70	110	150

Source: Ministry of Environment of the SR

6. Conclusion

The Upper Nitra region is a great example and one of the European Commission’s initiatives of transformation of a typical coal and industrial region towards green one. There has already been a gradual shift from coal for several years before the decision to decommission bringing environmental

The Upper Nitra region is a great example and one of the European Commission’s initiatives of transformation of a typical coal and industrial region towards green one.

benefits transformed in less pollution and GHG emissions decrease. It showed that for successful transformation of the region, involvement of local actors is key. Slovakia included local authorities and citizens in the process, as well as NGOs and social institutions. The focus of the transformation should be thus on people directly affected by

the change, but also provide paths for future development of the regions, since there will be social implications resulting from the switch, e.g. loss of jobs in the mining sector and indirect job positions connected to mining.

However, this will be offset by the new innovative projects in the region. Furthermore, alternative green solutions can be found in cooperation with universities, incentivising research. Rising carbon price will influence final prices for the end-consumers, so switching from coal will bring also economic benefits. At the same time, EU funds should be used only temporarily throughout the process, as it is important to focus on the attraction of private investments in renewable energy, since the amount of funds allocated to Slovakia for the purpose of transformation will be limited. Energy supply will remain as one of the biggest challenges and the transformation should be oriented towards energy efficiency, renewables, and innovations in the sector.

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Concluding remarks

Although the war in Ukraine and the related energy crisis brought a new dynamic into the pre-agreed transition plans and their often-stalled implementation, the V4 countries share the two main lines of discussion with the rest of Europe. On the one hand, the reasoning includes the argument of an intermittent return to coal until the crisis is resolved. This suggests the continuation of

This argument interprets the crisis as a possible momentum and a window of opportunity for the search for alternative sources in energy production.

decarbonisation, when the availability of gas and nuclear capacities allow it. Nevertheless, this also implies, that renewables are only considered as a further stage of the process. On the other hand, the more radical approaches within the V4 put an emphasis on the prioritisation of renewables. They argue, that the energy crisis only highlighted the mutual

interdependence of a wide array of parallel processes, which only became tightly intertwined and unavoidable in 2022. This argument interprets the crisis as a possible momentum and a window of opportunity for the search for alternative sources in energy production. Notwithstanding, this reasoning does also not exclude the use of fossil fuels in the energy sector until renewables are fully implemented.

In terms of social impact, the transition will affect millions of V4 citizens, especially in the regions, which relied heavily on coal mining for centuries. Countries of the V4, similar to other CEE states must devise therefore, a transitional roadmap with a special emphasis on the social outline of decarbonisation. Since it is not only a question of the ones employed in the mining sector and energy production, but also their families, adjoining industrial, educational, transport and commercial facilities, and in this sense a rather significant part of the population in these regions, the V4 countries strived to devise projections and action plans, which anticipate social discontinuities. These transition platforms range from the development of a post-coal infrastructure, which would come instead of the current one, envisioning not only employment for these communities, but also rebranding the region to keep and even attract future inhabitants, thus battling depopulation. There are however, more passive approaches also, where coal phase-out has been on the agenda since the 1990s, and the local economy is already less reliant on the social-, financial- and political flows of coal production for the energy sector.

Nevertheless, despite this practice, local grassroots initiatives make increasing efforts in presenting their priorities, which in turn, reflect the most immediate needs and viewpoints of these communities.

Interconnecting the V4, but not atypical in the wider CEE area is the lack of transparency and willingness to include civil society in policymaking. Although NGOs and the public in general could significantly contribute to the debates on a just transition from coal to renewables, where the V4 governments could gain not only a more detailed insight into the needs of the local populace, but also considerable knowhow from these organisations, this level of communication is often ambiguous and insufficient. Nevertheless, despite this practice, local grassroots initiatives make increasing efforts in presenting their priorities, which in turn, reflect the most immediate needs and viewpoints of these communities. Often represented in local and regional media, these voices are increasingly breaching the thresholds of national outlets. Consequently, although NGOs are still having a rather limited impact on how a just transition is discussed, this is still considerably more than a decade ago.

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Partner institutions

EUROPEUM Institute for European Policy is leading the project titled “Empowering Serbian CSOs involved in the decarbonization process through the V4 experience”. EUROPEUM is a non-profit, non-partisan, and independent think-tank focusing on European integration and cohesion. EUROPEUM undertakes original research, organizes public events and educational activities, and formulates new ideas and recommendations to improve European and Czech policy making. Research of environmental issues and EU climate policies is one of long-term priorities and as such, EUROPEUM is currently implementing two large-scale projects focusing on decarbonisation supported by the ECF and EUKI, focusing on decarbonisation of industry across the V4. EUROPEUM is also cooperating with TAČR and implementing long-term research on Climate Diplomacy.

European Movement in Serbia (Serbia) connects national, regional and international researchers and organizations focusing on European integration of Serbia and all aspects related to the process. Within project ‘Green Agenda on local level’, EMinS has experience in strengthening civil societies on the local level to monitor and implement EU acquis in the area of environmental protection and climate change. Additionally, they are part of the working group for chapter 27 (environmental protection) of the National Convention on the EU.

Equilibrium Institute Nonprofit Ltd. (Hungary) is an independent think-tank focusing on drafting political, economic and cultural future visions. In line with the vision of Hungary’s future presented in publication entitled Hungary 2030, the Equilibrium Institute works on creating a smart and environmentally cleaner nation rooted in a strong community. To this end, Equilibrium writes widely appealing and practical policy proposals that serve the development of our country, and we discuss these jointly with the best domestic and international experts. Additionally, the organization conducts research and provides recommendations on topics connected to environmental protection and climate change and decarbonisation of industry.

Institute for Sustainable Development Foundation (Poland) is a non-governmental organization that promotes and implements principles and solutions which contribute to Poland’s sustainable development. One of the strategic topics of the organization includes energy, specifically demand side management, increase of energy efficiency and support for renewables. ISD implemented numerous projects within the area of climate change within V4 countries. Some of the examples include ‘Building potential in the Visegrad region for adaptation to climate change’, ‘Energetic efficiency’ project focusing on advocacy activities towards energy poverty and increasing the energy efficiency.

Research Center of the Slovak Foreign Policy Association (Slovakia) is a foreign policy think-tank conducting high-quality, independent research and, on the basis of that research, providing innovative practical recommendations for policy- and decision-makers. SFPA produces periodical and non-periodical publications covering various areas of foreign policy and international relations. Moreover, SFPA has a long track record of projects focusing on regional cooperation in Visegrad, Western Balkans and ENP countries. Projects on WB and ENP countries generally revolve around support to the transformation processes, regional reconciliation and sharing Visegrad experience with successful transformation and EU integration to help recipient countries on path towards democracy. Furthermore, SFPA has a significant track record in research and events focused on energy, with the flagship annual event "Central European Energy Conference".

About the project

The project focuses on strengthening civil society organizations in Serbia towards more successful advocacy and enhanced participation in policymaking within the area of green transformation with a particular focus on coal phase-out through a transfer of experience and know-how from the Visegrad region. The project aims to create a platform for discussion between CSOs and relevant Serbian state institutions on alignment with EU climate goals and goals set by the Green Agenda for the Western Balkans.

As the V4 countries are currently at different levels of the transition, each one of them can offer unique examples of how the EU legislation and directives are implemented in each country, including recommendations for further initiatives. Additionally, V4 countries have more advanced policymaking systems that involve CSOs, while at the same time CSOs have greater capacities and knowledge in the area of decarbonization. The involvement of organizations from all V4 countries in the project will further enable know-how and experience sharing not only from the more advanced V4 towards Serbia but also among Visegrad countries themselves.

By adopting the European Green Deal and specifically the Green Agenda for the Western Balkans, the EU and (potential) candidate countries of the Western Balkans have committed to the goal of climate neutrality by 2050. This implies the phase-out of coal as a source of energy and increased usage of renewable energy and energy efficiency. In order to reach targets set by the EU and to move towards green transformation, Serbia will need to reduce emissions by 80-95% by 2050. To achieve this goal, a set of concrete actions including adapting current legislation and the widest possible range of reforms aimed at protecting the climate and the population is needed. The involvement of civil society in the process is crucial as it can provide the expertise lacking in the state institutions and act as a watchdog over the legislative changes and implementation of reform.

